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Domestic Violence in Married Women with Mental Illness & Non-Mental Illness

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ABSTRACT

Background: Domestic violence against women is the most pervasive human rights violation in the world today. According to UNiTE to End Violence against Women (2009) by UN Women, In the United States, one-third of women murdered each year are killed by intimate partners. In South Africa, a woman is killed every 6 hours by an intimate partner.

The Objective: To assess the magnitude and causes of domestic violence with mental illness & non-mental illness.

Material & Method: The sample of study comprised of 50 women with mental illness and 50 women with non-mental illness. Mental illness patient diagnosed according to with Axis one psychiatric Disorder DSM IV-TR, who were selected from the Psychiatry OPD and ward of the S.S. Hospital, BHU and non-mental illness were be selected from the accompany with patients of Sir Sunder Lal Hospital. The patients were assessed on the structured questionnaire on Domestic Violence.

Results – The domestic violence present in married women with mental illness was 72% and non-mental illness was 36%. Perceived causes of domestic violence in married women with mental illness were more compared to those with non-mental illness. The health care personnel should be given an opportunity to update their knowledge regarding domestic violence and there is need education for domestic violence and cessation, so that they can help the women to protect/prevent domestic violence.

Keywords: *Domestic violence, Married women, Non-mental illness, domestic abuse, Family Violence.*

INTRODUCTION

"Violence against women is perhaps the most shameful human rights violation, and it is perhaps the most pervasive. It knows no boundaries of geography, culture or wealth. As long as it continues, we cannot claim to be making real progress towards equality, development, and peace."[1]

Domestic violence is a critical public health problem that has devastating physical, psychological effects on human beings across all societies and classes in the world.[2, 3]

DEFINITIONS AND KEY CONCEPTS

The United Nations Declaration on the Elimination of Violence against Women (1993) defines violence against women as "any act of gender-based violence that results in, or is likely to result in, physical, sexual or psychological harm or suffering to women, including threats of such acts, coercion or arbitrary deprivation of liberty, whether occurring in public or in private life"[4]. Violence against women in a well recognized public health problem and human right violence of worldwide significance[5]. The Declaration defines violence against women as encompassing, but not limited to, three areas: violence occurring in the family, within the general community, and violence perpetrated or condoned by the State. Acts of omission are also included as a form of violence against women and girls (UNICEF, 2000)[5]**.**

This Protection of Women against Domestic Violence Act (2005) recognizes 4 types of domestic violence such as physical abuse, sexual abuse, verbal and emotional or economic abuse. For the purposes of this Act, any act, omission or commission or conduct of the respondent shall constitute domestic violence in case it-

Harms or injures or endangers the health, safety, life, limb or well-being, whether mental or physical, of the aggrieved person or tends to do so and includes causing physical abuse, sexual abuse, verbal and emotional abuse and economic abuse; or

(a) Harasses, harms, injures or endangers the aggrieved person with a view to coerce her or any other person related to her to meet any unlawful demand for any dowry or other property or valuable security; or

(b) Has the effect of threatening the aggrieved person or any person related to her by any conduct mentioned in clause(a) or clause (b); or

(c) Otherwise injures or causes harm, whether physical or mental, to the aggrieved person.[6]

Globally, it has been estimated that 1 women in 3 has been beaten, forced into sex, or otherwise abused in her lifetime.[7] Mental health sequelae to spousal/ intimate partner violence are significant and have long-term health implications. Battered women were found to have more depressive symptoms than other women.[8]. Sexual violence was associated with a higher severity of depressive symptoms and a higher incidence of suicide attempts in the physically/ psychologically abused group[9]. Physical violence was a major cause of concern among Indian women.[10]

Tamil Nadu shows the highest prevalence with 41 percent of the women reporting domestic violence incidents since the age of 15 years. Andhra Pradessh, Karnataka, Meghalaya, Arunachal Pradesh, Mizoram, Orissa, Bihar and Jammu and Kashmir have prevalence rates higher than 20 percent. Himachal Pradesh shows the lowest prevalence of 5.8 percent, followed by Kerala (10.1 percent) and Gujarat (10.2 percent)[11].

Not only is the body scarred by such violence. Consequences also included depression, anxiety, phobias and substance abuse, confirming that the effects of violence can last long after the brutality has ended. Women who had been physically or sexually abused were three times likelier to have had suicidal thoughts, and four times likelier to have attempted at least once to take their own lives.[12]

The causes of domestic violence in the women with medical and / psychiatric illness have not been studied well in the Indian population especially in Northern India. Unless women have an adequate knowledge regarding the strategies to overcome domestic violence, it would be difficult to combat the problem and improve the women's status in the society.

MATERIALS & METHOD

This was a descriptive study, using a quantitative approach performed. The sample comprised of 50 women with mental illness and 50 women with non-mental illness at a selected from Psychiatry OPD and ward of Sir Sunder Lal Hospital, Banaras Hindu University, Varanasi, Uttar Pradesh over a period of three months. A convenience sample of 100 women with mental illness and non-mental illness women was selected. Inclusion criteria for the present study includes**:** Age group between 16 to 40 years, Subjects who were ready to participate for the interview, All the Participant were attending the Psychiatry OPD/ Ward of SSH, BHU. & Married female. The data was collected through face to face interview, after taking written informed consent. The study protocol was approves by the Ethics committee.

The study sample was assessed using the following instruments- i) Socio-demographic Performa. ii) Domestic violence questionnaire[13]. iii) Global disability scale for assessment of psychiatric disability (IDEAS)[14]. iv) Burden of care: Burden assessment scale[15]. v) Questionnaire for perceived cause of domestic violence

Descriptive and inferential statistics were used in order to analyze the data using SPSS version 16.

RESULTS

Table 1a: Socio-demographic characteristic of the sample

Variable	Mental Illness (N=50)			Non-Mental Illness (N=50)			
	Mean	SD	Range	Mean	SD	Range	
Age at the time of Marriage of women	18.8	4.1	10-29	19.7	3.7	12-29	Df-1 f=1.35 NS P<0.05
Age at the time of interview of women	30.6	5.9	21-40	33.3	5.7	19-40	Df-1 f=5.52 NS P<0.05

The demographic characteristic of sample are shown in **Table 1a.**The mean age of women with mental and non-mental illness at the time of marriage was 18.8 ± 4.1 & 19.1 ± 3.7 years. At the time of interview mean age of women with mental and non-mental illness was 30.6 ± 5.9 & 33.3 ± 5.7.

Table 1b: Socio-demographic characteristic of the sample

Variable	Mental Illness (N=50)		Non-Mental Illness (N=50)		
	N	%	N	%	χ2
Religion Hindu	50	100	50	100	-
Husband's family Domicile Rural Urban	31 19	62.0 38.0	20 30	40.0 60.0	Df-1 χ2 =4.84* S p<0.05*
Husband's Family Type Nuclear family Joint family	18 32	36.0 64.0	14 36	28.0 72.0	Df-1 χ2 = 0.73 NS
Women's natal family Domicile Rural Urban	26 24	52.0 48.0	21 29	42.0 58.0	Df-1 χ2 =1.00 NS
Women's natal Family Type Nuclear family Joint family	24 26	48.0 52.0	12 38	24.0 76.0	Df-1 χ2 =6.25* S p<0.05*

Table 1b denotes the All participant mental & Non-mental illness women were Hindu and there were association between domestic violence with mental and non-mental illness & selected demographic variable like husband's family domicile, and women's natal family type.

Table 1c: Socio-demographic characteristic of the sample

Variable	Mental Illness (N=50)		Non-Mental Illness (N=50)		χ2
	N	%	N	%	
Women's Occupation House maker Professional / Semi professional Semi-Skilled Worker/clerical Unskilled Worker	47 00 03 00	94.0 00.0 06.0 00.0	34 10 01 05	68.0 20.0 02.0 10.0	Df-3 χ2 =19.9 S p<0.05*
Women's Education Illiterate Primary Middle High school Intermediate/Diploma Graduation/Post graduation Profession or honours	06 10 08 05 09 12 00	12.0 20.0 16.0 10.0 18.0 24.0 00.0	06 02 10 07 06 17 02	12.0 04.0 20.0 14.0 12.0 34.0 04.0	Df-6 χ2 =9.35 NS
Husband's Occupation Professional / Semi professional Clerical/shop owner Skilled worker Semi-Skilled Worker Unskilled Worker Unemployed	05 23 05 10 06 01	10.0 46.0 10.0 20.0 12.0 02.0	08 19 06 07 07 03	16.0 38.0 12.0 14.0 14.0 06.0	Df-5 χ2 =2.89 NS
Husband's Education Illiterate Primary Middle High school Intermediate/Diploma Graduation/Post graduation Profession or honours	01 01 05 09 14 19 01	02.0 02.0 10.0 18.0 28.0 38.0 02.0	01 00 06 09 07 25 02	02.0 00.0 12.0 18.0 14.0 50.0 04.0	Df-6 χ2 =4.57 NS
Socioeconomic status Upper class Upper middle class Lower middle class Upper lower class	2 23 18 7	04.0 46.0 36.0 14.0	7 33 7 3	14.0 66.0 14.0 6.0	Df-3 χ2 =11.00 S p<0.05*

Table 1c. Revealed that there was significant association between domestic violence with mental and non-mental illness and selected socio-demographic variables like women's occupation and socioeconomic status.

Table 2: Assessment of Domestic violence in women with Mental illness & Non-mental illness

Domestic violence	Mental Illness (N=50)		Non-Mental Illness (N=50)		
	N	%	N	%	
Present	36	72.0	18	36	χ2 =13.04 S*
Absent	14	28.0	32	64	p<.001*

Table 2. Data represented in Table 3 showed the distribution of domestic violence among women with mental and non-mental illness. The domestic violence present in married women with mental illness was 72% and non-mental illness was 36%. There was significant association between present of domestic violence and mental and non-mental illness.

Table 3: Type of Domestic violence in women with Mental illness & Non-mental illness

	Mental Illness (N=50)		Non-Mental Illness (N=50)	
	Present	Absent	Present	Absent
Variable	N (%)	N (%)	N (%)	N (%)
Emotional /Verbal violence	31 (62%)	19 (18%)	16 (32%)	34 (68%)
Physical violence	31 (62%)	19 (18%)	11 (22%)	39 (78%)
Economical violence	20 (40%)	30 (60%)	07 (14%)	43 (86%)
Sexual violence	14 (28%)	36 (72%)	07 (14%)	43 (86%)

The above table depicts that majority of domestic violence against women was as follows: emotional & physical violence was 62% in mental illness. Conversely emotional/verbal violence was 32% in non-mental illness **(Table.3).**

Table 4: Distribution of sample according to diagnostic breakup

	Clinical characteristics of women with mental illness	
Variables	N=50	
Diagnosis	N	%
Schizophrenia	13	26.3
Bipolar disorder	15	30.0
MDD with psychotic features	03	06.0
Mania	02	04.0
Anxiety	03	06.0
Depression	09	18.0
Obsessive Compulsive Disorder	03	06.0
Conversion disorders	02	04.0

Table 4 showed that majority of 30% women with mental illness were suffered from bipolar disorder.

Table 5: Correlations between Domestic violence and Total duration of marriage, Husband's income, Total family member, duration of illness, total disability and burden assessment.

(Mental illness Group N=50)		
Total Score	Pearson R Value	Approximate Significant
Domestic Violence and Total Duration of marriage	-.219	.126
Domestic Violence and Husband's Income	.069	.632
Domestic Violence and Husband's Total family member	-.077	.596
Domestic Violence and duration of illness (month)	.004	.980
Domestic Violence and Total disability	-.056	.701
Domestic Violence and Burden Assessment	.093	.519

Table 5: Showed that the there was no correlations between Domestic violence with mental illness and Total duration of marriage, Husband's income,Total family member, duration of illness, total disability and burden assessment.

Table 6: Correlations between Domestic violence and duration of marriage, Total family member & husband's income.
   (Non-mental illness Group N=50)

Total Score	Pearson R Value	Approximate Significant
Domestic Violence and Total duration of marriage	.037	.800
Domestic Violence and total family member (husbands home's)	.078	.590
Domestic Violence and Husband's income	.074	.609

Table 6: Showed that the there was no correlations between Domestic violence with non-mental illness and Total duration of marriage, Total family member of husband's home and husband's income.

Table. 7 Perceived Causes of domestic violence against women with mental and non-mental illness.

S.no	Variable	Mental Illness (N=36)		Non-mental Illness (N=18)	
		N	%	N	%
1. 1	Unable to perform domestic chores	30	83.3	2	11.1
2. 2	Dowry is one of the cause which creates violence in the family	14	38.9	4	22.2
3. 3	Other family members complain about her behavior	14	38.9	1	5.5
4. 4	Husband is not find time to know the truth & starts scolding	13	36.1	5	27.8
5. 5	Remain mentally sick, so husband does not like you	13	36.1	0	00.0
6. 6	Not good sex partner which cause for domestic violence	12	33.3	0	00
7. 7	Husband has got approved by the family to do anything wrong or right against you	12	33.3	2	11.1
8. 8	Husband does not like you and creates problem	11	30.6	0	00
9. 9	Poverty, which is cause violence	11	30.6	2	11.1
10	Husband is greedy and demands money	10	27.8	4	22.2
11	Male child is preferred over the female child	03	8.3	5	27.8

The majority of causes of domestic violence showed that 83.3% women with mental illness & 11.1% women with non-mental illness though that she was unable to performed domestic chores. 38.9% women with mental illness and 22.2% women with non-mental illness told that Dowry was one of the causes which created violence in the family. 38.9% women with mental illness and 5.5% women with non-mental illness complaint about her behaviour. 36.1% women with mental illness & 27.8% women with non-mental illness told that Husband was not found time to know the truth & started scolding.

36.1% remain mentally sick, so husband did not like &33.3% women with mental illness was not good sex partner which cause for domestic violence. 33.3% % & 11.1%. husband had got approved by the family.30.6% women with mental illness that husbands did not like and creates problem. Poverty, money and Male child was also the causes of domestic violence **(Table-7)**.

DISCUSSION

The present study was aimed to assess the Domestic violence in married women with mental and non-

mental illness. It should be emphasized that no studies were found that the assessment of domestic violence in married women with mental and non-mental illness. Future research in this area should focus on qualitative studies including larger sample size.

The finding of the study showed that the assessment of domestic violence married women with mental and non-mental illness score among 100 subjects of the women, total distribution among given population 72% women with mental illness & 36% women with non-mental illness**.** Domestic violence in the married women with mental illness is largely due to stigma for mental illness**.** There is association between domestic violence with mental and non-mental illness & selected demographic variable like husband's family domicile, women's natal family type, women's occupation and socioeconomic status.

In mental illness there is no correlations between Domestic violence and Total duration of marriage, Husband's income, total family member, duration of illness, total disability and burden assessment. And also in non-mental illness, there is no correlation between Domestic violence and total duration of marriage, total family member of husband's home and husband's income. Perceived causes of domestic violence were reported more in the married women with Mental Illness compared to non-mental illness.

CONCLUSION

According to the result obtained from the research, the domestic violence in women was quite high where as domestic violence in women with mental illness were more than women with non-mental illness. Domestic Violence in the married women with mental illness was largely due to stigma for mental illness.

The study findings imply that there is need for health education programmed to be carried out to create awareness among the women regarding domestic violence and their risk.

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Health Related Quality of Life in Patients with Type 2 Diabetes Mellitus: a Cross Sectional Survey

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ABSTRACT

Background: Diabetes mellitus is a chronic disorder that affects the quality of Life (QoL) of patients. The objective of the present study is to assess the health related Quality of Life of patients with type 2 diabetes mellitus.

Method: This was a cross sectional study of 140 type 2 diabetes mellitus patients, attending the diabetic clinic of a Tertiary care centre in Kerala, South India. Patients with type 2 diabetes mellitus between the age group of 25-75 were included in the study were collected using interviewer administered questionnaire. The QoL of patients were assessed using SF 36V2 questionnaire along with the interview schedule for socio demographic and clinical data. The data were analyzed using appropriate descriptive and inferential statistics using SPSS.

Result: The mean age of subjects was 56 ± 11.6 years and the mean duration of diabetes mellitus was 10.9 $\pm$ 8.3 years. 47.9% of patients were overweight and 20.7% were obese. The mean HbA1c (glycosylated hemoglobin) was 8.3$\pm$ 1.5%. The patients with type 2 diabetes had significantly lower scores in all domains of QoL. Males had higher QoL scores than females and the difference was found to be statistically significant (p = 0.006).

Conclusion: This study finding indicates that QoL of patients with type 2 diabetes mellitus is relatively poor. Diabetes mellitus significantly affects the QoL especially in females. Therefore much attention must be paid to identify and implement measures for achieving better management of diabetes mellitus and ultimately improving the QoL of patients with type 2 diabetes mellitus.

Keywords: *Diabetes, Quality of life.*

BACKGROUND

The incidence of type 2 diabetes mellitus is becoming a global challenge with all the negative repercussions in terms of morbidity and mortality[1]. Diabetes mellitus is one of the most prevalent chronic diseases in the world and the incidence of diabetes has reached epidemic proportions in developing countries. India is currently experiencing an epidemic of type 2 diabetes mellitus and has the largest number of diabetic patients[2]. It is often referred to as the diabetic capital of the world. International Diabetes Federation (IDF) 2013 report reveals that the total number of diabetic subjects in India is 62.4 million[3]. A study conducted as a part of National Non Communicable Disease (NCD) risk factor surveillance showed that the overall prevalence of self-reported diabetes was highest in Trivandrum in Kerala (9.2%), followed by Chennai in Tamilnadu(6.4%)[4]. Studies from rural Kerala reported that the prevalence have enormously increased as high as 12.5% [5].

Diabetes is a chronic, demanding disease associated with physical and psychological disability, and these may impair the quality of life (QoL) of patients. QoL is a multidimensional construct incorporating an individual's subjective perception of physical, emotional and social well being including both a cognitive component (satisfaction) and an emotional component (happiness) [6].

Many studies have reported that duration of diabetes, co-morbidities, diabetes complications, and patient's knowledge on self care may influence the health related quality of life of patients with type 2 diabetes mellitus[7-9]. The main aim of the treatment of diabetes is to prevent diabetes complications and improve the Health Related Quality of Life (HRQoL) of patients with diabetes [10]. The improvement in QoL reduces the social, financial and psychological burden related to diabetes.

The aim of the present study is to assess the QoL of patients with type 2 diabetes mellitus.

MATERIALS & METHOD

This cross sectional survey was conducted in the diabetic clinic of a 1940 bedded multispecialty, teaching, tertiary care centre in Trivandrum, Kerala, South India. This hospital receives referrals from different districts across Kerala and from neighboring states. A total of 140 type 2 diabetic patients above 25 years and on treatment for diabetes for at least 1 year attending the diabetic clinic were included in the study. Patients having gestational diabetes, Type I DM were excluded from the study. After obtaining informed consent from the patient socio-demographic and clinical data were collected from the patients using interviewer administered questionnaire. Health related QoL was measured using a standardized questionnaire of SF 36 V2.This questionnaire has eight domains. Physical functioning(PF), Role physical (RP), General Health (GH), Vitality (VT), Social Functioning (SF), Role emotional (RE) and Mental Health (MH).This is summed up as physical Component Score (PCS) which combines PF, RP, BP and GH. And Mental Component Score (MCS),which combines VT, SF, RE and MH.These domains were scored on a scale of 0-100, 0 indicating the worst possible status and 100 , the best possible score [11] . The collected data were entered into Microsoft excel and loaded into SPSS(version 11) for analysis.

RESULTS

Out of the 140 respondents, 70(50%) were males and 70(50%) were females. The mean age of the respondents was 56+11.6 years. 66.4% of respondents were in the age group of 46-65 years. 57.1% had family history of diabetes mellitus. 57.1 % of respondents were on oral hypoglycemic agents alone. The most common co-morbidity was hypertension (52.1%) and

dyslipidemia was present in 47.1% of respondents. The most common complication present was retinopathy (37.1%), followed by neuropathy (27.9%). 47.9% of the study subjects were overweight and 20.7% were obese. The overall BMI was 24.7+3.5 Kg/m² and HbA1cwas 8.3+1.6 mg%.The mean duration of diabetes mellitus was 10.9+ 8.3. The baseline characteristics of study subjects were shown in Table 1.

QoL of patient was shown in Table 2. Out of the eight domains in the SF 36V2 questionnaire, the most affected domains were RP and RE.The two domains that were least affected were vitality (VT) and bodily pain (BP). Overall males had higher QoL scores as compared to females. This difference was found to be statistically significant (p= 0.006).

DISCUSSION

The present study aimed to assess the HRQoL in patients with type 2 diabetes mellitus. Several studies have been conducted worldwide to determine QoL in patients with diabetes mellitus, but there are very few studies from this region.

The present study showed that 66.4% of patients were between 45-65 years, which is consistent with the pattern of diabetes observed in developing countries[12]. The mean duration of diabetes in the present study was 10.9+8.3 years. Sundaram also reported a mean duration of 10.2+9.1 years in his study[13].

The mean BMI of study subjects was 24.7+3.5.This finding was supported by study conducted by Oguntibiju, reported that 62% of patients have a BMI greater than 25 kg/m[14].

The most common complication present in the respondents was retinopathy (37.1%). This finding is in line with the findings of Papadopoulos, reported that 23.6% patients suffer from retinopathy [15].

The SF 36, commonly used in health service research is fairly simple and comprehensible. The overall SF 36 score was lower (36.22+10.84) in females than in males (40.59+7.52) and this difference is statistically significant (p=0.006). Males had higher scores than females in all domains except VT. Chittleborough *et al* reported better scores for males in all domain scores except in GH and VT [16]. Riaz et al also reported that mean scores of all domains of QoL were found to be significantly different between males and females [17].

Diabetes is a lifelong disease requiring patient to continuously self-manage their disease to maintain HRQoL [18]. In this regard diabetes education should be part of the management of diabetes as improvement in HRQoL is the ultimate goal in the treatment of diabetes.

Table 1: Socio demographic and diabetes related data

Mean Age (years)	56±11.6
Gender Male	70(50%)
Female	70(50 %)
Marital status Married	131(93.6%)
Widowed	4(2.9%)
Separated	5(3.5%)
Family type Nuclear	92(65.7%)
Extended nuclear	46(32.9%)
Joint	2(1.4%)
Family history of diabetes Present	80(57.1%)
Absent	60(42.9%)
Duration of diabetes <5 year	46 (32.9%)
5-10 years	35(25.0%)
>10 years	59(42.1%)
BMI Normal	44 (31.4%)
Over weight	67(47.9%)
Obese	29(20.7%)
Co morbidities Hypertension	73(52.1%)
Dyslipidemia	66 (47.1%)
Diabetic complications	
CAD	33 (23.6%)
Neuropathy	39 (27.9%)
Retinopathy	52(37.1%)
Nephropathy	11 (7.9%)
Mean HbA1c	8.3±1.5 %
Mean Cholesterol	198.9±53 mg%
Mean FBS	147.3±56.6 mg%

Table 2: Distribution of SF 36 V2 domain scores by sex of study subjects

SF 36	Male	Female	Overall
PF	40.90+7.17	33.66+11.01	37.28+9.94
RP	37.85+10.91	33.25+11.96	35.55+11.64
BP	44.36+10.97	40.80+32.71	42.58+24.37
GH	41.50+8.11	36.96+7.55	39.23+8.13
VT	46.81+9.50	46.93+41.13	46.87+33.87
SF	41.32+8.87	37.45+10.52	39.38+9.89
RE	31.78+15.45	29.06+12.39	30.42+14.02

Table 2: Distribution of SF 36 V2 domain scores by sex of study subjects   (Cont... Table 2)

MH	40.24+11.85	31.62+13.45	35.93+13.35
PCS	43.97+6.99	37.58+9.15	40.78+8.72
MCS	37.98+11.23	34.40+10.77	36.19+11.11
Overall	40.59+7.52	36.22+10.40	38.40+9.55

LIMITATIONS

1. This is a hospital based study.

CONCLUSION

The study concluded that diabetes is associated with decreased level of QoL both in physical and mental health component. QoL is viewed as a critical outcome of disease treatment and control .With the emergence of non communicable disease in developing countries health care professionals should make use of opportunities in educating people with diabetes mellitus to maintain a good glycemic control of their diabetes.

Conflict of Interest: There was no conflict of interests reported.

Ethical Clearance: To conduct the study, ethical committee clearance was obtained from the Institutional Ethics Committee, Govt. Medical College, Thiruvananthapuram, Kerala. Administrative permission was obtained from Medical Superintendent, Govt. Medical college Hospital, Thiruvananthapuram and written informed consent was obtained from the study participants.

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Over Diagnosis of Allergic Bronchopulmonary Aspergillosis (ABPA) Cases as Pulmonary Tuberculosis

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ABSTRACT

Background- Allergic Bronchopulmonary Aspergillosis (ABPA) is an immunologic pulmonary disorder caused by hypersensitivity to Aspergillus fumigatus clinically manifesting as chronic asthma, recurrent pulmonary infiltrates and bronchiectasis[1,2]. Despite a high prevalence of ABPA reported in hospital studies from India, ABPA is still under recognized and under diagnosed in our country. ABPA is mostly misdiagnosed as pulmonary tuberculosis as the radiological lesions of ABPA are mimicking those of pulmonary tuberculosis.

Aims of study: The aim of this study is to evaluate the clinical and radiological features and to perform the required investigations in suspected cases of ABPA.Special emphasis is laid on present or past history of Ant tubercular treatment.Ours is a cotton growing area. This can be one of the reasons of many ABPA patients in our area.

Settings and Design: Prospective recruitment of all the bronchial asthma patients suspected as ABPA attending Chest and TB department at G.G.S. Medical College, Faridkot during 2010-11.

Method and Material: We enrolled 50 suspected cases of ABPA in our study based on clinical and radiological features. History of present or past intake of ATT was enquired from all patients. The required investigations for ABPA according to the criteria for diagnosis of ABPA were performed.[2,3]

Results: Out of 50 suspected cases of ABPA enrolled, all were fulfilling at least five criteria of diagnosis of ABPA. All 50 patients were asthmatics. The predominant symptoms in our study were cough and breathlessness in 100% and 80% of cases respectively. Other symptoms were wheeze and off and on fever in 50% of cases. Hemoptysis was present in 12% of cases. 58 % of patients were misdiagnosed as pulmonary tuberculosis and were taking or had taken ATT in the past. Out of 58% of cases, 17% were presently on ATT and 83% had past history of ATT.Out of these 83% cases who had taken ATT in the past , 75% had taken ATT once, 17% twice and 8% had even taken ATT thrice.

Conclusions: ABPA is mostly misdiagnosed as pulmonary tuberculosis as most of the symptoms and radiological lesions were similar to those in pulmonary tb. Misdiagnosis leads to delay in treatment of ABPA cases which leads to complications like bronchiectasis and fibrosis. It also unnecessarily predispose the patients to anti tubercular therapy and eventually the patient may develop unwanted side effects due to ATT. Asthmatic patients having radiographic infiltrates or bronchiectasis on CXR should further be investigated for ABPA.

Keywords- ABPA, Pulmonary tuberculosis, ATT.

INTRODUCTION

Allergic Bronchopulmonary Aspergillosis (ABPA) is an immunologic pulmonary disorder caused by hypersensitivity to fungus Aspergillus fumigatus. Clinically a patient presents with chronic asthma, recurrent pulmonary infiltrates and bronchiectasis. Aspergillus is a ubiquitous mould representing between 0.1% and 22% of

the total air spores sampled. The most common fungus implicated is Aspergillus fumigates. Others include Aspergillus flavus, Candida, Penicillium, Curvularia and Drescleria organisms[5,6,7] In the case of ABPA, Aspergillus organisms are not invasive but rather colonize the respiratory tract of patients with asthma.[5] The condition has immunologic features of immediate hypersensitivity (type 1), antigen antibody complexes(type 3) and eosinophil rich inflammatory cell response (type 4 b)[8,9] The disorder was first described by Hinson et al[10] in 1952 in the United Kingdom. The prevalence of ABPA is believed to be about 1-2% in patients with asthma and 2-15% in patients with cystic fibrosis.[11] It is rather difficult to estimate the prevalence of ABPA because of lack of uniform diagnostic criteria and standardized tests. From India, Kumar & Gaur[12] reported 16%, Maurya et al[13] reported 7.5% and Agarwal et al[14] reported 27.2% ABPA prevalence. The condition remains under diagnosed in many countries with reports of mean diagnostic latency of even 10 years between the occurrence of symptoms and the diagnosis.[15] There is no gender predilection and majority of the cases present in the third to fourth decade. Most patients present with productive cough, wheeze, breathlessness, low grade fever, hemoptysis. Expectoration of brownish black mucus plugs is seen in 31.69% of patients.[15,16] The symptoms of hemoptysis, expectoration of brownish black mucus plugs and history of pulmonary opacities in an asthmatic patient suggests ABPA. Patient can occasionally be asymptomatic and the disordered is diagnosed on routine screening of asthmatic patient. [14,16] Physical examination can be normal or may reveal polyphonic wheeze. Clubbing is rare, seen only in 16%. Several radiographic patterns have been described, characteristically infiltrates involving upper and middle lung field consolidation. Radiological changes in ABPA can be classified as acute or chronic changes. Chronic changes are sequeale of repeated attacks of acute illness and are often associated with permanent physiologic impairment. Most common abnormalities are ill defined homogenous radiological shadows commonly involving upper lobes.[17] The most characteristic feature of these shadows is that they resolve after expectoration of a mucus plug [18] but tend to recur at the same or some other location; that is why these shadows are known as fleeting shadows. Other radiological abnormalities are ring shadows, tramline or parallel line shadows, and tooth paste and gloved finger appearances. Central Bronchiectasis is

also a characteristic feature of ABPA[19]. Pulmonary fibrosis pneumothorax and cavities occur during end stage ABPA.[17,19] Computed Tomography is the most sensitive tool for detection of bronchiectasis.[20] if clinical suspicion for ABPA exists laboratory and imaging study should be obtained to establish the diagnosis. Sputum culture for aspergillus may also be done. A minimum of five criteria are required to establish the diagnosis of ABPA. The criteria are outlined in Table 1.[6,21,22,23] Eight criteria for ABPA were initially identified but only some of them are essential The non essential criteria i.e. pulmonary infiltrates or blood eosinophilia may be only present at the time of exacerbation or during the acute phase of the disease. Bronchiectasis, involving the more central segmental bronchi is strong diagnostic criterion but is not always present in patients during follow up and at the time of diagnosis.

Table 1: for the criteria of diagnosis of ABPA

1. Asthma
2. Immediate cutaneous reaction to Aspergillus fumigatus
3. Total serum IgE concentration >1000IU/ml.
4. Elevated A. fumigatus specific serum IgE levels.
5. Precipitating antibodies to A. fumigatus in the serum.
6. Peripheral blood eosinophilia (not essential for diagnosis)
7. Chest roentgenographic infiltrates (not essential for diagnosis)
8. Central Bronchiectasis

As the prevalence of tuberculosis is very high in our country and the symptoms of ABPA and tuberculosis are quite similar ABPA is commonly misdiagnosed as tuberculosis. The present study was conducted to see the clinical, radiological and laboratory parameters of ABPA patients and to identify patients of ABPA who were misdiagnosed as pulmonary tuberculosis and took ant tubercular therapy in the past or taking ATT at present.

MATERIAL & METHOD

We enroll 50 patients of suspected ABPA in our study attending the chest and TB deptt. at GGS Medical College, Faridkot during 2010-11. Suspicion of ABPA was made on clinical and radiological basis. Patients who were known case of bronchial asthma

and have repeated episodes of cough breathlessness, fever, hemoptysis, malaise, anorexia were included. Patient who had radiological features like fleeting shadows, gloved finger appearance, repeated consolidation, bronchiectasis were also included. We performed the following lab investigations - Absolute eosinophil count, sputum for ZN staining twice to rule out pulmonary TB, Total IgE, IgG antibody against Aspergillus fumigatus, sputum for fungal culture. A. fumigatus specific IgE was done only in 8 patients. Skin test was not performed due to its non availability locally. CT chest was not done due to financial constraints. History of ATT was enquired from patients in detail, whether they had taken in past or presently taking ATT. We advised the patients to stop ATT which was wrongly prescribed.

RESULTS

Out of 50 suspected case of ABPA, 23 (46%) were males and 27 (54%) were females. Most cases (82%) were less than 45 yrs of age.(the age distribution is shown in table.1

Table No. 1 Age Distribution

Age group	No	Percentage
<15	3	6
15-30	18	36
30-45	20	40
>45	9	18

Clinical and radiological data and details of previous ATT is summarized in table no. 2, 3,4. Chest X-Ray images of patients shown in figures 1 and 2

Table No. 2 Clinical features

Symptoms	No	Percentage
Asthma	50	100
Cough	50	100
Nasal symptoms	40	80
Breathlessness	6	12
Hemoptysis	25	50
Fever	40	80
General ill health	5	10
Weight loss	20	40

Table No. 3 Radiological Features

Radiologic feature	No	Percentage
Consolidation	35	70
Fleeting Shadows	42	84
Glove and finger shadows	25	50
Infiltration	20	40
Central Bronchiectasis	10	20

Note-Multiple findings can be present in a patient

Table No. 4 Data about previous TB treatment

Category	No.	Percentage
Pt. currently on ATT	5	10
Pt who had taken ATT in past	24	48
Pt. not on ATT	21	42

After strong suspicion of ABPA from clinical history, physical examination and radiological evidence, we performed absolute eosinophil count and other investigations according to the diagnostic criteria for ABPA. All the patients enrolled were asthmatic from clinical history. Absolute eosinophill count was increased in 28(56%), Total IgE was increased In 34 (68%), IgG antibody against Aspergillus was increased in 41(82%) patients. Specific IgE for Aspergillus was done only in 8 patients. In all of them Specific IgE was increased. Sputum culture for fungal hyphae was positive in 8 (16%) patients. Out of 50 patients, 21(42%) had no history of ATT, 24 (48%) had past history of ATT and 5(10%) patients were currently on ATT. Out of 24 patient who had taken ATT in the past, 18(75%) had taken ATT once, 4(17%) twice and 2(8%) had taken ATT thrice.

DISCUSSION

Allergic Bronchopulmonary aspergillus(ABPA), is a syndrome associated with asthma, manifests with transient pulmonary infiltrates and eosinophilia and can progress to proximal bronchiectasis and pulmonary fibrosis. In India first three cases of ABPA were reported in 1971.[24] Since then a number of cases have been reported from different regions of India including the largest one by Agarwal et al from North India. Despite of its high prevalence, ABPA is still under recognized and misdiagnosed in our country. In some Indian studies ABPA was misdiagnosed as TB in as high as 17% to 50% cases [14,25,26]. Patients with ABPA usually have long standing asthma and present with recurrent attacks of fever, malaise, hemoptysis, bronchial obstruction, expectoration of brownish mucus plugs and peripheral eosinophilia. [27, 28] Therefore with such a clinical presentation and in the presence of radiological cavitating lesion due to bronchiectasis and as pulmonary tuberculosis is much more common than ABPA, some patients with ABPA have been misdiagnosed and treated as pulmonary TB. In our patients who were enrolled

in our study, there was history cough(100%), breathlessness (80%), wheeze (50%), fever off & on (50%), hemoptysis (12%). In our study also, 58% of patients have current or past history of ATT. Apart from this, there is lack of awareness about ABPA in general practitioners, medical specialist and many chest specialists. Patient with a history of having received repeated ATT without Confirmation are improvement and having associated symptoms dyspnoea and wheezing should also be evaluated to exclude ABPA. The diagnosis of ABPA should be thought in those asthmatics with history of fever, expectoration, hemoptysis or uncontrolled asthma or in asthmatic patient with radiographic infiltrates and/ or bronchiectasis on CT scan Chest. In these patients, the physician should obtain total eosinophil count and total serum IgE levels. Early diagnosis of ABPA is mandatory to prevent reversible airway obstruction to permanent fibrosis and to prevent un unnecessary exposure of those patients to ATT. Our doctors should be properly trained and sensitized about the diagnosis and management of ABPA. Although in endemic area like India, ATT can be started empirically in patients whose sputum AFB is negative in presence of suspicious history and CXR features, the diagnosis should be reviewed if there is no clinical response in 6 to 8 weeks.

Figure1 CXR showing classical gloved finger appearance
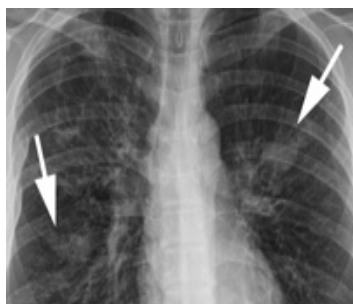
Figure 2.CXR showing tubular and cystic lesions in central portions of both lungs suggesting bronchiectasis. Mucus plugging with gloved finger appearance also present

Abbreviations-ABPA-Allergic Bronchopulmonary Aspergillosis,

ATT- Ant tubercular treatment,

TB- Tuberculosis, CXR-Chest X-Ray

A. Fumigates – Aspergillus fumigatus

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Sexual Harassment in Female at Working Place in Dhangadhi Municipality Kailali District of Nepal

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ABSTRACT

Sexual harassment is a challenging issue where women and men work together. It is being recognized as a violation of human rights and human dignity which undermines the equality of opportunity and treatment between men and women. So, this descriptive study was conducted in Dhangadhi Municipality Kailali District, Nepal to find out the experience of sexual harassment in female at working place. Only female respondents who were working in office were taken purposively from four sectors such as government sectors, Company, Government and Public School and NGOs/INGOs for the study by using pre-structured interview schedules. From each sectors 25% of the total female respondents which was 23 people were selected. Data were collected on the basis of first come first take method till the required number was achieved. The study was conducted among 92 respondents. It was observed that Women workers were victimized by all form of sexual harassment such as verbal (56.3%), physical (16.9%), Written or Graphical(11.3%), gesture(8.5%) and emotional (7.0%) form of sexual harassment. Co-workers (52.1%) are the major harassers to the women workers. Among 92 respondents, 71(77.2%) respondents were facing sexual harassment at working place and major cause of sexual harassment was (36.9%) power and position of male but they often ignore the incidence. Female workers are very much vulnerable to sexual harassment by their male co workers, immediate Supervisor and manager. It negatively impacts their performance in work, mental and physical health, their human right and dignity.

Keywords: *Female**, **Sexual harassment, Working place.*

INTRODUCTION

Increasing pattern of education level, awareness and changing concept of society and development has increased the women's participation in the outside work force in public and private sectors and they start to go outside for job. In this journey, they are facing various obstacles such as sexual harassment. Sexual harassment of women at work place is one of those problems which discourage women in taking active participation in economic and social development (ILO technical report, 2000)[2]. It is great matter of human right and an ethical issue. Sexual harassment in the workplace though an age-old problem has emerged as a serious concern in Asia and the European Countries. It is increasingly being recognized as a violation of human rights and human dignity, which undermines equality of opportunity and treatment between men and women. As women's participation is growing in employment sector, the problem of sexual harassment is a crucial problem to address to ensure safe and healthy working environment. Sexual harassment is a form of gender discrimination (Unnikrishnan B et.al 2010)[5] To date there is not yet a widely acknowledged international definition about the Sexual Harassment.

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According to the ILO Thesaurus, 2005, "Unwelcome sexual advances or verbal or physical conduct of a sexual nature which has the purpose or effect of unreasonably interfering with the individual's work performance or creating an intimidating, hostile, abusive or offensive working environment[2]."

Sexual harassment is a form of gender-specific violence against women. It is major obstacle to achieve the objective of gender equality, development and peace. It is because of taboos and no any specific law and address mechanism, jobs with low security, low pay, and low conditions of work, low status, and low bargaining power in a narrow range of occupations for female and large numbers of women are supervised by small numbers of men; the problem is not brought out in the open. Victims of harassment may develop significant physical, psychological and job related impacts[3]. The main purpose of this study was to find out the sexual harassment that working women go through in their workplace.

MATERIALS & METHOD

This Descriptive cross sectional study was conducted in Dhangadhi Municipality of Kailali District, Nepal. Only female respondents who were working in office were taken purposively from four sectors such as government sectors, Company, Government and Public School and NGOs/INGOs for the study by using pre-structured interview schedules. From each sectors 25% of the total female respondents which was 23 people were selected. Data were collected on the basis of first come first take method till the required number was achieved. The study was conducted among 92 respondents.

FINDINGS

The study was conducted among 92 respondents. It was clear from table I that majority (77.2%) of the respond suffered by sexual harassment at working place.

Table No. 1 Experience of sexually harassed at work

Experience	No of respondents	Percentage
Yes	71	77.2
No	21	22.8
Total	**92**	**100**

Table No. II. Shows that female workers were victimized by all form of sexual harassment such as verbal, physical, Emotional and Written or Graphical and gesture. The study revealed that more than half (56.3%) of the respondents were suffered from verbal type of sexual harassment like teasing and vulgar jocks etc, 16.9 percent by physical harassment like unwanted touch on sensitive part of the body 11.3 percent faced written or graphical and 7.0 percent faced emotional type of sexual harassment in working place.

Table No. II. Types of harassment faced by the respondents.

Suffering types of harassments	No of respondents	Percentage
Physical	12	16.9
Verbal	40	56.3
Harassment of gesture	06	08.5
Written or graphic harassment	08	11.3
Emotional	05	07.0
Total	**71**	**100**

Table No. III. Shows that Around 36.9 percent of respondents reported that major cause of sexual harassment was power and position of male and 23.9 percent reported that lack of awareness training about sexual harassment and its policy. Lack of female education and attitude of male and societies toward the female, they faced different types of sexual violence.

Table No. III. Cause of Sexual Harassment

Causes	Frequency	Percentage
Lack of effective law	18	19.6
Lack of Awareness training/Education	22	23.9
Power/position of male	34	36.9
Opportunities/Attitude of male toward female	18	19.6
Total	**92**	**100**

Table No. IV. Shows that more than half of respondents were victimized by their co-worker (52.1%).immediate supervisor (19.7%) and manager (12.7%).

Table No. IV. The person caused sexual harassment

Person	No of respondents	Percentage
Manager	09	12.7
Immediate supervisor	14	19.7
Co-worker	37	52.1
Subordinate	04	05.6
Clients	07	09.9
Total	71	100

Table No. V. Shows that around 42.3 percent were suffering once to twice time and 39.4 percent were suffering sometimes from sexual harassment in their working life.

Table No. V. Frequency of suffering from sexual harassment

Frequency of suffering	No of respondents	Percentage
Once to twice	30	42.3
Sometimes	28	39.4
Often	09	12.7
Very often	04	05.6
Total	71	100.0

DISCUSSION

The current study amongst the female worker in Dhangadhi municipality, Kailali district of far western Nepal showed majority (77.2%) of the respondents suffered by sexual harassment at working place. A similar study by (Dhakal G,2009) in Nepal, reported that in carpet factory about half (52%) had faced sexual harassment problem in their workplace,[1] (Marsh J et al. 2009) in Ethiopia reported that workplace abuse or sexual harassment was 86.3 percent[3] and Similar study by (Sapana Pradhan-Malla, 2005) in Nepal revealed that problem of sexual harassment is highly prevalent in workplaces, as 53.84 percent of women employee/workers reported that they have faced the problem of sexual harassment in their workplaces.[4]

Verbal, physical, emotional and written or graphical and gesture were the common form of the sexual violence in the current study. In contrast, similar study by (Dhakal G, 2009) in Nepal in carpet factory showed that the most frequent type of sexual harassment was passing vulgar jokes, remarks or teasing obscenely 87 percent.[1] Similar study by (B

Unnikrishnan, *et al.*2010) in Croatia found 67.3 percent of harassment were verbal in manner whereas 22.7 percent were physical.[5]

In this study the major cause of sexual harassment was power and position of male and lack of awareness training about sexual harassment and its policy. Similarly study in Crotia by (B Unnikrishnan, *et al.*2010) showed Co-workers 47.9 percent were the major harassers to the women workers.[5]

CONCLUSION

Women workers were victimized by all form of sexual harassment such as verbal (56.3%), physical (16.9%), Emotional Written or Graphical (11.3%), gesture (8.5%) and emotional (7.0%) form of sexual harassment. Co-workers (52.1%) were the major harassers to the women workers. More than half (77.2%) was facing sexual harassment at working place and major causes of sexual harassment was power and position of male (36.9%) and lack of awareness training and education (23.9%) but they often ignore the incidence The study gives an insight into the depth of the workplace harassment among women, which is on the rise because of the increase in number of working women.

At last it is concluded that, "Harassment is a serious problem in working place that must be addressed by the government in order to ensure a safe working environment for women."

RECOMMENDATIONS

Formation of clear and strict policy for those who involve in the harassment in the working place should be there. Accessible place for reporting the harassment has to be established in every working institution. Prompt actions should be done after the complaints. Further explorative studies have to be conducted to know the factors associated with such kind of harassment.

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A Bacteriological Study of Surgical Site Infections

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ABSTRACT

Surgical site infections are the third most commonly reported nosocomial infection which has an adverse impact on the hospital as well as on the patient. A prospective study of 100 surgical wounds was conducted. All the wounds were examined for the presence of infection and those with infection were studied bacteriologically and their antibiotic sensitivity testing was done. The overall infection rate was 21%. The infection rate in clean surgeries was 4%, clean contaminated 12.5%, contaminated 3.3% and dirty 47.2%. Operation carried out in emergency carries high risk of development of SSI than in elective surgeries. Significant increase was seen in SSI rate with an increase in preoperative stay of patient, duration of operation and number of persons in operation theatre. Predominant organisms found were gram negative bacilli namely members of Enterobacteriaceae. High level of multidrug resistance was observed in gram negative bacterial isolates from wounds. Thus antibiotic sensitivity should be carried out for all bacterial surgical wounds before chemotherapy administered to detect drug resistant strains.

Keywords: Antibiotic sensitivity, Wound Class, Elective, Emergency surgeries, Surgical site infection.

INTRODUCTION

Surgical site infections are the third most commonly reported nosocomial infection and they account for approximately a quarter of all nosocomial infections which has an adverse impact on the hospitals as well as on patient. They have been responsible for the increasing cost, morbidity and mortality related to surgical operations and continues to be a major problem even in hospitals with most modern facilities and standard protocols of preoperative preparations and antibiotic prophylaxis[3] SSI is the index of the health care system of any hospital. Surgical site infection rate has varied from 2.5% to 76.9%.[3,4,5,6,7,8,9,10,11,15] Objective of this study was to know the rate of SSI, antibiotic sensitivity pattern of bacterial isolates and evaluate the risk factors.

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MATERIALS & METHOD

The present study was conducted on patients admitted for surgery in J.L.N. Medical College and Hospital, Ajmer. A total of 100 surgeries of all types were included in this study. Certain risk factors like-type of surgical wound according to CDC guidelines, elective or emergency surgery, preoperative stay of patient, duration of surgery, number of persons in OT were noted. CDC criteria were used to define the type of surgical wound i.e. Class I-Clean, Class II-Clean contaminated, Class III-Contaminated, Class IV- Dirty.[14] Each patient was followed up from the time of admission till discharge from the hospital and thereafter, up to 30 days postoperatively. Stitch abscess were excluded from this study. The statistical significance of the relative importance of various parameters affecting SSI has been tested using 'p' test at 95% confidence level.

Swabs obtained from infected wounds were processed by conventional microbiological methods. Antimicrobial sensitivity was done by Kirby Bauer disc diffusion method.

OBSERVATIONS

Out of total 100 patients, 50 patients were of elective surgeries and 50 were of emergency surgeries. Of the total 100 patients included in this study 21 patients developed SSI with the overall infection rate of 21%. SSI rate was 4% in clean surgery, 12.5 in clean contaminated, 3.3% in contaminated and 47.2% in dirty surgeries. **[Table-1]**

The patients with operation in emergency situation, infection rate was 30% while in patients operated electively the rate was 12%. **[Table-2]**

Infection in patients without preoperative hospitalisation was 27.2%, 1-5 days 13.9% and with >5 days SSI rate was 25%. **[Table-3]**

As the duration of surgery was <30 minutes the infection rate was 6.6% and when duration was 90-120 minutes it was 42.9%. **[Table-4]**

When 5-8 persons were in OT, SSI rate was 19.2% but when 9-12 persons were present infection rate was 27.3%. The highest infection rate was 33.3% seen when >12 persons were present in OT. **[Table-5]**

One of 21 infected wounds was culture negative. From the remaining 20 infected wounds total 28 isolates detected. Most common organisms encountered were gram negative bacilli namely members of Enterobacteriaceae [E.coli (46.4%) followed by Klebsiella pneumonia (28.6%)].

DISCUSSION

The SSI rate reported in this study was 21% and is in agreement with the SSI incidences in other studies. [3,4,5,6,7,8,9,10,11,15] and statistically significant(P=0.001)

It has been observed that preoperative hospitalisation contributes to SSI. In the present study higher rate of infection has been observed in patients undergoing emergency surgeries. This may be attributed to inadequacy of time for preoperative aseptic preparation and operations were performed mainly on GI Tract without prior lower preparations. While in elective surgical wound, infection rate was highest when preoperative stay was >5 days. Reason may be because of their skin can be heavily colonised with wide variety of potential pathogen prevalent in the hospital due to longer hospitalisation. This has been confirmed by various studies. [5, 7, 8, 10]

SSI rate was higher in emergency situation (30%) than in elective surgeries (10%). The findings of the present study are in agreement with the other studies. [7, 12] and statistically significant (P=0.01) In Aurangabad [10], the infection rate in emergency surgeries was not statistically higher than in elective surgeries.

Many studies have reported that as the duration of operation and number of persons in OT increase, there is a progressive increase in postoperative infection rate. [2, 3, 5, 7, 8, 6] This could be due to total bacterial contamination of wound. The results were found to be statistically significant.

Based on the type of surgical procedure the pathogen those are isolated from surgical site infection vary. It is found that in clean surgical procedures Staphylococcus aureus is the usual pathogen whereas in other categories of surgical procedure, the polymicrobial flora closely resembling the normal endogenous microbial flora of the surgically resected organ are most frequently isolated pathogen. [16] In the present study gram negative bacilli were predominantly isolated from all three types of surgeries except clean surgery which did not yield any gram negative bacilli.

Number of studies in the literature indicate gradual increase in the emergence of antibiotic resistant microorganisms in the surgical patients and is a dreaded problem in nosocomial infections. [4,5,10] In the present study E.coli and Klebsiella showed resistance to ampicillin, and cephalosporins, moderate sensitivity to aminoglycosides and low sensitivity to tetracycline, fluoroquinolonesand cotrimoxazole. This could be overuse of these drugs .In gram positive cocci 100% sensitivity to vancomycin was there but ineffectiveness of penicillin was seen with are use and abuse of antimicrobial agents which has been reported in other studies also. [4, 5, 10] Clinically relevant bacteria have had to adopt resistant mechanism as a part of their survival strategy that is seen in this study.

CONCLUSION

Surgical site infection rate in our set up is high. It was found that various factors contribute in development of SSI. In order to decrease the incidence of SSI we would have to decrease the duration of preoperative stay of the patient and the duration of surgery without compromising the patient safety and the beneficial outcome. Surveillance of SSI with feedback of proper data to surgeons would be desirable to reduce the surgical site infection rate.

Table–1: Infection rate in different type of surgeries

Type of surgery	No. of patients Underwent surgery	No. of patients didn't get prophylaxis	Infected persons	%
Clean surgery	25	-	1	4
Clean contaminated	8	-	1	12.5
Contaminated	31	-	1	3.3
Dirty	36	-	17	47.2

$\chi 2 = 22.3$ * P= 0.001 Significant   *** P means Significant**

Table – 2: Elective and Emergency surgeries Vs. SSI

	Total no. of patients operated	No. of infected patients	%
Elective surgeries	50	6	12
Emergency surgeries	50	15	30
Total	**100**	**21**	**21**

$\chi 2 = 2.6$ * P= 0.01 *** P means Significant**

Table – 3: Pre -operative stay and infection

Preoperative hospitalisation period (in days)	Total no. of operated patients	No. of infected patients	%
0	33	9	27.2
0 – 5	43	6	13.9
>5	24	6	25

$\chi 2 = 32.8$ * P= 0.0001 *** P means Significant**

Table - 4: Duration of the surgeries and infection

Duration of operation (in minutes)	Total no. of Operated patients	No. of infected patients	%
<30	15	1	6.6
30 - 60	52	7	13.5
60 – 90	26	10	38.5
90 - 120	7	3	42.9

$\chi 2 = 56.3$ * P= 0.0001 *** P means Significant**

Table – 5 Number of persons in operation theatre and SSI

Number of persons in operation theatre	Total no. of operation	No. of infected patients	%
5 - 8	83	16	19.2
9 - 12	11	3	27.3
>12	6	2	33.3

$\chi 2 = 54.3$ * P= 0.0001 *** P means Significant**

Ethical Clearence: No ethical committee was constituted at the time of this research work. However this research work was carried out after taken duly consent from the head of the institution and the head of the department.

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Thyroid Disorders in Type –II Diabetes Mellitus

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ABSTRACT

Thyroid hormones evidently play a very important role in regulation of carbohydrate metabolism. The present study was done to understand the association between the Thyroid Disorders and Diabetes Mellitus, the two major endocrinological diaorders. 1000 patients with type -2 DM irrespective of the age and gender both, randomly selected for study. 330 patients showed alterations in the thyroid profile accounting for 33.3% of the total population, 14.4% hypothyroid, 2.9 % hyperthyroidism, 11.1% subclinical hypothyroidism and 4.9% subclinical hyperthyroidism. The most common disorder was found to be hypothyroidism.

Therefore DM Type-2 patient are at risk of hypothyroidism and other aforesaid disorders and hence need to screened for thyroid profile.

Keywords: *Thyroid disorders, DM Type-2, Hypothyroidism.*

INTRODUCTION

Key There has been enormous increase in both prevalence and incidents of Type-II Diabetes globally. The disease is a clinical syndrome characterized by hyperglycemia due to absolute, relative deficiency of insulin[1]. Several pathogenic factors are involved in the development of diabetes, ranging from autoimmune destruction of pancreas with consequent insulin deficiency to abnormalities that result in resistance to insulin action[2, 3]. The physiological and biochemical interrelationship between insulin and influence of both insulin and thyroid hormones in the metabolism of carbohydrate, protein and lipids are reported in the literature[4]. Insulin and thyroid hormones being intimately involved in cellular metabolism and thus excess or deficit of either of these hormones could result in functional derangement of other[5]. The

very first literature on association between diabetes and thyroid dysfunction was published in 1979[6, 7]. Since then a no of studies were conducted globally to establish relation[6, 7, 8]. The reported prevalence of thyroid dysfunctions in diabetes varies from 2.2 to 17%[8, 9, 10]. It has been shown that subclinical hypothyroidism affect almost one in 20 women, with type 2 Diabetes mellitus. Diabetes is affecting the thyroid functions to a variable extent and unrecognized thyroid dysfunctions not only worsen the metabolic homeostasis but also affects the management of D.M[3]. At more severe level deranged thyroid hormones lead to complications like nephropathy and cardiovascular events[3]. In Indian continent the studies on thyroid disease are inadequate, so we intend to study the prevalence of thyroid disorders in type –II Diabetes mellitus.

MATERIAL & METHOD

Present study was conducted at Santosh Medical College & Hospital. The hospital caters to all the sections of the society and thus the samples drawn from this hospital is true representation of Indian population. One thousand patients with type-ll

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DM irrespective of age and gender both randomly presenting to Santosh Medical College and Hospital were included in the study. The Diagnosis of type-ll DM was based on criteria of expert committee on the diagnosis and classification of DM. All subjects were on diet, oral antidiabetic drug or insulin or combined were included in the study.

The criteria used for selection of diabetic patients were Fasting blood sugar : =/> 126 mg/dl, Postprandial blood sugar :=/> 140 mg/dl, Random blood sugar : =/> 200 mg/dl. Patients with only primary thyroid dysfunction with diabetes mellitus were included. The patients suffering from other exocrine or endocrine disorder, gestational diabetes mellitus, stress induced diabetes mellitus, steroid induced diabetes mellitus, secondary thyroid disease, having recent onset of DM or freshly detected DM were excluded in the study.

The thyroid profiles were done according to the standard level set-up at Santosh Hospital, Ghaziabad.

The thyroid profile was considered normal for TSH normal levels: 0.3 – 5.5µgIU/ml, for T3 normal levels: 60-200ng/dl, forT4 normal levels: 4.5 – 12 µg/dl. Patients were considered having hyperthyroid if TSH, T3 and T4 are < 0.3 µg IU/ml, >200 ng/dl and >12 mcg/dl respectively. Patients were considered hypothyroid if TSH, T3 and T4 levels are >5.5 µgIU/ml, <60 ng/dl and <4.5 mcg/dl respectively. Patients with TSH >5.1 mcgIU/ml with normal T3 and T4 levels were considered as subclinical hypothyroidism.

Fasting serum glucose was estimated by glucose oxidase peroxidase method[11]. Thyroid profile was done by chemilumnescence immune assay method[12]. Quantitative data summarized to test the difference in mean values obtained for NIDDM patients and control using student T- test. P values < 0.05 taken as significant.

RESULT AND DISCUSSION

The study done by us during two year period, studied the prevalence of thyroid dysfunction in 1000 type-2 diabetes mellitus patients population.

The sex preponderance in 333 diabetic patients with thyroid dysfunction was also determined. In our study the prevalence of thyroid dysfunction in type-2 DM patients was substantially higher. The prevalence was 33.3% in the study group. There was a clear cut female preponderance in the study group .The prevalence was 64% among total number of diabetic patients. Maximum number of diabetic patients was of the 40-49 yrs of age group. Among the thyroid disorders, maximum number of patients was suffering from hypothyroidism (14.4% of the total study group) and followed by subclinical hypothyroidism (11.1% of total study group). There is female preponderance (22.9% of total study group) among diabetic patients having thyroid disorders. Among the gender distribution of different types of thyroid disorders in type-2 DM patients 103 female patients (10.3% of the total study group) had hypothyroid and 72 female patients (7.2% of total study group) had subclinical hypothyroidism. Among males 41 (4.1% of total study group) had hypothyroidism and 29 (2.9% of study group) had subclinical hypothyroidism. The age group having maximum number of thyroid disorders in type-2DM patients was 60-69yrs having 106 patients i.e. 10.6% of total study group. Patients with duration of diabetes of 1-5yrs were maximally affected a total of 145 patients i. e. 14.5% of total study group.

In our study of randomized 1000 patients of type –ll DM 333 patients showed alteration in thyroid profile. This accounts for an incidence of 33.3% of thyroid dysfuncitons in type –ll DM. Studies conducted by Smithson et al[8] showed the prevalence of undiagnosed thyroid disease, 5.8% and prevalence of 10.8% was seen among all the diabetic patients. Similarly the results of Ridgway et al[13] study on American Diabetics was at par with that of Smithson's study with the prevalence 11.7 %. of thyroid dysfunctions in diabetics. Our results were higher compared to Smithson and Ridgway studies. The higher prevalence in our case could be due to inclusion of subclinical hyperthyroidism. Hypothyroidism was found to be most common with prevalence of 14.4% among diabetics. Ridgway also showed[13] the prevalence of 9.5% In American Diabetics. Significantly high level warrants us to screen all type-ll DM patients especially for hypothyroidism. Our study also showed prevalence of 2.9% of hyperthyroidism, the results quiet compatible with the studies done by Ridgway, who reported 2.2% prevalence. In our study, 144 patients had hypothyroidism. The sex distribution showed the preponderance of female patients. The preponderance was 10.3% in our study which tallies to 9.5% in the Smithson study. The same

sex distribution was also noted in Ridgway study. But in the Joslin clinics study even though there was female preponderance, the prevalence was lower than our study. It was reported 4.3% as compared to 10.3% in our study. This may be due to different clinical and biochemical profiles and inclusion of both type-1 and type-2 diabetes mellitus patients in Joslin study[14].

The detailed study by Perros et al. (1995)[7] showed that 6.9% of males and 10.9% of women with Type-2 Diabetes Mellitus had thyroid dysfunction our study showed that 10.4% males and 22.9% female had thyroid disorders. Perros et al. found a prevalence of hypothyroidism of 5.8% in males and 8.9% in females patients we had 4.1% in males and 10.3% in females this might be because our study had more female patients. Perros et al. found prevalence of hyperthyroidism in 1.1% men and 2% in women our was 1% in men and 1.9% in women.

Differences between our findings and those in other studies may be accounted for by diverse factors. Geographical locations and ethnic characteristics are variation factors in epidemiological studies. Differences in dietary iodine intake in the diverse populations and methods to quantify TSH also influence results. On the basis of the finding of present study it is recommended to include screening of thyroid disorder in patients with type-2 Diabetes Mellitus. It further requires more evidences which can be achieved by other larger study.

Conflict of Interest: None

Ethical Clearance: From Institutional ethical committee

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Effect of Dynamic Meditation, an Awareness based Meditation on Electroencephalographic Patterns, Cardiovascular Parameters and Respiratory Rate in Healthy Subjects

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ABSTRACT

Introduction: Meditation is described as a family of self-regulation practices that focus on training attention and awareness in order to foster general mental well-being. [1] Dynamic meditation is an awareness based meditation [2, 3]

Objective: 1. To evaluate the effect of dynamic meditation for 15 days on electroencephalographic wave patterns of healthy subjects.

2. To evaluate the effect of dynamic meditation for 15 days on blood pressure, heart rate and respiratory rate.

Methodology: Electroencephalogram, electrocardiogram, blood pressure (BP) and respiratory rate were recorded before and after the practice of dynamic meditation for 15 days in 45 healthy subjects

Results: After 15 days of sessions in dynamic meditation the subjects showed slow wave electroencephalographic patterns of high voltage theta and high voltage alpha waves. Resting heart rate, blood pressure and respiratory rate were reduced significantly (table1).

Conclusion: Dynamic meditation is beneficial in improving the cardiorespiratory functions and produces high voltage slow wave electroencephalographic patterns indicating mind relaxation irrespective of gender.

Keywords: Dynamic meditation, electroencephalogram, electrocardiogram.

INTRODUCTION

Meditation is described as a family of self-regulation practices that focus on training attention and awareness in order to bring mental processes under greater voluntary control and foster general mental well-being. [1]

One style of meditation, Open Monitoring (OM)

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meditation, involves non-reactive monitoring or awareness of the content of experience from moment to moment. [1]

Dynamic meditation is an awareness based meditation. [2, 3] Previous studies indicate that dynamic meditation may improve symptoms and quality of life, as well as reduce stress, in patients with a wide variety of chronic illnesses. [4]

Many studies on meditation and electroencephalogram have linked lower frequency alpha and theta waves. [5, 6]

It is reported that, under meditation, total

peripheral resistance decreased.[7,8] Analysis of various previous studies on meditation shows that there is paucity of studies correlating the brain wave electroencephalographic patterns with cardiovascular responses and respiratory parameters before and after meditation in subjects who are not long term and experienced practitioners of meditation. It is also found that previous studies have not evaluated the effects of dynamic meditation on brain wave patterns of unexperienced meditators.

Therefore this study was carried out to evaluate the short term practice (15 days) of dynamic meditation on electroencephalographic wave patterns, electrocardiogram, blood pressure and respiratory rate on healthy subjects.

AIMS AND OBJECTIVES

1. To evaluate the effect of dynamic meditation for 15 days on electroencephalographic wave patterns of healthy subjects.

2. To evaluate the effect of dynamic meditation for 15 days on systolic and diastolic blood pressure, heart rate and respiratory rate.

METHODOLOGY

Subjects: The present study was done in 45 healthy subjects between age group 18 -20 years of both genders. The same subjects were chosen as both study as well as control group in order to minimize the confounding factors and make the study more reproducible.

Exclusion criteria: Subjects who were trained in yoga before, history of respiratory, cardiovascular, renal diseases, and diabetes, psychiatric illness, neurologic illness. Subjects who smoked and consumed alcohol or any drug were also excluded. The subjects were selected after taking a detailed clinical history. Written informed consent was obtained from all the members. The study was approved by the institution's research and ethical committee. The procedures followed were in accordance with the ethical standards of the responsible committee on human experimentation and with the Helsinki Declaration of 1975, as revised in 2000.

The sessions were conducted for 5 days a week at the same time of the day. Electroencephalogram, electrocardiogram, blood pressure (BP) and respiratory rate were recorded before and after the

practice of dynamic meditation for 15 days.

Blood pressure: The blood pressure was recorded as an average of three readings in supine position after 20 minutes of rest with a sphygmomanometer (Diamond), in the right upper limb by auscultatory method. All the parameters were recorded on the same time of the day in order to avoid circadian variations.

Electroencephalogram: Recordings of electroencephalogram in 18 leads were taken by Neuro-Page software (Medicaid, Chandigarh) before the starting of the dynamic meditation training on the first day and were repeated after 15 days of sessions in dynamic meditation.

Heart rate: Heart rate was calculated using the number of cardiac cycle per minute by counting it on the time scale of the electrocardiogram tracings of the Neuro-Page software (Medicaid, Chandigarh).

Respiratory rate: Respiratory rate was measured when the subject was at rest by counting the number of breaths for one minute by counting how many times the chest rises.

Dynamic meditation : Dynamic meditation is a formatted technique. [3] In the first step the subject was instructed to close the mouth and to close the eyes and to exhale forcefully through the nose as fast and as deep as possible emphasizing the exhalation for 5 minutes. Inhalation happened spontaneously. The subject was asked to pay all their attention to their breathing and to allow the body to move freely along with the breathing. In the second step they were instructed to go on expressing their emotions without any inhibition along with active body movements with eyes closed for the next 5 minutes. They were instructed to be spontaneous in their movements and to release all the suppressed emotions without any restrictions. In the third step they were instructed to jump up and down making the sound " hoo, hoo " continuously for 5 minutes and to keep their arms loose and in natural downward position and to focus all their attention on the sound produced. [3] For next 10 minutes they were asked to remain still in standing position, without any movements paying all their attention to their breathing and to the sounds around them. Then they were asked to lie down in supine posture paying attention to all the sounds around them and to their breathing movements with full awareness for the next 20 minutes. [3] The guided

meditation instructions were given by a teacher experienced in Osho's dynamic meditation. Student's **t** test using SPSS software was used to find the significance of study parameters. **P** value less than 0.05 was considered statistically significant.

RESULTS

The age of the subjects ranged from 18-20 years, the mean age being 19.53 ±8.86. Out of the 45 subjects, 25 subjects were males and 20 were females. On analysis of the physical characteristics of 45 subjects, the mean height (cm) was 162 ± 8.87, the mean weight (kg) was 64.21 ± 9.24.

Electroencephalographic (e.e.g) pattern: All the subjects showed beta wave pattern indicating a state of high mental activity [9,10] before the practicing sessions of dynamic meditation. After 15 days of sessions in dynamic meditation, electroencephalographic patterns produced were the following:

1. There were short bursts of high voltage theta waves (100- 300 microvolts) at 5-7 cycles per second and high voltage alpha waves .

2. There was a constant tendency of synchronisation of anterior and posterior channels and periods of uniformity of wave pattern, amplitude and frequency of wave form in all channels during slow wave pattern .

3. There was significant increase in average voltage of e.e.g waves along with a significant increase in frequency of bursts of high voltage slow waves. (Table-2).

Heart rate: Heart rate was calculated using the number of cardiac cycle per minute by counting it on the time scale of the electrocardiogram tracings of the Neuro-Page software (Medicaid, Chandigarh). Resting heart rate reduced significantly after 15 days of sessions in dynamic meditation (table1).

Blood pressure and respiratory rate: Mean resting systolic, diastolic blood pressure and respiratory rate were reduced significantly after 15 days of sessions in dynamic meditation (table1).

Table-1- Cardiovascular parameters (Mean ± S.D)

Parameters	Before dynamic meditation	After dynamic meditation	't' value	Significance
Heart rate (per min.)	84.33 ± 9.56	74.66 ± 8.83	7.91	P< 0.001
Systolic blood pressure (mmHg)	126 ±9.14	120 ±13.62	5.85	P< 0.001
Diastolic blood pressure (mmHg)	74.21±9.98	71.55 ±8.83	6.63	P< 0.001
Respiratory rate (per min.)	15.65 ± 8.89	12.76 ± 7.7	6.89	P< 0.001

Table-2 E.E.G Parameters (Mean ± S.D)

Parameters	Before dynamic meditation	After dynamic meditation	Significance
Voltage of e.e.g waves (microvolts)	18± 7.56	100 ± 7.78	P< 0.001
Duration of high voltage slow waves (seconds)	20 ±5.58	240 ±9.92	P< 0.001
Number of high voltage slow waves/ second	1± 7.75	8 ± 8.83	P< 0.001
Frequency of e.e.g waves/second	17 ± 6.63	7 ± 6.63	P< 0.001

DISCUSSION

The significant findings of this study are the appearance of slow wave electroencephalographic pattern of high voltage theta and high voltage alpha waves along with significant reduction of systolic blood pressure, diastolic blood pressure, heart rate and respiratory rate after 15 days of sessions in dynamic meditation (table1).

The appearance of slow wave electroencephalographic pattern of high voltage theta and high voltage alpha waves is in accordance with the findings of other studies on meditation.[9, 10] It is also known that relatively high amplitude electroencephalic wave suggests synchronized brain activity and mind relaxation.[9] These findings would suggest that in a meditative state a person is more relaxed but maintains a sharp awareness.

Beta waves occur when the brain is working on goal-oriented tasks, such as planning or reflecting actively over a particular issue.[10] In this study beta waves were seen in all subjects during period of rest in supine position with eyes closed in awake state before 15 days of sessions in dynamic meditation .

In the present study 15 days of sessions in dynamic meditation has also produced short bursts of slow wave high voltage theta waves (100- 300 microvolts) at 5-7 cycles per second . Previous studies have shown that high voltage theta waves indicate deep relaxation and occur more frequently in highly experienced meditation practitioners.[9, 10] The source is probably frontal parts of the brain, which are associated with monitoring of other mental processes. These types of waves likely originate from a relaxed attention that monitors our inner experiences.[11]

High voltage alpha waves after 15 days of sessions in dynamic meditation indicates deep relaxation with eyes closed.[11]

The significant decrease in resting heart rate, systolic (SBP) and diastolic blood pressure (DBP) and respiratory rate after the 15 days of training in dynamic meditation is in accordance with the findings of other studies on physiological effects of meditation in healthy individuals.[7, 8] Similar reduction in resting PR and blood pressure after meditation were also reported in hypertensive patients.[8] In the present study a significant reduction in heart rate, SBP, and DBP can be attributed to modulation of autonomic

activity with parasympathetic predominance and relatively reduced sympathetic tone. The slow wave electroencephalographic pattern of theta waves and high voltage alpha waves which indicates a relaxed attention mediates the autonomic modulation. Relaxed attention triggers various central and autonomic mechanisms as well as mechanical and hemodynamic adjustments causing both tonic and phasic changes in cardiovascular functioning. Breath is a dynamic bridge between the body and mind.[14] Hence, life experiences can distort breathing pattern. The significant decrease in rate of respiration after the 15 days of sessions in dynamic meditation also indicates a relaxed attention mediating the autonomic modulation.

Previous studies have found that, under meditation, total peripheral resistance decreased and thus decreased diastolic blood pressure. In this study while practicing dynamic meditation, one concentrates on the act of breathing which removes attention from worries and "de-stresses" him. This stress-free state of mind evokes relaxed responses in which parasympathetic nerve activity overrides sympathetic activity.[11] Meditation by modifying the state of anxiety reduces stress-induced sympathetic over activity thereby decreasing arterial tone and peripheral resistance resulting in lowering of diastolic blood pressure and heart rate.

The practice of meditation has been described as altering the thinking process to a more settled state, resulting in a distinctive psychophysiological state characterized as "restful alertness".[12] This state of "restful alertness" in the present study is confirmed by the appearance of slow wave electroencephalographic pattern of theta waves and high voltage alpha waves. Previous studies have found that individuals in this state have demonstrated enhanced neurophysiological function and decreases in respiration rate, sympathetic nervous system tone, hypothalamo–pituitary–adrenocortical system activation , and cortisol level.[14, 15] Such physiological changes have been associated with a concomitant reduction in BP.

In this study the slow wave electroencephalographic pattern of theta waves and high voltage alpha waves which indicates a relaxed attention could have caused a decrease in the excitatory pathways regulating respiratory and cardiovascular systems. As respiratory and cardiovascular systems

have similar control mechanisms, alteration in one system will modify the functioning of the other. [15]

In the present study, the responses to 15 days of regular dynamic meditation were also assessed with respect to gender. It revealed that both males and females responded similarly to the practice of meditation.

Although a significant decline in resting heart rate, SBP, DBP, and mean arterial BP after the practice in the present study is in accordance with the findings of other studies on physiological effects of meditation, the present study has some differences. The present study involved regular practice of dynamic meditation, one of the meditative techniques, which allows meditation to emerge through active movement. In this meditation chaos of the mind is expressed through dynamic movement bringing significant mind and body relaxation prior to feeling relaxed followed by conscious awareness to breathing with complete, and unbiased attention on the current moment. Most of the other studies have been done on effects of individual meditation practice for minimum of 4 weeks to 6 months on experienced meditators. Very few studies have evaluated the short duration of meditation on subjects unexperienced in meditation. Most of the studies conducted so far have evaluated either the cardiovascular effect or the brain wave changes seperately. In the present study, an attempt was made to fill up this limitation by evaluating electroencephalographic, cardiovascular and respiratory changes together before and after the meditation sessions.

Although the present study observed the clear short term (15 days) effects of dynamic meditation practice, it remains to be assessed whether long term practice will lead to stable modifications of cardiovascular, respiratory and neural control.

Thus in a nutshell, with this study, it is proved beyond doubt, that regular practice of dynamic meditation for minimum of 15 days is beneficial in improving the cardiovascular and respiratory functions and produces deep relaxation by producing slow wave electroencephalographic pattern in healthy individuals irrespective of gender.

Finally, these results and their explanations would justify the incorporation of attention and awareness based dynamic meditation as part of our lifestyle in promoting health and thereby preventing stress related cardiovascular, respiratory and central nervous system diseases.

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A Comparative Study to Evaluate the Effect of Warm Mustard Oil vs Warm Mustard Oil with Camphor on Relief of Knee Joint Pain among Rural Women in Selected Areas of Puducherry

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ABSTRACT

Background: Osteoarthritis is a common arthropathy of the knee. In India, the prevalence of the disease in the adult rural population is estimated to be 5.8%.

Aim: The main aim of the present study was to compare the effectiveness of warm mustard oil and warm mustard oil with camphor on reduction of knee joint pain among rural women in selected rural areas of Puducherry.

Materials and Method: A quasi-experimental study (two group pretest and posttest design) done among 60 rural women with knee joint pain. Data were collected using structured questionnaire and modified WOMAC scale. Data analysis was done using inferential and descriptive statistics.

Results: Totally 60 rural women participated in the study. It was observed that majority of the samples were in the age group between 51-55years. Majority of the samples in both group I and group II had moderate level of pain. After warm mustard oil massage and warm mustard oil with camphor massage, the pain level had reduced to mild level in group I and group II respectively. The mean pretest values of pain score in both groups had significant difference during posttest measurement of mean pain score. The coefficient of variance analysis revealed that warm mustard oil with camphor massage reduced the pain level more significantly than warm mustard oil massage.

Conclusion: Knee joint pain is an early symptom of osteoarthritis and it is the leading cause of disability in humans especially in women. Hence efforts like use of warm mustard oil or warm mustard oil with camphor massage which is easily accessible and cost effective methods to reduce the knee joint pain should be made by the community health nurse to bring down the prevalence of knee joint pain.

Keywords: Knee joint pain, mustard oil, camphor, WOMAC scale, rural women.

INTRODUCTION

The health of Indian women is intrinsically linked to their status in society. Research on women's status has found that the contributions of Indian women make towards family are overlooked, and instead they are viewed as economic burden. They typically have little autonomy, living under the control of first their fathers, then their husbands, and finally their sons. All of these factors exert a negative impact on the health status of Indian women[1]. Hip and knee osteoarthritis is one of the leading causes of global disability in women. Globally, of the 291 conditions, hip and knee osteoarthritis was ranked as the 11th highest contributor to global disability and 38th highest in disability-adjusted life years (DALYs).

Prevalence was higher in females than males. Years of life lived with disability (YLDs) for hip and knee OA increased from 10.5 million in 1990 (0.42% of total DALYs) to 17.1 million in 2010 (0.69% of total DALYs)[2].

OBJECTIVES:

• To assess the level of knee joint pain among rural women in two groups during pretest.

• To evaluate the effect of warm mustard oil massage and warm mustard oil with camphor massage on relief of knee joint pain among rural women during post test.

• To compare the effectiveness of warm mustard oil massage Vs. warm mustard oil with camphor massage on relief of knee joint pain among rural women.

• To compare the coefficient of variance of warm mustard oil massage and warm mustard oil with camphor massage on reduction of knee joint pain among rural women.

MATERIALS & METHOD

Research Design: The research design used in the study was Quasi Experimental Design (Two group pretest posttest design)

Setting of the study : The study was conducted in Pillaiyarkuppam and Kirumampakkam rural areas of Puducherry. It is 11 km from Pondicherry town and 1.5km away from Kasturba Gandhi Nursing College. The total population of Pillaiyarkuppam is 2282. Kirumampakkam is a village area which is 1km away from Kasturba Gandhi Nursing College. The population covered under Kirumampakkam primary health centre is 23941.

Population and sample size: The target population of the study was women with knee joint pain. Each group (i.e.) Group I and Group II comprised of 30 rural women with knee joint pain. Totally 60 rural women were selected as samples.

Data collection procedure and analysis

Samples were selected by purposive sampling technique and divided as group I who received warm mustard oil massage and group II who received warm mustard oil with camphor massage. Rural women were interviewed regarding socio economic and demographic variables by structured questionnaire. Assessment of pain level was done by modified WOMAC scale. Data analysis was done by descriptive and inferential statistics.

RESULTS

Totally 60 rural women who had knee joint pain during study period were included in the study. Majority of samples 12 (40%) in group I, 10 (33.3%) in group II belong to the age group of 51-55 years. In terms of Body mass index majority of samples 13 (43.3%) in group I and 28(50%) in group II had BMI of 25-29.9. In terms of occupation majority of women in group I 23(76.7%) and 12(40%) in group II were home makers and 7(23.3 %) in group I and 11(36.7 %) in group II were engaged with self-help group functionaries. 7(23.3%) in group II were farmers or coolie workers. In terms of activity majority of women in group I 14 (46.7%) had moderate level of activity, 9 (30%) with mild activity level and 7 (23.3%) were with severe activity level. Whereas in group II majority of women 19 (63.3%) were with moderate level of activity and 6 (20%) were with severe activity level and 5 (16.7%) were with mild activity.

Figure I show the distribution of level of pain in rural women with knee joint pain during pre-test and posttest in group I & II. In pretest out of 30 subjects in group I, 10 (33.3%) were had mild pain and 20 (66.7%) were had moderate pain. In group II 2 (6.7%) had mild level of pain and 28 (93.3%) had moderate pain. During posttest after application of warm mustard oil massage, the pain level reduced as mild 53.3% and moderate 46.7%. In group II after the application of warm mustard oil with camphor, the pain level reduced to mild 33.3% and moderate 66.7%.
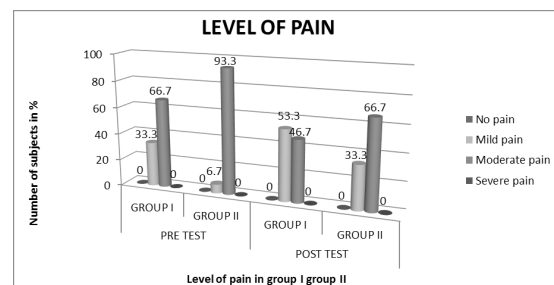
Figure I: Level of pain in group I and group II

Table I shows the mean pain score among rural women in group I & II during pretest and posttest. In group I the pre and posttest mean pain score was 33.87 and 29.03 and in group II 37.77 and 31.17 respectively. The obtained paired't value for group I and II was 7.87 and 10.729 and p value was 0.000*** for both the groups. It was highly significant at p<0.001 level. It infers that there is significant difference between pre-test and post-test values of pain level in group I and II.

Table I: Description of mean level of pain score among rural women in group I & II during pretest and post test

	Test	Mean	Mean difference	Std. Deviation	Paired 't' value	df	P value
Group I	pretest pain score	33.87		9.085			
	Posttest pain score	29.03	4.84	7.379	7.87	29	0.000*** (HS)
Group II	pretest pain score	37.77		6.151			
	Posttest pain score	31.17	6.6	5.459	10.729	29	0.000*** (HS)

***Highly significant at p<0.001 level

The comparison of effectiveness of warm mustard oil Vs warm mustard oil with camphor was assessed by coefficient of variance. Figure II shows the coefficient of variance of group I was 51.05 and group II was 69.60. It indicates there was increased variation in the level of pain reduction in group II than group I. It revealed that warm mustard oil with camphor reduced the moderate pain level to mild level.
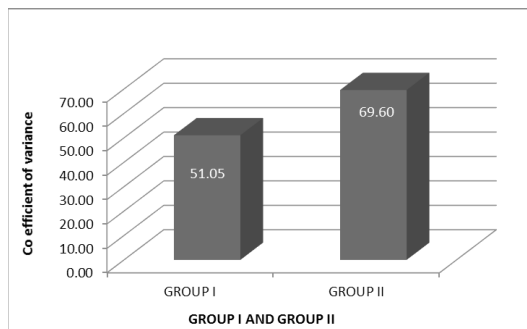
Figure II: Coefficient of variance

DISCUSSION

Osteoarthritis is a disease that progresses over time and culminates in the destruction of articular cartilage and joints. It has been shown that women are more severely impacted by osteoarthritis and present for treatment in more advanced stages of osteoarthritis and have more debilitating pain than men[3]. The present study done in rural areas of Puducherry and it revealed that rural women above 40 years are more affected with knee joint pain. According to Fenson DT (1991) osteoarthritis is the second most frequent health problem seen in women over the age of 45[4]. A study conducted by Riya Rachel George and Tamilmani at Namakkal district reported

that there was significant reduction in knee joint pain after mustard oil massage. In the present study, it was found that warm mustard oil and warm mustard oil with camphor were effective in the management of knee joint pain among rural women[5]. According to Marc Cohen a topical cream containing Glucosamine Sulphate and camphor was effective for osteoarthritis of knee and showed continuous reduction of pain with clinically significant results within four weeks.

Regarding the comparison of effectiveness of warm mustard oil and warm mustard oil with camphor it was found that there was increased variation in the reduction of pain in the samples who had warm mustard oil with camphor massage than warm mustard oil massage alone.

CONCLUSION

Prevalence of knee joint pain is more common in rural areas. The main aim of the present study was to compare the effectiveness of warm mustard oil and warm mustard oil with camphor on reduction of knee joint pain among rural women in selected areas of Puducherry. The samples were divided in to two groups, group I received warm mustard massage and group II received warm mustard oil with camphor massage. The mean pretest pain score of group I was **33.87** and mean posttest pain score was **29.03.** The mean pretest pain score of group II was **37.77 and** mean posttest pain score was **31.17**. And the coefficient of variance **69.60** in group I and **51.05** in group II revealed that there is significant reduction in the pain levels. It infers that warm mustard oil with camphor massage is more effective in reducing knee

joint pain in rural women than warm mustard oil massage.

Ethical Clearance: The proposed study was conducted after approval of Institutional Ethical Committee. Informed consent was obtained from the patient.

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Maternal Serum Dyslipidemia in Pre-eclampsia and Eclampsia

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ABSTRACT

Introduction: Preeclampsia is a hypertensive disorder and is one of the most leading cause for maternal and fetal mortality in developing countries.

Aim: Objective of this study was to investigate lipid profile in women with preeclampsia, eclampsia as compared to pregnant women.

Settings and Design: District civil hospital, Case control study.

Material and methods: The study comprised of 75 cases out of which 25 were normal 3rd trimester pregnant women, 25 women in the 3rd trimester with preeclampsia and 25 were in the 3rd trimester with eclampsia, attending District Civil Hospital, Belgaum, Karnataka (India). Serum was used for evaluation of lipid profile: total Cholesterol, HDL-C, Triglycerides, VLDL-C, LDL-C and free fatty acid.

Results: There was a consistent significant increase in total cholesterol, triglyceride, VLDL-C and free fatty acid in both groups as compared to pregnant controls ($P < 0.001$). When compared with pregnant controls, there was a consistent significant increase in LDL-C in pre-eclamptic ($P < 0.05$) and eclamptic groups ($P < 0.001$). HDL-C levels in 3rd trimester preeclamptic and eclamptic women were not significantly different as compared to 3rd trimester pregnant women.

Conclusion: Pregnant women who develop pre-eclampsia had impaired lipid profile due to abnormal lipid metabolism. This appears to be of immense value in understanding the pathological process of preeclampsia/eclampsia.

Keywords: *Lipid profile, Pregnancy, triglyceride, pre-eclampsia.*

INTRODUCTION

Preeclampsia is one of the most leading cause for maternal and fetal mortality cases worldwide per year[1]. Pre-eclampsia is a pregnancy-specific condition potentially affecting both mother and fetus and its associated of altered serum lipid profile is well documented[2]. Preeclampsia is characterized by hypertension, edema and proteinuria. Eclampsia is convulsive form of preeclampsia that affects 0.1% of all pregnancies. Women with preeclampsia are prone to the development of cerebrovascular, cardiovascular as well as other fetal and maternal complications [3, 4].

Hypotheses to etiology of preeclampsia are currently prevailing in present day literatures such as genetic, placental ischemia and oxidative stress. Predominantly the dyslipidemia is found to be associated with preeclampsia. An abnormal

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lipid profile is known to be strongly associated with proatherogenic lipid profiles indicating high risk for coronary artery diseases[5]. Endothelial dysfunction may play a pivotal role in development of preeclampsia. Multiple circulating factors may provoke endothelial changes, including altered lipoproteins [6].

In the present study we measured lipid profile in women with preeclampsia, eclampsia and compare with that of women with normal pregnancy as to investigate the possible role of lipid profile in above said groups.

MATERIALS & METHOD

The present study was carried out jointly by the Department of Biochemistry and Obstetrics and Gynecology. The study protocol was approved by ethical committee.

The study comprised of 75 women grouped as under;

Group A- 25 normal healthy 3rd trimester pregnant women without preeclampsia

Group B -25 women in their 3rd trimester with preeclampsia

Group C-25 women in their 3rd trimester with eclampsia.

Informed consent was taken from individual subjects. The subjects selected for the present study were attending and admitted to District Civil Hospital, whose age ranged from 20-40 years and were of low socioeconomic status which was based on low income.

Inclusion criteria: The study consists of 3rd trimester normal pregnant women, 3rd trimester with preeclampsia and women with eclampsia diagnosed based on definition of ACOG [7] :1) Systolic blood pressure greater than 140 mm Hg or a rise of at least 30 mm Hg or 2) Diastolic blood pressure greater than 90 mm Hg or rise of at least 15 mm Hg (manifested on two occasions at least 6 hours apart), and 3) Proteinuria of 300mg or greater in 24 hour urine collection or protein concentration of 1gm/Liter (on two occasions at least 6 hours apart). Subjects with normal pregnancy were normotensive and had no proteinuria.

Exclusion criteria: Women with diabetes mellitus under medication and untreated diabetes, obese women, women with severe anemia (<6.0g% of Hb), alcoholic, and women suffering from any other disorder were excluded from the study.

None of the women had received antihypertensive medication until the study sample was taken. Blood pressure levels and proteinuria were determined at the time of sampling. 5ml of blood sample was drawn by venipuncture and collected in a heparinized tube. Serum was separated by centrifugation at 2500 rpm for 20 min. Each serum sample obtained from all above mentioned groups was evaluated for lipid profile: Total Cholesterol [8], HDL-C, Triglycerides [9], VLDL-C, Free fatty acid [10] and LDL-C[11]. Results were expressed as mean ± SD. Comparison of mean values of study groups was performed by ANOVA [F test]. To find the intergroup difference Bonferroni post-hoc test was performed. Significance level was kept at 0.05.

RESULTS

The characteristics of the three groups are summarized in Table no 1. Consistent significant increase in total cholesterol, triglyceride, VLDL-C and free fatty acid was observed in both groups as compared to pregnant controls (P< 0.001). There was a consistent significant increase in LDL-C in 3rd trimester preeclamptic (p<0.05) and eclamptic groups (p<0.001) as compared to pregnant controls. HDL-C levels in 3rd trimester preeclamptic and eclamptic women was not significant as compared to 3rd trimester pregnant women.

DISCUSSION

The present study evaluated the role of lipid profile in normal pregnant, preeclamptic and eclamptic women. Lipid metabolism is dramatically altered during pregnancy as reflected in a marked hyperlipidemia. Among those in whom pre-eclampsia develop an additional change in the lipid metabolism seems to be present because the plasma levels of triglycerides are further increased as compared with normal pregnancy. Normal pregnant women have hyperlipidemia even more so in women with pre-eclampsia suggesting that abnormal lipid metabolism may have a role in the genesis or expression of preeclampsia. Kharb S. et al [12] reported that serum cholesterol and triglyceride levels were significantly

raised in normal pregnant women as compared to non-pregnant controls and further increased levels were observed in pre-eclamptic patients compared to normal healthy pregnant. Our results showed a definite increase in the levels of lipid profile both in normal and toxaemia of pregnancy. In the present study Serum triglyceride and total cholesterol concentration rise more significantly in 3rd trimester pre-eclampsia women when compared to 3rd trimester pregnant woman which is similar with the findings of many workers[13-14]. High triglyceride levels seem to increase the risk of placental vascular disorders [15]. Increase in the hepatic lipase activity is seen during pregnancy which is responsible for the increased synthesis of the triglycerides at the hepatic level. In pre-eclampsia due to reduced placental uptake and the associated decrease of lipoprotein lipolysis may result in the accumulation of Triglyceride rich remnant lipoproteins in the maternal circulation[16].

VLDL-C levels increased in present study in both preeclamtic and eclamptic group as compared to normal pregnant women. This increase in VLDL-C is due to hypertriglyceridemia leading to enhanced entry of VLDL-C that carries endogenous triglyceride into blood circulation.

Decrease in levels of HDL-Cholesterol may hamper over all reverse cholesterol transport system were by potentially harmful cholesterol from peripheral tissues is not transported to the liver, where it can be excreted. In our study a decrease in HDL-C in preeclampsia and eclamptic group as compared to normal women was seen but was not significant. In preeclampsia there is a fall in estrogen levels and also in insulin resistance as compared to normal pregnancy which is likely to cause fall in level of HDL-C [7].

Free fatty acid concentration in our study was found to be significantly increased in preeclamptic group which may be the result of enhanced lipolytic activity of the sera of women with pre-eclampsia. In pre-eclampsia increased free fatty acid flux in late pregnancy may promotes the excessive synthesis of hepatic triglycerides and thus VLDL hypersecretion.

Significant rises in the LDL-C levels were seen in our study in pre-eclamptics as compared to controls and these results are in agreement with results of other workers[18]. In pre- eclampsia, predisposed vessels are likely to get deposited with increased triglyceride directly and indirectly through increased generation of small dense LDL which contributes to endothelial dysfunction[5]. Oxidised LDL has greater capacity to promote activation of platelets with resultant enhanced thromboxane release. Many of these changes in endothelial cell and prostaglandin synthesis have been documented and implicated in the pathogenesis of pre-eclampsia. Hence, these findings suggest that endothelial dysfunction of pre-eclampsia is causally related to and exacerbated by alterations in the metabolism of free fatty acids and triglyceride.

Table No 1. Total cholesterol, HDL-C, Trigleceraldehide, VLDL-C, LDL-C and Free fatty acid levels in the normal 3rd trimester pregnant controls, 3rd trimester preeclamptic women and 3rd trimester eclamptic

Parameters	Group A 3 ndTrimester Pregnant n=25	Group B 3 ndTrimester Pre-eclamptic n=25	Group C 3 ndTrimester eclamptic n=25
Total Cholesterol (mg/dl) Range p-value	267.43±20.63 (211.43-302.8)	306.97±47.14 (217.14-377.14) P< 0.001*	340.11±29.45 (262.86-377.14) P< 0.001*
HDL-C (mg/dl) Range p-value	49.60±7.16 (37.14-64.20)	47.83±7.31 (35.71-61.43) N.S*	46.40±8.13 (38.57-64.29) N.S *

Triglycerides (mg/dl) Range p-value	155.48±16.19 (113.04-182.61)	245.57±26.18 (182.61-278.26) P< 0.001*	261.22±21.37 (226.09-286.96) P< 0.001*
VLDL-C (mg/dl) Range p-value	31.09±3.24 (22.61-36.52)	49.11±5.24 (36.52-55.65) P< 0.001*	52.24±4.27 (45.22-57.39) P< 0.001*
LDL-C (mg/dl) Range p-value	186.73±21.32 (135.85-228.39)	210.03±46.40 (120.38-286.34) P< 0.05*	244.60±29.99 (171.62-284.91) P< 0.001*
Free Fatty Acids (mg/dl) Range p-value	22.16±2.73 (12.82-25.63)	32.18-3.98 (25.63-39.87) P< 0.001*	39.30-4.92 (25.63-46.99) P< 0.001*

* Comparison with pregnant controls

CONCLUSION

The present study suggests that the women who develop pre-eclampsia and eclampsia had disturbed lipid profile due to abnormal lipid metabolism. This dyslipidemia is significantly evident in preeclampsia and appears to be of immense value in understanding the pathological process of preeclampsia. Early attention, intensive management and treatment may be essential to improve maternal and fetal outcome.

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Efficacy of Ayres Spatula with Spatula + Cytobrush Combination in Screening for Cervical Carcinoma

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ABSTRACT

Objectives: To study the efficacy of Ayres spatula with spatula + cytobrush combination & to assess the contribution of cytobrush in the pick-up rate of positive pathology in screening for cervical carcinoma.

Materials & method: A total of 500 cases were selected randomly, all women who were sexually active either of reproductive age group or menopausal were included in the study group selected from the OPD for gynecological check up.Pap smear was taken for each women first with the spatula and then the cytobrush. Cytological evaluation was done following the Bethesda system of reporting(1991) and the rate of positive pathology in each group was calculated.

Results: Cytobrush use significantly increased the number of satisfactory smears. Inadequate smears in the form of absent endocervical cells occurred in 30(6%) of cytobrush smears as compared to 269(53.8%) of spatula smears which was statistically significant (p<0.001). positive pathology was seen in 519(10.6%) of the cytobrush smears as compared to 26(5.41%) of spatula smears which was statistically significant.

Conclusion : There is an increase in the percentage of satisfactory smears with the use of cytobrush along with the Ayre's spatula .Inadequate smears in the form of absent endocervical cells occurred less frequently with cytobrush. The pickup rate of positive pathology was more with cytobrush.

Keywords: *Papincoalou smear, Ayre's spatula ,cytobrush, smear quality, Squamous Intraepithelial Neoplasia.*

INTRODUCTION

Cervical cancer is the third most common cancer in the world. It is the second most common cancer and leading cause of death from cancer in women in developing countries, where 80% of new cases occur. The incidence of disease in India ranges from 21.8to 41.2 per 1,00,000 people compared to 7.4 to 11.9 in developed countries (USA,UK,Canada). This disparity is the result of effective screening programmes adopted in developed countries to bring down the prevalence of invasive disease.[1]

Although the pap smear is considered as the "gold standard" in cervical cancer screening, the test is not 100% accurate and has limitations in both sensitivity and specificity.[2]

Attempts to improve the yield of endocervical cells by various collection techniques have not eliminated the occurrence of smears without endocervical cells but significant improvement has been reported.

Use of both an endocervical brush and a spatula has shown to collect a better sample of cells than either spatula alone, or a spatula used in combination with a cotton-tipped swab.[3]

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The present study has been done to test whether the use of cytobrush and Ayres spatula combination improves sample quality with better pick up rate of atypias than Ayres spatula alone as is the routine practice .

MATERIALS & METHOD

The study included patients attending the Gynecological OPD from Bapuji Hospital, Chigateri General Hospital and Women and children Hospital, Davangere from November 2010 to November 2012.

Each gave an informed consent and this study was **approved by Ethical** and Research Committee of J.J.M. Medical College, Davangere to use human subjects in the research study. The patients and controls voluntarily participated in the study.

A total number of 500 cases were selected randomly , all women who were sexually active either of reproductive or menopausal age group were included in the study.

Women with menstruating/vaginal bleeding, excessive vaginal discharge, patients with obvious and frank lesions on the cervix,incensible cervix,

pregnant women, 24hours of use of vaginal cream and Hysterectomied women were excluded from the study.

PROCEDURE OF STUDY

Each prospective   patient was asked the gynecological and obstetrical history in detail. Information was also recorded regarding martial status, age at first coitus,methods of contraceptive used(if any), history of multiple sexual partners in the patient or the spouse and prior cytological examination if any. After a through general physical examination, patient was put on the examination table in dosal position and speculum was introduced into the vagina, exposing the cervix. Two samples were taken first using the Ayres spatula and then the cytobrush .The material from Ayres spatula and cytobrush were spread on the glass slide and fixed by Cytofix spray. After fixing the slides were sent to the pathology Department , where they were stained with pap stain. A single cytopathologist reads all the slides.

Statistical   analysis is   done by   Z test for proportions.

OBSERVATION & RESULTS

Table-1: Smear quality.

	Spatula		Cytobrush		P value
	n	%	N	%	
Satisfactory	212	42.40%	448	89.6%	<0.001
Absent endocervical cells	269	53.80%	30	6.0%	<0.001
Absent squamous cells	_	_	4	0.8%	
Repeat smear/ unsatisfactory	19	3.80%	11	2.2%	0.87
Inadequate due to haemorrhage	–	–	7	1.4%	

Table-1: Smear quality. Table-1 shows there was a significant difference in pap smear quality between the two collection device. 448(89.6%) of 500 patients had a satisfactory smear when cytobrush was used as compared to 212(42.4%) patient, when spatula was used was found to be statistically significant (p<0.005).

Inadequate smears in the form of absent endocervical cells occurred in 30(6%) cytobrush smears, as compared to 269(53%) spatula smears, which was also statistically significant (p<0.005).

Inadequate due to absent squamous cells and haemorrhage was seen in 4(0.8%) of 7(1.4%) cytobrush smears respectively. while no spatula smears had absent squamous cells.

There was no statistical difference between both the collection devices in number of slides that could not be read and were advised to repeat smear.

Cytobrush   has   an   increased   chance   of haemorrhage as compared to Ayres spatula.

Table-2: Positive pathology

	Spatula (n=481)		Cytobrush (n=483)		P value
	n	%	n	%	
Positive pathology	26	5.41	49	10.14	<0.01

Table 2 shows   positive pathology in 49 of 483 (10.14%) patients in the cytobrush smears as compared to 26(5.41%) patients in the spatula smears. The difference was found to be statistically significant (p<0.005).

DISCUSSION

Numerous efforts have been made to yield optimal cytological results. The present study was conducted to see if cytobrush and spatula is better than spatula alone for cervical cytological screening.

In the present study significantly more number of satisfactory smears were obtained with cytobrush (89.6%) compared to Ayres spatula (42.4%) which is statistically significant.[4]

Inadequate smears with absent endocervical cells were significantly high in smears taken by spatula when compared with smears taken from cytobrush.[5]

Positive pathology smears were more in smears taken by cytobrush than in smears taken by spatula which is statistically significant. This increase in the pick-up rate by the cytobrush , could have been due to better sampling of the endocervical canal and the transformation zone.[6]

CONCLUSION

Smear quality is increased by the use of cytobrush along with Ayres spatula when compared to Ayres spatula alone .Smears showed increased in percentage of satisfactory smear ,increase in positive pathology by cytobrush –spatula combination when compared to Ayres spatula alone.

Hence cytobrush is a easy instrument to use and is well tolerated by patients and appeared to be more effective than spatula alone in obtaining evaluable specimens .

The cost effectiveness of the cytobrush has to be worked out before implementing the cytobrush-spatula in our cancer screening programmes.

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A Study of Parathyroid Hormone, Total Calcium, Creatinine and Urea in Chronic Kidney Disease

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ABSTRACT

Backgound: Chronic kidney disease is a worldwide public health problem.It is the 12th cause of death and the 17th cause of disability, respectively. Secondary Hyperparathyroidism is seen in Chronic Kidney Disease.

Objective: The present study was planned to assess changes in Serum PTH, Serum Total Calcium with kidney function tests in patients of chronic kidney disease and control group.

Material & Method: In the present study, 50 cases of Chronic Kidney Disease and 50 apparently healthy subjects as a control group were studied. They were primarily diagnosed by clinical examination and evaluated by Biochemical investigations.

Result : Levels of Serum Parathyroid Hormone was significantly increased in chronic kidney disease as compared to normal individual and was found highly significant [p<0.0001]. Moreover there is low level of Serum Total Calcium level in chronic kidney disease in compare to normal individual. [P<0.0001]

Conclusion : Secondary hyperparathyroidism, which is characterized by an increase in the serum concentration of parathyroid hormone and deranged homeostasis of calcium.

Keywords : *Chronic Kidney Disease, Parathyroid Hormone, Total Calcium.*

INTRODUCTION

Chronic kidney disease [CKD] is a worldwide public health problem, both for the number of patients and cost of treatment involved. Globally, CKD is the 12th cause of death and the 17th cause of disability, respectively. The importance of CKD and its risk factors has to be realized. The prevalence of End Stage Renal Disease [ESRD] and patients on Renal Replacement Therapy [RRT] has increased over last two decades.[1]

In community-based studies, the CKD prevalence has been reported between 0.16% and 0.79%. The studies were designed to detect stage 3 CKD or worse and the real prevalence of CKD is higher than the reported number. [2-4] The ESRD incidences has been reported to be 160–232 per million population [pmp] [5-6] and the projected ESRD prevalence was 785–870 pmp. [6-7] secondary Hyperparathyroidism [SHPT] is seen in Chronic Kidney Disease.

CKD is a serious condition associated with premature mortality, decreased quality of life, and increased health-care expenditures. CKD refers to an irreversible loss of renal function that develops due to a multifactorial etiology. Initially it starts as a biochemical abnormality and progresses in stages. Earlier stages of CKD can be detected through routine laboratory measurements. Loss of renal function happens progressively leading to loss of excretory, metabolic and endocrine functions.[8]

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MATERIAL & METHOD

The present study was conducted from August-2012 to March-2013 in two groups of patients. Group-

1 [Study Group] included 50 patients of clinically proven with chronic kidney diseases, while group-2 [Control Group] included 50 normal individuals. Blood samples were collected and parameters i.e. Serum Parathyroid Hormone, Serum Total Calcium, Serum Creatinine and Serum Urea are analyzed on Tulip- Elisa Reader and Washer, Fully Auto Analyzer Model: XL-640 Company: Transasia Biomedical Pvt. Limited at Biochemistry Section, Laboratory Services B.J. Medical College and Civil Hospital, Ahmedabad.

Inclusion criteria for cases are as follow :

- Patients of chronic kidney disease previously diagnosed and yet to start dialysis, age between 20-60 years were included in the study.

- For Diagnosis of Chronic Kidney Disease

- GFR less than 60 mL/min/1.73 m^2 for three or more months.

Inclusion criteria for control are as follow :

- Age : Between 20-60 years

- Samples of fifty normal healthy volunteer [No clinical evidence of any disease]

Exclusion criteria for cases and control are as follow:

- Patient on dialysis

- Any acute or chronic infection

- Pregnancy

- Any history of recent surgery,

- Trauma: Surgical, Burns, Fractures

- Malignancy: Lymphoma, Carcinoma, Sarcoma, Leukemia

- Drug History : Patients taking Vitamin D, Calcium and Diuretics.

GraphPad Prism version 5.00 for windows was used for statistical analysis [GraphPad software, San Diego California USA].The results are expressed as Means ± SD. A level of p<0.05 was considered as statistically significant.

Table: 1. Tests in Chronic Kidney Disease versus Normal Individual

Parameter	Biological Reference Interval	Group-1[CKD Patients] n=50			Group-2 [Control Group] n=50			Significance
		Mini.	Maxi.	Mean ± SD	Mini.	Maxi.	Mean ± SD	p value
PTH	9-94 pg/ml	49	742	314.64 ±190.36	12	74	37.20 ± 15.52	P<0.0001
Total Calcium	9 –11 mg/dL	7.25	9.14	7.96 ± 0.49	8.29	11.13	9.37 ± 0.62	P<0.0001
Creatinine	0.5-1.2 mg/dL	1.93	9.46	4.22 ± 1.90	0.57	1.27	0.90 ± 0.17	P<0.0001
Urea	14-40 mg/dL	71.80	207.90	128.73 ± 39.54	15.60	48.40	29.5 ± 7.35	P<0.0001

DISCUSSION

In our study we have measured Serum activity of Parathyroid Hormone, Total Calcium, Creatinine, Urea. There is highly significant difference observed in between study group and control group [P<0.0001] in all the parameters. Comparison of Mean and standard deviation of all test parameters are shown in Table-1.

Among the numerous complications associated with CKD is secondary hyperparathyroidism [SPTH], which is characterized by an increase in the serum concentration of parathyroid hormone [PTH] and deranged homeostasis of calcium . [9] Secondary hyperparathyroidism arises due to hypocalcaemia, consequent to phosphate retention and deficient synthesis of 1,25 dihydroxycholecalciferol.[10] As a result of elevated serum phosphate concentration, secretion of PTH is increased as production of 1, 25 dihydroxycholecalciferol decreases. This results in increased urinary excretion of serum phosphate. An elevated serum PTH level occurs early in the course of the disease and plays an essential role in the development of renal osteodystrophy.[11]

The pathophysiology of secondary hyperparathyroidism and the consequent high-turnover bone disease is related to abnormal mineral metabolism through the following events:

[1]Declining GFR leads to reduced excretion of phosphate and, thus, phosphate retention;[12]

[2]Retained phosphate stimulates increased synthesis of PTH and growth of parathyroid gland mass[13]; and

[3]Decreased levels of calcium, resulting from diminished calcitriol production by the failing kidney as well as phosphate retention, also stimulate PTH production. Low calcitriol levels contribute to hyperparathyroidism, both by leading to hypocalcemia and also by a direct effect on PTH gene transcription. These changes start to occur when the GFR falls below 60 mL/min. [14,15]

In present study serum Parathyroid Hormone level in study group and control group which results are correlated well with the study done by William K. et al. , 2012 study.[16]

CONCLUSION

Levels of Serum PTH were significantly increased in chronic kidney disease as compared to normal individual and were found highly significant [p<0.0001]. Moreover there is low level of Serum Total Calcium level in chronic kidney disease in compare to normal individual. [P<0.0001]. The results of the present study suggest that PTH is linked with derangements in the metabolism of electrolytes like calcium in CKD and contributes to a plethora of complications. PTH should be measured early in CKD and the necessary interventions including dietary and pharmaceutical, concerning these electrolytes, provided to protect the CKD patient from any complication that will result as a result of PTH excess.

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Effectiveness of 0.75% Ropivacaine for Brachial Plexus Block in Upper Limb Orthopaedic Surgery in Comparison with 0.5% Bupivacaine

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ABSTRACT

Aims: To compare the efficacy of Ropivacaine 0.75% with Bupivacaine 0.5% for subclavian perivascular Brachial plexus block.

Settings and Design: After informed consent, 60 ASA I/II patients aged between 18-75 years, posted for elective upper limb orthopaedic surgeries were enrolled in a prospective, randomized, double blind study, to receive 0.4ml/kg of either Ropivacaine 0.75% (R group n=30) or 0.4ml/kg of Bupivacaine 0.5% (B group n=30). Supraclavicular brachial plexus block was done in all patients with one of the study drug employing subclavian perivascular approach described by Winnie'. Onset of sensory and motor block, quality of motor block, overall quality of block and duration of sensory and motor block were evaluated in the C5 to T1 dermatomes. The values obtained were statistically analyzed and the results with P value <0.05 were considered statistically significant.

Results: Onset times and duration of sensory and motor block were similar between both groups with no statistical difference. The mean onset time of sensory block was 3.65 ±2.91 min and 4.23±1.59 min in Ropivacaine group and Bupivacaine group respectively (P= 0.132). Onset time of motor blockade was 4.63±3.64 min in R group and4.4±2.02 min in B group (P= 0.76). Quality of motor block was comparable between both groups being complete paralysis in majority of the patients except for 2 cases in R group and 3 cases in B group (P=0.64). Overall quality of block was satisfactory in 93.33% patients in Ropivacaine group and 90% in Bupivacaine group (P=0.64). Duration of sensory block was 555.14±162.26 min in R group and 594.33±158.73 min in B group (P=0.369). Duration of motor blockade was 596.04±154.14 min in R group and 598.52±141.13 min in B group (P=0.95). There were no adverse events noted in either group

Conclusions: 0.4ml/kg Ropivacaine 0.75% produced effective and well tolerated brachial plexus block of long duration by the subclavian perivascular route which is similar to that of 0.4ml/kg of 0.5% Bupivacaine. Because Ropivacaine has a potentially improved safety profile compared with Bupivacaine, it may offer an advantage.

Keywords: Ropivacaine, Bupivacaine, brachial plexus block, subclavian perivascular approach, upper limb surgeries, Winnie.

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INTRODUCTION

Ropivacaine is a new amino amide long acting local anaesthetic[1] available as a pure S-enantiomer with a potentially improved safety profile in contrast to Bupivacaine. Human trials have demonstrated less cardiac depression and fewer central nervous system effects when ropivacaine is injected intravascular[2]. This fact suggests a potential clinical advantage of

ropivacaine during neural blockade when large volumes of local anaesthetics are required. When considering the ability to inhibit tetradoxin resistant sodium channels Brau et al reported that Ropivacaine was nearly 50% less potent than racemic Bupivacaine[3]. This property may also enable the use of solutions with a higher concentration to enhance the speed of onset time and to prolong duration of blockade.

The current study was performed to compare 0.75% Ropivacaine and 0.5% Bupivacaine, 0.4 ml/kg[4] in supraclavicular perivascular approach of brachial plexus block for elective upper limb orthopaedic surgeries in relation to

• Onset & duration of sensory blockade

• Onset, duration and quality of motor blockade

• overall quality of block

• Adverse effects for the study drug
.

SUBJECTS & METHOD

After informed consent 60 patients aged between 18 to 70 years with ASA class I and II posted for elective upper limb orthopaedic surgeries were included in the study. The study population was randomly divided using computer generated numbers into 2 groups.

Group R (n = 30) received 0.4ml/kg of 0.75% Ropivacaine

Group B (n = 30) received 0.4ml/kg of 0.5% Bupivacaine

Inclusion criteria

Normal adult patients aged between 18 to 70 years belonging to ASA class I and II, without any co-morbid disease, admitted for elective upper limb orthopaedic surgeries.

Exclusion criteria

• Patients with

  o Known hypersensitivity or contraindications to study drugs

  o Known coagulopathy or on anticoagulants

  o Severe renal, hepatic, respiratory or cardiac disease

  o Neurological, psychiatric or neurovascular

disorders

  o Alcohol abuse

  o Injury to any of the nerves of the upper limb

• Infection at the site of block

• Morbidly obese patients and Pregnant women

All patients had a routine physical examination a day before surgery and baseline ECG performed within 15days of surgery, they were premedicated with alprazolam 0.5mg and ranitidine 150mg orally night before surgery and were kept nil orally 10pm onwards.

On arrival in the operating room, an 18 gauge intravenous cannula was inserted on the non operating hand and an infusion of normal saline was started, Then connected to Siemens SC 7000, multichannel monitor which records heart rate (HR), non invasive measurements of systolic blood pressure (SBP), diastolic blood pressure (DBP), mean arterial blood pressure (MAP), continuous electrocardiogram (ECG) monitoring and haemoglobin oxygen saturation (SPO_2). The heart rate and rhythm were monitored from a continuous visual display of electrocardiogram from lead II.

Anaesthesiologist not involved in the care or monitoring of the patient prepared the local anaesthetic study solutions. The patient, observing anaesthesiologist as well as physicians and nurses of the acute pain service were blinded to the study drug used.

All patients were premedicated with i.v. 1mg midazolam and 15mg pentazocin and placed in the dorsal recumbent position with the head turned away from the site of injection. Under aseptic precautions, skin infiltration done with lignocaine 2% at site of block. All supraclavicular subclavian perivascular brachial plexus blocks were performed as described by Winnie[5] using peripheral nerve stimulator. The interscalene groove was indentified at the level of cricoid cartilage and traced downwards till the clavicle. Subclavian artery pulsations were felt in the groove just above the clavicle. The needle entry point was just above the finger palpating the subclavian artery in the interscalene groove. The nerve stimulator needle was introduced parallel to midline and to the table. A motor response was sought distal to elbow in fingers/hands. After an appropriate response 0.4ml/ kg of the study drug was injected in 3ml increments,

after a negative aspiration test, with repeat aspirations every 3ml. An intercostobrachial nerve block was then performed separately using 5ml of lignocaine with adrenaline 1% to provide anaesthesia for the possible placement of the tourniquet.

Immediately after block placement, patients were evaluated every 1 minute, for the assessment of onset of sensory and motor blockade, quality of motor blockade, overall quality of the block, duration of sensory and motor blockade by predetermined definitions of study parameters. Assessments were carried out every 1 minute till the achievement of motor and sensory blocks until 30 minutes. After 30 minutes if the block was considered to be adequate, surgeons were allowed to apply the tourniquet and start the surgery. If the block was considered to be inadequate for surgery, patient was given general anaesthesia with endotracheal intubation.

During the surgery tourniquet time, haemodynamic variables like HR, SBP, DBP, MAP, SPO_2 ECG were monitored 2nd, 5th and 10th minute and then every 10 minutes till the completion of the surgery, later every 30 minutes till 5 hrs post block, every 60 minutes until complete recovery. Patients were monitored for any signs of cardiovascular or central nervous system toxicity (changes in HR/BP/ rhythm/ signs of CNS stimulation) throughout the study. Any hypersensitivity reaction, evidence of pneumothorax, and other adverse events were also monitored. Dermatomes located in the surgical field could not be tested during the operative procedure. Because all patients were applied plaster of Paris cast after the procedure, individual dermatomes could not be assessed, instead to evaluate sensation, patients were asked to document the time when incisional discomfort began and to evaluate motor power, the time when full power returned to the shoulder. In the post operative period, when the patient complained of pain at the operative site, inj. ketorolac 30mg was given and study was concluded. Data were obtained after 24 hrs of block placement.

For statistical analysis complete failure and unsatisfactory blocks were considered as failures and compared with satisfactory block.

STATISTICAL ANALYSIS

Non parametric methods were used for the statistical analysis. Ordered or continuous variables such as onset and duration of block were tested with the use of Wilcoxon rank sum test. Binary variables such as the ± of sensory or motor block were tested with the use of Chi squared or Fisher's exact test. Statistical significance was considered to be $P < 0.05$.

RESULTS

Table 1: Demographic characteristics of study population (Mean±SD)

Variable	0.75% Ropivacaine (R group)	0.5% Bupivacaine (B group)	p-value
Age (years)	38.67 ± 13.37	39.7 ± 15.49	0.7831
Sex (M/F)	19 (63.3%) / 11 (36.7%)	16 (53.3%) / 14 (46.7%)	0.601
Weight (kg)	60.93 ± 6.65	57.7 ± 7.6	0.09

There were no statistically significant differences in the demographic profile of patients in either group in terms of age, body weights, or male/female (M/F) ratio (p > 0.05).

Type and duration of surgery

Type of surgery was similar in both groups i.e. open reduction and internal fixation of both bones upper limb under tourniquet. There was no difference in the duration of surgery in both groups (60.15 min in R group and 62.10min in B group).

Table-2: Sensory block onset in minutes (Mean ± SD)

Level	0.75% Ropivacaine	0.5% Bupivacaine	p-value
c-5	4.07 ± 2.32	4.23 ± 1.59	0.249
c-6	3.65 ± 2.91	4.59 ± 1.52	0.132
c-7	4.89 ± 2.91	5.96 ± 2.95	0.179
c-8	6 ± 4.29	7.39 ± 3.75	0.201
T-1	6.66 ± 5.14	7.47 ± 2.76	0.45

There was no significant difference between the two groups in terms of onset of sensory block at all dermatomes C-5 to T-1 (p>0.05).

Onset of sensory block was earliest in C-6 dermatome (3.65 min) and C-5 dermatome (4.23 min) in Ropivacaine & Bupivacaine groups respectively. All dermatomes were blocked by 6.66 min in R group and by 7.47 min in B group which was not significant statistically.

Two patients in R group and three in B group had inadequate analgesia due to sparing of a few of the dermatomes and were given general anaesthesia and were excluded from the study.

Table-3: Motor Block onset(min) (Mean ± SD)

	0.75% Ropivacaine	0.5% Bupivacaine	p-value
Shoulder			
Paresis	4.63 ± 3.64	4.4 ± 2.02	0.76
Paralysis	8.21 ± 5.45	8.82 ± 3.93	0.313
Hand			
Paresis	7.29 ± 5.34	8.07 ± 4.06	0.531
Paralysis	12.41 ± 8.77	10.70 ± 2.83	0.88

Onset time of motor block was 4.63 min in R group and 4.4 min in B group. Complete motor blockade was achieved in 12.41 min in R group and 10.70 min in B group. There was no significant difference between the two groups of patients for paresis or paralysis of either shoulder (p>0.05) or hand (p>0.05).

Table 4: Quality of motor blockade

	0.75% Ropivacaine	0.5% Bupivacaine
Paralysis(n)	28 (93.33 %)	27 (90%)
Paresis(n)	2 (6.66%)	3 (10%)
No weakness	0	0

χ^2 **= 0.2182,** df=1, p=0.64, Not significant

There was no statistically significant difference between the two groups regarding the number of patients developing complete paralysis of all the muscle groups of the upper limb. There were 2 partial blocks in R group accounting for 6.66% and 3 partial blocks in the B group accounting for 10 % (the same patients also had inadequate analgesia). All these 5 patients were excluded from the study.

Table 5: Overall quality of block

	0.75% Ropivacaine	0.5% Bupivacaine
Satisfactory block (n)	28 (93.33)	27 (90)
Unsatisfactory block(n)	2 (6.66)	3 (10)
Complete failure	0	0

χ^2 **= 0.2182,** df=1, p=0.64, Not significant.

The block was satisfactory in 93.33% patients in R group and 90% patients in B group. The difference was not significant. There were no complete failures in either group.

Incidence of haematoma, pneumothorax, accidental intravascular injection, post block nausea, vomiting, convulsions, neuralgia were nil in either group. Post block haemodynamic parameters were also normal in both groups requiring no intervention.

Table 6: Duration of Sensory and Motor Block in two groups (min) (Mean ± SD)

	0.75% Ropivacaine	0.5% Bupivacaine	p-value
Sensory block	555.14 ± 162.26	594.33 ± 158.73	0.369
Motor block	596.04 ± 154.14	598.52 ± 141.13	0.95
Total	28	27	

The duration of sensory and motor block did not differ significantly between the Ropivacaine and Bupivacaine groups (p>0.05). Duration of sensory block ranged from 206 to 1033 min for Ropivacaine and 250 to 990 min for Bupivacaine, whereas duration of motor block ranged from 260 to 1144 min for Ropivacaine and 330 to 990 min for Bupivacaine.

DSB-Duration of Sensory Block, DMB- Duration of Motor Blockade

DISCUSSION

The selection of the optimal long acting local anaesthetic and concentration for brachial plexus block must take into consideration the available anaesthetics, the time to onset, duration of blockade and side effects of each drug and dose. A drug that has

a fast onset, long duration and minimal toxicity could be an advantage. Introduced recently, ropivacaine has been found to be equally effective and alternative to bupivacaine for long acting neural blockade like brachial plexus block by various authors[6,7,8,9,10,11,12].

In our study, volume of 0.4ml/kg of local anaesthetic was chosen by consensus in order to ensure that the study did not expose patients in the lower weight ranges to an unexpectedly high dose of local anaesthetic so that it should not exceed the toxic dosage of Bupivacaine 225 mg and that of Ropivacaine 250mg[13,14] and to facilitate blinding.

The results of this study suggest that both 0.5% bupivacaine and 0.75% ropivacaine provide a fast onset time when evaluating shoulder abduction and loss of pin prick sensation in the C5 to T1 dermatomes. Ropivacaine had a mean onset time for sensory blockade of 3.65±2.91 min and that of bupivacaine is 4.23±1.59 min. Mean onset time for motor blockade in R group is 4.63±3.64 min and that of Bupivacaine is 4.4±2.02 min. Based on this evaluation, there seems to be little clinical advantage for selection of one local anaesthetic over the other based on the time to onset of neural blockade.

The duration of sensory and motor blockade was more difficult to test because of application of plaster of paris to the operated hand at the end of the surgery. However, time until first oral narcotic use, onset of incisional discomfort and return of full sensation in the shoulder as defined by the patient were assessed.

Duration of sensory block was 555.14±162.26 min in R group and that in B group is 594.33±158.73 min. Duration of motor blockade was 596.04±154.14 min in R group and that in B group is 598.52±141.13 min.

Because each local anaesthetic provided long acting analgesia, there seems to be no clinical advantage of any one drug based on these data and the duration of analgesia.

In conclusion, there was no clinical difference in onset and duration among 0.5% bupivacaine and 0.75% ropivacaine when injected in equal volumes for subclavian perivascular brachial plexus block. Because ropivacaine has a potentially improved safety profile compared with bupivacaine, it may offer an advantage.

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Knowledge, Attitude and Practice of Emergency Contraceptive among Women who Seek Abortion Care at a Tertiary Healthcare Institute of North India

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ABSTRACT

Background: Maternal mortality rate of India is very high .The use of contraceptives to prevent unwanted pregnancies and unsafe abortion is an important strategy to minimize maternal mortality rate. The aim of this study was to assess the knowledge, attitude and practice of emergency contraceptive among women who seek abortion care.

Material and Method: A cross sectional study was conducted among females of reproductive age group who sought abortion care in a tertiary care hospital. Data was collected using fixed pre-formed questionnaires.

Results: In this study 270 women were interviewed. Most of them (230) were from urban area and 40 were from rural area and the mean age was 27.3 (SD ±5.9) years. Only 126 (46.7%) women ever used any contraceptive method and the commonest method used was barrier method (55.6%).Only 10 (7.9%) of them ever used emergency contraceptive. Of all women in the study group 165(61.1%) heard of emergency contraception. Among them only 17(10.3%) knew the correct timing of EC pills. Mass media (70.5%) was major source of information and pharmacies (84.8%) were main source for availing services. Place of origin, religion, occupational status and education had significant statistical association with knowledge of emergency contraceptive.

Conclusion: Lack of awareness about emergency contraception and its correct use among Indian women is still high. Much work needs to be done and strategies to increase awareness and acceptability need to be undertaken.

Keywords: *Emergency Contraceptive, abortion care.*

INTRODUCTION

Even though a wide variety of contraceptive choices are available in India, contraceptive prevalence in the country is only 56% as per the WHO Global Health Statistics 2012. This figure also holds true for the entire WHO South-East Asia region [1]. Stratified by income, contraceptive prevalence in the low-income group within the region is only 35%, while it increases to 52% and 80% in the lower- middle and upper-middle income groups [1]Most couples in India do not want to use a contraceptive method on a long-term basis for the fear of side-effects, especially the oral pill and intrauterine devices (IUDs), or do not like to use a method linked with coitus (barrier methods). Hence, unwanted and unplanned pregnancies are common.

As per data from WHO, 21.6 million unsafe abortions occurred globally in 2008, out of which 47000 women died from abortion-related complications, contributing to 13% of global maternal

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mortality [2]. Availability of contraceptive at the hour of need is the major issue in addressing the unmet need of contraception [3].Department of Health & Family Welfare introduced 'Emergency contraceptive pills' (E-pills) in the national family welfare programme during the year 2002-03. This contraceptive is used within 72 hours of un-protected sex. ECPs have been included in national family welfare programme and efforts are being made to utilize them at all levels of public health system. ECPs has been included in the ASHA kits to address the issue of unwanted pregnancy at the community [4].

For ECPs to become a widely used backup method of contraception, women require both an awareness of its existence and a willingness to use it correctly [5]. Among various forms of contraception emergency contraceptive are the only one that can be used after sexual intercourse offering chance to prevent unwanted pregnancy. Therefore the objective of this study was to determine knowledge, attitude and practice of emergency contraception among women who seek abortion at tertiary care Hospital. Such a survey would assist policymakers in targeting educational efforts regarding knowledge, use and availability of ECPs, which in future may reduce the number of induced abortions in India.

MATERIALS & METHOD

All pregnant women coming to the outpatient department of Obstetrics and Gynaecology of Santosh Medical College, Ghaziabad, with a request for termination of pregnancy were included in this cross sectional study conducted between January 2013 and June 2013. They were interviewed about their knowledge, attitude & practices of contraception using fixed pre-formed questionnaires. The women under the study gave their informed consent prior to the interview. At the same time all the females who are not aware or do not have specific knowledge about various modern method of contraception and emergency contraceptives were made aware and counselled.

Data was analyzed in Excel 2007. Descriptive statistics, chi-square tests were done and significance of tests was decided at p-value <0.05.

OBSERVATIONS AND RESULTS

In this study 270 women were interviewed. Most of them (85.1%) were from urban area and 14.9% were from rural area and the mean age was 27.3 (SD ±5.9) years. Out of 270 women who had been included in the study, maximum of them 86 (31.9%) were of 21-25 years age group, while 84 (31.1%) of 26-30yrs,40 (14.8%) of 31-35 yrs, 30 (11.2%) of >35yrs and 30(11.0%) of them were of 20 yrs and less[Table 1, Chart1].

Only 126 (46.7%) women ever used any contraceptive method and the commonest method used was barrier method (55.6%). Among them only 10 (7.9%) of them ever used ECPs [Table 2, Chart 2].

Of all women in the study group only 165 (61.1%) heard of emergency contraception. The women were counselled about the indications, uses, and benefits of ECPs and 198 (73.3%) women showed willingness to use it in future and the rest showed no inclination.

Among the 165 women who had knowledge of ECPs only 17(10.3%) knew the correct timing of ECPs. Mass media (70.5%) was major source of information and pharmacies (84.8%) were main source for availing services [Table 3]. About 52.1% of women knew that ECPs should be used when condom breaks and 41.8%% were not sure about the indications for use.

Religion, place of origin and occupational status had significant statistical association with knowledge of emergency contraceptive. The education level had a highly significant association with EC awareness in women who ever heard of emergency contraception. [Table 4].

Among the ten women who ever used ECPs did not use it to try to prevent the current pregnancy, even when at high risk of pregnancy. The main reason for non-use was not realizing being at risk of becoming pregnant or the need to use ECPs (80%). A smaller proportion (10%) of these women avoided using ECPs because the pregnancy was planned and the rest (10%) forgot to take it [Table5].

DISCUSSION

All the women in our study group knew at least one method of contraception (94.8 %). In a similar Indian study, the awareness rate was 82.2% [6].

Only 126 (46.7%) women among the 270 women interviewed ever used any contraceptive method and the commonest method used was barrier method

(55.6%). Among the 126 women who ever used contraceptives, only 10 (7.9%) of them ever used ECPs. The reasons for very high percentage of use of barrier method could be lack of knowledge and hesitancy about uses of other contraceptive methods.

According to NFHS-III, knowledge about various temporary and permanent methods among men and women ranges from 45% to 97%, with the knowledge ranging from 73% to 87% about various methods. Women's education plays an important role in increasing the awareness[7]. Another factor responsible for knowledge of FP methods is exposure of messages through mass media. Though knowledge of contraception was 94.8 %, only 46.7% of women ever used any one method of contraception which is similar to NFHS III data[7].

According to NFHS III, the knowledge about EC is 20% in men and 11% in women [7]In earlier studies done in Uttar Pradesh[8] and Chandigarh[9] also the knowledge about EC,s in women were only 2% and 1% respectively. Our study reflected much higher knowledge among women (61.1%), and this may be attributed to the study being conducted about 7-8 years later and also due to mass media which is a major source of information. About 70.5% of women had information about emergency contraceptive pills from television, 12.1% from friends and relatives and only 4.8% from health facilities. This emphasizes that the health facilities must counsel the women about use of ECPs to prevent unwanted pregnancies.

Of the 165 woman who were aware of emergency contraception only 10.3% correctly identified 72 hrs at the limit time for the method's use. This difference could be attributed to less literacy level and less number of study population. The knowledge of EC was 88.6 % among women from urban area as compared to 75% in women living in rural area (p< 0.012). Occupational status also shows a significant association between knowledge of emergency contraceptive. There is a highly significant association (p<0.001) between education and knowledge of emergency contraception among women who ever heard of EC.

In our study165 (61.1%) women had knowledge of ECPs among but only 10 (6.1%) of them used it previously. This finding is lower as compared to a recent study where 56% women had heard of emergency contraceptive pills and 19.3% had ever used it[10].

Two hundred sixty women who never used ECP' were counselled about the indications, uses, and benefits of ECPs and among them 198 (73.3%) women showed willingness to use it in future and the rest remained noncommittal. The reason of high favourable attitude towards ECPs use after counselling may be because most women were from urban area (85.1%) and the literacy rate was also high (71.1%). This reflects the great need for creating awareness and imparting knowledge about the correct use of EC among Indian women.

Although 10(7.9%) women had experience in using EC, they did not use EC to try to prevent the current pregnancy, even when at high risk of pregnancy. The main reason for non-use was not realizing being at risk of becoming pregnant or the need to use ECs (80%). A smaller proportion (10%) of these women avoided using EC's because the pregnancy was planned and the rest (10%) forgot to take it.

This study solely focused on women who were seeking an abortion, a specific population with failure in preventing pregnancy. By understanding their attitude towards, and behaviour in, EC use, we explored the possible factors leading to EC failure and low rate of EC use even when at high risk of becoming pregnant. However, the results of our study cannot be representative for another large proportion of women who successfully prevented an unintended pregnancy by taking ECs and who may therefore have different opinions about using ECs and more studies are needed including those women also.

LIMITATIONS OF STUDY

This study suffers from the usual limitation of a cross-sectional study. The study also did not discover any information from the service providing side of emergency contraceptive in the health facilities. We had made an effort to get possible information and made the interview with respondents private but we cannot guarantee about the honest answers as it covered the sensitive issues, and recall bias. Also this study was limited to women although men comprise the decision making component in country like India who need to be educated if we want a new contraceptive method to be successful.

TABLES AND CHARTS

Table 1 : Socio- Demographic Characteristics of Women (n= 270)

	Number	Percent
Urban	230	85.1
Rural	40	14.9
Religion		11
Hindu	160	59.3
Muslim	110	40.7
Marital status		
Single	20	7.4
Married	250	92.6
Age (years)		
<16	5	1.8
16-20	25	9.2
21-25	86	31.9
26-30	84	31.1
31-35	40	14.8
> 35	30	11.2
Number of living children		
One	75	27.8
Two	70	25.9
Three and above	195	72.2
None	30	11.1
Occupation		
Housewife	140	51.9
Student	26	9.6
Government employee	35	13.0
Housemaid/Labourer	69	25.6
Educational status		
Illiterate	78	28.9
1-8	94	34.8
9-12	75	27.8
12+	23	8.5
N = 270		

Table 2 : Knowledge and Contraceptive Practice among Women

Knowledge of any contraceptives [n = 270]	Number	Percentage
Yes	256	94.8
No	14	5.2
Ever used contraceptives [n = 270]		
Yes	126	46.7
No	144	53.3
Type of contraceptives used [n = 126]		
OCP	18	14.3
Barrier Method	70	55.6
IUCD	20	15.9
ECP's	10	7.9
Others	8	6.3
Total	**126**	**100**
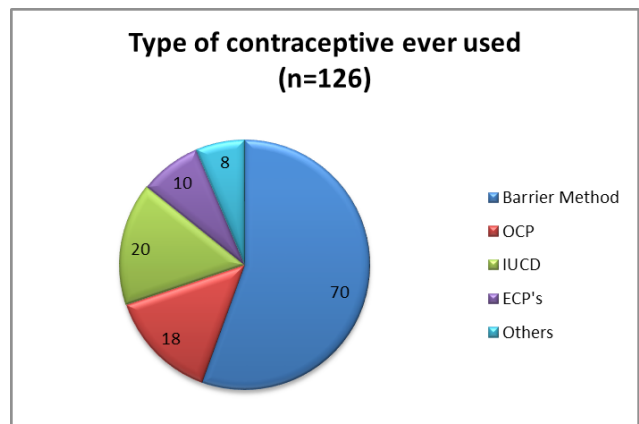
Chart 2: Type of contraceptive

Chart 1. Age distribution

Table 3 : Knowledge And Attitude And Practice Of Emergency Contraception (n = 270)

Variable	Number	Percentage	Variable	Number	Percentage
Ever heard of EC			Internet	12	7.3
Yes	165	61.1	Health facilities	8	4.8
No	105	38.9	Friends/relatives	20	12.1
Ever used EC			**Place to obtain EC**		
Yes	10	3.7	Health institutes	18	10.9
No	260	96.3	Pharmacy	140	84.8
Willingness to use EC(n=270)			Social worker	3	1.8
Yes	198	73.3	Don't know	4	2.5
No	72	26.7	**Importance of EC**		
Time to take EC (n=165)			Back up when condom breaks	86	52.1
Within 72 hours	17	10.3	Not sure about Indications	69	41.8
After 72 hours	78	42.3	When oral contraceptive pill is forgotten	6	3.7
Don't know	60	36.4	Post rape	4	2.4
Source of information			N.B: Only those who had ever heard of emergency contraceptive answered other knowledge questions.		
Formal Education	5	3.0			
Media	118	70.5			
Magazine	2	1.2			

Table 4: Knowledge of Emergency Contraceptive by Different Socio Demographic Groups			
	Yes Number (%)	No Number (%)	*P -value*
Religion [n = 270]			
Hindu	110 (68.8)	50 (31.2)	0.002
Muslim	55 (50)	55 (50)	
Place of origin [n = 270]			
Urban	186 (88.6)	24 (11.4)	0.012
Rural	45 (75)	15(25)	
Occupation [n = 270]			
Housewife	100 (71.4)	40(28.6)	
Student	16 (61.5)	10(38.5)	0.015
Government employee	30 (85.7)	5 (14.3)	
Housemaid	19 (27.5)	50 (72.5)	
Ever heard of contraceptive [n = 126]			
Educational level [n = 126]			
Illiterate	4(5)	74 (95)	
1-8	42 (42)	58(58)	0.001
9-12	60(80)	15(20)	
12+	20(87)	3(13)	

Table 5: Reasons for not using ECPs to try to prevent the current pregnancy among 10 respondents who had previous experience in using ECPs

Variable	Number	Percentage
1. Did not realize being at risk of becoming pregnancy or the need to use ECPs		
1) Did not realize the need to use ECPs	6	60
2) Had used calendar method and thought it was safe enough	1	10
3) Had used other contraceptive methods as usual	1	10
2. Planned pregnancy	1	10
3. Forgot to take ECPs	1	10

CONCLUSION

Lack of awareness about emergency contraception and its correct use among Indian women is still high. More efforts are required to generate awareness about the health hazards of induced abortion, which can be avoided by the use of effective contraception. Particularly focus should be given on emergency contraception use to females to decrease unintended pregnancy and abortion cases. This can be done through education and training of health care providers who in turn will educate them. Women of reproductive age group should be educated about the reproductive health and EC method at family planning clinics and mass media should be used to provide reliable and accurate knowledge on ECPs.

Conflict of Interest : We declare that we have no conflicts of interest.

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Strategies and Approaches for Managing Unsafe Premarital Sex among Youths: Evidences from Modern and Traditional Urban Settings in Indian

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ABSTRACT

Background: Although premarital sex relationships are widely discouraged in India, some youth do form such relationships due to change in social mores, media influence and other social and cultural factors.

Objectives: To understand the nature and extent of youth sexual behaviour and examine the relationship between individual characteristics, attitude towards reproductive health issues and sexual behaviour.

Materials and Method: In the study quantitative data have been collected among 2000 youths from Delhi and 1500 youth from Lucknow belonging to age group 15-24 years. Logistic regression analysis is applied to find out relationship between pre-marital sex and set of 18 independent variables relating to attitude, behavior and exposure to media etc.

Results: It was found that exposure to alcohol, drugs, pornographic films and family status of the students, attitude towards females were positively related with premarital sex relationships.

Conclusion: Findings underscore the need for educating youths on social and attitudinal sexual health issues to target not only young people but also their peers.

Keywords: Family background, smoking behaviour, exposure to pornographic literature, premarital sex, peer group influence.

INTRODUCTION

Adolescent all over the world are sexually active, but the age at which they start sexual intercourse varies between regions and societies, females and males and by socio-cultural factors.[1,2] Evidence from a growing body of research indicates that between one in seven and one in three young men and fewer than one in ten young women had ever engaged in pre-marital sex.[3,4,5] Internationally, young peoples' sexual health is a major concern both because of an urgent need to reduce the high level of unwanted pregnancies, sexually transmitted diseases and psychological wellbeing. Though condom awareness among youth is as high as 83.8 percent on an all-India level, actual condom usage is reported to be less.[6] Further, due to poor knowledge on matters related to sexuality, reproductive health, and their inability to use family planning and health services exposes them to a significant risk of experiencing pregnancy, sexually transmitted disease (STDs) including HIV/AIDS.[7] Studies of college students and youths, indicated that at least half the respondents had their first sexual experience between the ages of 15 and 24 years. AIDS awareness although widespread among the students, they did not use condom regularly.[8]

A study conducted in Delhi and Lucknow reported that premarital sex varies from 17% among schoolchildren to 33% among young workers in the typical north Indian population. Overall, 46% never used condoms, 22% sometimes, and 17% always. The need for sex education felt by 70% of the respondents. The study recommended opening clinics for adolescents and counselling centres in schools, colleges, professional institutions, and working places.[9]

The National Family Health Survey (NFHS-3) found that 4 percent of young women and 15 percent of young men had ever experienced sex before marriage, only 14.1 percent (14.7% urban versus 13.9% rural) of unmarried sexually active adolescent females used a contraceptive.[10] In another study, only four in ten students from Delhi University reported occasional condom use during sexual intercourse.[11]

An important study conducted in 6 States in India covering two fifth of country's population reported that while among young men 42% had sex with their romantic partner; among young women, just one in four (26%) had engaged in sexual relations. Partner communication and negotiation regarding safe sex were rare, and the vast majority of youth had engaged in unprotected sex. Youth in rural areas tended to initiate pre-marital sexual activity earlier than their urban counterparts.[12]

The objective of the present study was to understand the nature and extent of youth sexual behaviour and examine the relationship between individual characteristics, and attitude, behaviour etc towards premarital sex so that effective strategies and approaches could be evolved to address the issue.

METHOD

The study was conducted in two cities Delhi and Lucknow on the criteria of socio-cultural, traditional, and economic differences. Information was collected from youths belonging to age -group of 15-24 years from various educational institutions comprising of Senior Secondary Schools (500 students), University / University Colleges and Professional Colleges (500 students), Working institutions (250 youths) and Slums (250 youths) in Delhi and 50% sample was taken from Lucknow using same sampling procedure.

The ethical issues were examined and approved by Programme Advisory Committee of the Institute.

The respondents were informed that the questionnaire did not contain name and address, thereby assuring them a complete anonymity and strict confidentiality. They were explained the voluntary nature of survey. Around 5 percent Students/youths did not complete the schedule, were not included in the study.

For analysis, a logistic regression technique was carried out to study significance of association/ relationship between premarital sex with 18 independent variables of importance on individual characteristics, knowledge, attitude, behaviour etc.

LOGISTIC REGRESSION

The basic form of the logistic function is:

$$P=1/[1+\exp(-Z)] \ldots\ldots\ldots\ldots (1)$$

Where P is the estimated probability and Z is the predictor variable.

Assuming that Z is a linear function of a set of predictor variables:

$$Z=b_0+b_1X_1+b_2X_2+\ldots\ldots\ldots+b_kX_k\ldots\ldots(2)$$

After substituting for Z in the logistic function in (1), the outcome will be:

$$P=1/\{1+3\exp[-(b_0+b_1X_1+b_2X_2+\ldots\ldots\ldots+b_kX_k)]\}\ldots\ldots (3)$$

All the basic properties of the logistic function are preserved when this substitution is applied. The function still ranges between 0 and 1, and achieves its maximum rate of change, with respect to change in any of the X_i.

VARIABLES USED FOR LOGISTIC REGRESSION ANALYSIS

In this analysis, 18 variables are taken as independent variables viz. type of locality, type of family, status of parenthood, category of family, family environment, type of schooling, religious belief of respondents, type of literature they read, access to pornographic films (blue films), access of pornographic literature, smoking and drinking behaviour, to see the impact on sexual behaviour of unmarried youths. Some other variables like "opinion regarding kissing/caressing/dating etc. is common among youths and nothing unethical about it", "Approve sex before marriage", "Pre-marital sex is threat to future married life", "Pre-marital sex is

good for future and can equip better understanding between husband and wife" and "Peer involvement in pre-marital sexual acts" etc were also analysed.

RESULTS

The results of logistic regression analysis of dependent variable i.e. involvement of unmarried youths in premarital sexual acts with independent variables are presented in Table-1 in the Annexure. The analysis shows that those residing in middle locality have 26 percent more likely to involve in premarital sex than the youths from posh locality. Regarding the type of family, youth from nuclear family less likely to have involved in premarital sex than youths from joint family. Youths belong to modern/traditional and orthodox/conservative family have lesser chance to involve in premarital sex with reference to highly modern youths. Regarding the family environment, youths having strained and not healthy family, 50 percent higher chance to involve in the premarital sex compared to the youth from happy and harmonious family. Another important finding is regarding the type of educational institutions. The sexual behaviour and type of schooling (i.e. single sex education or co-education) was analysed for the students up to class XII standard and beyond XII standard separately. Youths from co-educational institutions have 25 percent less likely to involve in premarital sexual activities than the youths from single sex institutions upto XII. While youths from co-educational institutions have 27 percent higher chance of involving in premarital sex than their counter parts beyond XII. Non-religious youths have 29 percent higher chance to involve in premarital sexual activities than those have religious beliefs. The type of literature read by youth influence indulgence in premarital sex. The likelihood is 14 percent higher among the youths those reading obscene literature, such pictures and videos than the youth those reading literary books and watching good socio-cultural videos and movies. It is 24 percent higher among the youths those using violence and crime oriented literature compared to youths those reading good literature in involvement of premarital sexual activities. Access to blue films has also great impact on youths in making their sexual behaviour and the association was found statistically significant. Those youths are watching blue films sometimes have 82 percent higher chance to involve in premarital sexual activities than the youths never watch blue

films, while for frequently viewers it is more than 2 times higher than the non blue film watchers. The respondents who have admitted of "Frequent Access to Pornographic Literature" were more likely to indulge (42% higher) in sexual acts than of those who have "Never" seen this type of literature. While youths using pornographic literature frequently have 23 percent higher chance than the never users to involve in premarital sexual activities. Smoking and Drinking behavior seems to be influencing the behavior and it is reported worldwide. Smoking habit also has a highly significant effect on involvement in premarital sexual activities. Those youths smoke sometimes have more than 2 times higher chance and for frequent smokers have more than 2 and half times chance to involve in premarital sexual activities. But, in case of drinking alcohol, who drink sometimes were having 15 percent higher chance and who frequently drink had 57 percent less chance in getting into premarital sex. The attitude of a person directly affects his/her behaviour. Keeping this in mind, the association between attitude/opinion of youths and their indulgence in premarital sexual acts was examined. Some of the youths agreed that kissing/caressing/dating etc. are common among youths and nothing unusual about it. Analysis showed that these youths have lesser chance to involve in premarital sexual activities compared to those youths who disagreed. There are studies documenting that sometimes premarital sex is on long term commitment for marriage in future. Such attitude has got favorable association with premarital sex in our study also. Some of the youths believed that pre-marital sex is threat to future married life. The likelihood is 17 percent less chance to the youths those disagree the statement compared to those agree the above statement to involve in premarital sexual activities. Highly statistically significance has been observed in the variable pre-marital sex is good for future and can equip better understanding between husband and wife. There is 46 percent lesser chance for the youths those disagree than the youths those agree the statement in involving premarital sexual activities. A statistically significant relationship was observed between respondent's own indulgence in pre-marital sexual relations with their friends involvement in premarital sexual relations. The respondents who replied, "Most of their friends were indulged in sexual acts", "some of them indulge in premarital sex" and "very few of them" in their friend circle" were 11 times, 6 times and 4 times more likely to be involved in pre-marital sex respectively as

compared to those who replied "none of the friends involved in premarital sex".

DISCUSSION

The present study provides information regarding the premarital sexual behaviours of youths covering samples from schools/colleges, offices and slums in Delhi and Lucknow. It found that premarital sex varies from 17% among schoolchildren to 33% among young workers in the typical north Indian population, suggests increase in sexual behiour among youth.[13,14] Our study found that youths with 'modern and liberal family background' were more likely to indulge in premarital sex. Study also shows sex attitudes and norms are also changing among youths.[15] In general, drugs and alcohol consumption are directly correlated with sexual activity.[16]

Studies revealed that students who had either tried cigarette, alcohol consumption is more likely to indulge into sexual activity due to the peer pressure and extent of the relationship with friends. In our study also, boys who had reported such habits had higher chance of having premarital sex experience. Study results showed that exposure pornographic literature, blue film etc. influencing premarital sex behaviour. This means that these youths were less and less under the influence of their parents and more responsive to peer and sex magazines.[17] A good proportion of students had premarital sex with friends and very few are having with multiple partners. In this context, strategies should be designed to address the distinct needs of subgroups of youth such as i) schools ii) college iii) working environment and iv) slums. Since the peer interaction was found very strong and thereby exposure to pornographic material among this group, it would be useful to involve students/youths at all stages of planning and implementation in intervention programme.[18,19]

CONCLUSIONS

The results of logistic regression analysis show that managing key background variables, exposure to erotic literature, deviant behaviour and peer pressure play important role in evolving key strategies for containing unsafe sex behavior among youths.

LIMITATIONS OF THE STUDY

The study does not take into account the rural population. The present model examined only 18 variables but other variables need to be tested for better management of premarital sex behaviour among youths.

Ethical Clearance: The project proposal was approved by the Programme Advisory Committee (PAC) of the National Institute of Health and Family Welfare, New Delhi taking into account technical and ethical issues.

ANNEXURE

Table-1: Results of Logistic Regression Analysis

Sr. No.	Name of Variable	Sig.	Exp(β)
1.	Type of Locality		
	Posh®	.209	
	Middle	.116	1.262
	Poor	.641	.887
2.	Type of Family		
	Joint®	.000	
	Nuclear	.000	.560

3.	Status of parenthood - Both living together®	.051	
	Separated.	.614	1.179
	Widowed	.292	.793
	Both not alive	.012	3.505
4.	**Category of family** - Highly Modern®	.021	
	Modern & Traditional	.012	.616
	Orthodox & Conservative	.195	.670
5.	Family Environment		
	Very happy and harmonious®	.482	
	Somewhat quarrelsome	.650	.922
	Strained and not healthy	.179	1.500
6.	**Type of educational institution**　　　　**Up to XII**		
	Single sex®	.002	
	Co-educational	.025	.747
7.	Type of educational institution　　Beyond XII		
	Single sex®	.359	
	Co-educational	.153	1.269
8.	Religious belief of the respondents		
	Religious®	.314	
	Somewhat religious	.528	.925
	Not religious	.255	1.290
9.	Type of literature		
	Literary/Socio-cultural®	.233	
	Obscene (including blue films)	.531	1.135
	Violence and crime oriented	.149	1.240
10.	Do you see Blue Films		
	Never®	.000	
	Sometime	.000	1.818
	Frequently	.002	2.835
11.	How often do you see pornographic literature?		
	Never®	.045	
	Sometime	.012	1.421
	Frequently	.418	1.228

12.	Smoking habits		
	Never®	.000	
	Sometime	.001	2.072
	Frequently	.003	2.528
13.	Drinking Alcohol habits		
	Never®	.264	
	Sometime	.498	1.149
	Frequently	.326	.566
14.	Kissing/caressing/dating etc. are common among youths and nothing unusual about it		
	Agree®	.951	
	Disagree	.887	1.019
15.	Approved sex before marriage		
	Agree®	.000	
	Disagree	.000	.544
16.	Pre-marital sex is threat to future married life		
	Agree®	.299	
	Disagree	.181	.833
17.	Pre-marital sex is good for future and can equip better understanding between husband and wife		
	Agree®	.000	
	Disagree	.000	.542
18.	Peer involvement in pre-marital sex		
	None of them®	.000	
	Very few of them	.000	3.733
	Some of them	.000	6.241
	Most of them	.000	10.813

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Relationship between Disease Severity and Suicidal Ideation: Comparison of Major Depression, Bipolar Depression and Bipolar Mania

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ABSTRACT

Context: Suicide, the self murder, is often carried out as a result of despair, the cause of which is frequently attributed to a psychiatric disorder. Depression is the most prevalent condition, found in the background of suicide. Other mood disorders like bipolar affective disorders are also found frequently. Suicidal ideation, a major precursor of attempted and completed suicide, is a measure to predict future suicide.

Aims: To compare suicidal behaviour of major depressive disorder and bipolar affective disorder and to find correlation between disease severity and suicidal ideation.

Settings and Design: A cross-sectional study in a tertiary medical college, comprising of total 200 patients with the diagnosis of various mood disorder (Major depression, Bipolar depression and Bipolar mania)

Results: Bipolar, depressed patients had higher severity of depression (mean-37.04 ±5.123), statistical positive correlation found between BSI Score and BDI Score (value- +0.700) (p=0.000) and statistical negative correlation found between BSI Score and YMRS Score (value- -0.314) (p=0.026)

Conclusions: With increase in depression severity suicidal ideation increases and with increase in manic severity suicidal ideation decreases.

Keywords: *Suicide, Suicidal ideation, Major depression, Bipolar depression, Bipolar mania.*

INTRODUCTION

Suicide is a burning problem not only in India; but also in other parts of the world. More than one lakh (one hundred thousand) lives are lost every year to suicide in our country. In the last two decades,

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the suicide rate has increased from 7.9 to 10.3 per 100,000.[1]

Where major depression is the most eminent cause of suicide across the countries[2], Bipolar disorder is also associated with a significant risk of suicide, with approximately 10% to 15% of bipolar patients dying by suicide.[3,4] Suicidal ideation is reported by 79% of those with bipolar depression, occurring much more commonly in that phase of the illness than during mania or mixed episodes.[5] Completed suicide also occurs predominantly during the depressed phase of the bipolar illness [6] as do suicide attempts.[7] Bipolar II disorder patients are

at a higher risk of suicide than those with bipolar I disorder [8], an observation perhaps related to the more frequent periods of depression found in the former condition. Attempted suicide (deliberate self-harm) is also common in bipolar disorder, with between 20% and 56% of patients having a history of non-fatal self-poisoning or self-injury.[3]

Though suicide is a rare event in the general population, but it is quite common among patients with mood disorder. Our present study was aimed to compare suicidal behaviour of major depressive disorder and bipolar affective disorder and to find correlation between disease severity and suicidal ideation.

MATERIALS & METHOD

We conducted our study in the psychiatry outpatient department of a tertiary medical college during one year period. It was a cross sectional study in which consecutive 200 patients of age 16-65 years of either sex, with intact insight and were willing to give valid informed written consent, were included in the study. We picked up 100 consecutive patients of Depressive episode [F32, F33], and 100 consecutive patients of Bipolar affective disorder [F31] according to ICD-10 DCR version criterion. 100 Bipolar affective disorder patients were again comprised of 50 consecutive Bipolar, Manic patients and 50 consecutive Bipolar, Depressed patients. We collected relevant data on standard socio demographic proforma and following scales were used to assess suicidal ideation and respective disease severity –

1) Beck Scale for Suicidal Ideation (BSI) -It is a self-report measure based on the semi-structured interview. The BSI is an easy to administer 21-item self-report questionnaire (only 19 of the items are scored). Total score on BSI was calculated by summing the scores (range 0-2) of total 19 items of the Suicide Ideation Scale. A higher score indicates a greater Ideation or ideation for suicide. Information was also collected on previous history of suicide attempt.

Among study population, patients, who previously attempted suicide were categorized in High Ideation group and Low Ideation group by taking median value of suicide Ideation as the cutoff point respective for the gender —i.e., male and female. High Ideation group ≥ median value of suicide Ideation and Low Ideation group < median value of suicide Ideation.

2) Beck Depression Inventory (BDI) –It is one of the most widely used instruments for measuring the severity of depression. We used it in our study to measure the severity of depression for both unipolar and bipolar depression.

3) Young Mania Rating Scale (YMRS) – we used it to measure severity of Bipolar mania.

After collecting all relevant data we used standard statistical methods to compare bipolar groups (mania vs depression), compare bipolar depression with unipolar depression in respect of suicidal ideation and then to find out relation between severities of depression with suicidal ideation (BSI Score) and relation between severity of mania with suicidal ideation (BSI Score).

RESULT AND ANALYSIS

Table:1-Socio-demographic character of the study population.

Socio – demographic character (n=200)		Frequency	Percent
Age		35.57 yrs (±7.69)	
Marital Status	Single	52	26.0
	Married	137	68.5
	Widowed	11	5.5
Gender	Male	93	46.5
	Female	107	53.5
Religion	Hindu	137	68.5
	Muslim	63	31.5
Education	Illiterate	31	15.5
	Primary	64	32.0
	Secondary	89	44.5
	Higher Secondary	1	0.5
	Graduate	15	7.5
Occupation	House Wife	85	42.5
	Unemployed	17	8.5
	Unskilled Worker	18	9.0
	Semi Skilled Worker	63	31.5
	Skilled Worker	17	8.5

The mean age of the study population was 35.57 (±7.69), mostly Married (68.5%), Female (53.5%), Hindu (68.5%), having secondary education (44.5%) and occupation of housewife (42.5%).

76 (76%) patients of Major Depression and all Bipolar, Manic patients (50,100%) had no previous history of suicide attempt. Bipolar, Depressive patients had higher number 23(46%) of history of previous suicide attempt.(table:2)

Table:2-Previous history of suicide attempt.

h/o previous suicide attempt	No previous attempt		Single attempt		Multiple attempt	
	n	%	n	%	n	%
Major Depression	76	76	22	22	2	2
Bipolar, Depression	27	54	20	40	3	6
Bipolar, Manic	50	100	0	-	0	-

Mean and median values of Beck suicide ideation score according to different gender class are given in table: 3. Median value of BSI Score was 18 for male and 19 for female. Thus High suicidal ideation is indicated by total Score on Suicidal Ideation Scale 18 or above and Low suicidal ideation by total Score on Suicidal Ideation Scale less than 18.

Table:3-Beck Suicide Ideation Scale Score(BSI).

Beck Suicide Ideation Score	Male	Female
Mean	17.74	20.14
Median	18	19
Std. Deviation	10.89	11.93

Table: 4- Suicidal ideational grouping and distribution in various population

	Suicidal Ideation				P Value
	Low Ideation		High Ideation		
	n	%	n	%	
Bipolar Manic (n =50)	50	100	0	-	
Bipolar Depressed (n =50)	6	12	44	88	0.000
MDD (n =100)	36	36	64	64	

Accordingly we found that where all (100%) of the bipolar manic patient had low suicide intent, 44 (88%) bipolar depressed and 64 (64%) Major depression (MDD) had high suicide intent on Beck Suicide Ideation Scale and that was found statistically significant (p<0.5)(table:4)

Table: 5- Depression(BDI Score) and manic severity (YMRS Score).

	BDI SCORE Bipolar (Depressed)	MDD	YMRS SCORE Bipolar (Manic)
Mean	37.04	32.26	35.5000
Median	36.00	31.00	36.0000
Std Deviation	5.123	4.771	5.18731

Bipolar, depressed patients had higher severity of depression (mean-37.04 ±5.123) on Beck Depression Inventory (BDI) than Major Depression patients (MDD)(mean-32.26±4.771) and the distribution was also significant statistically (p=0.000) (table: 5). The mean value of YMRS Score of Bipolar, Manic patients was (35.5±5.18).

Table:6-Correlation between BSI Score and BDI Score

		Value	Asymp. Std. Error	Approx. T	Approx. Sig.
Interval by Interval	Pearson's R	.700	.036	11.911	.000
Ordinal by Ordinal	Spearman Correlation	.586	.064	8.789	.000

When we calculated statistical correlation between BSI Score and BDI Score of all depressive patients (Major Depression-MDD and Bipolar Depression), we found that it was a positive correlation (value- +0.700) and the relation was statistically significant (p=0.000) (table:6, figure:1).
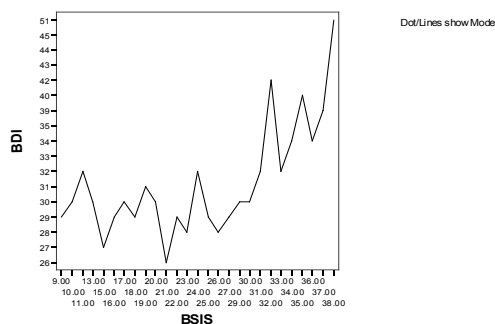
Figure:1-Correlation between BSI Score and BDI Score

Table:7-Correlation between BSI Score and YMRS Score

		Value	Asymp. Std. Error	Approx. T	Approx. Sig.
Interval by Interval	Pearson's R	-.314	.121	-2.292	.026
Ordinal by Ordinal	Spearman Correlation	-.355	.124	-2.632	.011

In the similar way when we calculated statistical correlation between YMRS Score and BDI Score of Bipolar, Manic patients, we found that it was a negative correlation (value- -0.314) and the relation was also statistically significant (p<0.5)(table:7, figure: 2).
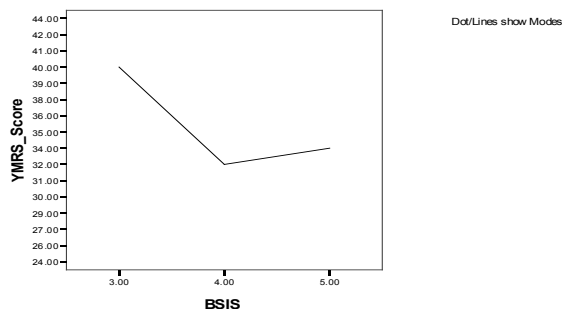
Figure:2-Correlation between BSI Score and YMRS Score

DISCUSSION

In our study severity of depression was measured by using total score of Beck Depression Inventory (BDI) Scale and severity of suicidal ideation was measured by using total score of Beck Suicidal Ideation (BDI) scale. Correlation coefficient was calculated by using Karl-Pearson's Product Moment Method. The relationship between BDI and BSI score was found to be a positive one and relationship was statistically significant. It means that with increase in depression severity suicidal ideation also increases. This finding is in accordance with a cross-sectional study where 400 medication free participants with current major depression were assessed with either or both the Hamilton Depression Rating Scale and Beck Depression Inventory and the Scale for Suicide Ideation, in order to evaluate their association to suicidal thinking. The result showed moderate association between severity of depression with suicidal ideation. [9] Another study found significant relationship between severity of depression with suicidal ideation [10]. Some studies also found a positive correlation between major depressive episodes [11,12] and suicidal ideation in bipolar patients. In the present study severity of mania was measured from total score of Young Mania Rating Scale (YMRS) scale and severity of suicidal ideation was measured from total score of Beck Suicidal Ideation (BSI) scale. Correlation coefficient was calculated by using Karl-Pearson's Product Moment Method. The relationship between YMRS and BDI score was found to be a negative one and relationship was statistically significant. It means that with increase in manic severity suicidal ideation decreases. This findings corroborated with some prospective and retrospective studies where patients suffering from bipolar disorder very rarely attempted or committed suicide or had less suicidal ideation during euphoric mania.[6,13,14] Another study also found that suicidal ideation was much less prevalent during mania or mixed episodes[7] than `during depressive episode.

CONCLUSION

1) Patient suffering from Bipolar Affective Disorder attempted suicide mostly during depressive phase of illness.

2) Statistically significant positive relationship had been found between Beck Depression Inventory (BDI) and Beck Suicidal Ideation (BSI) score.

3) Statistically significant negative relationship was established between Young Mania Rating Scale (YMRS) and Beck Suicidal Ideation (BSI) score.

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Histopathological Pattern of Uterine Lesions in Cases with Menorrhagia

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ABSTRACT

Background: Objective: To determine histopathologic pattern of uterine lesions in cases with menorrhagia in different age groups

Materials and method: This study was carried out at the pathology department, SN Medical college Bagalkot.

Seventy four abdominal hysterectomy cases done for the treatment of menorrhagia, were included in the study. An exclusion criterion was vaginal hysterectomies, abdominal hysterectomies done for complaints other than menorrhagia and malignancies.Two sections were taken from the cervix, two from uterine corpus, one section each from leiomyomas. Polyps were submitted entirely. Sections (3-5 μ), stained with Hematoxylin and eosin (H&E) stain were microscopically examined and reported.

Results: Menorrhagia was common in the age group of 41-50 years with 51.35% (n=38), 35.13% (n=26) were from 30-40 years age group and 8.10% (n=6) were from 21-30 years, 5.4% (n=4) were from 51-60 yrs age group. Out of 74 cases , 48.64% (n=36) showed no obvious gross or microscopic abnormality followed by leiomyomas in 25.67% cases (n=19)followed by adenomyosis 12.16% cases (n=9) ,5.40% (n=4) cases of endometrial polyps, 5.40% (n=4) cases of endometrial hyperplasia and 2.7% (n=2) case of pill endometrium were diagnosed.

Conclusion- Uterine fibroids and adenomyosis are the most common benign conditions found in hysterectomy specimens with peak incidence at 41-50 years. Histopathology is mandatory for confirming diagnosis

Keywords: Hysterectomy, menorrhagia, histopathology.

INTRODUCTION

Menorrhagia is a very distressing health problem in women and it proves to be the major drain of gynecological resources. Menorrhagia, by definition is heavy cyclical blood loss in excess of 80ml per month[1] Menorrhagia is usually associated with benign pathologies and only rarely with malignancy. It is one of the most common causes of iron deficiency anemia in females of reproductive age group.[1] Hysterectomy is the definitive treatment for benign lesions such as leiomyomas, adenomyosis, extensive pelvic infection, dysfunctional uterine bleeding (DUB) and obstetric complications.[2] Newer conservative surgical treatment options are practiced in other countries but, they are not widely available in our country.[3] The purpose of our study was to find out the causes of menorrhagia by histopathological examination of hysterectomy specimens.

MATERIALS & METHOD

This study was conducted in the department of pathology SN Medical college, Bagalkot. During this period, a total of hysterectomy specimens were received in the pathology department.

Inclusion criteria were, patients coming to the outpatient department with complaint of menorrhagia for which hysterectomy procedure was performed.

An exclusion criterion was hysterectomies done for complaints other than menorrhagia and malignancies. A minimum of two sections were taken from the cervix (anterior and posterior half), two from uterine corpus near the fundus and an additional section if any gross pathology was identified. One section was taken each from leiomyomas. Polyps were entirely submitted or sectioned and half submitted if large. Representative sections (3-5 μ), stained with Hematoxylin and eosin (H&E) stain were microscopically examined.

RESULTS

A total of 74 abdominal hysterectomy cases were included in the study. The age range of patients were from 20-60yrs.

Table I: Frequency distribution of menorrhagia in different age groups

Age range	Number	Percentage
21-30	6	8.10
31-40	26	35.13
41-50	38	51.35
51-60	4	5.40
Total	74	100

Menorrhagia was common in the age group of 41-50 years with 51.35% (n=38), 35.13% (n=26) were from 30-40 years age group and 8.10% (n=6) were from 21-30 years ,5.4% (n=4) were from 51-60 yrs age group.

Table II: Histopathological diagnosis.

Histopathological diagnosis	Number	Percentage
Fibroid	19	25.67
Adenomyosis	9	12.16
Polyp	4	5.40
Pill endometrium	2	2.70
Hyperplasia	4	5.40
No abnormality	36	48.64

Out of 74 cases, 48.64%(n=36) showed no obvious gross or microscopic abnormality followed by leiomyomas in 25.67% cases (n=19)followed by adenomyosis 12.16% cases (n=9) ,5.40% (n=4) cases of endometrial polyps, 5.40% (n=4) cases of endometrial hyperplasia and 2.7% (n=2) case of pill endometrium

were diagnosed.
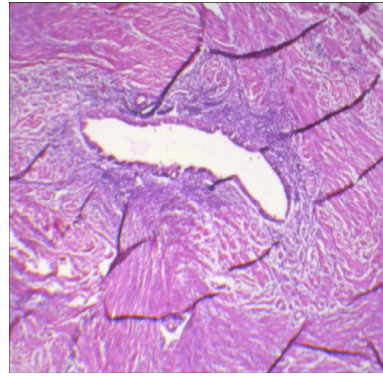
Figure.1 showing adenomyosis (H&E 40x)
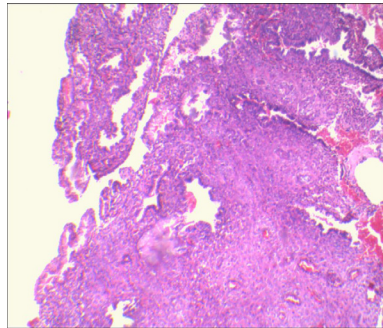
Figure.2 showing endometrial polyp (H&E 40x)
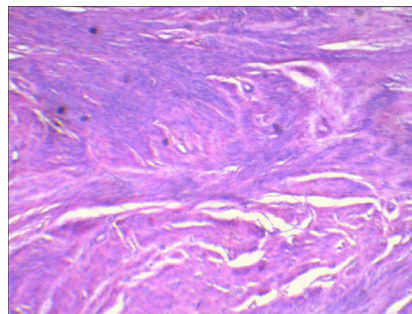
Figure.3 showing leiomyoma (H&E 40X)

DISCUSSION

Menorrhagia, by definition is heavy cyclical blood loss in excess of 80ml per month. Sixty percent of these patients develop anemia. Menorrhagia is usually associated with benign pathologies and only rarely with malignancy. Hysterectomy is the traditional surgical treatment of menorrhagia.[1]

In a study by Shergill, abnormal menstrual flow/menorrhagia was found to be the most common presenting complaint (66%) in patients undergoing hysterectomy.[4]

If patient is not responding to medical treatment, it is the only surgical option widely available for menorrhagia. It has a high rate of patient

satisfaction and is the definitive last resort treatment of many diseases involving uterus as well as adnexae.leiomyomas, adenomyosis and DUB etc.[1]

Histopathological examination of surgical specimens carries ethical,legal,diagnostic and therapeutic significance.[5]

Fifty-one percent (n=47) of the women included in our study belonged to the 41-50 years age group. Leiomyoma and adenomyosis were found to be the most common causes of menorrhagia, leiomyomas being the commonest finding, with a frequency of 25% percent. This is in accordance with studies by Sarfraz et al, Tahira et al and Khawja et al. which showed leiomyoma as the commonest finding.[1, 6, 7]

Other studies by Sarfraz, Bukhari, and Jacobson et al have also reported leiomyomas as the commonest pathological lesion with a variable frequency.[1, 8, 9]

Adenomyosis was the second common uterine pathology. Its frequency was 12 percent. Similar results were found in most other national studies.[8, 10, 5]

Most international studies showed similar results as in an Indian study.[4, 11]

Dysfunctional uterine bleeding (DUB) is a diagnosis of exclusion. Forty eight percent of cases belonged to this category, in which no gross or microscopic abnormality was detected. The incidence is much higher compare to other studies ranging from 25%, 26%, 29% and 35%.[3, 4, 11, 12]

This suggests that hysterectomy was not necessary in such cases but done to relieve the symptoms.

Endometrial polyp was found in 5.4% cases. This figure was much higher in our study compared to most other studies.[1, 2, 4]

Conclusion Uterine fibroids and adenomyosis are the most common benign conditions found in hysterectomy specimens with peak incidence at 41-50 years. Histopathology is mandatory for confirming diagnosis.

The informed consent and permission was obtained by the head of the Institute for the study and for publication of the case report, as it is the teaching institute all the cases will be operated with prior informed consent and permission.

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Knowledge and Practices of Mothers Regarding Home based Management of Diarrhoea

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ABSTRACT

Background: Diarrheal disease is a major cause of morbidity and mortality among under-fives especially in rural and peri-urban communities in developing countries. Mothers are the key caregivers for children under five years of age. Inappropriate management at home by mothers can lead to deterioration of the condition, sometimes death. Knowledge and practices of mothers or other care-takers of children are important determinants of the occurrence or outcome of diarrheal diseases. Therefore the study was undertaken to determine the knowledge and practices of mothers.

Objective: 1) To determine the knowledge and practices regarding home based management of diarrheal diseases among the mother of under five children in peri-urban area. 2) To determine the association of knowledge and practice scores with selected demographic variables.

Methodology: It was a descriptive study with cross sectional design. The study population included mothers of under five children living in peri-urban areas of Meerut District. A total of 100 mothers were selected using purposive sampling technique. The data was collected by using structured interview schedule consisting of questionnaire to determine both knowledge and practices of mothers regarding home based management of diarrhea. The data analysis was done using the descriptive and inferential analysis.

Results: Overall knowledge (=9.38) and practices (mean=8.98) of the mothers were inadequate, while they had better knowledge regarding dehydration. The practices of the mothers were found to be slightly less appropriate than the knowledge, however they were positively correlated. Number of diarrheal episodes and source of information were found to be associated with the knowledge and practices of the mothers.

Conclusion: The study found that the mothers had inadequate knowledge and inappropriate practices regarding the home based management of diarrhea. Age of mothers and source of information regarding diarrhea management can affect the knowledge of the mothers while family size, no. of previous diarrheal episodes and source of information regarding diarrhea management can affect practices of mothers. The study recommends appropriate strategies to provide knowledge and skills to manage diarrhoea at home.

Keywords: Home based management, Mothers of under five.

INTRODUCTION

Diarrhoeal diseases are one of the major causes of morbidity and mortality among under five children, accounting for one in every four deaths of children due to diarrhea. India is among the top 15 countries in the world in terms of number of deaths in under fives due to diarrhoea. India alone is responsible for more than half a million diarrheal deaths.[1] In rural areas the percentages of deaths among children due to diarrhea are found more (62/1000), as compared to urban areas (42/1000).[2] Various efforts both international and national have been applied to overcome this problem especially in our country where diarrhea forms major

part of public health infectious diseases.[3] It was evidenced that high mortality and morbidity due to diarrhea could be reduced by Oral Rehydration Therapy.[4] According to WHO, in early diarrhea, home based solutions like rice water, salt sugar solution etc. can be used to prevent dehydration among children. These fluids are known as recommended home fluids.[5]

Mothers are the key caregivers in the treatment of the children with diarrhea. Studies have shown that mothers can give ORS at home and can reduce hospital visits therefore cut down the treatment cost of diarrhea. Knowledge and practices of mothers of children are important determinants of the occurrence or outcome of diarrhoeal diseases. There is evidence that child's health, nutritional status and educational attainments are enhanced by better educated parents, particularly the mother.[6] Therefore, this study was undertaken to determine the knowledge and practices of mothers regarding home based management of diarrhea among children.

METHODOLOGY

The study was aimed at assessing the knowledge and practices of mothers of under five regarding home based management of diarrhea. A cross-sectional survey was conducted on 100 mothers living in peri-urban area of Meerut. The selected sample was mothers of under five children who were selected using purposive sampling technique. Structured interview schedule consisted of knowledge and practice based questions to collect the data regarding knowledge and practices of the subjects regarding home based management of diarrhea. While developing the interview schedule IMNCI guidelines, WHO guidelines on home based management of diarrhea were referred. The interview schedule consisted of questions on diarrhoeal diseases 6), dehydration (6), home based management: replacement (27) and maintenance phase (10) respectively. Maximum scores for knowledge and practice were 25 and 24 respectively. Before the data collection an informed consent was taken from the subjects. The anonymity and the confidentiality of the subjects were maintained throughout the study.

RESULTS

The sample consisted of 100 mothers of under five children from peri-urban area Meerut district. Majority of the subjects (65%) were in the age group 21-30yrs. 80% of the subjects had no formal education. 74% subjects had hand pump as source of drinking water. While 43% of the subjects informed that they had never experienced diarrheal episodes among their children. 90% of the subjects approached private facilities during the time of illness while 8% visited alternate medicine practitioners.

Data in Table No. 1, reveals that the mean knowledge score of mothers was 9.38 ± 2.68, which means that mothers had inadequate knowledge regarding home based management of diarrhea. While the mean practice scores were 8.98 ± 2.78, which means that mothers had inappropriate practices regarding home based management of diarrhea. However mothers had adequate knowledge (49%) and practices (42%) regarding dehydration phase, in comparison to other sections of the interview schedule. 38% mothers are aware that ORS is included for the initial management of diarrhea. 58% mothers did not know that an infant should be breastfed along with ORS therapy. 17% mothers said that salt and sugar solution can be used in case WHO-ORS is unavailable. While majority (79%), mothers did not know about the appropriate preparation of sugar and salt solution. 47% mothers did not even know about the correct method of preparation of WHO-ORS at home. Table No.1 also reveals that the there is a positive correlation between knowledge and practice scores of mothers regarding home based management of diarrhea.

Table No. 1- Knowledge and practice of mothers regarding home based management of diarrhea

n=100

	MEAN	S.D.	Correlation 'r'	p-Value
KNOWLEDGE	9.38	2.68	0.34	<0.001
PRACTICE	8.98	2.78		

r=98

Table no. 2 shows relationship between variables and knowledge scores. According to the table, knowledge of mothers can be affected by their age to some extent and the source of information they get regarding diarrhea management. While number of previous episodes of diarrhea, family size and source of information regarding diarrhea management were found to have significant effect on practice scores of mothers. (Table no.3)

Table No. 2- Variables and knowledge scores of mothers regarding home based management of diarrhea

Variable	Knowledge scores		p-Value
	Above mean score	Total	
Age in years			
>20years	0	6	p<0.05
21-30 years	35	65	
31-40years	15	27	
41-50years	0	2	
Source of Information regarding diarrhoea management			
Relative/ friend	10	20	p<0.01
Family member	8	26	
Health worker	5	9	
No information	32	45	

Table No. 3- Variables and practice scores of mothers regarding home based management of diarrhea

Variable	Practice scores		p-Value
	Above mean score	Total	
Family size			
1-4	18	30	p<0.001
5-8	28	50	
9-12	12	13	
>12	0	7	
Source of Information regarding diarrhoea management			
Relative/ friend	7	20	p<0.05
Family member	17	26	
Health worker	7	9	
No information	29	45	
Number of previous episodes of diarrhoea			
Nil	33	43	p<0.01
1	10	25	
2-3	15	29	
4 or more	1	3	

DISCUSSION

This study was carried out to assess the knowledge and practices of mothers regarding home based management of diarrhea. The study found that the mothers have inadequate knowledge regarding home based management of diarrhea. Scores of the mothers ranged in moderate to inadequate knowledge, where 15% mothers have moderate knowledge, while 75% had inadequate knowledge. The findings were found consistent with the study conducted by Manijeh Khalili, which also found major gaps in the knowledge of mothers regarding diarrhea management and also there was lack of competence among mothers in dealing with diarrhea at an early stage.[7] However, nearly half percentage of mothers

had knowledge regarding signs of dehydration and other life threatening symptoms.[8]

Most of the mothers do not know about the correct method of preparation of ORS and the purpose of ORS, which suggests poor initial management by the mothers.[8,9,10] In the study only 24% mothers knew about the purpose of the ORS. Mothers know about the home available fluids out of which majority know regarding sugar and salt solution.[8, 11] However, the mothers lacked in appropriate preparation of sugar and salt solution. The mothers were unaware regarding proper proportions of the sugar and salt in water, which is to be given as a part of replacement phase under home based management of diarrhea.[12]

Majority mothers do not breastfeed their babies during diarrhea and also when they on ORS therapy, as mothers believe that lesser fluids should be given during diarrhoea.[9, 13] While it is suggested that the frequency of breastfeeding should be increased to replace the fluids lost from the body of the child.

Various factors influence the knowledge of mothers regarding child care and care during illness. The study found two variables influencing the knowledge of mothers, i.e. age of mothers and source of information. Health professionals are major source of information at community level. They help in reinforcing the interventions among mothers towards sick children.[14] While mothers also consult their relative and family members specially mother in laws in the first instance of the diarrhea.[15] The study found no. of previous diarrhea episodes and family size also affects apart from source of information regarding diarrhea management. Larger family size affects good practices among mothers.[16] Poor practices among the mothers can increase the number of episodes of diarrhea; hence it is directly proportional to mother's practices regarding diarrhea management.[17] Source of information was found to affect both knowledge and practices of mothers regarding home based management of diarrhea. Therefore, effective strategies and behavior change communication for the mothers should be planned to improve their knowledge and competence in managing the diarrhea in its initial phase.[18]

CONCLUSION

The cross-sectional survey conducted to assess the knowledge and practices of mothers regarding home based management of diarrhea, found that mothers had inadequate knowledge and inappropriate practices regarding home based management of diarrhea. Age of mother and source of information affects the knowledge, while number of previous diarrhea episodes, family size and source of information regarding diarrhea management affects the practices of mothers. Study recommends appropriate strategies to spread effectiveness of initial management of diarrhea and provide adequate skills to the mothers regarding home based management of diarrhea.

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Comparison of Oral Mucosal Lesions and Gingival, Periodontal Indices among Pregnant and Non Pregnant Women-an Observational Cross-Sectional Study

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ABSTRACT

Objective: To assess the number and type of oral mucosal lesions, the gingival and periodontal status in ninety pregnant women compared with ninety non pregnant women.

Methodology: A cross-sectional observational controlled study was carried out on 90 pregnant and 90 non-pregnant women exhibiting a similar age distribution. The following variables were documented-number and type of oral mucosal lesions, gingival index (G.I) as given by LOE and SILLNESS and Community Periodontal Index (C.P.I).

Results: The frequency of oral mucosal lesions were greater among pregnant women when compared to those who were non-pregnant. The scores of G.I and C.P.I in the pregnant group when compared to control group were statistically significant (p=0.00).

Conclusion: Pregnancy was found to be a decisive factor for development of oral mucosal lesions and periodontal disease.

Keywords: *Pregnancy, Oral mucosal lesions, Pregnancy tumor, Periodontitis, Gingivitis.*

INTRODUCTION

India, a developing nation with an exponential population growth, has a sex ratio of 10: 9.4(M: F), with females representing the backbone of families, play a major role in our society. They need to be educated about oral hygiene and nutrition because in lower socioeconomic society females do not have the privilege of basic education and dental awareness.

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Pregnancy and early childhood are particularly important times to access oral health care because the consequences of poor oral health can have a lifelong impact.[1] Improving the oral health of pregnant women has the potential to decrease early childhood caries and may reduce preterm and low birth weight deliveries.

Pregnancy constitutes a special physiological state characterized by a series of temporary adaptive changes in body structure, as the effect of an increased production of estrogens and progesterone. The oral cavity is also affected by such endocrine actions, and may present both transient and irreversible changes as well as modifications that are considered pathological.[2] The reasons for these changes are not

well established. However, they can complicate pregnancy.

Infection is now considered as one of the major causes of preterm low birth weight (LBW), responsible for 30-50% of all cases. The prevalence of LBW is found to be 15% in Asia whereas in India it lies between 10-15 % (ICMR 1990). LBW accounts for more than 60% of infant mortality. Prematurity and LBW contribute too many medical and social problems for the child, such as neurodevelopmental problems, congenital anomalies, learning disabilities, etc. From the standpoint of oral health, preterm and LBW are associated with poor calcification of teeth because of an inability to maintain proper calcium balance in the neonate. There is increased incidence of caries in LBW children, with significant hypoplasia of primary teeth. Palatal grooving caused by prolonged intubation is another orofacial problem. Tooth eruption may also be delayed into the mixed dentition[3.]

The untreated oral infection may become a systemic problem during pregnancy. A maternal clinical periodontal disease at delivery is associated with increased risk of developing of preeclampsia, independent of the outcome of maternal age, race, smoking, gestational age at delivery and insurance status. [4]

Appropriate dental care and prevention during pregnancy may reduce poor prenatal outcomes and decrease infant caries as pregnancy is a "teachable moment" when women are motivated to change behaviors.

This study was undertaken to evaluate the number and type of oral mucosal lesions and the gingival and periodontal status in ninety pregnant women compared with thirty non-pregnant women of similar age distribution.

MATERIALS & METHOD

A cross sectional observational study was undertaken in the Department of Obstetrics and Gynecology Department, Bapuji hospital, Oral Medicine and Radiology, College of Dental Sciences, Davangere, during the month of July-October 2011. The study population consisted of 180 women (90 pregnant women in different stages of pregnancy and 90 non pregnant controls) with an age range of 18-35 years. These women were selected at random.

Ethical clearance was obtained from the institutional review board of the college prior to the start of the study. A written informed consent was obtained from all subjects who participated in the study. A proforma was designed for recording of indices, symptoms, and oral lesions (attached as Annexure 1). Pregnant women were asked about the symptoms for existence of nausea, vomiting, xerostomia and gastro-esophageal reflux symptoms, during oral examination, which can be associated with pregnancy period.

Gingival index (G.I) was recorded as given by LOE & SILLNESS. It was used to estimate the severity of gingivitis. Mesial, buccal, distal and lingual marginal gingival of six index teeth (16, 21, 24, 36, 41, 44) were examined.

Community Periodontal index (C.P.I) was recorded using community periodontal index (CPI) . In CPI for each tooth (3rd molars excluded), presence of bleeding, calculus and depth of periodontal pockets was measured. The CPI was used to record the periodontal conditions; registrations included score 0 (healthy), score1 (bleeding), score 2 (calculus detected during probing) score 3 (shallow periodontal pockets 4-5mm) and score 4 (deep periodontal pockets, 6mm or more) [5.]

All examinations were done by a single examiner to avoid inter-examiner bias.

STATISTICAL ANALYSIS

The statistical analysis was performed using SPSS (Statistical Package for Social Sciences, Ill, USA.) Version 17.0 statistical Analysis Software.

THE TESTS APPLIED

To compare the differences between the groups related to nausea with C.P.I and G.I. and Xerostomia with C.P.I and G.I, unpaired-'t' test was used. Inter-group and intra-group comparison for Trimester with C.P.I and G.I and Gravida with C.P.I and G.I was done using ANOVA test followed by Tukey's post hoc test. - ANOVA followed by Tukey's post hoc. Inter-group comparison for C.P.I and G.I. Scores between pregnant and non-pregnant subjects were done with Unpaired-t test. The confidence level of the study was kept at 95%, hence a 'p' value less than 0.05 indicated a statistically significant difference.

RESULTS

A total of 180 patients were examined (Drop-out rate = 0%). The study group and control group were age matched (18-35 years, mean age=23.5 years). Among 90 pregnant patients, the number of patients as per trimester is depicted in table I.

None of the pregnant patients were HIV or HBsAg positive.

The scores of G.I in the pregnant group when compared to control group was higher, but not statistically significant (p=0.114) whereas C.P.I score in the pregnant group when compared to the control group was highly significant (p=0.000) as depicted in table 2 and graph I. The frequency of oral mucosal lesions was greater among pregnant women than in control group however their frequency between three trimesters was not statistically significant table III (p=0.368).

Among 90 pregnant patients, 43 were primagravida and 47 were multigravida. There was no statistical significance between oral mucosal manifestations and the gravid (p=0.130), neither between G.I score, C.P.I score and gravid (p=0.882, p=0.776).

The frequencies of oral mucosal lesions among pregnant patients with and without vomiting history was also not statistically significant (p=0.221), however their occurrence was higher in patients with xerostomia when compared to patients without xerostomia but was not statistically significant (p=0.059).

G.I scores and C.P.I scores was not statistically significant among the study group between the three trimesters (p=0.285, p=0.410) and not significantly the among pregnant patients with and without xerostomia. (p=0.526, p=0.231).

DISCUSSION

Hormonal alterations have long been linked with changes in oral health during pregnancy. Most of these changes are known to revert after labor, however certain factors do intensify some of the conditions. During pregnancy, the placenta produces abundant estrogen (upto 100 fold the normal level) and progesterone (upto 10 fold the normal concentrations). Progesterone is partially metabolized in inflamed gingival tissue, thus generating a greater amount of the active form of this hormone, which in turn favors the proliferation of different cell types, including endothelial cells. [2]

Regarding oral mucosal lesions, pyogenic granuloma traditionally has been described as part of the alterations accompanying pregnancy.[2] In our study one case of pyogenic granuoma was reported among pregnant patients. When present during a pregnancy it is also referred to as pregnancy tumor or gravid granuloma.[2]

Of note is the fact that benign migratory glossitis showed a significantly greater prevalence in pregnant women versus non-pregnant women. Musyka et al. reported 6% prevalence of benign migratory glossitis in pregnant human immunodeficiency virus (HIV) negative women, versus 4.3% in pregnant HIV-positive women[2]. Benign migratory glossitis traditionally has not been reported as the oral alterations associated with pregnancy, and its presence in our study may constitute a casual observation. Further research has to be carried out to link association between benign migratory glossitis and pregnancy due to lack of information pertaining to this.

The total number of lesions diagnosed in pregnant women in this study was higher when compared with the controls. Ojanotko-Harri et al. suggested that high progesterone levels during pregnancy induce a degree of immunosuppression, which in turn contributes to inhibit inflammatory cell function. In addition, stress and anxiety during pregnancy may lead to neglect of oral hygiene. All these factors may contribute to increased numbers of oral lesions during pregnancy[6].

Increased prevalence of gingival and periodontal problems has been reviewed in the literature. However the results of the present study suggest similar significance relating to periodontal health, gingivitis and periodontitis in pregnant and in non-pregnant women.

Chile, Lopez et al. In a study found that pregnant women with previously established periodontitis do not have an increase in dental supportive tissue destruction, despite the absence of periodontal treatment[7].

Other authors[8, 9] have described a close relation between severity and intensity of clinical

manifestations of gingivitis, periodontitis, and patient socioeconomic and cultural status. Consequently, an increased cultural level, education in dental care and compliance with post periodontal treatment control visits seem to improve periodontal health during pregnancy. Although these variables were not addressed in the present study, they may be the key to interpreting results.

An association between periodontal diseases and preterm births was suggested recently[10, 11]. Pre-existing periodontal disease diagnosed in mid-pregnancy was found to increase the risk of preterm birth 4.5-7.1 times compared to risk in periodontally healthy mothers[11]. The mechanism linking periodontal diseases and preterm births is not known. It is thought that locally produced inflammatory mediators such as prostaglandins and cytokines are carried to the uterus by the blood to cause uterine contractions. There is no study concerning oral mucosa lesions during pregnancy and their link to preterm births.[6]

A possible limitation of the present study could be because of the study design, being cross-sectional in nature, the variables measured depict the presence of disease at one point of time, and not over a period of time. This bias could possibly be eliminated by long term follow up or a longitudinal study design.

The authors also recommend that further studies be carried out by a large number of subjects, so that the results could be extrapolated to the entire population.

LEGENDS
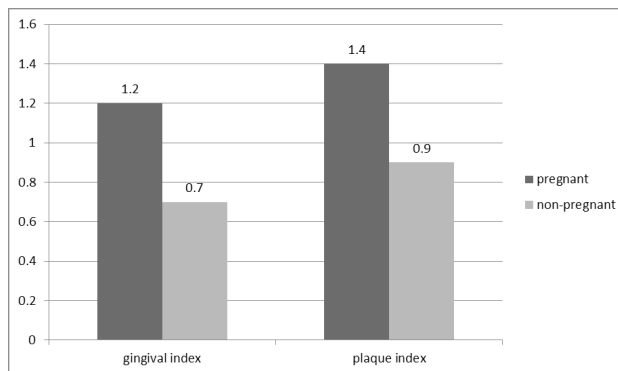
Graph I: depicts the GI and CPI between the groups: pregnant and non pregnant patients

Table I: Number of patients as per trimester.

Sl no.	No of patients	Trimester
1	14	I
2	34	II
3	42	III
Total	90	

Table 2 depicts the GI and CPI between the groups: pregnant and non pregnant patients

Groups	GI			CPI		
	Mean	SD	Unpaired t test (p value)	Mean	SD	Unpaired t test (p value)
Pregnant	1	0.29		1.28	0.33	
Non pregnant	0.73	0.23	0.114	0.9	0.17	0*

Table 3: Prevalence of oral mucosa lesions in study and control groups

Lesions	Pregnant N(90)	Control N(90)
Depapillation of tongue	11	0
Fissured tongue	2	1
Benign migratory glossitis	3	0
Gingival enlargement	3	1
Angular cheilitis	2	0
Aphthous ulcer	0	1
Traumatic ulcer	1	0
Pregnancy tumor	1	0
Necrotizing ulcerative gingivitis	1	0

CONCLUSION

In the present study there was an increased prevalence of oral mucosal lesions and the severity of gingivitis and periodontitis in pregnant patients when compared to non-pregnant. Interventions to treat periodontal disease will improve pregnancy outcomes. Oral health screening and referral should be included in prenatal care to improve the oral health of pregnant women and to reduce the risk of childhood caries. The co-operation between obstetricians and dentist is important, in order to obtain a total prophylaxis for the stomatological pathology of pregnant women and proper therapeutic conduct.

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An Epidemiological Study Analyzing Various Risk Factors Associated with the Morbidity Pattern in Acute Respiratory Infections in Children under 5 Years of Age in a Rural Area of District Amritsar

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ABSTRACT

A longitudinal community based study was conducted among the population of a rural community in the Verka block of District Amritsar from December 1998 through February 1999 to determine the incidence, risk factors, morbidity associated with acute respiratory tract infection in children under 5 years of age. Data were obtained from a total of 503 children, who were visited twice weekly for detection of risk factors. The overall incidence of ARI was 4.41 episodes per child. The highest incidence was observed in the age group of 1-2 years (average 1.3) and lowest rates were observed in age group of 0-1 year (avg.1.03) years.The incidence was higher in boys than in girls. Lower socio-economic status,un-immunized, children of parents who smoke, environmental pollution, unfed breast milk children, had the greater risk of ARI episodes. An increase in magnitude of ARI was observed with the decrease of literacy rate.

Keywords: *Risk Factors, Acute Respiratory Tract Infection, under-five children.*

INTRODUCTION

Acute respiratory infections are one of the commonest causes of deaths in children in developing countries. They are responsible for 4 million out of the estimated 15 million deaths that occur in children under 5 years of age .Every year, 2/3rd of these deaths are in infants under one year of age. Almost all acute respiratory infection deaths, in young children are due to pneumonia. It constitutes, a major cause of mortality among children. Thus acute respiratory infection is a serious threat to infant and child survival in India.

Although the magnitude of acute respiratory infections as a public health problem has been known for years, yet accurate data on the incidence of acute respiratory infections are limited. On an average, a child in an urban area suffer from 5 to 8 attacks annually, with a mean duration of 7-9 days. In rural areas the incidence seems to be lower. Most of the illnesses are of mild and self limiting nature, About 10-15% will progress to disease of moderate and severe intensity with a case fatality rate varies from 5-10%. Although the overall incidence of acute respiratory infections is similar in the urban areas of developing and developed world, there are large differences in the relative frequency and severity of lower respiratory tract infections, in particular pneumonia which accounts for about 75% of all deaths reported for acute respiratory infections, 46% of al deaths reported for ARI, and 4.8 if all causes of death are taken into consideration. (WHO 1981). While their annual incidence is between 30 and 40 per 1000 children under 5 years of age in urban areas of

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United States, it appears to be double from 70 to 100 per 1000 in developing countries and can reach levels of 500 per 1000 among malnourished children (WHO, 1984).

Acute respiratory infections are a leading cause for people to utilize the health services in both developed and developing countries. They account for 20-40% of children attending out - patient clinics and 12-35% of admissions of children into hospitals (WHO, 1984). In our country, acute respiratory infections constitute 22-66% of all pediatric outdoor cases and 12-45% of all indoor admission (Indian Academy of Pediatrics, 1999).

Risk factors that increase the incidence and severity of lower respiratory tract infections in developing countries are poor housing conditions, overcrowding, environmental pollution (domestic smoke, parental smoking), large family size, malnutrition, lack of breast feeding, vitamin A deficiency and low birth weight. Hence this study was planned with the following aims and objectives

AIMS & OBJECTIVES

To determine the various risk factors associated with the morbidity pattern in acute respiratory infections in children under 5 years of age.

MATERIALS & METHOD

The proposed study was carried out in the Village Gumtala which is a field practice area of the Department of Community Medicine, Government Medical College, Amritsar. A case of acute respiratory infection is defined as per the guidelines of the World Health Organization.

"Any episode of acute symptoms and signs resulting from infection of any part of the respiratory tract or its related structures including the paranasal sinuses, middle ear and pleural cavity."

A new episode was considered as one occurring after a symptom free interval.The study area was divided into four zones. Each zone consisted of approximately 160 houses. A team of Pre-trained interns and anganwadi worker of each zone assisted the survey for a cluster of approximately 125 children below 5 years of age. Each house was visited twice a week by the team. The mother or any other responsible family member was interviewed in a local language after explaining the purpose and aims of the study so as to get their co-operation.

The study was conducted by house to house visit. A pretested Performa was used to collect the information it was compiled, analyzed and valid conclusions were drawn.

OBSERVATIONS

Table 1: Showing the sex-wise incidence of acute respiratory tract infection episodes among children of 0-5 years age.

Sex	No.of children	No.of ARI episodes	Average No.of ARI episodes	Range of episodes	Standard deviation
Male	286	332	1.16	0-4	0.0033
Female	217	228	1.05	0-3	0.0037

Z+ 354.88; p<0.01 (Significant)

This table shows that in male children (n-286) the incidence of acute respiratory infection for 3 months period was 332 episodes (average 1.16 episodes/child) while in female children (n=217), it was 228 episodes (average 1.05 episodes/child). This difference was observed to be statistically significant in both these groups of children

Table 2: The age wise incidence of acute respiratory infection episodes among children of 0-5 years age

Agein years	No.of children	No.of ARI episodes	Average No. of episodes	Range of episodes	S.D.
0-1	66	68	1.03	0-3	0.011
1-2	88	114	1.3	0-5	0.019
2-3	93	108	1.16	0-5	0.004
3-4	136	142	1.05	0-3	0.007
4-5	120	128	1.06	0-3	0.005

z1=24.55   p<0.01(significant); z2=8.75 p<0.01 (significant)

z3+20.00   p<0.01(insignificant);   z4<2.86 px0.01(significant)

According to this table minimum number of ARI episodes (average 1.03 episodes'/child) were observed

in children of 0-1 years age group. Maximum incidence of acute respiratory infection was observed (average 1.3 episodes/child) in 1-2 years age group followed by those in 2-3 years, 4-5 years and 3-4 years of age group who had experienced 1.2, 1.06 and 1.05 ARI episodes/child. The difference observed was statistically significant.

Table 3: Showing the relationship between the nutritional status and the acute respiratory infection episodes among children of 0-5 years age

Nutritional status	No.of children	No.of ARI episodes	Average No.of ARI episodes/child	Range of episodes	Standard deviation
Normal	304	309	1.016	0-3	0.0148
Grade I	136	162	1.191	0-3	0.0072
Grade II	51	71	1.392	0-5	0.0166
Grade III	12	18	1.5	0-5	0.0678

z1 = 14.58 p<0.01 (significant) z3 = 2.08   p < 0 . 0 5 (significant)

z2 = 12.56 p<0.01 (significant)

This table shows that minimum number of ARI episodes were observed in children (n=304) of normal nutritional status (average 1.02 per child). This was followed by grade I (n=136), grade II

(n=51), malnourished children who had suffered an average 1.2, 1.4 episodes per child respectively. Maximum acute respiratory infection episodes were observed in grade III malnourished children (n=12) who had experienced 1.5 episodes per child. The present study revealed increasing incidence of acute respiratory infection episodes with higher grades of malnutrition.

Table 4: Showing the relationship of breast feeding with the acute respiratory infection episodes in children under 24 months of age

Mode of feeding habits	No.of children	No.of ARI episodes	Average No. of episodes/ child	Range of ARI episodes	S.D.
Breast fed	42	22	0.524	0-2	0.118
Artificially fed	37	71	1.919	0-3	0.117
Mixed fed	75	89	1.186	0-4	0.003

z1 = 51.85 p<0.01 significant This table shows that the maximum incidence of acute respiratory infection episodes was observed in children (n = 37) who were exclusively artificially fed (average 1.9 episodes/child) followed by children who were mixed fed (n = 75) who had experienced an average

1.19 episodes/child while minimum incidence of acute respiratory infection episodes were observed in breastfed children (n=42) who had experienced an average 0.52 episodes per child. This difference was observed to be statistically significant (p<0.01).

Table-5: Showing incidence of acute respiratory infection episodes according to the immunization status of the children

Status of the immunization	No. of children	No. of ARI episodes/child	Average ARI episodes/child	Range of ARI episodes	S.D.
Fully immunized	358	382	1.067	0-3	0.114
Partial immunized	127	149	1.173	0-5	0.01
Unimmunized	18	29	1.611	0-6	0.077

z1   = 3.53   p<0.01 (Significant)

z2   = 12.51   p<0.01 (Significant)

This table shows that out of 503 children, 358 (71.1%) were fully immunized, 127 (25.25%) were partially immunized 18 (3.6%) children were not given any immunization Maximum incidence of acute respiratory infection was observed in unimmunized children (average 1.61 episodes/child) followed by partially immunized children (average 1.17 episodes/child). Minimum ARI incidence observed in fully immunized children who had experienced an average of 1.07 episodes/child. These observations were statistically significant (p<0.01) and were analogous to the observations of Deb SK (1992-93).

Table - 6: Showing the relationship of socio-economic status with acute respiratory infection episodes

Socio-economic class	No. of children	No. of ARI episodes	Average No. of episodes	Range of ARI episodes	S.D.
Upper	-	-	-	-	-
Upper middle	148	121	0.82	0-3	12.166
Lower middle	136	162	1.20	0-3	11.662
Upper lower	204	254	1.24	0-5	14.283
Lower	15	23	1.53	0-5	3.873

z1= 154.4; z2 = 171.3;z3   p>0.05 Non Significant

According to this table maximum number of acute respiratory infection episodes were observed in children of lower social class (n=15) who suffered an average of 1.5 episode per child followed by those of upper lower (n=204), lower middle (n=136) and upper middle class (n=148) who had experienced an average 1.24, 1.2 and 0.82 episodes per child. There was an increasing trend observed in morbidity pattern among children due to acute respiratory infection from higher to lower socio- economic class which was statistically insignificant (p>0.05).

Table - 7: Showing incidence of acute respiratory infection episodes according to the literacy status of the mother/parents

Education of mother	No. of children	No. of ARI episodes/Child	Average No. of episodes/ Child	Range of ARI episodes	S.D.
Illiterate	302	357	1.182	0-5	0.0068
Primary	52	58	1.115	0-5	0.0735
Middle	67	71	1.06	0-4	0.0053
High school and above	82	74	0.90	0-3	0.018

z1= 3.53 ;   p>0.01 (Significant)

z2= 1.62 ;   p>0.05 (Significant)

z3= 8.89 ;   p>0.01 (Significant)

This table depicts that maximum episodes of the acute respiratory infections were observed in children of illiterate mothers (n=302) who had 1.18,); followed by middle (n=67) and high school (n=82) and above educated mothers who had experienced 1.11, 1.06 and 0.9 episodes per child respectively. There was an increased incidence of acute respiratory infection episodes with a declined in the literacy status of the mother which was statistically significant (p<0.01) except those children of illiterate and primary educated mothers where the difference was observed to be insignificant (p<0.05). This

Table-8: Showing the relationship of episodes with smokers in the family

Smoking status of one of the parents	No. of children	No. of ARI episodes	Average No. of episodes	Range of ARI episodes	S.D.
Smokers	221	282	1.276	0-5	0.00982
Non-smokers	282	278	0.986	0-4	0.00857

z1= 353.66 ; p>0.01 (Significant)

This table depicts that maximum acute respiratory infections episodes were observed among children of smoking parents (n=221) who had experienced more episodes of acute respiratory infections (average 1.3 episodes per child) as compared to those of non smoking parents (n=282) who suffered minimum acute respiratory infection episodes. This difference was statistically significant. which might be due to the fact that children act as passive smokers .

Table 9-a: Showing the relationship of acute respiratory infections with the separate kitchen

Whether the kitchen is separate	No. of children	No. of ARI episodes	Average No. of episodes	Range of ARI episodes	S.D.
Yes	244	208	0.852	0-3	0.162
No	259	352	1.359	0-5	0.0157

z1= 359   p>0.01 (Significant)

Table 9-b: Showing the type of fuel used for cooking and its relationship with acute respiratory infection episodes in children

Fuel used	No. of children	No. of ARI episodes	Average No. of episodes	Range of ARI episodes	S.D.
Firewood/cow dung	309	441	1.427	0-5	0.0038
Kerosene oil	63	71	1.127	0-4	0.0075
Cooking gas	51	48	0.941	0-3	0.0177

z1= 11.29 ; p>0.01 (Significant)

z3= 175.45 ; p>0.01 (Significant)

This table depicts that the maximum acute respiratory infection incidence was observed in children (n=309) living in the houses where firewood/ cow dung was the fuel used for cooking. They had suffered (average 1.43) episodes/child), followed by children (n-=63) where kerosene oil was the fuel used who suffered an average 1.13 episodes per child. While minimum number of acute respiratory episodes were observed in children living in houses where cooking gas used was the fuel. Statistically a significant difference was observed among these children (p<0.01). Further analysis showed that the provision of separate kitchen in the houses also associated with lower acute respiratory infection incidence.

Table – 10: Showing the incidence of acute respiratory infection episodes according to over crowding in the house

Over crowding	No. of children	No. of ARI episodes	Average No. of episodes	Range of ARI episodes	S.D.
Present	317	376	1.186	0-5	0.00309
Absent	186	184	0.989	0-3	0.0053

Z= 49.25;   p>0.01 (Significant)

As the table shows children experienced maximum acute respiratory infection (average 1.18) episodes per child) where conditions of overcrowding were prevailing in the dwellings. While in houses where there was no overcrowding, children suffered minimum number of ARI episodes.(average.99) episodes per child. [5]This difference was statistically significant (p<0.01) and this might be due to the fact that chances of cross infection from the other family members are more in the overcrowded houses.

DISCUSSION

out of a cohort of 503 children observed during the study period, incidence of ARI was maximum in the age group of 1-2 years (avg. 1.3 episodes/child)and minimum (avg. 1.03) in the 0-1 age group children and it was   more in the male as compared to the female children. The difference may be due to reasons that the parents pay more attention towards their male as compared to female children and also in some of these female children , the ARI episodes were ignored. These findings were analogous to the findings of [1]Reddiah VP et al(1990),singh MP et al (1990-91).

Higher incidence of ARI episodes were correlated with increasing birth order and was statistically significant (p0.01).similarly, A significant association was   found between ARI and Immunization. IARI episodes were   least (1.07 episodes/child) in children who were fully immunized as compare to unimmunized children and were statistically significant (p<0.01). These observations were comparable to the studies done by Deb SK (1992-93)[2].

There was a an increasing trend of ARI morbidity pattern among children from higher to lower S-E class and it was a statistically significant (p>0.05).These findings were comparable to the findings of [3]Datta Banik ND et al(1969),Kumar V et al[4] (1967).

Similarly a statistically significant difference in the incidence of ARI was observed among children of parents who smoke and this might be due to the fact that children of these parents act as passive smoker and the irritant's toxins in the smoke inhaled by them might have damaged the respiratory epithelium.

There was a lower incidence of ARI among children with separate kitchen and where cooking gas used was fuel..This might be due to the fact that smoke act as an irritant to the respiratory epithelium and predispose to infection[6].

RECOMMENDATIONS

It presents a particularly strong argument for a primary care perspective on needs assessment. It is the second most common diagnosis made in under 5 children consulting their general practitioner, and the commonest cause of disability.

A programme needs to be developed to provide facilities in the form of early diagnosis, counseling and family support in addition to treatment. Along with this both community based and hospital based strengthening of pediatric health care services is required.

Abbreviations: Govt. Government of India

ARI: Acute respiratory tract infection

QOL: Quality of Life

SES: Socio-economic status

WHO: World Health Organization

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Evaluation of Metabolic Syndrome as a Complication in Thyroid Patients in Ghaziabad

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ABSTRACT

Thyroid hormones play an important role in regulating energy homeostasis, glucose and lipid metabolism. Thyroid functions affect Metabolic Syndrome parameters including HDL- cholesterol, triglycerides (TG), blood pressure and plasma glucose. The impact of various degree of thyroid dysfunction on these factors, however' continues to be debatable.Therefore present study was carried out in Santosh Medical College and Hospital. 118 patients with hypothyroidism were included in the study. Out of 118 cases 60 cases were of overt hypothyroidism and 58 of subclinical hypothyroidism. Total of 69 cases were diagnosed with Metabolic Syndrome, of which 34 (12 male, 22 female) were of overt hypothyroid group and 35 (11 male, 24 female) were of subclinical hypothyroidism. Therefore patient are at risk of developing metabolic syndrome and other related disorders i. e. Diabetes Mellitus and Vascular complications, and hence need to be followed up for aforesaid parameters of metabolic syndrome.

Keywords: Thyroid disorders, Metabolic Syndrome, Hypothyroidism.

INTRODUCTION

The Metabolic Syndrome (Met Syn) is one of the major public health issues in the current time. Associated with increased risk for development of type 2 diabetes mellitus (T2DM), cardiovascular disease and other medical conditions, it is constellation of physical conditions and metabolic abnormalities. The Number of fatalities, premature death and disabilities resulting from these disorders are increasing at alarming rate in both developed and developing countries. Several groups of workers have attempted to define diagnostic criteria for the metabolic syndrome. The World Health Organization (WHO) developed a definition in 1998 stating that individual need to show evidence of insulin resistance and, at least 2 of 4 factors should be present namely-hypertension, hyperlipidemia, obesity and microalbuminuria[1]. In 2001, the National cholesterol Education program (NCEP) Adult Treatment panel (ATP III) suggested another definition for the Met Syn, according to which at least 3 of 5 factors should be present for diagnosis of the Met Syn and the five factors/components are the following: increased waist circumference, hypertriglyceriderma, low high density lipoprotein (HDL)-cholesterol, hypertension (130/85mmHg) and fasting glucose of 110 mg/dl or high[2].

The well known underlying risk factors for the development of metabolic syndrome are obesity, insulin resistance, physical inactivity, advanced age and hormonal imbalance etc[3]. Having just one of these condition, is not going to manifest metabolic syndrome. However, any of these conditions increase risk of serious disease. If more than one of these conditions occurs in combination, the risk is said to be even greater. Thyroid hormones play an important role in regulating energy homeostasis, glucose and lipid metabolism[4]. Thyroid functions affect Met Syn

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parameters including HDL- cholesterol, triglycerides (TG), blood pressure and plasma glucose[5]. The impact of various degree of thyroid dysfunction on these factors however continues to be debatable. It is known that overt hypothyroidism leads to an increase in plasma cholesterol levels and blood pressure[6]. Most studies in subclinical hypothyroidism show comparable, but less pronounced association. As the thyroid function and components of metabolic syndrome are influenced by genetic, geographic, dietary and other factors, this study was conducted aiming to investigate the relationship between the thyroid dysfunction and components of the metabolic syndrome in the patients visiting to Santosh Hospital.

MATERIAL & METHOD

Present study was conducted at Santosh Medical College & Hospital. The hospital caters to all the sections of the society and thus the samples drawn from this hospital is true representation of Ghaziabad population. 118 patients with Hypothyroidism, Including 60 cases of overt hypothyroid group and 58 of subclinical hypothyroid group between the age group 20- 69 were taken into study. Diagnosis of Hypothyroidism was based on criteria of expert committee on the diagnosis and classification of Thyroid disorders. The thyroid profile was considered normal for TSH normal levels: 0.3 – 5.5μgIU/ml, for T3 normal levels: 60-200ng/dl, forT4 normal levels: 4.5 – 12 μg/dl. Patients were considered having hyperthyroid if TSH, T3 and T4 are < 0.3 μg IU/ml, >200 ng/dl and >12 mcg/dl respectively. Patients were considered hypothyroid if TSH, T3 and T4 levels are >5.5 μgIU/ml, <60 ng/dl and <4.5 mcg/dl respectively. Patients with TSH >5.1 mcgIU/ml with normal T3 and T4 levels were considered as subclinical hypothyroidism.

Patients with known diabetes with or without treatment, severe liver, heart and renal failure or receiving any medication that may alter thyroid function and lipid profiles were excluded from the study. Biochemical parameters: this includes fT_3, fT_4, TSH, TG, HDL-C, fasting insulin and fasting glucose was estimated. HOMA-IR (homeostasis model of assessment of insulin resistance) was calculated by: HOMA - IR = serum glucose (mg/dl) x plasma insulin (μU/ml)/405[7]. fT_3, fT_4, TSH, and insulin were estimated using Electrochemiluminiscence based immunoassay

(ECLIA)[8]. Fasting serum glucose was estimated by glucose oxidase peroxidase method[9]. HDL-C was assayed by HDL-C-enzymatic clearance assay Using Kit[10]. TG was assayed by GPO reagent Kit[11]. Blood pressure measurement was done by random zero mercury column sphygmomanometer.

Statistical Analysis It was done with SPSS-17 software package. Comparison of quantitative variable were made by using student 't' test with parameters with normal distribution and Mann Whitney U test used for parameters without normal distributon. Chi square test was used for analysis of qualitative data. Spearmen's and Pearson's (wherever applicable) correlation coefficient was calculated for evaluating the strength of association between each components of metabolic syndrome and thyroid function test parameters (fT_3, fT_4, TSH). A p value <0.05 is considered significant in 95% confidence intervals for all statistical tests.

RESULTS & DISCUSSION

The present study was carried out in Santosh Medical College and Hospital. 118 patients with hypothyroidism were included in the study. Out of 118 cases 60 cases were of overt hypothyroidism and 58 of subclinical hypothyroidism. Total of 69 cases were diagnosed with Metabolic Syndrome, of which 34 (12 male, 22 female) were of overt hypothyroid group and 35 (11 male, 24 female) were of subclinical hypothyroidism.

The prevalence of metabolic syndrome was found to be increasing with age, with maximum in age group 40-49 years. Maximum numbers of hypothyroid patients were in age group of 30-39 years with 59% of prevalence of metabolic syndrome. In both Overt and subclinical patients, the level of TSH was significantly raised among the metabolic syndrome group. Stastically significant rise (P<0.05) was observed among overt hypothyroid patients. Components of metabolic syndrome were compared in both the thyroid groups. The comparison is given in table- 1.

Table 1 . Comparison of Components of metabolic syndrome in overt and subclinical hypothyroidism.

	Overt Hypothyroid		Subclinical Hypothyroid	
	Non Met Syn	Met Syn	Non Met Syn	Met Syn
WC (inch)	32.8 ± 2.5	36.9 ± 3.6	33.3 ± 2.4	37.17 ± 3.12
SBP (mmHg)	127.6 ± 12.7	136.7 ± 17.1	123 ± 11.1	138.4 ± 15.4
DBP(mmHg)	83.9 ± 7.1	89.2 ± 9.7	84 ± 7.3	91.39 ± 10.67
FG(mg/dl)	90.7 ± 16.0	111.8 ± 19.2*	95.2 ± 11.2	136 ± 33.1*
TG(mg/dl)	136.3 ± 33.1	198.1 ± 58.6*	175.2 ± 52	155.29 ± 45.65
HDL(mg/dl)	44.2 ± 8.2	41.9 ± 8.3	44.6 ± 8.8	41.73 ± 8.98

*p<0.05 in comparison to subclinical hypothyroidism by student test

In the present study females hypothyroid cases have more prevalence of Metabolic syndrome {n=45 (38.4%)}, than male hypothyroid cases {24 (20%)} Hence it will be worthwhile to screen female patients with hypothyroidism, for risk of metabolic syndrome. Highest prevalence of metabolic syndrome in hypothyroid patient was in 40-49 years of age group {total n=22, cases of metabolic syndrome is n=16 (72%)}. This is also the age group where there is highest risk of subclinical hypothyroidism. The prevalence of Metabolic Syndrome is comparable in overt hypothyroid cases {56% (n=34)} and subclinical hypothyroid cases {60% (n=35)}. Hence this warrants the intensive screening of subclinical hypothyroid group. TSH values were high in metabolic syndrome group (14.6 ± 5.42 mIU/L) in comparison to non metabolic syndrome group (11.5±4.8 mIU/L) in both the thyroid groups. Therefore patients with higher TSH in subclinical hypothyroidism are not more risk of developing metabolic syndrome. When components of metabolic syndromes were compared, overt hypothyroid group had significantly elevated triglyceride levels (198.1±58.6 mg/dl) than subclinical hypothyroid group (155.29±45.65 mg/dl) and subclinical hypothyroid group had significantly elevated fasting glucose (136±33.1 mg/dl) as compared to overt hypothyroid group (111.8±19.2 mg/dl). Hence it can be made out that subclinical patents are at higher risk of metabolic syndrome as they also had greater mean of abdominal obesity, and diastolic blood pressure. fT_3 had significant negative correlation with abdominal obesity in both overt and subclinical hypothyroid group and no significant correlation was found between fT_4 and any of the components of metabolic syndrome.

The HOMA-IR (insulin resistance) is comparable in overt (5.38±3.4) and subclinical hypothyroid (6.27±3.87) groups. Therefore screening and treatment of subclinical hypothyroids may be warranted due to its adverse effect on glucose metabolism Hence the fact that insulin resistance was similar in both thyroid groups where there is significant difference in the levels of thyroid hormones indicate that thyroid hormone per se may not be responsible for this phenomenon. Elevated triglyceride is the most prevalent (81%) component of metabolic syndrome in all thyroid patients of present study. Hence hypertriglyceridemia on routine evaluation may warrants screening for other components of metabolic syndrome. There is a significant correlation (p= 0.03) between waist circumference and triglyceride levels. It is the visceral fat which is responsible for hypertriglyceridemia. Hence it can be concluded that those having high TG levels and high waist circumference, have visceral adiposity. Therefore screening for other parameters of metabolic syndrome may be warranted as visceral adipose tissue causes the most metabolic derangements.

CONCLUSION

It was a hospital based study, so may it may not truly reflect the actual associations of thyroid dysfunction and metabolic syndrome in the community.

It was a base line study, so follow up of patients of subclinical hypothyroids, would not possible due to limited period of time. To generalize the results of this study, larger sample size should be required, which was not possible in this study due small span of time. The systemic inflammation, one of the important cause of insulin resistance and an important effect of abdominal obesity, was not measured. Thus the more

direct relationship between insulin sensitivity and inflammation in hypothyroid patients could not be delineated. Moreover, the type of abdominal obesity (visceral fat or subcutaneous fat) is not identified, which could not make relationship of HOMA index and waist circumference, a meaningful parameter.

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Liver Disorders Unique to Pregnancy – Our Experience

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ABSTRACT

Background: Liver disorders unique to pregnancy are Intrahepatic Cholestasis of Pregnancy (IHCP), Syndrome of Hemolysis, Elevated Liver Enzymes, Low Platelet count and Acute fatty liver of pregnancy. The present study is done to analyse the occurrence, complications, mode of delivery and the perinatal outcomes in the women affected by these liver disorders.

Method: Medical records of the patients admitted with the above diagnosis during Jan 2008 – Dec 2013 for a period of five years were retrospectively analysed.

Results and Conclusions: During the time period of the study there were a total of 31 patients with liver disorders unique to pregnancy. 10 patients were with IHCP. 13 patients with HELLP syndrome. 8 patients with AFLP. Most of the women were primigravida and presented with pruritis, jaundice, and pain abdomen. Maternal complications noted were sepsis (n=9), postpartum hemorrhage and coagulopathy. Mechanical ventilation was required for 5 patients and one mother died of acute fatty liver of pregnancy. 17 patients delivered by vaginal route, while 14 women underwent caesarean delivery. All women of AFLP had vaginal delivery considering the operative and anaesthesia related risk. 7 perinatal deaths (PNM rate 0.06) noted in these women with liver disorders unique to pregnancy and 24 mothers had live births.

Keywords: Aflp, hellp, intrahepatic cholestasis, maternal and perinatal complications.

INTRODUCTION

Liver disorders in pregnancy are usually categorized into –

1. Liver diseases that occur only in pregnancy or which are unique to pregnancy.

2. Liver diseases those are coincident in pregnancy.

Liver disorders that are pregnancy specific are

• Intra Hepatic Cholestasis of pregnancy (IHCP)

• Syndrome of Hemolysis, Elevated Liver Enzymes and Low platelets (HELLP).

• Acute Fatty Liver of Pregnancy (AFLP)[1.]

These disorders are associated with significant maternal and perinatal morbidity and mortality. The present study was undertaken to analyze the patients with IHCP, HELLP, AFLP and their outcomes.

Intrahepatic cholestasis is a cholestatic disorder characterized by pruritis, elevated serum transaminases and bile acids with the onset in the second or third trimester of pregnancy and spontaneous relief of signs and symptoms in 2-3 days after delivery[2,3].

HELLP syndrome is a syndrome associated with severe preeclampsia characterized by Hemolysis, Elevated Liver enzymes and Thrombocytopenia and was named so by Weinstein in 1982 [4.]

Diagnosis of complete form of HELLP syndrome requires all the 3 components to be present, while partial or incomplete HELLP consists of only 1 or 2 elements of the triad [5.]

Acute Fatty Liver of Pregnancy (AFLP) is a rare,

but serious maternal illness that occurs in the third trimester of pregnancy with an incidence of 1:10,000 to 1:15,000 pregnancies. It has a maternal mortality rate of 18% and fetal mortality of 23 %. [6]

MATERIALS & METHOD

This is a retrospective study of the antenatal mothers with liver disorders unique to pregnancy focusing on Intrahepatic cholestasis of Pregnancy (IHCP), Syndrome of Hemolysis, Elevated Liver enzymes and Low platelets (HELLP) and Acute Fatty Liver of Pregnancy (AFLP) admitted in a tertiary teaching hospital at Coimbatore in Tamil Nadu, India.

The data was collected from the case records from the Medical Records Department for a period of 5 years i.e. January 2008 to December 2013.

The aims of the study were to study patient profiles, clinical characteristics, and biochemical parameters of liver pathologies, maternal and fetal morbidity and mortality.

The Institutional Ethical Committee approval was taken to retrieve the case records and for the study.

RESULTS

During the above said period, there were total of 31 patients with liver disorders unique to pregnancy: 10 of IHCP, 13 of HELLP and 8 of AFLP. The mean ages of the patients were as follows.

Table 1: Mean ages of the patients with liver disorder

Liver disorder	Mean age of patients(years)
IHCP	23.2
HELLP	24.07
AFLP	24.12

Gravidity Index: Most of the women were primigravidas (n=25).

Table 2: Gravidity of the patients

Liver disorder	Primigravidas	Multigravidas
IHCP(n=10)	9(90%)	1(10%)
HELLP(n=13)	11(84.7%)	2(15.3%)
AFLP(n=8)	5(62.5%)	3(37.5%)

The mean gestational ages were 37 weeks for

IHCP, 34 weeks for HELLP and 34.25 weeks for AFLP.

The common presenting symptoms were as follows:

Pruritis, jaundice and nausea in IHCP, whereas severe preeclampsia, epigastric pain and vomiting were the presenting complaints in HELLP and the women with AFLP were referred with vomiting, jaundice and loose stools.

Icterus was seen in 9/10 of IHCP, 7/13 in HELLP and all the patients with AFLP.

Table 3: The mean bilirubin levels of the patients.

Condition	Total Bilirubin (mg %)	Direct Bilirubin (mg %)	Indirect Bilirubin (mg %)
IHCP	4.04	2.46	1.58
HELLP	5.74	3.78	1.96
AFLP	14.01	11.45	2.56

Table 4: Liver enzymes impairment.

Condition	Alanine aminotransferase (SGPT)	Aspartate aminotransferase (SGOT)
IHCP	162 U/L	195U/L
HELLP	156U/L	125U/L
AFLP	162	195

Renal functions were impaired in 2 of 13 patients with HELLP, all patients of AFLP and no patients of IHCP.

Table 5 : Mode of Delivery of the patients with liver disorder.

Liver disorder	Caesarean delivery	Vaginal delivery
IHCP	7/10(70%)	3/10(30%)
HELLP	7/13(53.84%)	6/13(46.16%)
AFLP	Nil	8/8(100%)

Maternal complications:

- IHCP   -   Nil

- HELLP

o Sepsis   - 4 cases

o   Mechanical ventilation with Hepatic encephalopathy   - 1 case

o   Post partum haemorrhage   – 2 cases

- **AFLP-**

o   Coagulopathy   - 8 cases

o   Mechanical ventilation   - 4 cases

o   Sepsis   - 5 cases

o   Maternal mortality   - 1 case

Sepsis was the most common complication noted in these patients followed by hemorrhage and coagulopathy and 6 women were mechanically ventilated for Hepatic encephalopathy in these liver disorders unique to pregnancy.

Perinatal outcome

	Live births	still births
IHCP	10	0
HELLP	10	3
AFLP	4	4
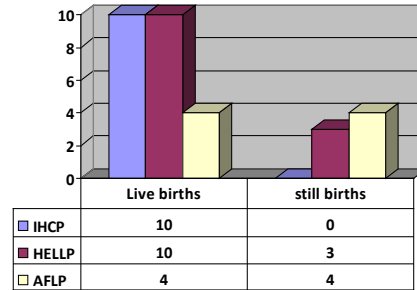
There were no perinatal deaths in IHCP mothers but AFLP patients had nearly 50% stillbirths considering the prematurity and perinatal asphyxia. 3 stillbirths were noted in mothers with HELLP out of 13 patients.

DISCUSSION

The Liver disorders specific to pregnancy after the second trimester are Intrahepatic cholestasis of Pregnancy (IHCP), Syndrome of Hemolysis, Elevated Liver Enzymes and Low Platelets (HELLP) and Acute Fatty Liver Of Pregnancy (AFLP).The features of these conditions are as follows [1]:

Liver disorder	Timing of Occurrence	Clinical Features	Histology
IHCP	2/3rd trimester	Pruritis Jaundice Fatigue Pain abdomen	Centrilobar Cholestasis and no inflammation
HELLP	Third trimester	Abdominal pain Nausea, Vomiting Hypertension Edema and Proteinuria	Periportal hemorrhage Necrosis Fibrin deposition
AFLP	Third trimester	Nausea Vomiting Pain abdomen Fatigue Jaundice	Microvesicular Fat

Intrahepatic Cholestasis of Pregnancy (IHCP)

Cholestasis of pregnancy is common and should be considered in the differential diagnosis of abnormal liver tests presenting in the second and third trimester. Affected pregnancies are at increased risk of prematurity and stillbirth, and early delivery should be considered when possible [10]. The incidence of this condition is 1/1000 to 1/10,000 with an increased prevalence in Asian populations [1].

In our study, we noted that the incidence was

0.09 (10/10858 deliveries over a period of 5 years). The reported incidence in India is 0.08[6]. The risk factors for IHCP are advanced maternal age, multiparity and in women with cholestasis while on oral contraceptive pills [7]. Progesterone may also be involved in the pathogenesis. Itching is the main symptom and clinically mild jaundice is seen in 10-15% of all the cases [8].

In our study, bilirubin was mildly elevated in

almost all the cases.

Serum transaminases are quite elevated (less than 1000) [9] In our study the mean transaminases were <200u. Liver biopsy was not done as it is generally not warranted in these patients for diagnosis [10].

There are usually no maternal complications but occasionally Vitamin K malabsorption secondary to steatorrhea may lead to prolonged prothrombin time and post partum haemorrhage[1]. The only long term sequel for the mother is a slightly increased risk of developing gallstones[10].

In the present study, only one patient had prolonged prothrombin time and needed replacement of coagulation factors.

Fetal distress manifested as meconium stained liquor and non-reassuring fetal heart tracings were seen in all the women with IHCP resulting in emergency ceasarean delivery in 7 out of 10 women. Fetal distress is thought to be due to impairment of maternal to fetal transfer of bile acids leading to potentially toxic bile acids levels in the fetus[11].

Hemolysis, Elevated Liver enzymes and Low Platelets (HELLP)

In HELLP syndrome, patients have signs of preeclampsia as well as thrombocytopenia. Preeclampsia affects 3-10% of pregnancies and HELLP syndrome occurs in 20% of patients with preeclampsia[12]. As with preeclampsia the pathogenesis of this condition is unknown. But the hallmark is the extensive endothelial injury, leading to platelet activation and fibrin deposition in the vessel lumens and platelet consumption. Hemolysis occurs secondary to red blood cell fragmentation upon passage through small blood vessels. In the liver, there occur periportal or focal parenchymal necrosis[13].

Complete HELLP has all the components as hemolytic picture in peripheral smear with Lactate Dehydrogenase > 600U/L, Elevated Liver Enzymes AST>70U/L and Thrombocytopenia (Platelets <1,00,000). Partial HELLP has one or two but not all these components[5].

In the present study, there were 5 out of 13 patients with partial HELLP while the remaining 8 had complete HELLP.

The most common symptom is abdominal pain, but it occurs in only 65% of the affected individuals[12]. In our study also, we noted that most of the patients presented with epigastric pain and vomiting. 3 out of 13 women were diagnosed when laboratory investigations were done on patients with preeclampsia.

Liver enzymes were in range of 49 to 871, with 10 patients having AST >70 U/L. Platelet counts were <1, 00,000 /mm3 in all the patients except one. LDH was raised in 8 patients with 5 patients having values more than 1600U/L.

Perinatal morality (PNM) was 23% in our study while the reported PNM in literature ranges from 7-22% and in due to prematurity, intrauterine asphyxia and premature detachment of placenta[1].

The maternal complications noted were postpartum hemorrhage secondary to impaired coagulation status and thrombocytopenia. One mother had massive blood transfusion. Sepsis was seen in 4 patients with caesarean wound requiring resuturing in 2 patients. One patient was intubated and mechanically ventilated in view of hepatic encephalopathy.

Acute Fatty Liver of Pregnancy

AFLP is rare disorder reported to occur in 1/ 13,000-1/16,000 deliveries[14, 15]. In our study, we noted an incidence of 1/1,357. This apparent high incidence can be attributable to the referrals to our hospital due to good Intensive Care Unit and Gastroenterology department. The clinical features range from asymptomatic elevation in serum aminotransferases to fulminant hepatic failure with jaundice, profound coagulopathy, hepatic coma and hypoglycemia requiring maximum supportive care[16]. The initial symptoms of AFLP are nonspecific .Headache, nausea, epigastric pain and hematemesis usually appear before jaundice develops[17].

In our study, all the women were referred with vomiting, jaundice and loose stools. 2 patients came with associated renal failure. The mean bilirubin levels was 14 and the transaminases were moderately as also noted by Arunkumar Mitra , et al[18]. The transaminases ranged from 38 to 399.

Renal parameters were elevated in all but one mother. 2 patients had severe hypoglycemia at

admission. Other extrahepatic complications noted in our patients were polydipsia in 2 patients which has been attributed to central Diabetes Insipidus[19.] Platelet count is usually normal unless patient has progressed to DIC. 7 of our patients had platelets less than 1, 00,000/mm^3 suggesting that these mothers were referred late in the disease. All the patients had prolonged coagulation parameters.

Mechanical ventilation was needed in 4 patients and nearly all patients required multiple transfusions of blood and coagulation factors. Sepsis was seen in 5 women with focus of infection in the bladder and trachea. Maternal mortality was noted in 1 patient as was also noted in the study by W.M. Hague et al[20.]

An association between AFLP and one of the inherited defects in mitochondrial beta-oxidation of fatty acids, long chain 3-hydroxyacyl-CoA dehydrogenase (LCHAD) deficiency is suggested[20.] This enzyme is one of the four enzymes, which break down long-chain fatty acids in the liver. The accumulation of long-chain 3-hydroxyacyl metabolites produced by the fetus or placenta is toxic to the liver and may be the cause of the liver disease. Testing for the known genetic variants of this LCHAD is available. Though we could not do in our patients due to financial constraints and also that the testing is not available locally.

CONCLUSION

The liver disorders in pregnancy can vary widely from the conditions that are unique to pregnancy to those that are co-incident in pregnancy, but that can have an altered course by the pregnancy status. Making a correct diagnosis requires a high degree of clinical suspicion along with the necessary laboratory evaluation. Although liver diseases unique to pregnancy are uncommon, they should always be suspected because of potential for acute liver failure. Gestational age is the best guide to differential diagnosis of pregnancy-related liver disease. Prompt diagnosis, early referral and aggressive management by the collective efforts of the Obstetricians, Perinatalogists and Gastroenterologists in a well-equipped hospital can bring about the desirable change in the maternal and perinatal outcome. Early delivery and advanced supportive management are the only available options for improving the prognosis in these disorders unique to pregnancy.

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Socio-demographic Determinants of Contraceptive Use among Married Women from Urban Area of North Karnataka

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ABSTRACT

Family planning is being recognized as one of the most important issues not only as in population number problems but as an issue which affects the health and lives of women and children. The increased use of contraception is indisputably the main proximate determinant of the fertility decline and a factor that improves quality of life of a woman and her baby. **Objectives:** To find out the socio-demographic determinants and magnitude of current contraceptive use among married women residing in urban area of Bagalkot,North Karnataka. **Methodology:** House to house survey by interview method by administering a pre-designed, structured questionnaire. **Study Population:** Married women in the reproductive age group (15-44 years). **Study Design:** Cross sectional Study. **Study Period:** 1st June 2010 to 31st May 2011. **Results:** The prevalence of contraceptive use was found to be 58.05% in the study area. Around 3/4th of the subjects i.e. 72.28% adopted tubectomy as method of contraception. None of the respondents had opted for vasectomy as contraceptive measure. Temporary methods were followed by 27.72% of current contraceptive users. Contraceptive acceptance was more in women who are graduate and above (95.45%), women from a nuclear family (62.38%), upper middle socioeconomic class (81.46%). Significant association was found between contraceptive acceptance and literacy status, occupation, type of family, socioeconomic status and age at marriage.Temporary contraception was better accepted by those females who were educated upto high school and above, among those who were occupied in skilled and above occupation. **Conclusion:** There is urgent need to increase awareness about contraceptive use in the society with special emphasis on involvement of male partners.

Keywords: Contraceptive acceptance, literacy status, type of family, age at marriage.

INTRODUCTION

India accounts for 2.4% of the world's surface area yet it supports 16.7% of the world's population. As the population grows, the pressure on natural resources will intensify. Population pressure will reduce the per capita availability of land for farming, which will affect availability of food grain, drinking water, besides excluding millions of people from the benefits of health & education and the opportunity to become productive members of the society[1].

The extent of acceptance of contraceptive methods still varies within societies and among different castes and religion groups. The factors responsible for such varied picture operate at the individual, family and community levels with their roots in the socioeconomic and cultural milieu of Indian society. Of the different methods of family planning, sterilization accounts for 70% of which, tubectomy remains the mainstay. Failure to target men in

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reproductive health interventions has weakened the impact of reproductive health care programmes[2].

Keeping in view of these factors a cross sectional study was undertaken in the field practice area of Urban Health Centre attached to Department of Community Medicine, S.N. Medical College, Bagalkot.

METHODOLOGY

The present study was undertaken to find out the magnitude and socio-demographic determinants of current contraceptive use among married women in reproductive age group (15-44years). **Study Population**: The Urban Health Centre caters a total population of 8530 which includes 1438 eligible couples. **Study Design:** Cross sectional Study. **Study Period:** One year, starting from 1st June 2010 to 31st May 2011. **Inclusion criteria:** Married women in reproductive age (15-44years) residing with the spouse. **Exclusion criteria:** Those not willing to participate in the study. **Sample Size:** A pilot study was done to find out the prevalence of contraceptive use. Hundred eligible couples were selected randomly using computer generated random numbers from the eligible couples list of the urban field practice area. From the pilot study, the prevalence of contraceptive use came out to be 55%. So the sample size was calculated using the formula[3] $n = 4 \times p \times q / l^2$. Sample size came out to be-328. Extra 10% sample was collected to take care of any non-response during the study. Thus, the final sample size came out to be 328 + 33 (10 % of 328) = 361. **Sampling procedure**: Systematic random sampling method. Out of total sample size of 361, thirteen women could not be contacted for interview even after visiting the house for three times. Thus the total sample size

was 348. **Collection of Data:** First female respondent among the first four eligible couples was randomly selected from the eligible couple list and the number was 3. Therefore, that was the first female respondent. The sampling interval was 4. After selecting the first eligible couple, every fourth subject was taken by adding the sampling interval by systematic random sampling method as- 3, 7, 11, 15, 19 etc. The subjects were explained about the purpose of study. Data was collected by house to house survey by interview method by administering a pre-designed, semi-structured questionnaire. Information was collected regarding her age, education, occupation, religion, per-capita income and current use of contraception also about her marital history like her age at marriage, her present parity status. **Statistical Analysis:** Data was analysed using SPSS (19.0) version and Epi info using percentages and Chi Square Test.

RESULTS AND DISCUSSION

Table 1: Distribution of respondents as per the contraceptive acceptance.

Contraceptive use	Number	Percentage
Acceptors	202	58.05
Non-acceptors	146	41.95
Total	348	100.0

Among 348 respondents, 202 (58.05%) accepted some or other contraceptive method, giving the prevalence of contraceptive use as 58.05%. Similar results were obtained in study conducted by Bhasin S.K[4]. in Delhi reporting contraceptive prevalence to be 59.8%. Study done by Vidya V.G[5].in Maharashtra reported prevalence of contraceptive use to be 55%, While Mohanan P.[6] in their study in Mangalore,kannada found couple protection rate to be 28%.

Table 2: Distribution of contraceptive acceptors & non- acceptors as per various socio-demographic variables.

Socio-demographic factors	Acceptors (%)	Non-acceptors (%)	Total (%)	X2	Df	p-value
Age (yrs) 15-19 20-24 25-29 30-34 35-39 40-44	1 (100.0) 16 (33.33) 53 (43.80) 54 (60.0) 53 (89.83) 25 (86.21)	0(0.0) 32(66.67) 68(56.20) 36(40.0) 6(10.17) 4(13.79)	1(100.0) 48(100.0) 121(100.0) 90(100.0) 59(100.0) 29(100.0)	38.84	1	p<0.001

Table 2: Distribution of contraceptive acceptors & non- acceptors as per various socio-demographic variables. (Cont...)

Educational status						
Illiterate	61(56.48)	47(43.52)	108(100.0)			
Primary	42(53.85)	36(46.15)	78(100.0)			
Middle school	32(52.46)	29(47.54)	61(100.0)	6.95	1	p<0.008
High school	23(56.10)	18(43.90)	41(100.0)			
Intermediate/diploma	22(59.46)	15(40.54)	37(100.0)			
Graduate/postgraduate	21(95.45)	1(4.55)	22(100.0)			
Professional	1(100.0)	0(0.0)	1(100.0)			
Occupation						
Housewife	150(57.03)	113(42.97)	263(100.0)			
Unskilled worker	20(50.0)	20(50.0)	40(100.0)			
Semiskilled worker	15(57.69)	11(42.31)	26(100.0)	8.1	1	p<0.004
Skilled worker	1(50.0)	1(50.0)	2(100.0)			
Clerical	5(83.33)	1(16.67)	6(100.0)			
Semi-professional	9(100.0)	0(0.0)	9(100.0)			
Professional	2(100.0)	0(0.0)	2(100.0)			
Type of family						
Nuclear	131(62.38)	79(37.62)	210(100.0)			
Joint	40(50.0)	40(50.0)	80(100.0)	4.08	1	p<0.043
Three generation	31(53.45)	27(46.55)	58(100.0)			
Socio-economic status						
Upper	7 (58.33)	5(41.67)	12(100.0)			
Upper middle	56(70.89)	23(29.11)	79(100.0)			
Lower Middle	95(56.55)	73(43.45)	168(100.0)	6.33	1	p=0.011
Upper lower	44(50.57)	43(49.43)	87(100.0)			
Lower	0(0.0)	2(100.0)	2(100.0)			
Husbands occupation						
Unemployed	1(100.0)	0(0)	1(100.0)			
Unskilled worker	38(62.30)	23(37.70)	61(100.0)			
Semiskilled worker	26(47.27)	29(52.73)	55(100.0)			
Skilled worker	53(47.75)	58(52.25)	111(100.0)	0.44	1	p=0.502
Clerical	53(64.63)	29(35.37)	82(100.0)			
Semi-professional	23(76.67)	7(23.33)	30(100.0)			
Professional	8(100.0)	0(0)	8(100.0)			
Husbands education						
Illiterate	12 (42.86)	16(57.14)	28(100.0)			
Primary	22(56.41)	17(43.59)	39(100.0)			
Middle school	31(48.44)	33(51.56)	64(100.0)			
High school	38(55.88)	30(44.12)		7.54	1	p=0.006
Intermediate/diploma	66(58.93)	46(41.07)				
Graduate/postgraduate	27(87.10)	4(12.90)				
Professional	6(100.0)	0(0)				
Age at marriage						
<18	44(56.41)	34(43.59)	78(100.0)			
18-21	101(54.30)	85(45.70)	186(100.0)	4.38	1	p=0.03
22-25	50(65.79)	26(34.21)	76(100.0)			
26-29	7(87.50)	1(12.50)	8(100.0)			

Age of the women is an important demographic variable that influences women's contraceptive behaviour. As the age increases with the increasing number of living children, the use of contraception also increases as they are more close to complete their desired family size. Contraceptive acceptance was highly significant (p value < 0.001) among women above 30 years compared to those less than 30 years of age.

Education helps to create awareness about the availability of various family planning methods. It was found that, there was statistically significant difference of better contraceptive acceptance among those who studied high school and above compared to those who studied less than high school level (p=0.008). Similar findings were reported by Donati S.(2001)[7] in Manipur; while a similar study conducted by Mohanan P. (2003)[6] revealed that level of education of the respondents was not an influencing factor for acceptance of family planning methods.Statistically significant association was found between occupation of women and contraceptive acceptance (χ2=8.1,df=1,p<0.001) as occupation modifies the behaviour. When joint and three generation family respondents were clubbed and compared with contraceptive use among respondents from nuclear families, a significant difference was found showing better acceptance of contraceptives among nuclear families (p=0.043). This could be because of women getting more freedom in nuclear families to take decisions than in other two types of families.While study done by Banerjee B. (2000)[8] in urban area in West Bengal, reported that type of family did not have any impact on acceptance of contraceptives.

We also found statistically significant difference between socioeconomic status and prevalence of contraceptive acceptance(χ2=6.33, df=1, p<0.01). High income often results in greater usage of family planning methods as couples then usually have better access to family welfare services. Similar findings were reported by Shweta and Singh MB. (2010)[9]and Patro BK. (2003)[10]in studies done at Uttar Pradesh and Delhi respectively. In our study husbands occupation did not have any impact on contraceptive use (p=0.502), while study conducted by Andurkar SP. et al (2006)[11] in urban area of Maharashtra reported that use of contraception was significantly higher among females whose husbands were educated and employed. We found statistically significant association between age at marriage and prevalence of contraceptive acceptance (χ2=4.38, df=1,p=0.03).

Table 3: Distribution of respondents according to method of contraception.

Method	Number	Percentage	Method	Number	Percentage
IUCD	35	17.32			
Condom	11	5.45	Temporary	56	27.72
OCP	10	4.95			
Tubectomy	146	72.28			
Vasectomy	-	-	Permanent	146	72.28
Total	**202**	**100.0**		**202**	**100.00**

Among 202 acceptors, 56 (27.72%) were using temporary methods and remaining 72.28% adopted tubectomy as the permanent method of contraception. Vasectomy was not accepted by any of the couple. Puri A. (1999)[12] in Delhi reported that tubectomy accounted for 58.3% among the current contraceptive users which was less than our study and similar to our study, vasectomy was not accepted by any of the couple. Andurkar SP. (2006)[11] in their study observed that among contraceptive acceptors; tubectomy accounted for 18.53%. Another study by Banerjee B. (2000)[8] observed contraceptive prevalence rate as 39.5% of which 34.5% had adopted permanent method, whereas only 5.0% were using a temporary contraceptive method & 6.5% of the couples accepted vasectomy.

CONCLUSION

It's important to formulate and implement innovative social marketing schemes to provide contraceptives at subsidized rates and better quality services to the community. Targeted information, education and communication campaigns to increase awareness about family planning will help to improve

prevalence of contraceptive use in society.

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A Study to Assess the Prevalence of Tobacco use among Rural High School Boys in Karnataka, India

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ABSTRACT

Objective: To know the prevalence of tobacco use, age at initiation and factors contributing for early initiation of tobacco use among rural high school boys.

Methodology: This cross-sectional study was conducted during March-April 2013, in 2 government and 2 private high schools, coming in the rural field practice area of a medical college, Karnataka, India. Complete enumeration of all the boys studying in these schools was done. After explaining the purpose of study and obtaining written informed consent, a self-administered questionnaire was used to collect information for the study.

Statistical analysis: Descriptive statistics, Chi-square test for proportions.

Results: The prevalence of Tobacco use in any form was found to be 20%. The major form of Tobacco use was smoking present in 28(57.15%) of participants followed by chewing tobacco used by 16(32.65%). In terms of age of initiation of tobacco use majority of the boys admitted to use tobacco in any form between 13-14 years of age (59.19%). Majority of the study participants reported of being influenced by friends for initiation of tobacco use 48.9%.

Conclusion: Prevalence of tobacco use is high among rural high school boys. There is a downward shift in age at initiation of tobacco by children with rising prevalence. Friends followed by media are the major influencers for initiation of tobacco use.

Keywords: Tobacco use, prevalence, rural high school boys.

INTRODUCTION

Tobacco is the leading cause of preventable illness and deaths worldwide and more so in developing countries. [1] An estimated 186 million of the world's population are school children of age 13-16 years, among them 34.8 million are current tobacco users. In India, the most susceptible time for tobacco use is during the adolescence and early childhood. [2] Nearly 1 in 10 adolescents in the age group of 13-16 years have ever used tobacco and almost half of these reports, initiating tobacco use before 10 years of age.[1]

Smoking of Tobacco particularly beedi and use of chewable forms is an age-old practice in India. [1] Tobacco is used in different forms and health effects

are seen irrespective of forms in which it is used. Smokeless tobacco is found to be as addictive and harmful as smoking. Smokeless tobacco in the form of chewing is associated with oral diseases including cancers and adverse effects. [3] About 90% of lung cancer deaths among men and about 90% of oral cancer deaths among men and women are due to tobacco use. [4]

Tobacco use among rural school children is becoming a serious problem. In rural settings, family members and neighbours who often ask young children to get tobacco for them from nearby shops, media advertisements and colourfully packaged tobacco products act as pro-tobacco influencers. [2] Tobacco companies are now aggressively targeting their advertisement strategies. Adolescents often

get attracted to such propaganda. [5] The risks of tobacco use are highest among those who start early and continue its use for a long period. [1] It is thus important to understand the various factors that influence and encourage young teenagers to start smoking or use other tobacco products. [5] The early age at initiation thus underscores the urgent need to intervene and protect this vulnerable group from falling prey to tobacco addiction. [1]

This study thus intends to assess the prevalence of tobacco use, age at initiation, factors contributing to it among rural high school boys.

Objectives: 1. To know the prevalence and forms of tobacco use among rural high school boys.

2. To know the age at initiation.

3. To study the factors contributing for its early initiation.

METHODOLOGY

The study was conducted in four schools (Government=2, Private=2) in Lokikere Primary Health Centre (PHC), the rural field practice area of SSIMS and RC, Davangere. Permission was obtained from headmasters and class teachers of respective schools.

Information concerning tobacco use was collected from boys of class 8, 9 and 10, using a self-administered questionnaire. Students were first explained the purpose of study and informed consent was obtained after assuring the confidentiality of the information gained will be maintained. After distributing the questionnaires each of the questions were explained. Sufficient time was given to fill in the responses which were about 15-20 minutes to fill the entire questionnaire.

Questionnaire was designed to collect information regarding occupation of parents, socio-demographic details, tobacco chewing habit, its age of initiation, form in which they are using, factors that influence their habit, smoking habit of parents and siblings, purchase of tobacco for elders and teachers, whether they tried to stop the habit and their perception of what kind of users they were.

Ever tobacco users were considered as those who had ever used any form of tobacco in the past and current users are those who used tobacco in the past 30 days. [3]

Socio-economic status was categorized according to modified B. G. Prasad classification. Questions were asked in Kannada (Local language), as the medium of study was Kannada in all those schools.

Awareness on hazards of tobacco use was given to all the students after they filled the questionnaire in the form of videos, power-point presentation, charts.

Inclusion criteria: All boys present on the day of study.

Exclusion criteria: Those not willing to participate in the study.

RESULTS

Table 1: Distribution of students in the High Schools of Lokikere PHC area

Schools		Boys	Girls	Total
Government	Naradi High School	100	102	202
	Maruti High School	100	122	222
Private	Sri Balaji High School	39	61	100
	HKG High School	56	42	98
Total		**295**	**327**	**622**

Out of the total 622 students of four high schools in Lokikere PHC area (Government=2, Private=2),

295 were boys and 327 were girls. Among these 295 boys, 245 participated in our study (83% response rate). (Table 1)

Table 2: Prevalence of tobacco use among boys

Schools	Tobacco use		Total
	Present	**Absent**	
Government	30 (26.3)	84 (73.7)	114 (100.0)
Private	19 (14.0)	116 (86.0)	135 (100.0)
Total	**49 (20.0)**	**196 (80.0)**	**245 (100.0)**

Chi-square = 4.00, df=1, *P* value = 0.045

Based on the responses of the study participants the prevalence of Tobacco use in any form was

found to be 20%. Among the students of government schools 30 (26.3%) and among private school students 19(14.0%) were using tobacco in some form. This difference of tobacco use between government and private school boys was found to be statistically significant (*P* < 0.05). (Table 2)

Table 3: Forms of current use of tobacco

Form of tobacco	Frequency	Percentage
Smoking tobacco	28	57.15
Chewing tobacco	16	32.65
Combined use	3	6.12
Other forms (snuff)	2	4.08
Total	**49**	**100.00**

The major form of Tobacco use was smoking present in 28(57.15%) of participants followed by chewing tobacco used by 16(32.65%). Combined use of chewing and smoking tobacco was reported by 3(6.12%) of students. (Table 3)

Table 4: Age at initiation of tobacco use

Age (in years)	Frequency	Percentage
≤11	2	4.08
12	5	10.20
13	16	32.66
14	13	26.53
15	7	14.29
16	6	12.24
Total	**49**	**100.00**

In terms of age of initiation of tobacco use majority of the boys admitted to use tobacco in any form between 13-14 years of age (59.19%). (Table 4)

Table 5: Factors influencing tobacco use among the study participants

Reason for initiation	Frequency	Percentage
Influence by friends	24	48.9
Influence by media & for fashion	13	26.7
Influence by family	09	18.3
Stress	03	6.1
Total	**49**	**100.00**

Majority of the study participants reported of being influenced by friends for initiation of tobacco use- 48.9%; followed by media- 26.7%; and by family- 18.3%. (Table 5)

DISCUSSION

Prevalence of tobacco use: A rising trend in use of tobacco has been noted in the last two decades. The National Sample Size Organization (NSSO) survey conducted by Government of India in the year 2006 has estimated that 20 million children of ages 10-14 years are addicted to tobacco. The prevalence of tobacco use varies according to the criteria used to define tobacco use habits. Hanspal R et al estimated the prevalence of current tobacco users to be 8.2%.[6] According to global youth tobacco survey conducted in 2009, the prevalence of tobacco use in school students in any form was found to be 14.6% in India.[7] Narain R et al. noted that the prevalence of tobacco use to be 11.2% among students of age 11-19 years.[1] In a study conducted by Kapoor S K et al ever smokers constituted 14.2% of the study population and current smokers (having smoked in the last week) formed 7.1% of the studies sample.[8] Our study has also substantiated this and even higher prevalence of tobacco use (20%) was noted among the rural boys. (Table 2)

Pattern of use: Many forms of tobacco are used in India which can be broadly categorized as smoking and smokeless forms. Smoking include Beedi and Cigarette which form the majority; others being Hookah, Chutta, Cigars, Pipes etc. The smokeless tobacco use includes Betel Quid chewing, Mishri, Khaini, Gutka, Zarda etc. Previous studies have found chewing as the major form of tobacco use. Study by Hanspal R et al showed that chewing was the most preferable form of tobacco use (52.5%).[6] Similarly Singh V et al reported that 69.6% of children consumed Gutka as a tobacco product.[9]

However in our study majority of the students were using smoking form of tobacco (Table3). This can be attributed to the difference in the regions where these studies were conducted. In the present study area, smoking is major form of tobacco use followed by chewing; influence of the same has been appreciated in the young study population.

Age at initiation: Adolescents get easily influenced to tobacco product while still being in the

teenage. In our study the mean age of initiation of tobacco use was found to be 13.5 ± 1.22 years. Similar reports have been obtained from previous studies. Narain R et al noted that the mean age at initiation of tobacco use to be 12.4 years [1] and Singh V et al noted it to be 12.2 ± 1.34 years.[9] Kapoor SK et al noted that more than 44 % of children had started this habit between 10-15 years of age.[8] Hanspal R et al noted that majority (67.7%) had started tobacco use in the age group of 11-15 years.[6] In our study majority of the boys admitted to use tobacco between 13-14 years of age (59.19%). (Table 4)

Influenced by: Friends (49.9%) and media (26.7%) were major influencers of tobacco use among our study population. (Table 5) Similar results have been reported from previous studies; according to Singh V et al 37.8% of children were first introduced to tobacco by their friends followed by being introduced by their family members or relatives in 29.3%. Singh V et al identified factors such as advertisements in various media outlets or friends using tobacco as influencer of tobacco use.[9] Chadda RK et al mentioned that easy availability of tobacco products near educational institutions as major factor for initiation of tobacco use by school going adolescents.[5] Subba SH et al reported that having friends or family members who chewed tobacco was significantly associated with student's tobacco chewing.[3]

CONCLUSION

In the present study 20% of rural high school boys used tobacco at one time or other in any form. There is a downward shift in age at initiation of tobacco by children with rising prevalence.

Majority of students are introduced to the product by friends followed by media.

RECOMMENDATIONS

Rising tobacco use among school children is a disturbing reality and strict enforcement of tobacco policies is a dire necessity. There is an urgent need to have effective programs, legislations, policies, multi-pronged campaigns to curb the menace and bring a social change. Much more surveys need to be carried out in other rural areas of the country in order to build complete database for further policies and decisions on Anti-tobacco campaigns.

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Mass Media as a Means to bring about Behavioral Changes in Infant and Young Child Feeding Practices amongst Tribal Mothers of Chikhli Taluka, Gujarat

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ABSTRACT

Background: Mass media campaigns are widely used to expose high proportions of large populations to messages through routine uses of existing media, such as television, radio, newspapers etc. The media have proven to bring about effective behavior change and significant desirable health outcomes among the masses.

Objective: The present study was undertaken with an objective to evaluate the impact of multimedia in improving the existing knowledge and practices of mothers with respect to breastfeeding (BF) and complementary feeding (CF).

Method: This study involved evaluation of the nutrition health education (NHE) program for 89 tribal mothers residing in Chikhli taluka with children between 6-36 moths. Participants were interviewed to assess their existing knowledge and practices pertaining to breastfeeding and complementary feeding using a pretested structured questionnaire. Nutritional assessment of children was done using standard anthropometric methods. The children were classified as underweight and normal using WHO standards (2007).

A short film was developed in the local language, to impart nutrition health education with special emphasis on breastfeeding and complementary feeding. Leaflets were also distributed which served as ready reckoners. Investigator had interpersonal interaction with the mothers during the monthly home visits and discussed the problems and queries that mothers had related to breastfeeding and complementary feeding. After a period of five months the mothers were again interviewed to assess their improvement in knowledge and practices. Anthropometric measurements of the children were taken to determine the change in nutritional status at the end of 5 months.

Findings: The mean scores of the mothers for all the three aspects assessed increased significantly post intervention (p<0.001). The mean composite breastfeeding scores increased by almost 100%. After the education mothers knew that prelactals were harmful for the child and the benefits of feeding colostrums. Mean knowledge and practices composite scores for complementary feeding increased by 44.78% 26.56% respectively. Post intervention mothers know the benefits and correct age of initiating complementary feeds. More mothers started preparing special foods for their child ensuring incorporation of foods from all the food groups. The nutritional status of children also showed a significant decrease in the number of children classified as underweight (x^2=20.4, p<0.001) and wasted (x^2=22.7, p<0.001).

Conclusion: Mass media campaigns can produce positive changes in health-related behaviours across large populations.

Keywords: Nutrition Health education, tribal women.

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INTRODUCTION

Over the past few decades, media campaigns have been used in an attempt to affect various health behaviors in mass populations. Huge amounts are spent annually for materials and salaries that have gone into the production and distribution of booklets, pamphlets, exhibits, newspaper articles, and radio

and television programs. The mass media campaigns may also be used to convey behavior-change messages that aim to change the publics' knowledge, attitudes and practices [1]. Communication campaigns involving diverse topics and target audiences have been conducted for decades. Mass media interventions have proven effectiveness in changing individuals' behavior [2-6] and healthcare utilization [7], reducing stigma [8], breastfeeding and complementary feeding practices [9] and raising awareness of the signs and symptoms of other diseases [10].

One of the health issues that have been continuously addressed at grass root levels is malnutrition among children. Scientific evidence reveals that malnutrition has been responsible directly and indirectly for 60% of all deaths among children under five years annually. Over 2/3 of these deaths are often associated with inappropriate feeding practices and occur during the first year of life. The government of India has always been promoting at the national and international for an exclusive breastfeeding for the first six months and introduction of complementary foods thereafter with continued breastfeeding upto two years which is consistent with the Indian tradition of prolonged breastfeeding and introduction of complementary foods from six months of age [11]. In the past studies have been conducted among the masses to promote breastfeeding (BF) and complementary feeding (CF) practices among women which have demonstrated to have a positive impact [12, 13].

The present study was undertaken with an objective to evaluate the impact of nutrition health education imparted through multimedia in improving the existing knowledge and practices of mothers with respect to breastfeeding and complementary feeding and to study its effect on the nutritional status of the children.

METHOD

Sampling: The present study was a community based effectiveness trial conducted in the tribal villages of Navsari district of Gujarat. Gujarat has 33 districts and Navsari district comprises of 6 talukas which includes 389 urban, rural and tribal villages. Chikhli a tribal taluka of Navasari district has 88 villages [14]. To identify the villages for the study a map of Chikhli taluka was taken. With Chikhli village as the center point a circle of 15 cm was drawn.

The area was divided into 4 zones. Two villages were conveniently selected from two zones. From each village 25 mothers with children between 6-30 months were conveniently sampled making a sample of 100 mothers. However out of 100, 11 dropped out (due to migration, post-partum condition etc), hence data of 89 mothers was considered for analysis.

Data Collection: Baseline data was collected by trained investigator using pretested structured questionnaire. Informed consent was taken from the mothers and they were explained the purpose of the study. The questionnaire included close ended questions related to mother's knowledge and practices on BF and CF. The questionnaire was developed according to international and national guidelines on infant and young child feeding (IYCF) [15,16].

Each desirable response was given a score of 1, 2 or 3 (different weight for different questions) and an undesirable response was given a score of 0. A composite score was calculated for each aspect and the mothers were ranked into four categories i.e excellent (with a score of 91-100%), very good (76-90%), fair (61-75%) and poor ($\leq$ 60%).

The questionnaire was developed in English but was translated to the local language (Gujarati) during administration.

To assess the nutritional status of the children a standardized digital balance (100 g sensitivity) and flexitape was used to measure the weight and height of the children respectively. WHO growth standards 2007 [17] were used to classify children under different grades of nutritional status w.r.t weight for age (WFA) and weight for length/height (WFL/H). Weight and heights of individual children were taken every month for 5 months to monitor the nutritional status of the children.

Nutrition Health Education: Reviewing the baseline responses of the mothers, an assessment of prevailing knowledge levels and practices with respect to BF and CF was done to determine the existing gaps when compared with the national and international guidelines on IYCF. A short film in local language was developed to impart education to mothers in small groups of 8-10 mothers. Mothers were invited at the anganwadi center for viewing the film on a pre decided day. For better viewing of the film by the

mothers, use of LCD projector and a big screen was done. The information was disseminated in the form of short messages. Leaflets were also distributed as ready reckoners for reinforcing the messages. The investigator conducted monthly home visits and had interpersonal interaction with the mother on issues of BF and CF. The post data was collected after a period of 5 months as per the base line.

Statistical test: Chi square analysis using EpiInfo2000 package was done to determine the shifts in number of children in different grades of undernutrition and the change in BF and CF knowledge and practices of the mothers. Paired "t' test analysis was carried out to determine the significant changes in the mean scores of the parameters assessed before and after the intervention using SPSS, version 16.0.

FINDINGS

The mean scores of the mothers before and after the intervention are summarized in table 1. Table 2 summarizes the baseline and the post intervention data with respect to the number of mothers ranked in different categories on the basis of scores obtained for the three parameters assessed. As indicated a highly significant increase of 100% was observed in the mean

knowledge scores of BF post intervention. After the NHE mothers knew the importance of colstrum and that it was undesirable to give prelactals to child after birth. Number of mothers categorized to have excellent BF knowledge scores increased from 2 to 25 after the NHE.

Similarly for knowledge and practices for CF also the number of mothers having excellent scores increased significantly from 13 to 38 and 17 to 55 respectively. After the NHE all the mothers knew about the right age of initiating complementary feeds. Majority of mothers started preparing special complementary feeds for their children incorporating foods from all the food groups.

The nutritional status of the children before and after the intervention is summarized in Figure 1. As evident the number of children classified for normal weight for age increased from 17 to 44 after the follow up period and this increase was found to be statistically significant (x^2=20.4, p<0.001). Similarly children classified as severely wasted decreased from 10 to 1. Children having normal weight for height increased significantly from 47 to 76 post intervention.

Table 1: Mean scores of the mothers						
Knowledge on breastfeeding						
S.No	Question	Max. Score	**Before**	**After**	**% increase**	t value
			Mean score ± SD			
1.	Awareness about colostrum	1	0.73 ± 0.45	1.0 ± 0.0	36.99%	5.7***
2.	Special name for first milk	1	0.11 ± 0.32	0.82 ± 0.39	645.46%	14.6***
3.	Is colostrums good for child	1	0.60 ± 0.50	0.93 ± 0.25	55.00%	6.69***
4.	Benefits of colostrum	1	0.14 ± 0.34	0.34 ± 0.48	142.86%	4.43***
5.	Duration of exclusive breastfeeding	1	0.63 ± 0.49	0.98 ± 0.15	55.55%	6.68***
6.	Are prelactals good for the child	1	0.26 ± 0.44	0.84 ± 0.37	223.08%	11.12***
Total		6	2.46 ± 1.43	4.91 ± 0.81	99.59%	15.64***

Table 1: Mean scores of the mothers (Cont....)

Knowledge on complementary feeding (CF)						
1.	Age of initiation of CF	1	0.58 ± 0.50	1.0 ± 0.00	72.41%	7.91[***]
2.	Benefits of CF	1	0.77 ± 0.43	0.93 ± 0.25	20.78%	4.05[***]
3.	Foods that can be feed during initial months	3	1.61 ± 0.91	2.37 ± 0.59	47.20 %	7.97[***]
Total		**5**	**2.97 ± 1.33**	**4.30 ± 0.68**	**44.78%**	**10.63[***]**
Practices for complementary feeding						
1.	Is the child forcefed	1	0.46 ± 0.50	0.81 ± 0.40	76.09%	64[***]
2.	How is the child fed (self or by elders)	1	0.87 ± 0.34	0.92 ± 0.27	5.75%	64[***]
3.	Are all the food groups included in the CF	2	1.80 ± 0.50	1.92 ± 0.27	6.67%	64[***]
4.	Does the mother prepare any special foods for the child	1	0.47 ± 0.50	0.98 ± 0.15	108.51%	64[***]
Total		**5**	**3.05 ± 1.23**	**3.86 ± 0.96**	**26.56%**	**10.95[***]**

[***]: $p < 0.001$

Table 2: Ranks of mothers as per the scores obtained

Grades	BF knowledge No. (%)		CF Knowledge No. (%)		CF Practices No. (%)	
	Before	After	Before	After	Before	After
Excellent	2 (2.25)	25 (28.09)	13 (14.61)	38 (42.7)	17 (19.10)	55 (61.80)
Very Good	3 (3.37)	45 (50.56)	10 (11.24)	25 (28.09)	25 (28.09)	20 (22.47)
Fair	16 (17.98)	27 (30.34)	14 (15.73)	15 (16.85)	31 (34.83)	7 (7.87)
Poor	68 (76.4)	3 (3.370	52 (58.43)	11 (12.36)	16 (17.98)	7 (7.87)
x^2	110[***]		45.4[***]		39.3[***]	

Fig 1 : Nutritional status of the children before and after intervention
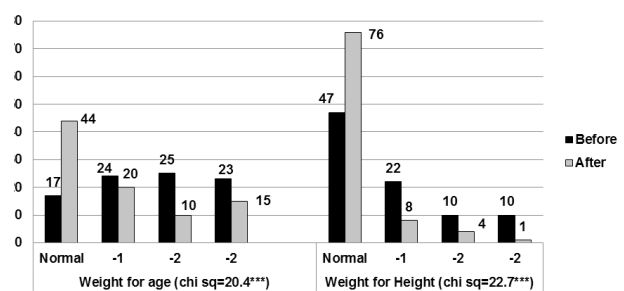
CONCLUSION

Mass media, due to its wide reach, cost-effectiveness and appeal, has been used globally to disseminate information and promote healthy behaviors. Behavior change communication (BCC) strategies involves understanding people's situations and influences, developing messages that respond to the concerns within those situations, and using communication processes and media to persuade people to increase their knowledge and change the behaviors and practices that place them at risk. Studies demonstrate that BCC is effective when the media and the message are context based, tailored to the needs of the audience, designed to be interactive and motivates the audience to take action [18, 19].

The present study was undertaken with the objective to bring about behavioral changes of mothers with young children (6-30 months) with respect to BF and CF and to bring about an improvement in the nutritional status of the children. Results showed a significant increase in the mean scores on knowledge and practices of the mothers with respect to BF and CF along with the nutritional status of children. Results of a similar study conducted in slums of Delhi using different methods of imparting NHE showed

improvement in IYCF practices and nutritional status of children[20]. Similar findings have been reported by study carried out by other investigators in different parts of the country [21, 22]

Gujarat governments has taken up various initiatives like Chiranjeevi Yojana, Bal Bhog Yojana, Vitamin Yukta Poshan Ahar, Nirogi Balak Yojna which are aimed at improving children's nutritional status. These programs are supported by various mass media materials, developed to disseminate useful messages to the target population. In addition the work force of integrated child development scheme (ICDS) comprising of ASHA worker, anganwadi workers etc are supposed to have one to one interaction with mothers. The *mamta card* provided to expecting mothers, itself is a source of information for pre-post natal care along with BF and CF. In spite of all these efforts malnutrition in the state continues to persist. According to NFHS 3 reports 41.1% of children under 3 were underweight which dropped only by one percent from NFHS-1[23].

Gujarat government's latest Comptroller and Auditor General(CAG) reported that despite the government's claim of "providing supplementary nutrition to the targeted children between the year 2007 and 2012, every third child in the state is underweight"[24]. The high prevalence of undernutrition can be attributed to fewer number of functional anganwadis than the number sanctioned by the government and required for full coverage of the targeted population. Hence on one hand the benefits are not reaching the beneficiaries due to poor coverage and on the other the quality of the messages imparted on IYCF practices may not be effective enough to bring about the desired outcomes. Hence the need of the hour is to make use of modules which have proven its efficacy at the field level study and study its success at the larger scale.

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Relationship of Microalbuminuria with Ischaemic Heart Disease in Non-Diabetic Subjects

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ABSTRACT

Ischaemic heart disease is the leading cause of morbidity and mortality world-wide. There are various classical risk factors for Ischaemic heart disease like age, gender, diabetes, hypertension, smoking, increased BMI and abnormal lipid profiles. To reduce the burden of Ischaemic heart disease, management strategies are focusing over the identification of new risk factors so that disease can be detected at an early stage and apply various preventive measures. There is growing interest that microalbuminuria is an independent risk factor in IHD. So, this study focuses on microalbuminuria which is gaining importance as marker of atherosclerosis and hence ischaemic heart disease. **Aims and objectives:** To assess relationship of microalbuminuria with ischaemic heart disease in non-diabetic subjects. **Material and methods**: 50 cases of ischaemic heart disease and 50 sex matched normal healthy subjects were included in the study. Microalbuminuria in these subjects was measured in 24 hours urine sample. **Results and Discussion**: In our study prevalence of microalbuminuria was 66% in ischaemic heart disease subjects as compared to 8% in normal healthy subjects (p<0.001). **Conclusion:** Microalbuminuria is highly prevalent in non-diabetic, ischaemic heart disease subjects.

Keywords- *IHD(ischaemic heart disease), MA(microalbuminuria),LDL(low density lipoproteins), TG(triglyceride), HDL(high density lipoproteins)*

INTRODUCTION

Ischaemic heart disease, a non-communicable disease is a major burden in the world. With 56.2 million deaths and 12.5% of total deaths, IHD is a worldwide disease and prevalence is expected to increase by 74.5 million deaths and 14% of total deaths by the year 2030[1]. With such a huge burden IHD is considered modern epidemic.

There are various classical risk factors for IHD like age, gender, diabetes, hypertension, smoking, increased BMI and abnormal lipid profile[2]. The basic pathogenesis behind the IHD is atherosclerosis. The contribution of IHD to morbidity and mortality has directed attention for early atherosclerosis detection coupled with appropriate preventive interventions. This lead to search for new risk factors other than classical risk factors so that atherosclerosis can be detected at an early stage. One such factor which is matter of international debate is microalbuminuria.

Microalbuminuria i,e, slightly elevated urinary albumin excretion is defined as as an abnormal urinary excretion rate of albumin between the range of 20-200 μg/min or 30-299 mg/day[3]. Microalbuminuria was initially demonstrated in patients of diabetes mellitus, where it was shown to be associated with atherogenic changes in cardiovascular risk profile[4] and to predict increased mortality and cardiovascular disease[5,6]. Currently the evidence points towards the hypothesis that microalbuminuria is a reflection of generalized systemic endothelial dysfunction. Presence of microalbuminuria may reflect a generalized defect in vascular permeability and a concomitant atherogenic diathesis[7]. So, it has been suggested that MA may be a risk factor for the development of cardiovascular disease in non-diabetics as well.

The Prevention of Renal and Vascular End Stage Disease (PREVEND) study concluded that urinary albumin measurement may be useful in early risk profiling and prevention of cardiovascular disease

as it is independently associated with increased cardiovascular risk factors and cardiovascular morbidity[8]. It has been hypothesized that MA is an indicator of wide spread endothelial cell dysfunction leading to increased penetration of atherogenic protein in the arterial wall. In the 1st MONICA (Monitoring Trends and Determinants of *Ca*rdiovascular Diseases) study in Copenhagen County, individuals with persistent MA had increased transvascular albumin leakage to a level similar to that seen among individuals with severe clinical atherosclerosis[9]. Though the underlying mechanism remains undetermined, it has been hypothesized that the magnitude of albumin excretion in urine reflects the degree of atherosclerosis. If this is so, the urinary albumin excretion should be high in patients with IHD even in non diabetics.

Microalbuminuria seems to correlate with various cardiac abnormalities and diseases, including left ventricular (LV) dysfunction and hypertrophy, electrocardiographic abnormalities, and Ischemic Heart Disease (IHD) [10].

Electrocardiographic recordings from 7579 PREVEND participants without diabetes showed an independent association between microalbuminuria and infarct patterns (odds ratio[OR] 1.61; 95% CI 1.12 to 2.32), major ischemia (OR 1.43; 95% CI 1.08 to 1.91), and minor ischemia (OR 1.32; 95% CI 1.03 to 1.68)[11]. This group subsequently reported that, in patients with electrocardiographic ST-T segment changes, microalbuminuria could identify those who were at increased risk for all-cause and cardiovascular mortality[12].

Elevated UAE also correlates directly with angiographic evidence of CAD. A study of 308 patients who underwent elective coronary angiography revealed that patients with angiographic evidence of CAD had significantly higher urinary albumin levels than disease-free individuals (28 *versus* 10 mg/g; *P* <0.001) and that UAE increased progressively with CAD severity[13].

MATERIAL & METHOD

This study was carried out in 50 cases of ischaemic heart disease who were non-diabetic admitted in various wards of medicine department of Guru Nanak Dev Hospital attached to Government Medical College, Amritsar. The study was carried out in both sexes in age group >30 years. Equal number of normal healthy subjects were recruited as control. Group 1 and Group 2 were allocated to cases with ischaemic heart disease non-diabetic subjects and healthy subjects respectively. Patients with heart failure, diabetes, patients with positive dipstick test for albumin and females with vaginal discharge were excluded from the study. The duration of the study was from march 2013 to august 2014.

Each subject was assessed by detailed history, clinical examination and routine investigations like hemoglobin levels, total and differential leukocyte count, fasting and random blood sugars, fasting lipid profile, blood urea and serum creatinine, urine complete examination, liver function tests, cardiac enzymes like CPK-MB, tropinin T and 12 lead electrocardiogram. These investigations served the purpose of making an accurate diagnosis but also provided reasonable grounds for excluding many patients from the study that did not fulfill the mentioned inclusion criteria.

All the subjects were asked to collect their 24 hours urine. Then the sample was tested for presence of microalbuminuria by immunoturbometric assay method in the biochemistry laboratory of Guru Nanak Dev Hospital, Amritsar. Microalbuminuria in range of 30-300mg/24 hours is considered positive. Results of various biochemical analysis will be presented as mean±S.D. The difference between control and study group will be analysed by using student 't' test.

RESULTS

During the duration of study, in group 1 i.e. IHD group, there were 33 male and 17 females, showing that males are more prone to ischaemic heart disease. To make the study comparable, equal number of male and female subjects i.e. 33 and 17 respectively were taken in group 2. The mean age in group 1 is 57.34±11.99 and in group 2 is 43.58±8.42. The mean age is higher in group 1 indicating that IHD is more prevalent in older age group. The results of various biochemical parameters were presented as mean±S.D (table 1). The prevalence of microalbuminuria was 66% in group 1 i.e. IHD group 1 and 8% in group 2 i.e. healthy group.

TABLE 1: Results of various parameters as mean±S.D

Parameters	Group 1	Group 2
AGE	57.34±8.42	43.58±8.42
BMI	26.84±2.49	24.24±1.24
FBS	99.26±12.95	92.14±1.24
RBS	138.98±15.29	129.22±9.09
T.cholesterol	177.37±36.80	136.84±19.23
S. TG	146.40±53.42	111.60±23.19
S.LDL	118.48±31.90	67.96±19.83
S.HDL male female	40.76±6.03 37.88±6.17	44.00±4.12 50.00±6.28

DISCUSSION

Ischemic Heart Disease will become a major disease burden in world by the year 2015. To target preventive strategies, risk stratification of the population should be effective. There are many reports emanating from the western literature about microalbuminuria as an independent risk factor for development of ischemic heart disease.

Hitherto, microalbuminuria was considered as a marker of endothelial dysfunction in diabetes mellitus, but many studies have shown microalbuminuria is an effective marker of generalised vascular dysfunction even in non-diabetic population which is considered predisposing condition for atherosclerosis and hence ischemic heart disease.

This study was done to find the relationship of microalbuminuria with ischemic heart disease in non-diabetic subjects. So in this study 50 cases of non-diabetic ischemic heart disease were taken. Equal number of normal healthy subjects were taken as control. In this study, the diagnosis of IHD was by ECG changes.

The mean age, BMI, serum LDL levels were higher and serum HDL levels were low in group 1 as compared to group 2. This is in accordance with studies done in past that these are risk factors for IHD.

The prevalence of microalbuminuria in this study in group 1 i.e. IHD non-diabetic group is 66% showing that microalbuminuria is significantly associated with IHD even in non-diabetic subjects. The prevalence in our study was higher than that found by Rizwan et al[14] who found 37% prevalence of microalbuminuria in non diabetic IHD subjects. The prevalence of microalbuminuria in this study in group 2 is 8% in the normal healthy subjects. The prevalence is similar to the various studies done in past on general healthy population like PREVEND study, HUNT study who found 5-7% prevalence of microalbuminuria in general healthy population[15,16].

CONCLUSION

So in the present study, the prevalence of microalbuminuria in IHD non-diabetic group is much higher (66%) as compared to normal healthy subjects (8%) with p value<0.001 (highly significant). Hence microalbuminuria is significantly associated with ischemic heart disease and can be considered as a risk factor for IHD.

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A Community based Cross-Sectional Study on Behavioral Problems in Adolescent Girls

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ABSTRACT

Adolescence is a transitional period between childhood and adulthood in which many interrelated physical, social and psychological changes take place. The adolescent girls in the age group of 10 to 19 years residing in community adopted under UHTC, KIMSU, Karad were included in the study. The number of adolescent girls in the community was 254, out of which 200 could be contacted during the period of the study period-1 November 2007 to 31 October 2009. House to house survey was carried out. Data was collected using pretested, prestructured Performa. Behavioral scoring was carried out using Child Behavior Check List, designed by T.M.Achenback[12] which included children from 4 to 18 years of age. In the 10-11 year age group 29(46%) girls were having behavioral score more than or equal to 16 and 84(61.3%) girls in the 12 to19 year age group were having behavioral score more than or equal to 13 .

Keywords*- Adolescence, Puberty, Behavior problem, Child behavior check list.*

INTRODUCTION

The origin of the word Adolescence is from Greek Latin word, 'Adolescere' which means to grow or to grow to maturity[1]Adolescence is a process- a series of varied, rapid and extensive changes as well as period of life.[2]

Adolescence has been defined by World Health Organization as the period of life spanning the ages between 10 to 19 years.[3] It is useful to have age groups that distinguish between earlier and later phases of adolescence, 10 to 14 years and 15 to 19 years.[4] Today approximately 1/5th of world's population is constituted by adolescents out of which more than 4/5th residing in developing countries.[5] Adolescents represent 22.8 % of population of India.[6]

Adolescence is a transitional period between childhood and adulthood in which many interrelated physical, social and psychological changes take place.[7]

They are "no longer children yet not adults". It is also time of preparation for undertaking greater responsibilities, a time of exploration and widening horizons and a time to ensure healthy all-round development.[6]

Healthy development of adolescents is dependent on several complex factors, their socioeconomic circumstances, the environment in which they live and grow, the quality of relationships with their families, communities and peer groups and opportunities for education and employment.[6]

Adolescence is characterized by series of biochemical, anatomical and mental changes that are not found in members of other age groups. It is these rapid extensive changes that differentiate adolescents from children and from adults, that must be taken into account when adolescents and their health problems are being given attention.[2]

Behavior includes anything a person or animal does that can be observed in some way. It is considered

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as "an outward expression of mind". Feelings, attitudes, thoughts and other mental processes are behind the behavior. In this way, internal mental events can be studied as they manifest themselves, through what people do their behavior, we can actually study and come to understand the internal mental process that would otherwise be hidden from us. Psychology is defined as' science of behaviour'.[8]

During adolescence individual has to achieve a masculine and feminine social role, accept one's physic and use body effectively, achieve emotional independence of parents and other adults and achieve emotional independence of parents and other adults and achieve socially responsible behavior, acquire a set of values and an ethical, a guide to behavior. It is a period of orderly developing sets of slowly maturing interest and activities. The basic process we use to think does not change beyond period of adolescence, mostly after 16 years of age.[9]

Behavioral problems are not part and parcel of mental handicap, neither they are diseases of any sort, but are learned maladaptive forms of behavior. There is difference between behavioral problem and mental illness.[10]

Till 19th century the behavior problems in children and adolescents were not considered separately. They were included with psychiatric studies of adults.

All of the research studies were related to development of various aspects of children in preschool age. All of the research studies were related to development of various aspects of children in preschool age.

Rema Lepouse[11]conducted the first epidemiological study of behavior problem in children and adolescents in 1956,on an approach to the problems of objecting definition and measurement of behavior problems in children and adolescents at buffalo.

The present study was undertaken to know behavioral problems in adolescent girls using T. M. Achenbach scoring

MATERIAL & METHOD

Study area: Community adopted under UHTC, Department of Community Medicine, KIMS, Karad.

Study subjects: The adolescent girls in the age group of 10 to 19 years, as defined by WHO .[3]

Inclusion criteria: All the adolescent girls residents of the community were covered by house to house survey.

Exclusion criteria: The adolescent girls who were not contacted even after three consecutive visits were excluded. Those adolescent girls who came as guest, were excluded. The number of adolescent girls in the community was 254, out of which 200 could be contacted during the period of the study period.

Study duration: 1 November 2007 to 31 October 2009

Study design: A community based cross sectional study. House to house survey was carried out.

Study instruments: Child Behavior Check List ,designed by T.M.Achenback[12] which included children from 4 to 18 years of age.

Data collection procedure: Pre-tested, pre structured Performa was used.

Statistical analysis: SPSS 16 software

Methodology: A cross sectional study was carried out in the population covered by the Urban Health Training Centre, Department of Community Medicine, K.I.M.S., Karad, Maharashtra, India. A pilot study was undertaken for 20 girls and the necessary modifications were made before conducting the final study.

All - adolescent girls in the age group of 10 to 19 years, in the population of the field practice area of the urban community health Centre were interviewed by house to house survey. Those who could not be contacted in spite of three consecutive home visits were considered as migrated from the area and excluded from the study. Those adolescent girls who came as guests, were also excluded.

The number of adolescent girls in the community was 254, out of which 200 could be contacted during the study period.

The nature and purpose of the study was explained to the adolescent girls and their parents. Informed consent was taken and privacy, confidentiality and anonymity were maintained.

The study was carried out using a Performa. The

Performa was pretested on 20 adolescent girls. It was modified with necessary changes.

The behavioral problems were assessed using Child Behavior Check List, designed by T.M.Achenback[12] which included children from 4 to 18 years of age. Checklist consisted of total 113 Questions carrying scores 0,1 and 2 depending on whether the answer is Absent, Sometimes and Present since last 6 months. Child behavior checklist was modified in vernacular language in consultation with Psychiatrist.

RESULTS

Data was collected from total 200 adolescent girls in the age group 10-19 years.

Table 1:- Profile of adolescent girls

	Number	Percentage
Age groups in completed years		
Early Adolescent (10 -14)	110	55.0
Late Adolescent (15 - 19)	90	45.0
Marital Status		
Unmarried	169	84.0
Married	31	16.0
Education		
Illiterate	45	22.5
1-4Primary	49	24.5
5-10sec	98	49.0
11-12high sec	8	4.0
Religion		
Hindu	120	60.0
Muslim	69	34.5
Others	11	5.5
Type of family		
Nuclear	162	81.0
Joint	26	13.0
Broken	9	4.5
Three generation	3	1.5
Major daily activity		
Student	61	30.5
Household work	103	51.5
Housewife	30	15.0
others	6	3.0

Among the 200 adolescent girls, 110(55%) belonged to early adolescence (10-14 years) and 90(45%) to late adolescence (15-19 years) age group.

Distribution of Adolescent girls according to religion showed that the majority of them were Hindus120 (60%), 69(34.5%) were Muslims and 11(5.5%) were Sikhs or Buddhist. Majority of Adolescent girls162 (81%) belonged to nuclear family. Out of 200 Adolescent girls ,103 (51.5%) were involved in household work, 61(30.5%) were students.

A very high (23%) non enrolment rate and (46%) school dropout rate was seen and only 31% adolescents were attending school. Majority (91.5%) of girls belonged to class V of modified B. G. Prasad classification.

Behavioral problems during adolescence were assessed by T.M.Achenbach Child Behavior Checklist.

When the cut off point suggested for Indian Population were used the distribution in early and late adolescent girls was as

Table: 2- Prevalence of behavioral problems according to age groups.

Age group	Behavioral score cut off level	
10-11years	Behavioral score≥16	
	Number	Percentage
	29(63)	(46.0%)
12-19years	Behavioral score≥13	
	Number	Percentage
	84(137)	(61.3%)

The above table shows that 29(46%) girls in the 10-11 year age group are having

behavioral score more than or equal to 16 and 84(61.3%) girls in the 12 to19 year age group were having behavioral score more than or equal to 13 .

DISCUSSION

The prevalence of behavioral problems in 10 to 11 years age group has been 46% i.e.29 out of 63 adolescent girls are having behavioral problems. However in 12 to 19 years age group it has been 61.3% i.e.84 out of 137 adolescent girls are having behavioral problems.

According to Gaur et al, [13] the prevalence of psychiatric morbidity in 6-14 years old children has been 16.5%

Out of 1302 adolescents in the age group 12 -19 years, 630 identified as having behavioral problems.[14]

There have been 1097 adolescent girls, out of which 151(13.76%) have psychiatric morbidity.[15]

In the present study the adolescent girls have belonged to lower socio economic class and are at increased risk of behavioral problems because of exposure to environmental stimulation, due to ignorance and negligence of child care.

The prevalence of behavioral problems has been more in the age group above 11 years of age this can be attributed to pubertal changes.

Unexpectedly, the urban slum areas had the lowest total prevalence rates. One might speculate that low awareness of the importance of psychiatric disorders, increased tolerance for deviance, poor living conditions and the presence of multiple stressors could have combined to decrease the focus on children's problems.

Conflict of Interest- Nil

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A Study of Serum Lipid Profile in Diabetics and Non Diabetics among Bagalkot Population

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ABSTRACT

Objectives: Persons with diabetes mellitus are at an increased risk for cardiovascular disease. They have more than 2-fold increased risk for cardiovascular death compared with persons without diabetes. The present study was conducted to know the pattern of lipid abnormalities in patients with diabetes mellitus and compare it with healthy controls.

The study design: 100 known cases of diabetes mellitus (50 patients with type 1 diabetes mellitus and 50 patients with type 2diabetes mellitus) of either gender and 50 healthy age and sex matched controls were enrolled in the study. All the subjects were evaluated for fasting blood glucose and lipid profile (TC, TG,HDL-C,LDL-C,VLDL-C and TC/HDL-C ratio). The parameters obtained were analysed statistically using student't' test.

Results: In the study there was a significant increase in the fasting blood glucose and lipid profile parameters-TC, TG,LDL-C,VLDL-C and TC/HDL-C ratio in diabetics compared to healthy controls(P<0.001). There was statistically significant decrease in levels of HDL-C in diabetic subjects compared to controls. The increase blood glucose leads to increased production of triglycerides (TG). This leads to increased production of VLDL-C and LDL-C.

Conclusion: Hypercholesterolemia, hypertriglyceridemia are the main lipid abnormalities in diabetes which is risk for coronary artery disease. So early detection and correction of these abnormalities with diet and therapy reduces the morbidity and mortality associated with it.

Keywords: *Diabetes Mellitus, Lipid profile, Hyperlipidemia, Dyslipidemia, Hypertriglyceridemia.*

INTRODUCTION

Diabetes mellitus is a group of metabolic diseases characterised by increase blood glucose level resulting from defects in insulin secretion, insulin action or both.[1] Persons with diabetes are at increased risk for premature disability and death associated with vascular, renal, retinal and neuropathic complications. Raised fasting and post challenge blood glucose levels in an oral glucose tolerance test are used to diagnose diabetes. the diagnostic threshold is based on the ape of the curve between glucose levels and specific micro vascular complications of diabetes .[2]

Diabetes also increases the risk for macro vascular diseases such as coronary heart diseases and stroke.[3] In India, diabetes is not an epidemic any more but turned into a pandemic, according to the International Journal Of Diabetes in developing countries which labelled India the diabetes capital of the world mainly because India now has the highest number of diabetic patients in the world. The International Diabetes Federation estimates that the number of diabetic patients in India more than doubled from 19 million in 1995 to 40.9 million in 2007. It is projected to increase to 69.9 million by 2025.[4]

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Persistent hyperglycaemia causes glycosylation of all proteins, especially collagen cross linking and matrix proteins of arterial wall. This eventually causes endothelial cell dysfunction, contributing further to atherosclerosis. The prevalence of dyslipidemia in diabetes mellitus is 95%. The dyslipidemia is a modifiable major risk factor for coronary heart disease.[5]

The cardiovascular disease is cause of morbidity and mortality in patients with diabetes mellitus because of disturbance in lipoproteins i.e. serum triglycerides (TC) 69%, serum cholesterol 56.6%, low - density lipoprotein cholesterol (LDL) 77% and high density lipoprotein cholesterol (HDL) 71%.[6] The rationale of this study was to detect the lipid abnormality in diabetic patients. Early detection and treatment of hyperlipidemia in diabetes mellitus can prevent the progression of lipid abnormalities and minimize the risk for atherogenic cardiovascular disorder and cerebrovascular accident.

MATERIALS & METHOD

The present study comprises 50 patients with Insulin dependent diabetes mellitus (IDDM) and 50 patients with Non-Insulin dependent diabetes mellitus (NIDDM) reporting to Hanagal Shree Kumareshwar Hospital and Research Centre. The criterion for the diagnosis of diabetes mellitus was according to the criteria of the American Diabetes Association 2007 guidelines.[7]

50 subjects of similar age, sex and socioeconomic status served as controls. The controls were free from any major aliment which could affect the parameters under study (the clinical history or investigative results showed no involvement of any organ). The exclusion criteria included frank proteinuria detected by albustix, cigarette smoking and on lipid altering drugs like oral contraceptive, diuretics, beta blockers and lipid lowering drugs. Subjects with lipid altering diseases: hepatobiliary disease, hypothyroidism, chronic kidney disease and nephrotic syndrome were excluded.

Informed written consent was obtained from all the subjects enrolled for the study. Instuitutional ethical committee clearance was obtained for the study (Ref No:SNMC/09-10/612). The study was conducted from June 2009 to February 2010. A detailed history was taken to know duration of the disease, treatment history and any complication of the disease.

The fasting blood sample, 2ml in fluoride bulb for sugar estimation and 5ml in plain bulb for lipid profile estimation was collected from the cubital vein with aseptic precaution. Serum was separated by centrifugation at 3000rpm for 10 minutes.

The following parameters were studied.

1. Fasting blood glucose: Enzymatic, GOD-POD, end point colorimetric, single reagent chemistry. (Trinder P and Teitz N W by autospan kit method).

2. Serum total cholesterol: Cholesterol oxidase / peroxidase method. CPT diagnostics kit.

3. Serum HDL cholesterol: Phosphotungstate / magnesium precipitate method. Ident i kit.

4. Serum Triglycerides: Glycerol phosphate oxidase / peroxidase method, Ident i kit.

5. Serum VLDL cholesterol: calculated by formula Triglyceride / 5

6. Serum LDL cholesterol: Calculated by formula LDL cholesterol = TC – (HDL-C+VLDL-C)

7. TC/HDL-C Ratio.

All the parameters were read using semi auto analyser (STAT FAX 3300). The statistical Analysis was done using student 't' test.

RESULTS

Table No – 1: Showing comparison of FBG, TC, TG, HDL-C, LDL-C, VLDL-C and TC/HDL-C Ratio in diabetic (IDDM) and control subjects

Groups	FB Glucose mg/dl	TC mg/dl	TG mg/dl	HDL-C mg/dl	LDL-C mg/dl	VLDL- C mg/dl	TC/HDL-C Ratio
Controls	92.2 ± 11.0	173.0 ± 31.6	122.5 ± 28.7	56.9 ± 17.9	93.3 ± 36.3	24.5 ± 5.7	3.48±0.91
IDDM Subjects	229.8 ± 46.2	222.2 ± 23.3	197.9 ± 49.7	38.4 ± 14.6	134.2 ± 25.0	39.58 ± 9.94	5.17±0.62
P-Value	<.001	<.001	<.001	<.001	<.001	<.001	<.001
Statistical Significance	H.S	H.S	H.S	H.S	H.S	HS	HS

Table No – 2: Showing comparison of FBG, TC, TG, HDL-C, LDL-C , VLDL-C C and TC/HDL-C Ratio in diabetic (NIDDM) and control subjects

Groups	FB Glucose mg/dl	TC mg/dl	TG mg/dl	HDL-C mg/dl	LDL-C mg/dl	VLDL- C mg/dl	TC/HDL-C Ratio
Controls	92.2 ± 11.0	173.0 ± 31.6	122.5 ± 28.7	56.9 ± 17.9	93.3 ± 36.3	24.5 ± 5.7	3.48±0.91
NIDDM Subjects	206.2 ± 37.9	229.9 ± 30.5	226.4 ± 59.7	39.5 ± 18.4	145.2 ± 32.5	45.28 ± 11.94	5.27±1.13
P-Value	<.001	<.001	<.001	<.001	<.001	<.001	<.001
Statistical Significance	H.S	H.S	H.S	H.S	H.S	HS	HS

The levels of fasting blood glucose in IDDM patients were significantly elevated in comparison to healthy controls (P<0.001). The levels of serum total cholesterol, serum triglycerides, serum LDL-C , serum VLDL-C and TC/HDL-C ratio showed statistically significant elevation in IDDM subjects compared to control subjects (P<0.001). The level of serum HDL-C was statistically significantly decreased in IDDM compared to healthy controls (P<0.001). The results are shown in table no 1.

The levels of fasting blood glucose in NIDDM patients were significantly elevated compared to healthy controls (P<0.001). The levels of serum total cholesterol, serum triglycerides, serum LDL- C, serum VLDL-C and TC/HDL-C ratio were all statistically significantly elevated in NIDDM compared to healthy controls(P<0.001). Statistically significant decrease in serum HDL-C were noticed in NIDDM compared to healthy controls (P<0.001). The results are illustrated in table no 2.

DISCUSSION

Lipid abnormalities are common in diabetes. According to CDC, 97% of adults with diabetes have one or more lipid abnormalities, the prevalence of diabetic dyslipidemia varies from 25% to 60 % in other studies. This variation in prevalence may be due to difference in BMI and possibly genetic variation[8]. Dyslipidemia makes diabetics prone to develop CHD and other complications of atherosclerosis. The reason for difference in serum triglycerides and cholesterol may be due to difference in the dietary habits[9]. In diabetes many factors may affect blood lipid levels, this is because carbohydrates and lipid metabolism are interrelated to each other if there is any disorder in carbohydrate metabolism it also leads to disorder in lipid metabolism so there is high concentration of cholesterol and triglycerides due to this there is reduction in HDL cholesterol levels.[10]

The main cause of the major feature of diabetic dyslipidemia is the increased free fatty acid release from insulin resistant fat cells.[11] The increased flux of free fatty acids into the liver in the presence of adequate glycogen stores promotes triglyceride production which in turn stimulates the secretion of apolipoprotien B (apo B) and VLDL-C .This leads to enhanced hepatic VLDL-C production.[12]

The abnormally increased TGs enrich high - density lipoproteins and low density lipoproteins leading to high levels of potentially atherogenic particles and low levels of HDL-C .[13] In addition ,high TGs levels cause increased transfer of cholesteryl esters from HDL-C and LDL-C to VLDL-C via cholesteryl ester transfer protein, thus forming cholesteryl ester depleted small dense LDL-C particles.[14] These small dense lipoproteins particles are taken up by arterial all macrophages resulting in atherogenesis.[15] This is the pathogenesis of lipid abnormalities in diabetes leading to coronary heart disease.

We found significantly increased serum total cholesterol and LDL-cholesterol in both groups of diabetes when compared with the healthy controls. some of the possible reason of higher concentration of serum cholesterol in diabetes may be attributed to decrease muscular exercise or inhibition of cholesterol catabolism.[16] The high blood glucose and free fatty acid levels that result from insulin deficiency provides a superabundance of substrates for the synthesis of triglycerides in the liver with its subsequent packaging into VLDL for secretion into the plasma. Added to this there is decreased removal of triglyceride by the peripheral tissues. [17] Lipoprotein lipase, the major enzyme in removing

plasma lipoprotein triglyceride, has been found to be significantly reduced in diabetics.[18]

The study showed significantly decreased level of the HDL-C in diabetic as compared to the healthy controls.The reduced HDL-C may be due to decrease in the activity of hepatic lipase resulting in decrease VLDL clearance leading to reduced HDL-C synthesis is the primary abnormality.[19] The TC/HDL-C ratio is a sensitve and specific index of cardiovascular risk.The TC/HDL-C ratio is regarded as a predictor of CHD risk, especially with value >6.0.[20]

CONCLUSION

Hyperlipidemia is the commonest complication of diabetes mellitus and it predisposes them to premature atherosclerosis and macro vascular complications. Common lipid abnormalities in diabetes are raised serum triglycerides, serum LDL-C and low HDL-C. Therefore early detection of lipid abnormality and correction can help to prevent the onset of the cardiovascular diseases among patients with diabetes mellitus.

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Role of Bronchoscopy in Various Lung Diseases- Experience from a Tertiary Care Institute

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ABSTRACT

Background: Fiberoptic bronchoscopy (FOB) is a useful procedure inthe diagnosis and management of pulmonary diseases. In 1965, the advent of flexible fiber optic bronchoscope revolutionised the practice of pulmonary medicine. It is a universally accepted procedure both in the diagnosis and therapy of various pulmonary disorders. The various samples commonly taken in FOB procedure are bronchial brushing, bronchial washing, bronchoalveolar lavage and biopsy. In diffuse lung conditions, transbronchial biopsy can also be taken. The present study was undertaken to diagnose various lung diseases like tuberculosis, brochogenic carcinoma and other lung conditions by the use of FOB.

Aim of Study: To evaluate the role of fiber optic bronchoscopy in order to evaluate the etiology in various lung conditions.

Materials and Method: Fiberoptic bronchoscopy was performed in 100 patients who had undiagnosed opacities on chest radiographs in the form of collapse, consolidation, hilar mass and cavity etc. Bronchoscopic aspirates, brushing and biopsy (as and when required) were taken. Patients with recent myocardial infarction,recent cardiac arrhythmias,uncorrectable hypoxia,uncorrectable thrombocytopenia ,deranged coagulation profile,unco operative patients and uncontrolled asthma patients were excluded.

Results: Fiberoptic bronchoscopy was diagnostic in 40% patients. Pulmonary TB was detected in 12% out of which one case was of endobronchial tuberculosis,malignancy was detected in 27% of the cases.One case of intrabronchial aspergilloma was also diagnosed. In 60% patients no specific diagnosis was made.

Conclusions : We conclude that fiber optic bronchoscopy was found to be extremely useful in finding specific etiology of various lung diseases.

Abbreviations- TB-T uberculosis FOB- Fibreoptic bronchoscopy CXR-Chest X-Ray.

Keywords-*Bronchoscopy, diagnosis, Lung diseases.*

INTRODUCTION

Fiber optic bronchoscopy is a useful procedure in the diagnosis and management of various pulmonary diseases. FOB is a minimally invasive procedure that can be undertaken with minimal sedation. It is a relatively safe procedure with appropriate preparation and supervision and has low rates of complications[1,2].This procedure allows careful inspection of the bronchial tree for endobronchial lesions in cases of suspected bronchogenic carcinoma to make the diagnosis and also for staging of lung cancer. It is also indicated for removal of foreign body but rigid bronchoscopy is preferred. It also helps to take secretions, in cases of diffuse or localized lung infections both in immunocompetent and immunocompromised hosts for identification of organisms. The diagnostic yield of FOB is high, though it depends on the indication and the technique used [2-5]. The purpose of this study was to evaluate the role of FOB in diagnosis of various lung conditions which were not diagnosed by non invasive means.

MATERIAL & METHOD

The present prospective study was carried out on 100 patients from Dec 2011- Dec2012 at G.G.S.Medical College, Faridkot, Punjab. Detailed clinical history, physical examination and investigations were carried out. All patients were subjected to sputum examination (acid fast bacilli, Gram staining, culture/ sensitivity, KOH staining, malignant cells). Fresh CXR was done in all patients.Selected patients were advised computerized tomography and ultra sonography of thorax. Assessment of coagulation profile was done by doing bleeding time and clotting time. ECG was done in all patients.Routine investigations including platelet count, renal function tests and viral markers (HIV,HbsAG, HCV)were performed. Written informed consent was taken from patients who were fit for FOB. Premedication with Inj. Atropine 0.6 mg IM and Inj. Phenergan 25mg IV was given. Xylocaine sensitivity was also done. Bronchoscopy was performed with flexible FOB through trans-nasal or transoral route under topical anesthesia (2% xylocaine). Multipara monitor was attached to monitor heart rate,blood pressure., respiratory rate, ECG and oxygen saturation. during and immediately after the procedure. Oxygen was administered to maintain oxygen saturation >90%.

Appropriate samples such as the bronchoscopic aspirate, brushing and biopsy (whenever necessary) were obtained depending on the lesion after thorough evaluation of endobronchial tree. Samples were subjected to cytology, histopathology, Zeihl Neelsen staining and fungal staining accordingly. Patients with recent myocardial infarction,recent cardiac arrhythmias, uncorrectable hypoxia, uncorrectable thrombocytopenia, deranged coagulation profile,unco operative patients and uncontrolled asthma patients were excluded.

RESULTS

The total number of patients enrolled in the study was 100, out of which 76 were males and 24 were females. Age distribution is given in Table 1. Highest numbers of patients were found in age group of 45-60 years. Cough was present in 62% patients, breathlessness in 44%, chest pain in 39%, hemoptysis in 26%, off and on fever in 43%. 7% patients presented with hoarseness of voice. History of smoking was present in 44% of patients. The different radiologic patterns with which the patients presented to us were

given in Table 2. The most common radiologic pattern for which bronchoscopy was done was mass lesion on CXR. The various bronchoscopic findings in our patients were given in Table 3. Intraluminal growth was the most common diagnostic finding followed by outside compression of the bronchi. The most common diagnosis made after various bronchoscopic samples were bronchogenic carcinoma followed by tuberculosis. So the yield of bronchoscopy in our study was 40%. In 60% of cases no definite diagnosis was possible.

Table No. 1 Age Distribution

Age group	Percentage
15-30	15
30-45	23
45-60	26
60-75	32
75-90	4

Table No.2 Radiologic Findings

Radiological finding	Percentage
Mass lesion	24
Infiltration	18
Collapse	13
Non -resolving consolidation	10
Mediastinal widening	14
Cavitary lesions	6
Lung abscess	3
Lung metastases	2
Fibrocavitary disease	2
Post pneumonectomy	1.
Bronchiectasis	1
Pleural effusion	2
Miliary TB	1
Calcification	1
Normal CXR	2

Table 3. Bronchoscopic Findings

Bronchoscopic finding	Percentage
Intraluminal Growth	19
Outside compression	15
Mucosal changes	9
Vocal cord palsy	9
Widening of partition(between the walls of bronchi)	4
Copious secretions	5
Distortion of bronchi	1
Normal	41

Note-Multiple changes were present in some patients

Table 4. Final Diagnosis

Diagnosis	Percentage
Bronchogenic Carcinoma	**27**
Pulmonary Tuberculosis	11
Endobronchial Tuberculosis	1
Intrabronchial Aspergilloma	1
No definite diagnosis possible	60

DISCUSSION

The introduction of the flexible bronchoscope in 1965 revolutionized bronchoscopy around the world. Initially, bronchoscopy was performed by surgical specialists with a rigid scope only in highly specialized centers, and the main indication was for therapeutic purposes. In the 1970s, flexible fiber optic bronchoscopy (FOB) was learned by pulmonologists it proved itself as a safe and easy procedure. In our study, FOB was diagnostic in 40% of patients whereas in the study conducted by Fein AM and colleague[6] the FOB was diagnostic in 12 out of 14 (86%) patients. The study population was less as compared to present study.

In our study malignancy was detected in 27% of cases. In the study by Bhadke et al[7] lung malignancy was found in 31.1%. Johnson JL et al [8] have reported various type of lung malignancy in up to 11% patients. So the smokers over the age of 40 years and other patients at high risk for lung cancer who have recurrent or non resolving pneumonia should undergo bronchoscopy to detect endobronchial malignancy.

In our study, tuberculosis was diagnosed in 12% of cases. In the study by Bhadke et al[7] tuberculosis was found in 22.2% patients. In a retrospective review of patients over a six-year period, Baughman et al[9] observed that bronchoscopy with BAL was useful in the diagnosis of pulmonary tuberculosis. In their study there were 30 patients whose pre-bronchoscopy expectorated sputum specimens were negative for AFB. Of these, bronchoscopy specimen were smear positive in 26 (87%). This is very high as compared to our study. Kenedy **et al** [10] had further observed that early diagnosis of sputum smear negative pulmonary tuberculosis was possible in 38% patients if different bronchoscopy procedures

such as transbronchial biopsy and post bronchoscopy sputum, in addition to BAL, were studied. Panda **et al**[11] reported that diagnosis of tuberculosis was possible in 35% of patients using transbronchial biopsy and bronchoscopic lavage. But in all the above studies there were radiologically suspected cases of pulmonary tuberculosis and different bronchoscopic procedures are employed instead of single procedure during bronchoscopy. We conclude that fiber optic bronchoscopy can be successfully employed for the diagnosis of lung diseases, including malignancies and infection like tuberculosis and fungal infections.

Figure 1 CXR of Patient showing left hilar enlargement - a candidate of bronchoscopy
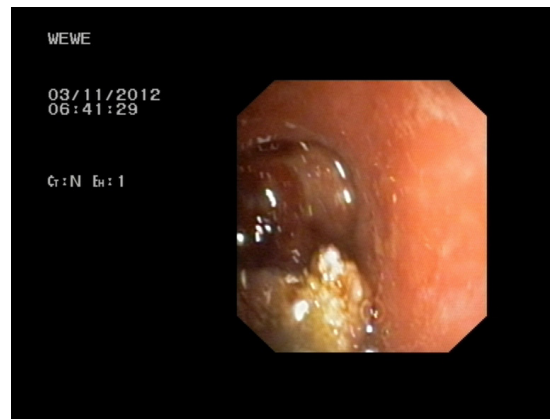
Figure 2 Bronchoscopic image of Intrabronchial Aspergilloma

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To Assess the Satisfaction Level among Outdoor Clients of First Referral Unit, District Jabalpur

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ABSTRACT

Maternal mortality is an important indicator of health status of women and indicates the accessibility, availability and utilization of appropriate health care and nutrition services particularly during pregnancy and childbirth. some of the Primary as well as Community health centers were upgraded to First Referral Units which were specifically equipped to handle emergency obstetric cases. Intensified efforts are being continued to strengthen these First Referral Units under reproductive child health (RCH) program extensively by addressing the needs of the patients attending FRUs.

Keywords: First Referral Unit (FRU), Maternal Mortality, Health Services.

INTRODUCTION

Women in the reproductive age group (15-44 years) form a significant proportion (46.5 %)[1] of population of India and their health is exposed to varying degrees of disability and discomfort related to pregnancy and childbirth. Poor health status of women and children in terms of high mortality and morbidity has been a major concern and priority for the health planners/administrators in India.

WHO recommended the establishment of the institutions at the first referral level which could be a District Hospital/ Sub- District Hospital or health center where a women at high risk is referred parentally or sent for emergency obstetric care which could be life saving.[2]

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Government of India launched Child Survival and Safe Motherhood program in year 1992. Establishment of First Referral Units (FRUs) to provide emergency obstetric care in a phased manner was one of the essential interventions under this program.

Though 1748 First Referral Units have been established in India, there are not many detailed evaluation studies on their functioning. Information available from certain survey reports have however shown that most of these First Referral Units are not functioning well and are not able to play the role expected by them [3,4].

Hence, it is necessary to identify the strengths and weaknesses of these institutions in terms of client satisfaction.

MATERIAL & METHOD

Details of methodology adopted for the study are given below:

Study design: descriptive in nature

Study area: This study was conducted at the first referral unit located at Lady Elgin Hospital,

Jabalpur district, (M.P.)

Time period: 1st May, 2008 to 31st July, 2008

Rationale: The selection was mainly based on the following considerations: Since the study is focused more on maternal health care, quantum of maternal health services performed at the First referral unit is considered.

Total sample size: 169

Reference: Epi Info software (version-6)

How it was calculated: With average daily patient input of approximately 150 patients, a total of 45000 patients were estimated for 300 working days a year.

Then, by using "stat calc" in Epi info software (version-6) with estimated frequency of 10% and worst acceptable frequency of 5%, a sample size of 169 patients drawn with 99% confidence level.

Hence, Patients/clients availing outdoor services: sample of 169 patients was chosen for exit interviews.

Questions were asked to outdoor patient to assess level of satisfaction regarding availing various outdoor services and their responses were graded as poor-1, fair-2 and good-3.

Data analysis & Findings:

Table 1. Agewise distribution of clients availing outdoor services

AGEGROUP

AGE (years)	Frequency	Percent
<19	12	7.1
20-24	75	44.4
25-29	50	29.6
30-34	22	13.0
35-39	8	4.7
40+	2	1.2
Total	169	100.0

It is evident from the table that 74% of the clients availing the outdoor services in the FRU belong to 20-29 years age group.

Table 2 Place wise distribution of clients availing outdoor services

Locality	Frequency	Percent
Rural	48	28.4
Semi-urban	71	42.0
Urban	50	29.6
Total	169	100.0

It is evident from the above observation table that majority of the clients (42%) availing various health services belong to semi-urban areas, which are scattered around Jabalpur district.

Table 3 Caste wise distribution of clients availing outdoor services

CASTE	Frequency	Percent
Gen.	26	15.4
OBC	69	40.8
SC	71	42.0
ST	3	1.8
Total	169	100.0

Table 4 Distribution of outdoor clients according to their Education

EW	Frequency	Percent
Illiterate	52	30.8
Primary	17	10.1
Middle	14	8.3
High sch.	47	27.8
Higher sec.	22	13.0
Graduate	17	10.1
PG	0	0
Total	169	100.0

It is evident from the table that approximately one third of the clients availing various OPD services are illiterate, while none of the client is post graduate.

Relationship between satisfaction and Education of clients

Education wife	Satisfaction			
	Poor	Fair	Good	Total
Illiterate	7	9	36	52
Primary	1	3	13	17
Middle	5	4	5	14
High sch	8	16	23	47
Higher sec.	9	8	5	22
Graduate	6	9	2	17
Total	36	49	84	169

Chi square value= 11.456 p value= 0.000713

It is evident from the above table that there is relationship between level of satisfaction and education of the clients, which is statistically significant. This implies that illiterate clients are much more satisfied with the services provided in the FRU than the higher educated clients.

Table 5 Distribution of outdoor clients according to occupation of clients

Occupation of client	Frequency	Percent
Unskilled	38	22.5
Semi-skilled	29	17.2
Skilled	3	1.8
Service	10	5.9
Business	1	.6
Housewife	80	47.3
Student	8	4.7
Total	**169**	**100.0**

It is evident from the above table that majority of the outdoor clients are housewife (47%) followed by unskilled labourers (22%).

Table 6. Distribution of outdoor clients according to family income

Income	Frequency	Percent
<3000	75	44.4
3001-6000	62	36.7
6001-9000	19	11.2
9001-12000	12	7.1
12001+	1	0.6
Total	**169**	**100.0**

It is evident from the above table that approximately 80% of the families of the clients earn Rupees 6000 or less per month.

Table 7. Distance wise distribution of clients availing outdoor services

Distance (in km)	Frequency	Percent
<20	128	75.7
>20	41	24.3
Total	**169**	**100.0**

This table shows that approximately 3/4th of the clients availing various OPD services at the FRU of Jabalpur district came from distance of less than 20 kilometers.

Table 8 : Relationship between satisfaction among clients regarding OPD services and distance of residence of clients from FRU

Distance (in Kms)	Satisfaction			
	Poor	Fair	Good	Total
<20	18	36	74	128
>20	18	13	10	41
Total	36	49	84	169

Chi square value= 13.87 p value=<0.0001

This table showing relationship between level of satisfaction and the distance of residence of clients from FRU hospital.

It shows that clients living within the range of 20 km radius from FRU are much more satisfied than the clients living more than 20 km from FRU.

Table 9: Distribution of outdoor clients according to time taken by them to reach FRU

Time (in hours)	Frequency	Percent
<0.5	100	59.2
0.5-1	41	24.3
1.0-2.0	23	13.6
>2.0	5	2.9
Total	**169**	**100.0**

This table shows that 60% of the clients took less than a half an hour to reach the FRU to avail the OPD services, because majority of the clients belong to semi-urban and urban areas.

Table 10: Relationship between client satisfaction and time taken by them to reach FRU from their residence

Time (in Hrs)	Satisfaction			
	Poor	Fair	Good	Total
<0.5	17	25	58	100
0.5-1	6	14	21	41
1-2	13	6	4	23
> 2	0	4	1	5
Total	**36**	**49**	**84**	**169**

Chi square value= 6.74 , p value= 0.009

There is statistically significant association present between level of client satisfaction and the time taken to reach the FRU, i.e. those clients who reached the FRU within half an hour are more satisfied with the services provided by the FRU.

CONCLUSIONS

In conclusion, it may be stated that for optimum functioning of the FRU clients must be satisfied with the services available to them, hence much more efforts are required to make the FRU functional to perform the expected role of emergency obstetric care and referral services for maternity cases.

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Study on Prescribing Pattern in Skin Department of a Teaching Hospital

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ABSTRACT

Background and objectives: Epidemiology of skin diseases has been studied and evaluated occasionally. In view of high incidence of skin diseases and economic burden that it poses, there is a need to evaluate the present epidemiology and prescribing pattern of skin disorders.

This study was undertaken to analyze the prescribing pattern of drugs used for various skin diseases in dermatology department.

Methods and material: The present study was conducted in the department of Dermatologyat MVJMC&RH, Hoskote, Bangalore. It was an observational, descriptive study for a period of one year (June 2012 - June 2013). After obtaining the institutional ethical committee clearance, prescriptions given by the dermatologist to patients with skin diseases were collected and were analyzed using descriptive statistics.

Results: Of the total prescriptions (216); 73.14% were antibiotics, followed by antihistaminics (44.4%). About 77% of the drugs were prescribed by brand names and only 22.28% prescriptions had generic names. Tablets (62.28%) were the preferred dosage form among prescriptions. It was evident through prescriptions that pyoderma (12.09%) was the most common skin disease reported. In the prescribing pattern polypharmacy (5 or more drugs per prescription) was noted in 36.57% of prescriptions with an average of 3.44 drugs per prescription.

Conclusion: In our current study it was quite evident- polypharmacy, use of brand names and systemic route of administration were predominant among prescriptions. Prescribing topical preparations whenever possible, minimal and rational use of drugs for treating skin diseases needs to be encouraged. This warrants a need for a regular prescription audit, which can be a guiding tool for the prescribers.

Keywords: Dermatology; Skin diseases; Prescription pattern.

INTRODUCTION

Skin disorders affect 20-30% of the general population at any one time[1, 2]. The common skin diseases are Pyoderma, fungal infections, dermatitis (irritant, allergic, or atopic) and acne. Epidemiology of skin diseases has been studied and evaluated occasionally[3]. In view of high incidence of skin diseases and economic burden that it poses, there is a need to evaluate the present epidemiology and prescribing pattern of skin disorders.

The pattern of drug use in a hospital setting needs to be monitored intermittently in order to analyze their rationality. It also helps to give feed back to the prescribers so as to improve quality of health care[4].

This study was under taken to analyze the prescribing pattern of drugs used for various skin diseases in dermatology department. As per our knowledge, very few systematically analyzed data are available on the drug use pattern in dermatology in India. Hence, the present study was under taken.

This study was first of its kind in this hospital.

OBJECTIVES

To analyze the prescribing pattern of drugs used in skin department in a tertiary care hospital over a period of one year

MATERIAL & METHOD

The present study was conducted in the department of Dermatology at MVJMC&RH, Hoskote, Bangalore. It was an observational, descriptive study for a period one year (June 2012- June 2013).

After obtaining the institutional ethical committee clearance, prescriptions given by the dermatologist to patients with skin diseases were collected and were analyzed using descriptive statistics.

RESULTS

Total 216 prescriptions were collected and were analyzed for demographic profile, disease spectrum and drug prescription patterns.

In the study 58.33% were male and 41.66% were female. Majority of the patients were in the second decade (table 1).

Looking at the spectrum of skin diseases which were treated; pyoderma (12.9%) was most common followed by psoriasis (12.03%), acne (11.5%), viral infection (9.7%) and lichen planus (9.2%) (Table 2).

Among the dosage forms tablets (62.28%) were most commonly prescribed followed by topical preparations (30.06%) and injections (5.5%) (Flow chart 1). Of the total prescriptions 73.14% contained antibiotics, 44.4% antihistaminics, 23.61% steroids and analgesics 14.35% (table 3).

Table 4 shows different antibiotics prescribed. Topical antibiotics (31.64%) were most commonly prescribed followed by oral; amoxicillin-clavulanic acid (18.98%), cephalosporins (16.45%) and fluroquinolones (13.92%).

Topical steroids were prescribed in 58.81%, followed by oral steroids in 27.45% and parentral steroids in 13.72% patients (table 5). Total drugs prescribed were 745, out of which 77.77% were prescribed by brand name and 22.28% were prescribed by generic name (table 6). Polypharmacy (5 or >5) was seen in 36.57% of the prescriptions.

Average number of drugs per prescription was 3.44

Tables: 1 Patient distribution according to age

AGE	F	M	Total
00-09	3	4	7
10-19	8	9	17
20-29	16	33	49
30-39	18	22	40
40-49	19	13	32
50-59	17	19	36
60-69	5	14	19
70-79	3	10	13
80-89	1	2	3
Total	**90**	**126**	**216**

Table: 2 Pattern of skin diseases among study population

Skin disease	No (%)
Fungal infection	16 (7.4)
Pemphigus vulgaris	3 (1.3)
Viral infection	21(9.7)
Psoriasis	26 (12.03)
Lichen planus	20 (9.2)
Acne vulgaris	25 (11.5)
Pyoderma	28 (12.9)
Urticaria	17(7.8)
Atopic dermatitis	10 (4.6)
Others	50 (23.1)
Total	**216**
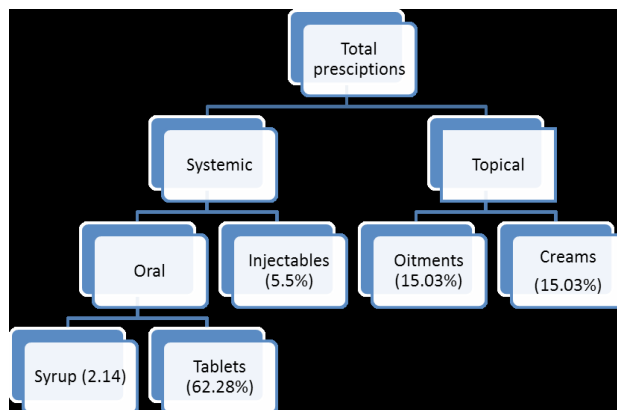
Flow Chart: 1 Different dosage forms prescribed

Table: 3 Category wise distributions of drugs prescribed

Drug class	No of patients (%)
Antihistaminic	96 (44.4)
Analgesic	31 (14.35)
Antiparasitic	6 (2.7)
Antiviral	21(9.72)
Steroids	51(23.61)
Antifungal	18 (8.33)
Antibiotics	158 (73.14)
Others	100 (46.29)

Table: 4 Pattern of Antibiotics prescribed

Antibiotic	No (%)
Topical antibiotic	50 (31.64)
Fusidic acid	20 (12.65)
Mupirocin	18 (11.39)
Bacitracin	10 (6.32)
Silver sulfadiazine	2 (1.26)
Systemic	
Amoxi-clav	30 (18.98)
Cephalosporins	26 (16.45)
Fluroquinolones	22 (13.92)
Macrolides	4 (2.53)
Anti-tubercular drugs	6 (3.79)
Dapsone	8 (5.06)
Clofazimine	8 (5.06)
Clindamycin	4 (2.53)
Total	**158**

Table: 5 Pattern of Steroids prescribed

Steroid	No (%)
Oral	
Prednisolone	14 (27.45)
Topical	
Clobetasol propionate	16 (31.37)
Fluticasone valerate	8 (15.68)
Methyl Prednisolone aceponate	1 (1.96)
Hydrocortisone	4 (7.84)
Halobetasol propionate	1 (1.96)
Total	
Parentral (IV)	
Betamethasone	7 (13.72)

Table: 6 Drugs prescribed by Generic name & Brand name

Brand names and generic names	No (%)
Total number of drugs	745 (100)
Number of drugs prescribed by brand names	579 (77.71)
Number of drugs prescribed by generic names	166 (22.28)

Table: 7 Number of drugs prescribed per encounter

Number of drugs prescribed per encounter	Number of patients (%) (n=216)
One drug	24 (11.11)
Two drugs	31(14.35)
Three drugs	48 (22.22)
Four drugs	34 (15.74)
5 or more drugs	79 (36.57)

Average number of drugs per prescription – 3.44

DISCUSSION

Periodic auditing of prescriptions is essential to increase the therapeutic efficacy, decrease adverse effects and provide feedback to prescribers therefore used to oversee, monitor and analyze the observance of standards of medical treatment at all levels of the health care delivery system

Our study showed that adult group was prone to skin diseases. A study done by Juno J Joel et al showed similar results.[5] Looking at the prescriptions it was observed that Pyoderma was the most common skin disease encountered. The factors responsible for this would be overcrowding and poor hygiene. These findings are similar to study done by Jaiswal et al.[6] Tablets (62.28%) were the most common dosage form prescribed followed by topical preparations (30.06%). Where as in a study by Deepika et al showed that topical formulations were most commonly prescribed for treating skin diseases.[7] There is a need to promote prescribing topical preparations for skin diseases as they have site specific action, less systemic absorption resulting in less side effect and convenient for patient use.

Antibiotics (73.14%) were the most frequently prescribed drug class, followed by anti-histaminics. Our findings suggest that there was correlation

between classes of drugs prescribed with the diseases encountered. Antibiotics were prescribed more as pyoderma was the most common skin disease among study group. In a similar study by Narwane et al antiallergics were most commonly prescribed in treating skin diseases.[8] Topical antibiotics (31.64%) were most commonly prescribed followed by amoxicillin-clavulanic acid combination. In a study by Sarkar et al also showed that topical antibiotics were most commonly prescribed.[9]

Steroids were prescribed in 23.61% of the total prescriptions in which, topical clobetasol propionate (31.37%) was most common. In a study by Savarna S Rathod et al had similar finding.[10] Another study in North Palestine also showed similar result.[11] The prescription of very potent steroids should be limited as far as possible. Long and excessive use may carry the risk of suppression of hypothalamus pituitary adrenal axis as well as local adverse effect.[12]

In the present study 77.71% of drugs were prescribed by brand name and 22.28% by generic name. In a similar study by Kshirsagar et al also showed that majority of the drugs were prescribed by brand name.[13]Due to this trend of prescribing large number of drugs by brand name it could possibly result in prescribing errors due to similar brand names leading to increase in side effects in turn increasing the cost of treatment. In general, generic drugs are less expensive as compared to the brands that contain same active ingredient.

It has been recommended that the limit of number of drugs prescribed per encounter should be 2 and that justification for prescribing more than 2 drugs would be required because of the increased risk of drug interactions. In our study, the average number of drugs per prescription was found to be 3.44, which is more than the current recommendation. This can lead to lot of side effects in the form of drug interactions. In a study by Maini R et al average number of drugs per prescription was 2.6 which was also more than the current recommendation.[14]

Limitations: Measurement of drug consumption, estimation of cost of therapy was not done in this study. ADR monitoring could not be done because of poor patient co-operation and lack of awareness among them to report any ADR.

CONCLUSION

In our current study it was quite evident-polypharmacy, use of brand names and systemic route of administration were predominant among prescriptions. Prescribing topical preparations whenever possible, minimal and rational use of drugs for treating skin diseases needs to be encouraged. This warrants a need for a regular prescription audit, which can be a guiding tool for the prescribers.

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Body Mass Index for Age Criteria : a School Based Study in Meerut UP

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ABSTRACT

Background: Under nutrition, overweight and obesity are important determinants of health leading to adverse metabolic changes and increase the risk of non communicable diseases, with the adoption of western lifestyle the problem of overweight and obesity is gradually increasing in children and adolescents. With this background a school based cross sectional study was undertaken to assess the nutritional status of school going children of urban area Meerut City UP, India

Method: A school based cross sectional study was conducted. A total of 4202 school students (05-18 years) were examined from one government and one private schools that were selected by simple random sampling method. Pre-designed and pre-tested questionnaire was used to elicit the information on individual characteristics. Height and weight of the children were measured, BMI and other parameters were calculated.

Results: On applying the BMI –for- age criteria 22.8% boys and 19.9% girls were found under weight while 04.1 % boys and 03.04 % girls were overweight, and 05.06% boys and 04.08% girls were found obese . 22.8% government and (16.00%) private school children were found under weight while 03.4 % government and 5.6 % private school students were overweight, and 03.8 % government and 11.8 % private school students were found obese .

Conclusions: Proper dietary habits and lifestyle modification must be advised to children to prevent occurrence of under nutrition, overweight and obesity in them. Family environment plays important role in predisposing the children to under nutrition, overweight/obesity and hence the interventions need to be directed towards the families.

Keywords: *School children, Body mass index (BMI –for- age criteria), Under nutrition, Overweight, Obesity.*

INTRODUCTION

Children age is often considered as school age. The foundation of good health and sound mind is laid during the school age period. This age is considered as dynamic period of growth and development because children undergo physical, mental, emotional and social changes. Malnutrition has been defined as " a pathological state resulting from a relative and absolute deficiency or excess of one or more essential nutrients". It comprises four forms- under nutrition, over nutrition, imbalance and specific deficiency of nutrients.

According WHO (2005) 22 million children under 5 years of age were overweight. [1] The most recent estimates (1996-2005), in developing world, state that

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approximately 146 million children are underweight, out of these 57 million children live in India.[2] In India, over the past few years, childhood obesity is increasingly being observed with the changing lifestyle of families with increased purchasing power, increasing hours of inactivity due to television, video games and computers have replaced outdoor games and other social activities .[3]

The most significant long term consequence of childhood and adolescent overweight and obesity are their persistence into adulthood with all of the associated with an increased risk of developing cardiovascular disease, dyslipdemia, hyperinsulinemia, diabetes mellitus, hypertension, arthritis, other non communicable diseases and behavioral problems. [4]

Hence evaluation of overweight and obesity in children is important as it provides an opportunity to identify the problems and prevent disease progression in to adulthood.[5] There are many community based studies to assess the nutritional status of school aged children but very few school based studies to assess the same.

In view of these, a school based study was planned with following objectives.

(I) to assess the prevalence of under nutrition, overweight and obesity among children.

(2). To study the factors associated with overweight and obesity in school aged children.

MATERIALS & METHOD

A school -based cross sectional study was conducted to assess the BMI measurement and nutritional status of school children. One government and one private school of Meerut district were selected from the list which has been obtained from the office of educational authority of Meerut District through simple random sampling method.

A total of 4202 school children aged 5-18 years were enrolled in the study and examined with due permission from school authorities and parents. Data was collected from September 2013 to December 2013. A pre-designed and pre tested performa was used for the study.

Body weight was measured using a weighing machine with an accuracy of $\pm$ 100 gm. The subjects were asked to remove their footwear and accessories before measuring their weights.

Under weight , normal overweight and obese were classified on basis of WHO Growth Charts for BMI - for- age criteria, for 5-18 years old boys and girls. Under weight was less than 5th percentile, healthy/normal was between 5th to less than 85th percentile, overweight being 85th to less than 95th percentile, and obese was equal to or greater than 95th percentile.[6]

Anthropometric measurements of the children were taken by trained medical staff. Height was measured (to the nearest 0.5 cm) with the subject standing barefooted in an erect position against a vertical scale of portable stadiometer. All the entries were double checked for any possible keyword error. Prevalence of overweight and obesity was expressed as percentages. Association of variables with overweight and obesity (outcome variable) was assessed with the Chi square test.

RESULTS

A total of 4202 school students (05-18 years) consented to participate in the study. There were 2398 (57.06 %) boys and 1804 (42.94 %) girls . 3433 (81.70 %) students were enrolled in government school and 769 (18.30 %) belonged to private school.

According to BMI- for- age criteria, the overall prevalence of underweight was 906 (21.06 %) , overweight 160 (03.08 %) , obesity 220 (05.02 %) and 2916 (69.04 %) students were found normal.

According to gender wise distribution the prevalence of underweight was 574 (22.8%), overweight 98 (04.1%) and obesity 134 (05.06%) among the boys students. 1619 (67.05%) boys were normal.

Among girls the prevalence of underweight, overweight and obesity were 359 (19.9%) , 62 (03.04 %), 86 (04.08%) respectively, although 1297(71.09%) were normal.

The distribution of undernourished /normal/ overweight and obese was significantly different between boys and girls with (p<.0001).

In Government school prevalence of underweight was 783 (22.8%), overweight 117 (03.4 %) and obese 129 (03.8 %) and 2404 (70.00%) students were normal.

In private school the prevalence of underweight, overweight and obesity were 123 (16.00%) , 43 (5.6 %), 91 (11.8 %)   respectively while 512(66.06%) students were normal.

The distribution of undernourished /normal/ overweight and obese was significantly different between private school and government school with (p<.0001) .

DISCUSSION

Underweight, overweight and obesity among children is progressing towards epidemic level. The World Health Organization has described obesity as one of today's most neglected public health problems, the proportion of children and adolescents who are overweight and obese have also been increasing.[7] Obesity can be seen as the first wave of a defined cluster of non communicable diseases crating an enormous socio-economic and public health burden in poorer countries. [8] At the other end of the spectrum are the urban affluent children among who over nutrition has steeply increased because of sedentary life styles and intake of energy –dense junk foods. It is essential to improve physical activity and promote balanced food intake in school aged children.

In this study the overall prevalence of underweight (21.06 %), overweight (03.08 %) and obesity (05.02 %) was observed . A study conducted by Raj M et al (2007) on urban Indian school children report a high prevalence of obese and overweight children.[9] These findings were similar to Banerjee et al (2011)[10] in Goa reported 3.3% as overweight , Aggarwal et al (2008)[11] in Punjab found 3.4% children as obese. Several studies done by Goyal et al (2011)[12] in Gujrat, and Chhatwal et al (2004)[13] in Ludhiana, were found higher prevalence of overweight (13.9%-17.7%) and obesity (5.0%-11.1%) in their studies.

Kapil et al (2002) reported high prevalence of overweight as well as obesity. Studies from rural areas mainly emphasize on under nutrition and data on overweight/obesity are not available.[14]

However, Deshmukh et al (2006) reported prevalence of overweight/ obesity to be 2.2 % in rural area of Wardha district. [15]

In this study the high prevalence of underweight (22.8%) , overweight (04.1 %) and obesity (05.06%) was found   among the boys students   and prevalence of underweight   (19.9%), overweight (03.04%) and obesity (04.08%) was found among the girls students.

A study conducted by Gupta R et al (2013) in Delhi   revealed that prevalence of overweight 17.4% and obesity 7.6% was among boys than overweight 12.4% and obesity 6.7 % among girls.[16] An another study conducted by Singh et al (2006) observed that 18.6%of the males and 16.5% of the females were overweight or obese according to percentile for age growth charts. [17] The higher prevalence of overweight and obesity among school boys may be attribute to the cultural advantage males enjoy in India. They get larger helpings of food, more freedom to go out of the house and indulge in snacking and also do not contribute much to the household chores.

In this study the prevalence of underweight (22.8%), overweight (03.4 %) and obesity (03.8 %) was found   among the students studying in government school and   underweight. (16.00%), overweight (5.6 %) and obesity (11.8 %) was also found   among the students studying in private school. A study conducted by Ramchandran et al (2002) reported it to be 4.5 % in low income schools and 22 % in better-off schools of Chennai. [18] An another study done by Sethi & Kapoor (2003) reported the prevalence of obesity to be 7.8 % and 13.4% observed in Delhi.[19.] Similar findings were reported by the study of Bhave S et al (2004) in Pune suggested that 6.00 % in corporation schools and 24 % in well-off schools.[20]

The reason   that children attending private schools are better nourished and probably enjoy a higher socio-economic status enabling them to afford enrollment in private schools. Overweight/obesity has classically been the disease of urban area in all age groups. Food in urban area has been replaced by high calorie snacks and junk food. Due to unsafe roads, lack of free space for playing and increased television viewing and computer use has made life sedentary. The prevalence of obesity as well as overweight in low SES group was the lowest as compared to other group. Eating habit like junk food, chocolate, eating outside at weekend and physical activity like exercise, sports, sleeping habit in afternoon having remarkable effect on prevalence on overweight and obesity among middle to high SES group. Giammattei et al (2003) also reported that children who spent more time watching television had a higher BMI and a higher per cent of body fat and were less physically active. [21]

Table no,. 1. Association of BMI status and gender

BMI CATEGORY	MALE		FEMALE		TOTAL		Chi Square VALUE	P-VALUE
	FREQU-ENCY	PERCE-NTAGE	FREQU-ENCY	PERCE-NTAGE	FREQU-ENCY	PERCE-NTAGE		
UNDERWEIGHT	547	22.8%	359	19.9%	906	21.60%		
NORMAL	1619	67.5%	1297	71.9%	2916	69.40%		
OVERWEIGHT	98	4.1%	62	3.4%	160	3.80%	9.36	0.025 (SIG.)
OBESE	134	5.6%	86	4.8%	220	5.20%		
TOTAL	2398	100.0%	1804	100.0%	4202	100.00%		

Table no,.2. Association Of BMI with Type of School

BMI CATEGORY	GOVT. SCHOOL		PVT. SCHOOL		TOTAL		Chi Square VALUE	P-VALUE
	FREQUENCY	%	FREQU-ENCY	%	FREQU-ENCY	%		
UNDERWEIGHT	783	22.8%	123	16.0%	906	21.6%		
NORMAL	2404	70.0%	512	66.6%	2916	69.4%		
OVERWEIGHT	117	3.4%	43	5.6%	160	3.8%	100.7	<0.001 (SIG.)
OBESE	129	3.8%	91	11.8%	220	5.2%		
TOTAL	3433	100.0%	769	100.0%	4202	100.0%		

HEALTH STATUS V/S. GENDER

HEALTH STATUS V/S. TYPE OF SCHOOL
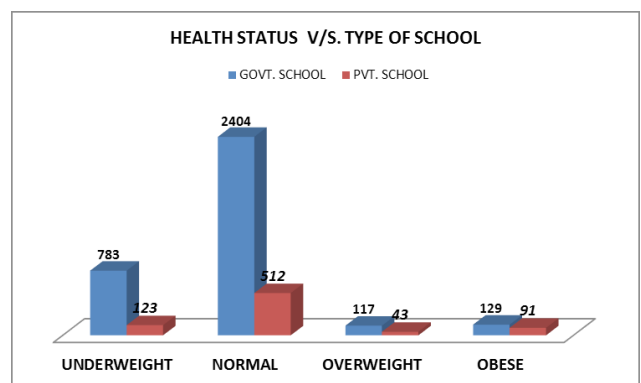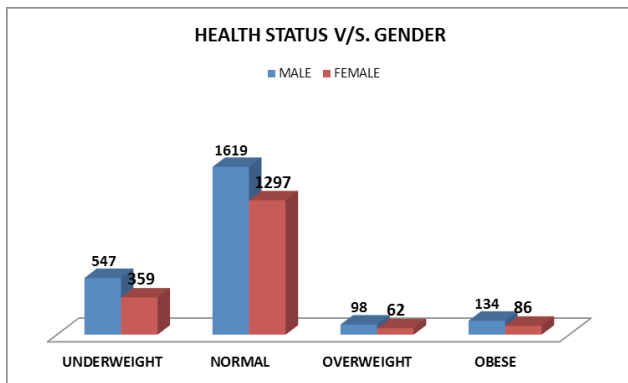
CONCLUSION

Under nutrition, overweight and obesity experience were significantly associated in school children of Meerut District. The prevalence of overweight / obesity was higher in our study which have common risk determinants and require a comprehensive multidisciplinary approach to pediatric patients by both medical and healthcare professionals.

The results of the study highlight the fact that the percentage of under nutrition is considerably higher than overweight and obese in school children. This study also shows that the overweight and obese seen more among boys than girls and seen more among private school than government school.

Over weight and obesity is an emerging health problem in adolescent population which needs to be addressed with priority. There is need for immediate action to reduce the incidence of overweight and obesity through appropriate nutritional interventional programs, health education, involving school children, their parents and school authorities regarding adverse effects of over nutrition.

Proper dietary habits and lifestyle modification must be advised to children to prevent occurrence of under nutrition, overweight and obesity in them. Family environment plays important role in predisposing the children to overweight/obesity and hence the interventions need to be directed towards the families.

The results suggest the need for greater public awareness and prevention programmes on childhood overweight and obesity . Furthermore, School based interventions are required to reduce the morbidity associated with non-communicable diseases. Authors have planned family passed interventions for the malnourished children of both schools.

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Utilization Pattern of Maternal and Child Health Services in Banjara Community in Maharashtra

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ABSTRACT

Objectives: to study maternal and child health problems in Banjara community. Study design: Quantative Participants: All Banjara women in the reproductive age group having child birth in last three years in Latur. Results :half of Banjara women had less than three antenatal visits. 42% home deliveries delivered by untrained relatives.42% Banjara women have no pnc.Half of children were low birth weight.

Keywords : *ANC, PNC, Delivery Services.*

INTRODUCTION

Banjaras are nomadic tribes found in Andhra Pradesh, Bihar, Madhya Pradesh, Himachal Pradesh, Gujarat, Tamil Nadu, Maharashtra, and Karnataka.For work they travel Pune, Mumbai and sugar industries after diwali festival as there is no agricultural employment in their Tandas. It is also difficult to monitor their health issues and development. The population which suffer is woman in reproductive age and children.The goal 5 of millennium developmental goals consists of reduction of the maternal mortality ratio by three quarters between 1990 and 2015. In 2010 the least achieved goal was MDG 5. Due to migratory nature of Banjara community it is difficult monitor the health services which is obstacle to achieve MDG5 and the government of India health outcome goals established in the 12th five year plan.

MATERIALS & METHOD

Study was planned to study maternal and child health problems, source of maternal and child health services utilized and factors affecting utilization of maternal and child health services among Banjara community. The quantitative study has been carried out in four Tandas from two blocks of Latur district in Maharashtra among Banjara women. The convenience sampling method has been proved as a good technique as Banjara population is migrating. The sampling is conducted on the household level.Questionnaire consists of structured questionnaire and some open ended questions. Questionnaire was also translated in their Banjara language and interviews were taken in Marathi and Banjara language.Women in age group 16 to 45 and child birth in last 3 years included in study. Data has collected by interviewing 92 women from Bothi Tanda, 14 from Hanmantwadi Tanda and 20 from Hatkarwadi Tanda in Chakur block who were having child in last three years. Participant selected by home visit. From Renapur block 20 women interviewed from Hanmantwadi Tanda.Data collected from 150 participants from four Tandas. Parameters and data of utilization of maternal and child health services will be listed and analyzed accordingly with the help of statistical software SPSS.

FINDINGS

Socio-economic factors: Women with current age of less than 20 years (18.7% of total women interviewed). These figures interpret that Banjara women in the study area had to start their married life early.

Table 1: Socioeconomic factors

Occupation	Frequency (percentage)
Housewife	31(20.7%)
Labour	119(79.3%)
EDUCATION	**Frequency (percentage)**
Illiterate	41(27.3%0
1 to 4	43(28.5%)
5to 7	38(25.3%)
8to10	21(14%)
11 to 12 th	5(3.3%)
graduation and post graduation	2(1.3%)
Education of husband	**Frequency (percentage)**
Illiterate	25(16.4%)
1to 4	29(19.2%)
5 to 7	44(29.5%)
8 to 10	32(21.2%)
11 to 12 th	14(9.6%)
Graduation and post graduation	6(4.1%)
MONTHLY INCOME OF FAMILY	
1000 to 2500	34(22.7%)
2501to 5000	109(72.6%)
5000 above	7(4.7%)

Out of 5 Banjara women 4 Banjara women do labour work in sugar industry, construction etc. Banjara women do heavy manual work. From this we can interpret that Banjara women require high calorie diet during pregnancy. Out of 4 Banjara women 1 woman was illiterate. Majority of the Banjara women who were literate had completed primary or middle level of education. As level of education increases the percentage of respondent decreases as most of the respondent left school, college etc. In Banjara community study shows male literacy is more than female literacy. School dropout is more in female as compare to male. These results indicate less priority given to female education as compare to male education.

The study shows that majority (72per cent) of the women were from a household with income in the range of 2500 to 5000 rupees.In Banjara Community major source of drinking water was hand pump. Very few respondents have pakka house (4%).Out of ten respondent nine respondents had no facility for bath and defecation at home. Out of four respondent 1 respondent had no electric connection at home. The study interprets that Banjara woman belongs to low socio-economic family.

ANC Service Utilization: Majority (97%) of Banjara women received antenatal care. The reason for not seeking antenatal care was they felt no need. Out of five two women received antenatal care during the first trimester. Another 48 % had received antenatal care during second trimester. Out of 10 women one woman received antenatal care in third trimester.

Table 2: ANC Indicators

DESCRIPTION	FREQUENCY (PRECENTAGE)
SEEK ANC CARE	
Yes	146(97%)
No	4(3%)
WHICH TRIMISTER	
1st	58(43.6%)
2nd	64(48.1%)
3rd	11(8.3%)
FACILITY FOR ANC	
sub centre	102(75%)
Phc	2(1.5%)
Rural hospital	3(2.2%)
Sub-district hospital	1(.7%)
District hospital	4(2.9%)
Private clinic	24(17.6%)
TT IMMUNIZATION	
Yes	123(84.2%)
No	23(15.8%)
IRON and FOLIC ACIDTABLETS	
Yes	122(83.6%)
No	24(16.4)
CARE PROVIDED DURING ANC	
Doctor	37(25.3%)
Nurse	96(65.8%)
Other	1(.7%)
N0. OF ANC VISITS	
Less than 3	72(51.1%)
Minimum 3 visits	32(23.7%)
More than three visits	31(22.8%)

Out of four three women (75%) received antenatal care from sub centre. Out of five one women received antenatal care from private hospital. Banjara women received most of the services like having their weight taken (88.4), abdomen examined (66%), blood pressure measured (82.9%), urine sample checked (77.4%), blood sample checked (71.9%), TT immunization (84.4%) and iron folic acid tablets (83.6%).Less than half of women advised for institutional delivery. Only more than half of women (54.1%) told expected date of delivery. Less than half of women (48.61%) advised for nutrition during pregnancy. Banjara women require high calorie diet as they do heavy manual work in sugar industry, construction etc. Almost 90% of Banjara women received antenatal care from a health professional (25.3% from a doctor and 65.8% from ANM).Out of four women one women receive antenatal care from doctor. More than half of Banjara women had less than 3 antenatal visits. Only 45% Banjara women had 3 or more visits. **Delivery service utilization:**

The study interprets those two out of 5 births in study area takes place in home. Two out of 5 births in study area takes place in private hospital.

Table 3: Delivery Service Utilization

DESCRIPTION	FREQUENCY (PRECENTAGE)
Place of delivery	
Government hospital	32(22%)
Home	62(41.3%)
Private hospital	55(36.7%)
Other	1(.7%)
REASON FOR HOME DELIVERY	
Not necessary	18(28.1%)
No custom	5(7.8%)
No transport facilities	27(42.2%)
Economic problems	9(14.1%)
Family didn't allow	2(3.1%)
Migration for sugar factory work	3(4.7%)
RESULT OF DELIVERY	
Normal delivery	140(93.3%)
Caesarean section	10(6.7%)
HOME DELIVERY ATTENDED BY	
Untrained traditional dai	8(13.1%)
Family members/relatives	52(85.2%)
Other/specify	1(1.6%)
UMBLICAL CORD CUT BY	
New blade	54(87.09%)
Sickle	8(12.9)

One out of 5 births in study area takes place in government hospital. Deliveries of sugar factory worker takes place at working field. Results from above table interpret that no transport facilities top the table for reasons for home delivery followed by not necessary. The people of Banjara community perceive that they felt not necessary because no problem arises during delivery. The socioeconomic status is concerned that's why they given no transport facilities and economic problem (42.2% +14.1%) for not going to institutional delivery. Roads are available. Private transportation is very costly. Family permission and migration for sugar factory work were reason in few respondents. Some respondent believe in custom. 85.25 percent home deliveries were delivered by family/relatives. The remaining 14.7% were delivered by an untrained traditional Dai or other untrained person. For 87.09 percent of home births a clean blade was used to cut the cord but still 12.9% home births used sickle to cut the cord. All the deliveries were normal except 6.7% were caesarean section. The expenditure for delivery in study area range up to 3000 Rs.

PNC SERVICE UTILIZATION

Out of five Banjara women two women had no post natal check up. 41% Banjara women had first postnatal check up in less 4 hours, 14.3% women had first postnatal check up between 4 to 24 hours.

Table 4 : PNC Service Utilization

DESCRIPTION	FREQUENCY (PRECENTAGE)
Time between delivery and first postnatal check up	
Less than 4 hrs	62(41%)
4 to 24 hrs	24(14.3%)
Don't know	2(2.7%)
No pnc	62(41%)
INSTITUTE FOR PNC	
Government hospital	41.1%(30)
Private hospital	58.9%(50)
CARE PROVOIDED DURING PNC	
Doctor	60(40%)
Nurse	17(10.5%)
Dai	2(1.5%)
None	71(48%)

0ut of five Banjara women three women utilizing private hospital and two women government hospital for post natal care. Out of five Banjara women two were provided care during delivery by doctor. Near about half of Banjara women care was not provided by health professionals (doctor, nurse etc).

UTILIZATION OF CHILD HEALTH SERVICES

Table 5 : Utilization of Child Health Services

DESCRIPTION	FREQUENCY (PRECENTAGE)
PLACE FOR IMMUNIZATION	
sub centre	136(94.4%)
Phc	3(2.08%)
Rural hospital	1(.7%)
District hospital	1(.7%)
Private	3(2.08%)
IMMUNIZATION COVERAGE	**PERCENTAGE**
BCG and OPV-0 DOSE	
Yes	26.02%
No	73.97%
BCG(if not given),DPT-1,OPV-1	
Yes	83.4%
No	13.9%
DPT-2 and OPV-2	
Yes	81.7%
No	18.3%
DPT-3 and OPV-3	
Yes	87%
No	13%
MEASELS	
Yes	77.6%
No	22.4%
DPT and OPV	
Yes	61.5%
No	38.5%

Most of the respondents utilized sub centre (94.4%) for immunization services. Mothers were asked about the immunization received by their last children. Table shows that BCG and polio zero dose below 27% in 146 children's because of home deliveries and private hospitals not providing immunization services in study area.BCG (If not given DPT1 and OPV1 above 83% in 146 children the reason was immunization session held regularly on fixed day every month in study area. DPT2 and OPV2 coverage above 81% in 142 children. DPT-3 and OPV-3 coverage above 87% in 131 children. Measles coverage above 77% in 107 children's Measles coverage was low as compare DPT-1 AND OPV-1 the reason was respondents travelling to other places for employment. DPT and OPV coverage above 61.5% in 65 children. DPT and OPV coverage was also low as compare to measles.

CHILD ILLNESS

Tablel 6 : Child Illness

DESCRESTION	FREQUENCY (PRECENTAGE)
Weight of child at birth	
Less than 2.5 kg	78(52)
More than 2.5 kg	34(22.3)
Don't know	38(25.7)
Episode of illness within past 3 years	
Respiratory problems	87(58.1)
Fever	17(10.8)
Diarrhoea	36(24.3)
Others	10(6.8)
Episode of illness since child birth	
<3	64(42.6)
3 to 5	47(31.8)
5<	39(25.7)
CHILD HOSPITALISED	
Yes	65(44.5)
No	80(55.5)
HOSPITILIZATION INSTITUTE	
Sub district hospital	3(4.6)
Private	62(95.4)

Half of children below 2.5 kg weight at birth. Good antenatal care result in weight above 2.5 kg. Only 22% children above 2.5 kg weight at birth. Out of four Banjara women one woman didn't know weight of child at birth. Above 58% children were suffering from respiratory problems. Out of four children in Banjara community one child was suffering from diarrhoea in study area.10.8% children were suffering from fever

and remaining 6.8% suffering from other illness. Out of four children in Banjara community one child in Banjara community suffering more than five episodes since child birth. More than 31% children were suffering from 3 to 5 episodes since child birth. Less than 43 % children were suffering from less than three episodes since child birth. In study area out of five children two children hospitalised. Almost children's were hospitalized in private hospital. Less than 5% children hospitalized in government hospital. Most of the government hospitals paediatrician not available.

Reason for utilizing government and private health facilities:

The important reason for utilizing government service is free treatment and facility at door step. The important reason for utilizing private service is quality of service. Quality of service in their perception means systemic check up done and dialogue with patient is good. Speciality treatment is important reason for utilizing child health services in private hospitals as paediatrician is available.

DISCUSSION

Only 40% women received antenatal care during the first trimester. This figure is less than NFHS -3.As compare to district level data Latur at least 3 ANC visits (76%) is less than visits in Banjara Community. Similiar results with DLHS-3 finding of Maharashtra. The percentage of antenatal care received most of services like having weight taken, abdomen examined, blood pressure measured, urine sample checked, blood sample taken,TT injection and iron folic acid tablets taken given more than NFHS-3.The study in urban slum in Nagpur shows higher percentage of utilization of ANC services. As compare to NFHS-3 very few Banjara women done sonography.Less than half of women advised for institutional delivery. Institutional births are lower as compare to DLHS data Latur. 42% were home deliveries. As compare to NFHS-3 institutional births are low in this study. Study in construction worker in Pune home deliveries were more.Caserian section more in NFHS-3.In study in urban slum Nagpur 25.7% deliveries done by caesarean section. Almost all home deliveries was done by mostly untrained relatives. Study in Nagpur out of nine deliveries four deliveries were conducted by untrained dais. Delivery assisted by health professional more than NFHS-3.The expenditure of delivery is 3000 Rs. Study at Pimpari Chicnhwad five

thousand for normal delivery.

As compare to ANC the utilization of PNC services is low. As compare to NFHS-3 PNC service utilization more in this study. It also more than urban and rural population. Study in rural area of Gujarat PNC utilization is good than Banjara community in Maharashtra. Post natal care provided by NFHS -3 is more than this study. Half of other health personnel in this study provide PNC care. All home births have no postnatal care. Most PNC service utilized at private hospital.

AS compare to DLHS Latur the immunization coverage BCG, 3doses of DPT, polio and measles more in this study. The study in three district of Bundhelkhand shows low coverage as compare to this study. Immunization services utilized at sub centre.

Study reveals that low birth weight child is more than India average. The study in Gandhinagar Gujarat less prevalence of low birth weight. The reason for low birth weight was shown by various studies nutrition, nutrition, and rest etc.This study reveals that prevalence is more than NFHS-3. Out of five three children suffering from respiratory illness, one from fever and one from diarrhoea. Child services utilized at private hospital for speciality treatment. The factor affecting utilization of maternal and child health services in Banjara community include education, occupation of husband and respondent, monthly income, transport facilities, beliefs, perception of no need, low socio-economic status and poor quality of service at government hospitals. Study in urban slum Nagpur and Varanasi shows similar results.

CONCLUSION

The ANC service utilization is low as more than half of Banjara women had less than three antenatal visits. Out of four women three women received antenatal care from sub centre as ANM providing free services at doorstep. Out of four women one woman receive antenatal care from doctor. Delivery service utilization is very low. Only 58% women delivered in institution and rest 42% at home which delivered by untrained relatives. Strong traditional and customary impact in the Banjara community and lack of scientific temper becomes the prime factor for non utilization of ANC and delivery services.Education status of both women and husband, family income as

economic problem and transport facilities are costly for utilizing delivery services. Expenditure of delivery is important reason for home delivery as compare to monthly family income of respondent.

PNC services are low as 42% women have no PNC check up. PNC services utilized at private hospitals. Low utilization of this service is a serious concern because post natal complication can lead to the infant or maternal death.

Home delivery is under strong influence of custom and perception not necessary of any health services for delivery. To explain this according their perception that Pregnancy is not the diseased condition and it is a routine practice which will not necessary any health services as such. Immunization coverage is low only 27% children received BCG and polio 0 doses. Immunizations drop out seen due to migration for sugar factory work. Immunization services utilized at sub centre as most of the Banjara women took child for immunization during immunization session. Half of children were low birth weight as proper ANC care was not provided during pregnancy. Above 58 % children were suffering from respiratory problems. Out of four children in Banjara community one child suffering from more than five episodes since child birth. In study area out of five children two children were hospitalised. Children took treatment at private hospital.

The important reason for utilizing government service is free treatment and facility at door step. The important reason for utilizing private service is quality of service. Quality of service in their perception means systemic check up done and dialogue with patient is good. Education, occupation of husband was important socio-economic factor for utilization of maternal and child health services in Banjara community. The expenditure of delivery services, travelling cost and monthly income of respondent were important economic factor affecting utilization pattern of maternal and child health services.

RECOMMENDATIONS

Health education to change their perception of no need and traditional beliefs. Strengthen of sub centre services should be done ANC services provided by ANM. Focus on 100% early registration and 100 three antenatal check up should be done.Free transport facilities for pregnant woman should be provided as it was important reason for home delivery. Partnership with private hospital to provide free maternal and child health services. Mobile ANC clinic should be started as Banjara women migrating for labour work.The focus on education, health, employment and other social sector should be done for their upliftment.

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Growing Burden of Paediatric Deafness - Challenges in Diagnosis and Rehabilitation in India

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ABSTRACT

Paediatric deafness is a handicap affecting approximately 4-6/1000 newborns. The primary justification for early identification of deafness in children relates to the direct impact on their speech and language development which is further related to the academic, social and emotional impairment and disability. In a developing country like ours, the detected number of pediatric deafness cases may be like a tip of an iceberg as 70% of population lives in rural India where due to lack of basic medical infrastructure facility and social factors most of the cases are unnoticed till the age of 3-4 yrs, when the age of complete speech development occurs. So the delay in detection of deafness is very common amongst general population. Various studies has been done in India in different parts in relation to the incidence, causes, risk factors, etc but being the second highest population in the world, the exact number and percentage of deaf children is difficult to calculate. Various organizations including National programme for detection of deafness are working towards the early identification and rehabilitations measures but we still need to go a long way.

Keywords – Paediatric deafness, detection and prevention, rehabilitation.

INTRODUCTION

Hearing loss is a social and psychological handicap which adds to the emotional and financial burden of the family and economical burden to the country. Detecting exact number of cases is a major challenge in developing countries which is very important for early rehabilitation. In many developed countries Universal newborn hearing screening (UNHS) is mandatory along with routine newborn screening methods. In a developing country like ours, due to financial constraints, and limited resources hearing loss screening is not a compulsory program. Failure to detect HL can cause speech and language deficit lifelong. Various government and non government organizations needs to come together for early detection and rehabilitation of hearing loss to reduce the burden of the society and country.

THE GLOBAL BURDEN OF DEAFNESS

In 2012, WHO released new estimates on the magnitude of disabling hearing loss. The estimates are based on 42 population-based studies. According to these there are 360 million persons in the world with disabling hearing loss (5.3% of the world's population) and 328 million (91%) of these are adults (183 million males, 145 million females) and 32 (9%) millions of these are children. The prevalence of disabling hearing loss in children is greatest in South Asia, Asia Pacific and Sub-Saharan Africa[1]. The prevalence increases with age, i.e. prevalence in children is 1.7%, but in adults aged 15 years or more, it is around 7%, rapidly increasing to almost one in three adults older than 65 years. As per WHO , deafness is among the 20 leading causes of the global burden of disease and one of only nonfatal conditions. Also HL is the second most common cause of years lived with disability (YLD) accounting for 4.7% in India[2]. The problem of deafness is disproportionately high in the Southeast Asia region with a prevalence ranging from 4.6% to 8.8%.[3].Globally 90% of unidentified childhood hearing loss comes from developing countries and less than 2.5% of these children get hearing aids and less than 10% will never have access to early intervention[1]

DEMOGRAPHIC STATUS OF DEAFNESS IN INDIA

According to NCDS statistics; India has a population of over 1 billion and the identified number of deaf children are 3 million with 25,000 born every year and 90% of deaf children live in rural areas. In India, 15.93% of the school going population (6- 14 years) is at risk of having a hearing disorder [10]. 50% of deaf children in school dropout at the age of 13 [3]. The National Sample Survey Organization estimates, that the prevalence of speech disability is 8.3% in the urban areas and 8.9% in rural school going children [4]. This estimate may be on a lower side as the data is collected by the primary school teachers and social workers. In India, not many studies are being conducted to know the exact number of deaf children region wise due to population burden. Nationwide disability surveys have shown that hearing loss to be the second most common cause of disability.[2] Very few demographic statistics available, which are either outdated or unreliable because some people may not wish to identify themselves as having a hearing loss, or the question forms may not ask directly if a person has a hearing loss. The Census Bureau offers demographical statistics on disability and employment, which do not mention age of onset of hearing loss.[5] As per NCHC statistics 12 out of every 1,000 persons with hearing loss is under 18 years of age which implies that there are chances that at least one student in each school will have a hearing loss.[4]

AETIOLOGY OF DEAFNESS – GENETICS AND ENVIRONMENT

About 50% of children detected with hearing loss are having congenital deafness and out of this 30% have syndromic hearing loss with more than 500 syndromes are associated with childhood hearing loss.[3] That means they are associated with some or other anomalies, and hearing screening is done along with other screening tests to detect deafness. Other 70 % cases are of non syndromic origin and usually go unnoticed till late childhood. Most of the deafness of genetic origin has been attributed to mutation in gene coding Connexin 26, which is a protein that forms channel for the potassium ion transduction in the cochlear hair cell. In the study on prevalence of this gene in Indian population the prevalence of this gene was around 40% of all cases[3]. Prenatal genetic counselling is essential in families to rule out any other environmental risk factors causing deafness. .

The Joint Commission on infant hearing (JCIH) along with AAP (American Academy of Pediatrics) has outlines the various environmental risk factors and principles and guidelines for early hearing loss detection and intervention programme in 2004.[6] Table 1 shows the risk factors given by JCIH. Many of these risk factors require an intensive care management for the new born and a routine screening for all intensive care babies can detect early hearing loss.

Table 1- JCIH risk factors for Hearing Loss in NICU babies

1. Family history of childhood congenital hearing loss.
2. Congenital infections such as TORCH.
3. Craniofacial anomalies including morphological abnormalities of pinna, ear canal, nose and throat.
4. Birth weight less than 1500 gms.
5. Hyperbilirubinimia needing exchange transfusion.
6. Ototoxic medications including but not limited to aminoglycosides used in multiple courses or in combination with loop diuretics.
7. Bacterial meningitis.
8. APGAR score of 0-4 at 1 minute or 0-6 at 5 minutes.
9. Mechanical ventilation for 5 days or longer, ECMO or persistent pulmonary hypertension.
10. Stigmata of other findings associated with a syndrome known to include sensorineural and or conductive HL.

In addition, consanguineous marriages which is more prevalent in some South east Asian countries imposes a higher risk for genetic deafness [7]. In India, the three southern states of Karnataka, Tamil Nadu (20%) and Andhra Pradesh it is more common and was rare among the communities of North India. [3] In another study done it was found that 199 of the 383 (52 per cent) children had the problem resulting from consanguineous marriages in which the Connexin 26 gene had caused deafness.

Other factors like Middle ear infections such as chronic suppurative otitis media (5.2%) and otitis

media with effusion (3%) are other leading causes of hearing loss in children as per WHO.[1] It has been noted by WHO that half the causes of deafness are preventable and about 30%, though not preventable, are treatable or can be managed with assistive devices such as hearing aids.[1] Thus, about 80% of all deafness can be avoidable.

CURRENT SCENARIO FOR DETECTION AND PREVENTION OF PAEDIATRIC DEAFNESS IN INDIA

The Government of India initiated the National Program for Prevention and Control of Deafness (NPPCD) in 2006 as a pilot project and was implemented in 25 Districts in 10 States and 1 in Union Territory. The objective of the program is the prevention and early identification, rehabilitation and strengthening of the existing inter-sectoral linkages and institutions and infrastructure development. For the prevention of auditory impairments, it promotes outreach activities and public awareness through innovative and effective information, Education and Communication (IEC) strategies at PHC level and along with NRHM programme. According to NPPCD approximately 63 million no. of children affected in India.[8] Long term objective of NPPCD is to prevent and control major causes of HL, so as to reduce the total disease burden by 25% of the existing burden by the end of 12th Five Year Plan. [8]

Many nongovernmental organizations (NGOs) operate in India, providing support to deaf schools, offering vocational training, etc. There are around 9 deaf associations and 11 NGO in India in different states.[9] It conducts regular camps in various parts of the state towards deafness detection and awareness. India has several deaf education organizations at the national, state, and regional levels that set up schools for the deaf and hard of hearing and offer speech and auditory therapy. Even deaf women in India have their own organizations. Also N.A.D (National association for Deaf) aims to be a body that is truly representative of all deaf people across India. This includes deaf people in every state in India. Currently in India there is not a strong deaf movement, so N.A.D. aims to represent deaf people in order to demand their rights from the Government and policy makers[9]. N.A.D. organizes various national workshops with the aim of setting up India's first association of Sign Language interpreters., India has world's largest cultural diversity with 22 official

languages and 200 spoken languages. Much language support in the form of sign language can be provided to the deaf children. The Association of sign Language Interpreters has been launched in June 2007. Sign language interpreting is growing as a profession in India. There is a professional organization for Indian sign language interpreters, the Association of Sign Language Interpreters set up by The Rehabilitation Council of India offers interpreter training, maintains a National Directory of Interpreters, and provides training to teachers of the deaf. Other government agencies like Ali Yaver Jung offer Bachelor's degree in deaf education and has a website devoted to jobs for the deaf in India.[9]

In 1920 , there were only 10 schools for the deaf in India but now there are around 130 Deaf schools in India in all states out of which maximum numbers are in Andhra Pradesh (20),Tamil Nadu(20), Gujrat (18), Orissa (17), Kerala (11), and Karnataka (10). [9]

The estimated number of ENT specialists and otologists in India are around 7000 and 2000, respectively. The audiologist to population ratio was found to be 1:500 000 and the ratio of speech therapists to the deaf population was 1:2000[2]. A total of 25% of Indian children under the age of 14 require the support of an audiologist and a speech language pathologist (ASLP). At present there are only 1567 registered ASLP in India [11] which is too little to fulfill the need. In addition the maximum numbers of professionals are based in cities which accommodate less than 30% of Indian population. Most of the training institutes are in cities and function on an IBR (Institution Based Rehabilitation) model.

PREVENTIVE MEASURES

A variety of procedures are used in hearing screening programs for infants and neonates. However any test for screening must be non-invasive, less time consuming and pose no risk of injury to the infant; it should be highly sensitive and specific and should not be affected by the environment and the test should correctly identify auditory status in both high risk and well baby population if it is to be used in universal hearing screening programs (UNHS). The Joint Committee on Infant Hearing recommends identification of hearing loss by 3 months and commencement of intervention by 6 months of age [13.]

In India, different states are adopting UNHS at least in high risk cases as identified by pediatricians.

Cochin has adopted a centralized Hearing screening program way back in 2000. OAE is the most evolutionary and surprising auditory phenomenon which has changed the diagnosis of hearing loss in newborn. In India aural rehabilitation is initiated by the parents hence gets significantly delayed. As per study conducted in eastern India children with HI are detected at a mean age of 3.03 years and aural rehabilitation commences by a mean age of 7.38yrs[12]. Various factors have been identified to explain this delay including child rearing practices, ignorance about the importance of intact hearing sensitivity and critical age for speech development along with lack of aural rehabilitation services [12].

REHABILITATION

According to WHO, current production of hearing aids meets less than 10% of global need. In developing countries, less than one out of 40 people who need a hearing aid get the one. The lack of availability of services for fitting and maintaining hearing aids, and the lack of batteries are problems in many low-income countries [1]. Making properly-fitted, affordable hearing aids and providing accessible follow-up services in all parts of the world will benefit many people. Some hearing aid companies have India subsidiaries eg Widex and Phonak which has given free hearing aids to children in India. India also has its own hearing aid manufacturers, such as Elkon and Arphi[9].

People who develop hearing loss can learn to communicate through development of lip-reading skills, use of written or printed text, and sign language. Teaching in sign language will benefit children with hearing loss, while provision of captioning and sign language interpretation on television will facilitate access to information. Deaf people in the country are reportedly working towards a single sign language. Indian sign language (ISL) is a loose collection of mutually overlapping dialects spoken by up to 1,500,000 or more users. Primary dialects are Delhi, Kolkata, Mumbai and Bangalore-Chennai Signs. Delhi dialect is the most influential. Over 75% of signs from all regions are related. Dialects are not related to deaf school usage, but vocational programs often use it.[9]

Another important part of rehabilitation is Cochlear implant. Approximately 324,000 people worldwide have received cochlear implants till 2012, maximum cases in are in developed countries due to the high cost of the device, surgery and post-implantation therapy. In India, only about 5,000 cases are done. CIGI- Cochlear Implant group of India was started in 2003 with 15 centers across and 500 operated cases till now. Implant manufacturing company does not give India subsidiaries.

CONCLUSION

WHO has stresses upon the significant shortage of human resources to address the issue of deafness all over the world. In a human resource driven society like ours, the socioeconomic burden of deafness causes lag in growth. Recognition of this fact is slowly gaining ground.

The strategies included in the NPPCD, if implemented with political will and strong leadership will decrease the magnitude of ear problems and prevent avoidable deafness in India and partnerships with different organizations, professionals and personnel remain critical to the success of the program. In the supportive environment facilitated by the launch of NPPCD, it is imperative to take firm and enthusiastic actions to reduce the burden of deafness in India. It is crucial to understand factors which delay the commencement of aural habilitation in children. Alleviating the factors will help reducing the delay to an extent in a developing country like India where universal newborn hearing screening programs is yet to begin at a national level. This article attempts to convince public health expert, administrators and policy makers that Hearing loss is a public health issue, should be dealt very seriously and on priority bases.

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Acute Febrile Illness with Thrombocytopenia- a Common Scenario

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ABSTRACT

Introduction : Acute febrile illnesses lead to a significant level of morbidity among the population. The major groups of these fever patients are the ones suffering from malaria, leptospirosis, dengue, chickungunya, scrub typhus, infectious mononucleosis, typhoid fever, acute human immunodeficiency virus conversion disease and so on. Presence of thrombocytopaenia helps clinicians in assessing the severity of the illness.

Objectives : An attempt to determine the importance of thrombocytopenia in diagnosing etiologies of acute non-specific febrile illness.

Methodology : About 130 Patients presenting with acute febrile illness without any obvious etiology of less than two-three weeks were selected. Clinical details were noted and then subjected for routine blood counts, Malaria, Widal and Dengue card test . Card test for Chikungunya and Liver function test was done in selected patients.

Results : Of the 130 patients 33% of patients had Thrombocytopenia. In thrombocytopenia cases 41.86% patients were positive for Malaria, 32.55% of patients were reactive for dengue, 4.65% were reactive for chikungunya, No etiology was found in 20.94% cases. On statistical analysis there was a significant association of thrombocytopenia with Dengue and Malaria cases. No significant association was found with Widal and Chikungunya cases.

Conclusion : Finding of thrombocytopenia in patients with acute febrile illness raises the suspicion of Dengue and malaria infection. This simple and routine laboratory parameter may be used in addition to clinical findings to heighten the suspicion and prompt initiation of the therapy.

Keywords: *Acute febrile illness, thrombocytopenia, Dengue, malaria.*

INTRODUCTION

Acute febrile illnesses (AFI)lead to a significant level of morbidity among the population, but along with the morbidity they are also an important and major cause of mortality in the patients suffering during this period. The major groups of these fever patients are the ones suffering from malaria, leptospirosis, dengue, chickungunya, scrub typhus, infectious mononucleosis, typhoid fever, acute human immunodeficiency virus conversion disease and so on, but a significant number includes mixed infections with the previously mentioned agents, while a few others still remained unidentified.[1,2]

Local prevalences of individual diseases influence the prioritization of the differential diagnoses of a clinical syndrome of acute undifferentiated febrile illness.[3]

Presence of thrombocytopaenia helps clinicians in assessing the severity of the illness. Therefore it is critical for health care professionals to be able to detect thrombocytopenia among patients with acute non-specific febrile illness. It can help to identify a serious underlying etiology.[4]

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The objective of this study was to determine the importance of thrombocytopenia in diagnosing etiologies of acute non-specific febrile illness presenting to the outpatient clinics.

MATERIALS & METHOD

This prospective study was conducted at Sri Siddhartha Medical College and Research Centre over a period of 3 months. A total of 130 patients presenting with acute febrile illness of less than 2 weeks duration without any obvious etiology were selected. Patients were excluded if localized source of infection could be identified. Clinical details were noted and then they were subjected to routine blood counts, test for malaria , WIDAL and dengue. Tests for chikungunya and Liver function tests were done in selected patients.

Their clinical features and laboratory results were recorded using standard collection sheet and data was analysed by using SPSS version 10.0. Chi-square test was used to test the significance, statistical significance was set at p value of <0.05.

RESULTS

Out of 130 patients who presented with acute febrile illness of less than 2 weeks duration, 33.08% of patients i.e. 43 had thrombocytopenia as shown in Table 1.

Table 1. Number of patients with thrombocytopenia

Platelet count	Number of cases	Percentage
<1.5 Lakhs	43	33.08%
≥1.5 Lakhs	87	66.92%
Total cases	**130**	**100%**

On assessing the severity of thrombocytopenia, Mild(Platelet count-1-1.5 lakhs/cmm) was observed in 60.46% cases, moderate(Platelet count 0.5-1.0 lakhs/cmm) in 37.22% cases, Severe(platelet count-<0.5 lakhs/cmm) in 2.32% cases as shown in Table 2.

Table 2. Severity of thrombocytopenia

Thrombocytopenia cases	No of cases	Percentage
Mild	26	60.46%
Moderate	16	37.22%
Severe	01	2.32%
Total	43	100%

Of the 130 patients who presented with Acute febrile illness, 29.1% of males had normal platelet count, and 21.7% had thrombocytopenia and amongst females, 27.66% had normal platelet count and 31.55% had thrombocytopenia. The mean age at presentation among males was 28.18yrs and among females was 26.2years.

Out of 43 cases with thrombocytopenia 41.86% patients were positive for Malaria, 32.55% of patients were reactive for dengue. 4.65% were reactive for chikungunya, No etiology was found in 20.94% cases as shown in Table 3.

Table 3. Cases of thrombocytopenia diagnosed with dengue, malaria and chikungunya

Cases	No of patients	Percentage
Positive for Malaria	18	41.86%
Reactive for Dengue	14	32.55%
Reactive for chikungunya	02	4.65%
No etiology found	09	20.94%
Total thrombocytopenic patients	43	100%

Table 4. Lab investigations for Dengue, Malaria, Widal, Chikungunya.

	Lab parameters		Platelet count normal	Thrombocy topenia	χ^2	p-value	Result
Dengue card test	DENG Ag	NR	86	35	10.033	<0.001	HS
		R	1	8			
	D Ig M Ab	NR	85	32	14.842	<0.001	HS
		R	2	11			
	Deng Ig G	NR	86	38	4.995	0.0.025 (<0.05)	Sig
		R	1	5			
Malaria		Positive	8	25	33.857	<0.001	HS
		Negative	79	18			
Widal		R	4	0	0.789	0.374	NS
		NR	83	43			
Chikengunya		R	0	2	0.808	0.369 (>0.05)	NS
		NR	11	7			

On statistical analysis there was a significant association of thrombocytopenia with Dengue and Malaria cases. No significant association was found with Widal and Chikungunya cases as shown in Table 4.

Of the 43 patients diagnosed with thrombocytopenia, Anaemia was seen in 65.11% cases. Leucopenia in 58.13% cases. LFT's were done in 23patients, and 5 out of 23 had a raised AST and ALT.

DISCUSSION

The majority of thrombocytopenic patients present around day 3 of fever or later. Hence requesting a complete blood count on all patients with undifferentiated fever for more than two days should be recommended in order to detect thrombocytopenia.[4]

Hematological abnormalities are common finding in falciparum malaria. Thrombocytopenia often accompanies falciparum infection and is usually mild to moderate but very rarely symptomatic. In acute febrile illness finding of thrombocytopenia along with anaemia is an important clue for diagnosis of malaria.[5,6]

The frequency of thrombocytopenia in falciparum malaria ranges 60-80% according to previous studies. In our study, 75% of the patients had thrombocytopenia. This is comparable to results of studies by Robinson et al, Memon AR, Ansari S, Rodriguez et al and Hayat AS et al showing thrombocytopenia in 71%, 70%,69%,59% and 70% respectively. [6]

The exact mechanism of thrombocytopenia in falciparum malaria is unknown but decreased thrombopoiesis, sequestration of platelets by

macrophages in the spleen, immune-mediated lysis and hypersensitive platelets, have all been postulated. The hypersensitive (hyperactive) platelets produce increased quantities of platelet-specific proteins such as beta thromboglobin (β-TG), platelet factor 4 (PF$_4$), thromboxane A$_2$ and prostacyclin. The hyperactive platelets may enhance hemostatic responses and that is why bleeding episodes are very rare in acute malarial infections, despite significant thrombocytopenia.[6]

The pathogenesis of anemia in malaria is multifactorial. A complex chain of pathogenetic processes involving mechanical destruction of parasitized RBC's, marrow suppression, ineffective erythropoiesis and accelerated immune destruction of nonparasitized RBC's have been implicated.[7]

Dengue infection is the most common arthropod-borne infection in the tropics where it carries significant morbidity, mortality and immense economic burden to the countries affected. Diagnosis of dengue infection is supported if there is thrombocytopenia, the presence of which often signify more serious type of dengue infection.[2]

Thrombocytopenia is common in DF(Dengue fever) and always found in DHF/DSS (Dengue hemorrhagic fever/Dengue shock syndrome). The pathogenesis of thrombocytopenia is poorly understood. Dengue virus-induced bone marrow suppression decreases platelet synthesis, an immune mechanism of thrombocytopenia caused by increased platelet destruction appears to be operative in patients with DHF.[8,9] The major pathophysiologic hallmarks that determine disease severity and distinguish DHF from DF and other viral hemorrhagic fevers are plasma leakage due to increased vascular permeability and abnormal hemostasis. Hypovolemic shock occurs as a consequence of, and subsequent to, critical plasma volume loss. Abnormal hemostasis including increased capillary fragility (positive tourniquet test and easy bruising at the site of venepuncture), thrombocytopenia, impaired platelet function, and consumptive coagulopathy in the most severe form disseminated intravascular coagulation (DIC) contribute to varying degrees of hemorrhagic manifestations.[9]

Thrombocytopenia was seen in 86.66% of the patients diagnosed with dengue in our study. The finding of high percentage of dengue patients with thrombocytopenia in our study was also noted in other studies involving adult dengue patients. It ranges from 67.9% to 97%. However, presence of thrombocytopaenia among patients with acute non-specific febrile illness increases the odds of dengue by three times and absence of thrombocytopaenia decreases the odds by almost six times among patients with acute non-specific febrile illness. This shows that thrombocytopaenia is more useful as the criterion in ruling out acute dengue infection virus than diagnosing dengue infection.[2]

Of the 43 patients who presented with thrombocytopenia, two patients were reactive for Chikungunya and etiology was unknown in 9 patients.

Chikungunya is a re-emerging mosquito-borne viral infection that has spread from East Africa to Indian Ocean islands and has re-emerged in India. Fever, arthralgia and rash were the most common symptoms. Three out of five patients had mild thrombocytopenia in their study thrombocytopenia have been observed in patients with chikungunya in various studies.[10] In our study, 20 patients were tested for chikungunya and 2 were reactive, which was diagnosed on immunochromatography card. Both patients had mild degree of thrombocytopenia.

Liver Function tests were done in patients who presented with fever with vomiting and abdominal pain. Of the 43 patients with thrombocytopenia, LFT's were done in 23 patients. 18 patients had normal LFT and 5 patients had raised ALT and AST and 4 cases were reactive for dengue card test.

CONCLUSION

In conclusion, we found a high frequency of mild to moderate thrombocytopenia in cases diagnosed with malaria and dengue. In addition to thrombocytopenia, patients diagnosed with malaria also had anemia. Therefore finding thrombocytopenia in patients with acute febrile illness raises the suspicion of Dengue and malaria infection in regions which are endemic to these infections. This may be used in addition to clinical findings to heighten the suspicion and prompt initiation of the therapy.

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Potential Risk Factors for Cardiac Autonomic Neuropathy in Type 2 Diabetic Individuals in Rural Population of North Karnataka by Heart Rate Variability Analysis – a Cross Sectional Study

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ABSTRACT

Cardiac Autonomic Neuropathy (CAN) is one of the major complications of Diabetes Mellitus (DM) since its presence is associated with worsening prognosis and poorer life quality. Heart Rate variability (HRV) which is early detector and a sensitive cardiac indicator can be used for early detection of complications among DM patients. The risk of developing autonomic dysfunction in DM depends on several factors but most of the studies have not reported it evidently. Hence this study was undertaken to determine the potential risk factors of CAN in T2DM individuals of rural population of north Karnataka. This study was carried out at three rural Primary Health Centers under administrative control of Jawaharlal Nehru Medical College, Belgaum, Karnataka, India. The associations of various risk factors with prevalence of CAN among diabetes individuals were assessed by chi-square tests analysis. P value < 0.05 was considered as statistically significant. Age, duration of diabetes, gender and diet were significantly associated with prevalence of CAN estimated by HRV analysis.

Keywords: *Cardiovascular autonomic neuropathy, type 2 diabetes mellitus, heart rate variability, risk factors.*

INTRODUCTION

Diabetes mellitus (DM) is well known for chronic complications particularly the triad of neuropathy, retinopathy and nephropathy, which have a close correlation with the metabolic abnormalities characteristic of diabetes. Neuropathy especially autonomic neuropathy is the most common complication of diabetes which is not investigated so frequently. Impaired autonomic regulation of cardiovascular functioning is an established complication of diabetes mellitus and an independent predictor of diabetes-related mortality.[1] The

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prevalence of cardiac autonomic neuropathy (CAN) is approximately 25% and 34% among individuals with type 1 and type 2 Diabetes Mellitus, respectively.[2]

Early detection of CAN is possible using non-invasive tests that include analysis of heart rate variability (HRV), which is derived from electrocardiogram measures of variability in the continuous sampling of the R-R interval. HRV is conventionally quantified by time domain measures that summaries total variability in the deviation of R-R intervals from a mean R-R value, or variability in the differences between adjacent R-R intervals which is indicative of vagal-heart rate modulation. Frequency domain measures are obtained by spectral analysis of recurrent cycles of R-R variation within established frequency bandwidths that correspond to sympathetic, vagal and non-neural modulation of the sinus node cycle length.[3,4]

It has long been known that cardiovascular autonomic diabetic neuropathy (CADN) is associated

with a loss of heart rate variability.[5,6] These patients have a poor cardiovascular prognosis with a 5-year mortality greater than 50%. Some of this may be attributed to micro- or macro vascular disease.[7, 8] However, a recent study has shown the relatively poor prognosis of patients with CADN, even in the absence of clinically detectable micro- or macro vascular conditions.[9] Clinically detectable autonomic failure is usually evident many years or decades after the onset of diabetes. It is likely that these patients develop subtle deficits in HRV much earlier, and these may include diminution in time-domain analysis. Detection of such changes may be used as markers of pathology, particularly to study the benefits of therapeutic interventions.

Diabetic neuropathy is thought to involve a metabolic disorder in which there is increased sorbitol production from glucose and decreased myo-inositol content within the nerve, resulting in slowed conduction velocity. However, like diabetes itself, diabetic neuropathy is probably a heterogeneous disorder not fully explained by a single pathogenic mechanism. As the degree and duration of hyper-glycemia do not fully explain the prevalence of neuropathy, other factors, perhaps both metabolic and vascular, may be involved in the pathogenesis of diabetic neuropathy. The risk of developing autonomic dysfunction in DM depends on several factors. However, two of them are well established in the literature and are common to both type 1 and 2 DM: Duration of disease and the degree of glycemic control. [10, 11, 12] The pathogenesis of diabetic neuropathy is not fully understood, and its risk factors remain obscure. Hence, this present study was undertaken to find out potential risk factors for CAN in T2DM individuals in rural population of north Karnataka.

MATERIAL & METHOD

Study design: A community based cross-sectional study.

Study site and duration: The study was carried out in three Primary Health Center (PHC) areas Handignur, Vantamoori and Kinnaye, associated with J.N.Medical College, Belgaum (North Karnataka), India during Aug. 2009 to Aug. 2012. The study was approved by the JNMC Institutional Ethics Committee.

Inclusion criteria: Individuals with typical symptoms of T2DM, physician diagnosed patients as T2DM (FBG≥126mg/dl), individuals aged 30 years and above.

Exclusion criteria: Individuals who declined for informed consent, not available at home after repeated visits, pregnant women/who had delivered a baby weighing ≥4.5Kg, women who had gestational diabetes, individuals with psychological and endocrinal disorders.

Sample Size and Sampling Method: The sample size was calculated based on data from prevalence study conducted in rural areas of Mysore District (lowest being 3.8%) which are geographically and socio-culturally similar to the study area. Considering error of 1% with 95% confidence level, the screening sample size was estimated to be 3000.The detailed sample size calculation and sampling method is published elsewhere[13]. Informed consent was obtained from the participants. Detailed methodology for Blood glucose, Blood pressure, Anthropometry measurements and socioeconomic history and Family history of DM are published elsewhere.[14]

HEART RATE VARIABILITY ANALYSIS

Participants were asked to report to the primary health center or nearby main sub centers between 9am to 1pm. Subjects were instructed to abstain from smoking, caffeine, tea and strenuous physical activity 2 hours prior to testing and also avoid taking any anti-cholinergic drugs and alcohol 2 days prior to testing on earlier day.

HEART RATE VARIABILITY RECORDING (HRV)

Participant's basal systolic blood pressure (SBP), diastolic blood pressure (DBP) and heart rate (HR) were measured on the right arm as described by Walker et al (1992 using a semi-automated BP monitor Omron digital BP monitor model 11 EM-403c, Tokyo Japan).

After comfortable strapping and rest for 5 min on the couch, ECG was recorded using disposable Ag/AgCl electrodes in standard lead II configuration. ECG (lead II) recording were done (speed of 25mm/sec and voltage at 10mm/mV) for 5 min by using INCO two channel Digital Physiograph Model :EPR-2 manufactured by NIVIQUIRE, data acquisition

system, version 56.1.1, Bangalore instrument and chemicals Pvt Ltd., Model town, Ambala city – 134003, Haryana (India).A continuous recording of ECG signal was done for 5 min and suitable sections were taken out leaving behind the time of onset. It was ensured that the temperature of the recording room was maintained at room temperature (22-28) before and after the E.C.G. recording. Heart rate variation during normal breathing for a period of 5 minutes was recorded, in supine position, awake and resting.

DATA RECORDING

ECG data in standard lead II configuration was acquired using portable ECG acquisition equipment (Niviqure Meditech Systems, Bangalore, India).The data gathered was subjected to time domain and frequency domain analysis of heart rate variability HRV. Time and Frequency domain analysis was performed using non-parametric method of Fast Fourier Transformation. Data was edited manually for artifacts and ectopic beats. HRV software (NIVIQURE ECG SOFTWARE for HRV studies Ver. 52.0.0) used a peak detection algorithm to find the 'R' wave, which was done at a re-sampling rate of '4 Hz'. A minimum of 256 data points was required to perform a spectral analysis. To attain 256 data points a duration of 5 minutes of ECG recording was required. The short term HRV analysis parameters subsequently quantified into Basal HR(bpm), R-R interval(ms), SDNN (ms) (standard deviation of NN intervals), RMSSD (ms) (square root of mean squared differences of successive NN interval), pNN50 (%) (Proportion derived by dividing NN50 by the total number of NN interval) and HRV Triangular Index and Low frequency (0.04-0.15Hz) in ms², High frequency (0.15-0.4Hz) in ms²LF (nu),HF (nu), LF/HF ratio.[15]

STATISTICAL ANALYSIS

Descriptive statistics was used to assess the frequency distribution and to estimate the prevalence in study area. Student unpaired' test was used to estimate the mean values of test parameters in diabetic participants. The association of various risk factors with cardiac autonomic neuropathy among diabetes individuals was assessed by Chi-square test analysis. Odds ratio of potential risk factors for CAN were calculated by logistic regression analysis. Statistical analysis was performed using statistical

analysis package for Social Science (SPSS) version 16.0. P-value ≤0.05 was considered significant.

RESULTS

The study included 3000 participants for screening of type 2 diabetes with response rate of 89.28% (2684). A total of 474 T2DM (299 known diabetes and 175 newly diagnosed diabetes) were identified from the 2684 screened participants, prevalence of DM being 17.7%. All the 474 T2DM individuals were tested for cardiac autonomic dysfunction by heart rate variability analysis.

Table 1 reveals the association of various variables with SDNN, RMSSD, pNN50 and HRV TI in T2DM individuals. There was significant association of age and duration of diabetes with SDNN, RMSSD, pNN50 and HRV TI whereas other variables such as gender, family history of diabetes, BMI, substance abuse, central and truncal obesity did not show significant association with time domain test parameters. In present study, RMSSD and LF/HF ratio were considered as predictor variables to estimate the CAN in T2DM individuals as per the recommendations of Task Force European Society of Cardiology. Table 1 also reveals that the predictor variable RMSSD was significantly associated with gender and diet whereas pNN50 was significantly associated with gender and HRV TI was significantly associated with diet.

 Table 2 reveals the association between various variables with frequency domain parameters. There was significant association of LF/HF ratio with age groups and duration of diabetes whereas there was no significant association with gender, family history of diabetes, BMI, substance abused, central or truncal obesity.

The results of logistic regression analysis done by time and frequency domain method have been shown in table 3. Four out of nine variables appeared as approximately significant predictors of CAN. In accordance with their importance of participant's age, duration of diabetes, diet and gender differences have shown statistically significant effect on CAN. Whereas participant's truncal obesity, central obesity, family history of diabetes, substance abuse and BMI did not show significant effect as a predictors for CAN.

In univariate and multivariate analysis referral category of age was considered as 30-39. Participants

belonging to 40-49, 50-59, ≥60 of age group showed higher risk of developing CAN Multivariate analysis showed participants with age ≥60 having higher risk of developing CAN and where as 30-39 age group has shown least risk for developing CAN. In univariate and multivariate analysis referral category of duration was considered as newly diagnosed diabetics. Participants having duration of diabetes ≤5years and above 6 years showed higher risk of CAN compare to referral category. Multivariate

analysis has shown higher risk in developing CAN in above 6 years category. In diet category vegetarian diet was considered as referral category for univariate and multivariate analysis. Participants having non-veg diet shown higher risk factor for developing CAN. In gender category male was considered as referral category for univariate and multivariate analysis. Female participants showed higher risk for developing CAN.

Table1:- Association of various variables with time domain parameters by Chi-Square test

Variable	Category of Variable	SDNN		RMSSD		pNN50		HRV TI	
		Ab (%)	P value	Ab (%)	P value	Ab (%)	P value	Ab (%)	P value
Duration of diabetes(Years)	Newly detected	8.6		3.4	0.001*	6.3	0.001*	25.7	0.001*
	≤5Years	92.1	≤0.001*	94.7		97.4		97.4	
	6-10	96.7		100.0		99.2		98.4	
	≥11	96.4		99.3		100.0		97.8	
AGE Groups	30-39	21.7		8.7		8.7		39.1	
	40-49	18.8	≤0.001*	21.5	0.001*	22.2	0.001*	38.9	0.001*
	50-59	89.8		88.3		91.4		93.0	
	≥60	86.6		87.2		87.7		86.0	
Gender	Male	67.3	0.234	70.8	0.017*	70.8	0.048*	73.8	0.372
	Female	61.8		59.8		61.8		69.9	
Family History of T2DM	No	58.9	0.280	60.0	0.400	62.1	0.511	67.4	0.342
	Yes	64.9		64.6		65.7		72.3	
BMI	≤18.9	60.0		40.0		40.0		40.0	
	19-24.9	60.2	0.614	58.3	0.319	61.2	0.357	67.0	0.267
	25-29.9	67.0		67.0		68.4		73.7	
	≥30	61.8		63.7		63.7		72.0	
Central obesity	No	62.5	0.541	64.0	0.877	65.6	0.757	70.4	0.624
	Yes	65.2		63.3		65.0		72.4	
Truncal obesity	No	66.1	0.297	66.5	0.217	68.7	0.100	73.0	0.417
	Yes	61.5		61.1		61.5		69.7	
Diet	Veg	58.3	0.162	53.9	0.012*	54.8	0.089	61.7	0.009*
	Mixed	65.5		66.9		68.2		74.4	
Substance abuse	Nonsmoker	65.0	0.392	64.7	0.518	65.3	0.847	73.1	0.857
	Smoker	60.8		61.5		64.3		67.1	
	Nonalcoholic	63.0	0.609	62.5	0.345	62.8	0.089	71.1	0.842
	Alcoholic	65.6		67.2		71.2		72.0	
Overall %	Total	63.7		63.7		65.0		71.3	

Table 2: Association of various variables with frequency domain parameters in T2DM individuals by Chi-square test

Variable	Category of Variable	LF/HF ratio	
		Ab (%)	P value
Duration of diabetes(Years)	Newly detected	1.1	≤0.001*
	≤5Years	84.2	
	6-10	97.6	
	≥11	97.1	
AGE Groups	30-39	4.3	≤0.001*
	40-49	16.7	
	50-59	88.3	
	≥60	83.8	
Gender	Male	66.1	0.079
	Female	57.8	
Family History of T2DM	No	58.9	0.686
	Yes	61.2	
BMI	≤18.9	40.0	
	19-24.9	59.2	0.645
	25-29.9	63.2	
	≥30	59.2	
Central obesity	No	59.7	
	Yes	62.0	0.608
Truncal obesity	No	61.7	
	Yes	59.8	0.672
Diet	Veg	51.3	
	Mixed	63.8	0.017*
Substance abuse	Nonsmoker	61.9	
	Smoker	58.0	0.426
	Nonalcoholic	59.6	
	Alcoholic	64.0	0.387
Overall %	Total	60.8	

Table 3: Univariate regression analysis in T2DM individuals by time and frequency domain method

Risk Factors	Category	Time domain analysis			Frequency domain analysis		
		Unadjusted OR	95%CI	P value	Unadjusted OR	95%CI	P value
Age groups	30-39	1	-		1	-	
	40-49	2.88	-	≤0.001*	4.40	-	≤0.001*
	50-59	79.10	-		165.73	-	
	≥60	71.22	-		113.79	-	
Duration of diabetes	Newly diagnosed	1	-	≤0.001*	1	-	
	5Years	5.07	-		461.33	-	≤0.001*
	Above 6years	7323.33			3460	-	
Diet	Veg	1	-		1	-	
	Nonveg	0.58	0.37-0.91	0.017*	0.21	0.1-0.44	0.079
Gender	Male	1	-		1		
	Female	0.64	0.42-0.99	0.012*	0.60	0.38-0.93	0.017*

DISCUSSION

The present study was aimed to evaluate the potential risk factors for developing CAN in T2DM individuals. Assessment of CAN was done by short term HRV analysis. In present study, RMSSD and LF/HF ratio were considered as predictor variable to estimate CAN in T2DM individuals as per the recommendations of Task Force European Society of Cardiology (15). It was observed that the parameters of HRV were decreased and parameters of HRV depicting parasympathetic modulation of heart were further decreased as compared to parameters assessing the sympathetic modulation in T2DM individuals.

CAN, Autonomic Nervous System and HRV analysis

Cardiovascular autonomic neuropathy (CAN) occur when peripheral autonomic fibers (sympathetic and parasympathetic) of the cardiovascular system (CVS) are affected, thus resulting in neurohormonal regulation disturbances. In clinical practice, this modulation is usually assessed by the well-known study of heart rate variability (HRV), which means an analysis of spontaneous and induced fluctuations that occur in HR (or in the electrocardiographic RR interval) as a result of ANS sympathetic and parasympathetic activities on sinus node automaticity. European task force society of cardiology strongly recommends HRV analysis to be a good indicator test for cardiac autonomic neuropathy.

Association of various risk factors with time domain parameters:-

The present study showed that duration of diabetes and age were significantly associated with time and frequency domain parameters, which indicate that the CAN was more prevalent in diabetics with longer duration and advanced age. The findings of this study are in agreement with those of Voulgari et al., who mentioned that in type 2 DM patients, CAN has been independently associated with longer diabetes duration and the presence of microvascular complications.[16] Knuiman et al. studied 179 individuals with insulin-dependent diabetes mellitus (IDDM) and found that age at diagnosis (younger) and duration of diabetes (longer) were important time-related risk variables.[17] This may be due to the fact that as age and duration of diabetes increases in

diabetes individuals, the hyperglycemias, production of advanced glycation products, disturbance in sorbitol pathway and metabolic activities and increased peripheral resistance due to loss of elastic properties of vessel have an impact on the nerve damage which leads to diabetic neuropathy.

In context to gender, the sex differences was significantly associated with time domain parameters such as RMSSD and pNN50 parameters showing parasympthathetic demodulation in males compared to females, where as it was negatively correlated with LF/HF ratio . The present study showed that the male diabetic participants were more prevalent to develop CAN compared to female diabetic participants. It was also observed that the HRV parameters were decreased in correlation to gender. The study conducted by Robert P. Nolan on 155 female and 106 male participants showed similar correlation of gender with decrease in HRV component.[18,19]

In context of diet, it was observed that diet was significantly associated with time domain variables as RMSSD and HRV triangular index showing parasympthathetic deceleration in diabetic individuals having mixed diet. Similar results were showed by studies reported by Knuiman M W who has screened 1218 people having 70% prevalence of diabetes and estimated prevalence of diabetic complication in relation with risk factors.[17, 21]

In present study substance abuse such as alcohol and smoking, BMI, family history of diabetes and obesity were not significantly associated with prevalence of CAN. The present study showed negative correlation as compared to the study conducted by Christiansen J S on juvenile insulin dependent diabetes in the year of 1978 and also review study conducted by vilink I Aaron in the year 2007.[20, 21, 22, 23, 24,25]

CONCLUSION

It was also observed that the risk factors such as advanced age and duration of diabetes were significantly associated with prognosis of CAN. This study may be useful in creating awareness of diabetes and its complication in rural population of this region. The present study will be useful in local modifications in planning, implementation and evaluation of the program on diabetes complication. Therefore, future research in this direction is a need of hour.

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Prevalence of Anaemia in Geriatric Population with Analysis of Associated Co-morbidities: a Hospital Based Study

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ABSTRACT

Introduction: Anaemia in the elderly population is more commonly observed   and is often multifactorial, with multiple factors contributing to the problem in an individual patient [2].

Aims: This study was done to evaluate the prevalence of anaemia in geriatric population and to analyze its associated co-morbidities.

Materials and method: This was a hospital based study conducted at haematology unit, Department of Pathology, JJM Medical College, Davangere, India**.** This study was done over a period of one year. 100 patients over the age of 65 years of either gender attending the outpatient departments of the hospital who were found to be anaemic on clinical examination were included in the study. These patients were further evaluated for associated co-morbidities.

Results: In the present study, a total of 100 (hundred) cases were included, out of which 51(51%) cases were males and 49(49%) cases were females. Majority of the cases i.e. 69(69%) were in 65-74 years age group. Majority were normocytic anemia was found to be the most common type (58), followed by microcytic anemia (33), macrocytic anemia (7) and pancytopenia (2).

Conclusion: Anemia is a significant problem in elderly patients and it should not be simply considered as a process of aging. Evaluating the underlying etiological factors of anemia in geriatric population aids in the early treatment of the same which in turn helps in improving the overall outcome and quality of life.

Keywords: *Elderly, Iron-Deficiency Anemia, Chronic Kidny Desease.*

INTRODUCTION

Anemia is a common concern in geriatric age group. In this population, it can have significantly more severe complications than in the younger adults and can greatly hamper the quality of life.[1]

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According to the third National Health and Nutrition Examination Survey (NHANES III) carried out in the United States, the prevalence of anaemia was 11% in community dwelling men and 10.2% among women > 65 years of age.[2]

Studies indicate that the prevalence of anemia increases with advancing age and under age 75 years, anemia is more common in females, but over age 75 years it is more common in males.[3] Anaemia signifies an underlying disease and is associated with increased morbidity and mortality. It can be underdiagnosed in this age group as the symptoms of anaemia can be

attributed to the ageing process.[4]

Anaemia can impair quality of life as well as cognitive and physical functions and is a co-morbid condition that affects other diseases (e.g. heart disease, cerebrovascular insufficiency) and is even associated with a risk of death. Thus, anaemia should not be accepted as a consequence of aging and must be explored.[4] Multiple pathophysiologic abnormalities in a single patient are well known. Rectification of any of these abnormalities contributes significantly to overall improved outcome with respect to physiological parameters as well as quality of life.[1]

This study was done to evaluate the prevalence of anaemia in geriatric population and to analyze its associated co- morbidities in geriatric patients.

MATERIALS & METHOD

This is a prospective study done over a period of one year (July 2012 – June 2013). 100 patients over the age of 65 years of either gender attending the outpatient departments of the hospital who were found to be anaemic on clinical examination and laboratory findings were included in the study. These patients were further evaluated for associated co-morbidities. Patients diagnosed of malignancy and receiving chemotherapy and/or radiotherapy were excluded from the study.

A detailed clinical history was taken and a thorough physical examination was carried out according to pre-designed proforma for arriving at a provisional diagnosis. Relevant investigations including pathological, biochemical, microbiological and radiological tests were taken into account for formulating the final diagnosis. Preliminary haematological work-up which includes, complete blood counts (sysmex 1800i five part differential counter), ESR and peripheral smear interpretation was carried out followed by higher investigations like, bone marrow study, serum iron profile (fully automated biochemistry analyzer rx Daytona by randox laboratory), acute phase reactants, etc wherever required. Appropriate statistical analysis was done.

OBSERVATIONS & RESULTS

In the present study, a total of 100 cases were included, out of which 51(51%) cases were males

and 49(49%) cases were females. Majority of the cases i.e. 69(69%) were in 65-74 years age group followed by 26(26%) cases were in 75-84 years age group and 05(5%) cases in 85years and above age group.

In the present study, 34 patients had their hemoglobin between 10 to 11g/dl, 43 patients between 8.0 to 9.9 g/dl, 13 patients between 6.0 to 7.9g/dl and 10 patients had their hemoglobin less than 6g/dl.

Out of 100 patients, 58 patients had normocytic anemia, 33 patients had microcytic anemia, 7 patients had macrocytic anemia and 2 patients had pancytopenia. Associated co-morbidities were seen in 83 cases (83%) which are shown in table 1.

Table 1 shows co-morbidities associated with anemia in the present study.

Associated co- morbidities	No. of patients
Chronic kidney disease	21
Malignancy	13
Tuberculosis	6
COPD	6
Osteoarthritis	8
Rheumatoid arthritis	4
Inflammatory bowel disease	2
Hook worm infestation	2
Peptic ulcer	8
Barrett's esophagus	1
GERD	9
Post menopausal bleeding	3
Total	83

MICROCYTIC ANEMIA

33 patients had microcytic anemia. Among them, 15 were males and 18 were females. 15 patients were vegetarians and 18 patients were non - vegetarians. Out of 33 patients, only 5 had underlying chronic inflammatory diseases (3 osteoarthritis, 2 renal diseases).

Estimation of serum ferritin levels among them shows that 15 patients had serum ferritin levels <20ng/ml, 5 patients with ferritin levels >100ng/ml had no evidence of iron deficiency and 13 patients had serum ferritin levels between 20 – 100ng/ml shown in(table 2).

Table 2: Shows severity of iron deficiency based on serum ferritin levels.

Etiological type of anemia	No. of patients	Serum ferritin levels
Iron deficiency anemia	15	<20ng/ml
	13	20 – 100ng/ml
Anemia of chronic disease	5	>100ng/ml

Further analysis revealed that most common cause of iron deficiency to be chronic blood loss through gastrointestinal tract followed by underlying malignancy and nutritional deficiencies. Endoscopic findings were seen in 25 patients of iron deficiency anemia and rest 3 had post menopausal bleeding (table 3).

Table 3 shows endoscopic findings in iron deficiency anemia.

Endoscopic findings	No. of patients
Hook worm infestation	2
Peptic ulcer	9
Colorectal carcinoma	2
Gastric carcinoma	2
Barret's esophagus	1
GERD	9

Normocytic anemia: 58 patients had normocytic anemia. Among them, 28 were females and 30 were males. 35 patients were vegetarians and other 23 were non-vegetarians. 50 of them had underlying chronic inflammatory diseases, 8 cases had no underlying pathology.4 out of 58 patients were positive for stool occult blood test. None of the patients had serum ferritin level <20ng/ml and 58 patients with ferritin levels >100ng/ml had no evidence of iron deficiency. Analysis of patients depending on the underlying etiological conditions revealed that majority of the patients had anemia of chronic disease (table 4).

Table 4 shows causes for anemia of chronic diseases presenting as normocytic anemia.

Causes of anemia of chronic disease	No. of patients
Chronic kidney disease	19
Malignancy	8
Tuberculosis	6
COPD	6
Osteoarthritis	5
Rheumatoid arthritis	4
Inflammatory bowel disease	2

MACROCYTIC ANEMIA

7 patients had macrocytic anemia. Among them, 2 were females and 5 were males. 5 were vegetarians and other 2 were non-vegetarians. None of the patients were positive for stool occult blood. Serum ferritin in all patients was >100ng/ml. Bone marrow findings in all patients shows megaloblastic anemia responded for B_{12}/folate therapeutic trial.

Pancytopenia: 2 had pancytopenia. Among them, 1 was female and other was male. Both patients' bone marrow findings show megaloblastic anemia which responded to B_{12}/folate therapy.

DISCUSSION

Anemia among the older population used to be considered as a part of the normal physiological process of aging.[4] Hemoglobin levels should not vary due to age alone in elderly patients who are free of disease with bone marrow that is not stressed. Whether anemia is a marker or mediator of disease is not always clear, but it is usually a signal of pathology and is associated with increased morbidity and mortality.[5] Thus, anemia is no longer viewed as a natural physiological change of an accompaniment of aging.[6]

Anemia of chronic disease is the most common form of anemia in the elderly which may be the cause for highest prevalence of normocytic anemia. Associated diseases found in present study were mainly chronic diseases, for e.g. malignancy, renal diseases, chronic inflammatory diseases etc. Although to identify the causes of anemia, detailed investigations have to be done.[5]

In the present study, anemia was more common in males than females. This is comparable to the results obtained by Amit Bhasin et al[1] and Guralink JM et al[7]. Most common pattern of anemia in the present study has been normocytic accounting for 58%, 33% of them had microcytic, 7% had macrocytic and 2% of them had pancytopenia. This closely correlates with Amit Bhasin et al[1] whose study shows that normocytic anemia is the most common pattern accounting for 62% and also with Elies et al.[8]

Amit Bhasin et al[1] study shows that 34 % men and 25% women had iron deficiency anemia. Our study closely correlates with this study. In our study, 29.4% of men and 26% women had iron deficiency anemia.

According to Joosten E et al,[9] anemia of chronic disorders and iron deficiency anemia were the most common causes of anemia. This closely correlates with our study. Amit Bhasin et al[1] study shows that 48% had anemia of chronic disease and 22% of patients were found to have renal failure. This closely correlates with our study. In our study, 55% had anemia of chronic disease and 21% of patients had chronic kidney disease.

In our study, in patients with iron deficiency anemia, an upper gastrointestinal lesion was found in 78.5% of patients. This closely correlates with Amit Bhasin et al[1]. Their study shows that 78.6% of patients with iron deficiency anemia had an upper GI lesion. A GI malignancy was detected in 5% of patients in our study (1 esophageal, 2 gastric and 2 colorectal). This closely correlates with Amit Bhasin et al[1] in whose study, 6.66% of patients had a GI malignancy.

In our study, 7 patients had macrocytic anemia 2 patients had pancytopenia. On bone marrow examination, all were found to be megaloblastic. In our study, 8% of patients had no obvious underlying cause. Beghe et al[10] showed that 14-50% of anemic elderly had no obvious underlying cause.

Some of the cases in present study had other associated illness like diabetes mellitus, hypertension, congestive cardiac failure, cerebrovascular diseases, fracture, whose etiopathogenetic relation to anemia could not be established as such these conditions were not included under co-morbidities.

CONCLUSION

Anemia is a common, multifactorial condition among older adults that is associated with increased mortality and poorer health-related quality of life, regardless of the underlying cause of the low hemoglobin. Failure to evaluate anaemia in elderly could lead to delayed diagnosis of potentially treatable conditions. It is important that anaemia in elderly receive adequate attention in clinical practice and not be considered simply a normal part of ageing.

Conflict of Interest: None

Source of Funding: Self

Ethical Clearance – Taken from standards of institutional committee.

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Relationship between Physical Fitness and Academic Performance in School Going Children's

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ABSTRACT

Objective: - Schools are increasingly scaling back physical education programs in favor of increasing time spent on academic subjects lay down the foundation of poor fitness and academic performance. The link between physical activity and academic performance is not well understood in Indian Population, which aided to find the association between physical fitness and academic achievement in school going children's.

Methodology: - 190 children's participated in this study, whose physical fitness were evaluated by President's challenge physical fitness test and academic performance was computed to grade point average (GPA). Pearson correlation coefficient was used to find the linear relationship between GPA and physical fitness.

Result: - A positive correlation was established between academic achievement and physical fitness(r=0.74 P<0.05).

Conclusion: - The children's who are physically fit showed good academic performance as compared to under fit Children's.

Keywords -: President's challenge physical fitness test, Grade point average (GPA).

INTRODUCTION

Over the last few decades, children's physical activity levels have dramatically changed. Outdoor physical play is increasingly being replaced by less physical indoor activities, Children are increasingly being driven to school by car or bus instead of cycling or walking, and participation in organized sports is declining[17]. The children were not developing in a manner that befits their age and their poor fitness could

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pose serious physical, medical and psychological problems. Physical movements of the body are vital for normal brain development[19]. More than ever before, children today find themselves playing video games, watching television, or occupying themselves on the computer on the weekends and after school. In fact, there is a growing concern regarding the number of children who are living a sedentary lifestyle[15]. Consequently, children are becoming more and more immobile with health concerns which include being overweight, childhood obesity, high blood pressure, depression, and other diseases and trepidations. These health concerns can linger for long periods of time, if not for a lifetime[13].

Research has been conducted concerning movement suggesting its benefits. The most commonly researched use for movement is certainly for the purpose of physical exercise directly impacting the body[4]. The correlation between movement and

health has been researched including the importance of cardiac, muscle, joint, and pulmonary functioning [5], and even psychological functioning [8]. Regular physical movement has been proven to have a positive relationship with the healthy functioning of all of these areas [12]. In addition to the physical benefits of movement, researchers have found relationships between the amount of movement one participates in and cognitive functioning [4]. Regular physical activity increases the amount of oxygen delivered to the brain, which increases children's capacity to learn [7]. Allowing oxygen to flow to the brain enables one to cognitively function and make decisions.

In reviews of physical activity and academic performance, a researcher concluded that student attention was likely to be greater in an active rather than in a sedentary student[5] .This relationship have recently been studied more, but there is still a paucity of research to establish the relationship between physical fitness and academic performance in Indian population.

METHODOLOGY

Subjects: Out of 202 students, 190 (96 boys and 94 girls) were recruited for the study of age group 9 to 13 years. After the approval from the Institution Ethical Committee SKNCOPT Pune (Approval letter Academic/2012/184), verbal and written assent from their parents and School Principal were consented. The President's Challenge Physical Fitness Test was used to assess the physical fitness of children and the academic data was determined based on the academic scores achieved during the first quarter of current school year. Before conducting any physical fitness test, investigators considered the medical status of each individual to identify any medical or health problems. Throughout the testing, students are informed on the proper technique for each event. In order to increase the validity of the collected fitness data, students are already familiarized with the physical fitness tests.

Instrumentation: President's Challenge Physical Fitness Test

The President's Challenge Physical Fitness test, consists of five different physical fitness components, which includes abdominal muscular strength/endurance, cardiopulmonary endurance, speed, agility, and flexibility [10] which are shown in Figures

1- 5. The results for each test give a percentile ranking for the student performing the physical fitness test. The given percentile scores are based on age to indicate physical fitness levels. Students fall within a "Needs Improvement," "Basic," or an "Outstanding" fitness levels. An "Outstanding" level of physical fitness is having an 85th percentile or higher, and a "Basic" level of physical fitness is equitable to a 50th – 84th percentile rank, and below the 50th percentile will be identified as having a "Needs Improvement" physical fitness level [10].

ACADEMIC ASSESSMENT

Grade Point Averages (GPA's) were used to determine academic achievement in this study. GPA's were calculated from the first quarter of the school year summary marks for English/Language Arts, Mathematics, Science, and Social Studies were used. The GPA was determined by calculating an average of these five subjects and graded as A+, A & B+ grade which is shown in table - 4.

DATA ANALYSIS

Data was collected and analyzed to determine if a relationship exists between the President's Challenge Physical Fitness Test scores and the academic achievement of Grade Point Averages (GPA's). All five areas were entered in Microsoft Excel for each subject involved in the study. A mean raw score for all subject were calculated. The mean percentile score for each student determined whether each subject had an "Outstanding" physical fitness level, "Basic" physical fitness level, or a "Needs Improvement" physical fitness level. Medians, frequencies, and standard deviations were also calculated, with the help of Microsoft Excel. The physical fitness scores and GPA's, were entered into Microsoft Excel. Using the SPSS Program (Version 20), Pearson correlation coefficient was computed for analyzing the relationship between Physical fitness and academic grade point average.

RESULTS

The descriptive data such as: age, Body mass index, Physical fitness and Academic percentage were tabulated in the Table – 1. The body mass index were calculated based on the percentile where ; 34.21% of children's were at risk of overweight,27.36% of children's were overweight and 7.89% were underweight(Table- 2). The

physical fitness percentiles were categorized for children's where: 16.32% needs improvement in physical fitness, 50% had basic physical fitness and 33.68% showed outstanding physical fitness (Table-3). There were 35.8% of children's scored B+ (50 – 64%), 40.6% children's scored A (65 to 74%) and 23.6%chidrens scored A+(>75%)(Table -4). Overall academic performance showed positive correlation with academic performance (r=0.74 p< 0.03)(Table-5). Academic Performance showed positive moderate correlation with physical fitness components i.e.; with agility(r=0.72, *p*<0.01), with upper body strength (r=0.68, *p*<0.05), with abdominal core strength (r=0.62, *p*<0.05), and with body mass index it showed negative correlation (r=–0.54, *p*<0.05).Whereas Academic performance showed no correlation with flexibility and cardiopulmonary endurance (Table-5).

DISCUSSION

The results of this study provided positive correlations between physical fitness and academic achievement, which coincide with existing literature that has found a link between physical fitness and academic achievement. Sibley and Ethnier (2003) conducted a meta-analysis that confirmed a slight significant relationship exists between physical activity and cognitive performance in children[14]. Almond & McGeorge, Black, (1995 &1998) suggested that the benefits of physical education are related to academic achievement[1]. Both physical activity and participation in sports were found to be independently associated with a higher Grade Point Average (GPA) for high school girls [6]. Again, these findings indicate a positive relationship between physical activity involvement and academic achievement among students.

Results of various cross-sectional studies indicated that: "children who are physically fit perform cognitive tasks more rapidly and display patterns of neurophysiological activity indicative of greater mobilization of brain resources than do less fit children"[18]. Colcombe, Kramer, Erickson, Scalf, McAuley, and Cohen (2004) found that performing exercise on a regular basis for several weeks can alter the way the brain functions that control cognition and behavior[2,3, 9,11,16]. Numerous mechanisms have been proposed to explain the relationship between physical activity & cognition. This mechanism can be categorized in to two broad categories: - Physiological mechanism & Learning/ developmental mechanism. The physiological mechanism, such as increased cerebral blood flow, alterations in brain neurotransmitters, structural changes in the central nervous system & modified arousal levels are based on physical changes in the body brought about by exercise. The Learning/ development mechanisms state that movement & physical activity provide learning experiences that aid, and may even be necessary for proper cognitive development.

LIMITATION & FUTURE SCOPE

The reason one can offer for obtaining a varying correlation between physical fitness subcomponents, and academic performance can be the method of teaching, learning difficulties, and level of motivation among the students which were not addressed in this study. Further research with appropriate research methodology is required, to analyze teaching methods, motivational status and nutritional status of children's. Finally, prospective studies are needed, to determine the cause and effect relationship of these observations.

Table -1 Descriptive Data of Subjects

S.no	Parameters	Mean	Standard Deviation
1	Age	9.60	2.35
Physical fitness			
2	Abdominal Core Strength (No of Curl ups)	10.5	3.3
3	Agility (Seconds)	14.73	5.62
4	Cardiopulmonary Endurance Seconds)	18.53	8.42
5	Upper body Strength (No of Pushups)	11.4	4.5
6	Flexibility (cm)	5.4	2.3
7	Academic Percentage (GPA)	75.2	15.5

T**able – 2 Body Mass Index Distributions**

S.no	Types	Frequency (No.)	Distribution Percentage
1	Under weight	15	7.89
2	Healthy Weight	58	30.52
3	Risk of Overweight	65	34.21
4	Obese	52	27.36

Table – 3 Physical fitness level Distribution and descriptive statistics

S.no	Types	Frequency (No.)	Distribution Percentage	Median	Standard Deviation
1	Needs Improvement < 50% percentile	31	16.32	38.4	6.42
2	Basic level 50 – 84% Percentile	95	50	64.68	9.03
3	Outstanding >85% Percentile	64	33.68	83.53	8.64

Table – 4 Academic performances (GPA) distribution and descriptive statistics

S.no	Types		Frequency (No.)	Distribution Percentage	Mean	Standard Deviation
1	Grade- B+	50- 64%	68	35.8	55.45	6.84
2	Grade- A	65- 74%	77	40.5	71.2	2.58
3	Grade – A+	>75%	45	23.6	84.4	3.24

Table – 5 Pearson correlations of Academic performance with Physical Fitness

Parameters	Statistical Test	Academic performance (GPA)
Overall Physical Fitness	Pearson Correlation	0.74
	Sig(2-tailed)	0.03*
Body mass index	Pearson Correlation	- 0.54
	Sig(2-tailed)	0.05*
Abdominal Core Strength	Pearson Correlation	0.62
	Sig(2-tailed)	0.05*
Agility	Pearson Correlation	0.72
	Sig(2-tailed)	0.01**
Cardiopulmonary Endurance	Pearson Correlation	0.32
	Sig(2-tailed)	0.10
Upper body Strength	Pearson Correlation	0.68
	Sig(2-tailed)	0.05*
Flexibility	Pearson Correlation	0.21
	Sig(2-tailed)	0.12

* = $P<0.05$, **= $P<0.01$

FIGURES

Figures - 1: Abdominal Strength and Endurance (Sit-Ups)
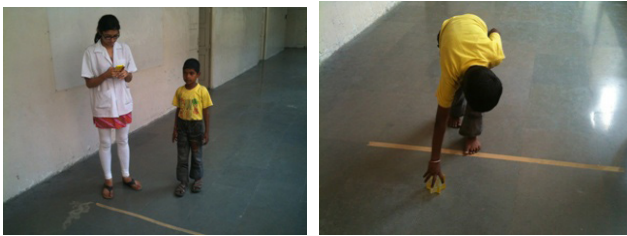
Figures - 2: Agility (Shuttle Run)

Figures - 3: Cardiopulmonary Endurance (Mile Run)

Figures - 4: Upper Body Strength and Endurance (Pull-Ups)

Figures – 5: Flexibility (Sit and Reach)

CONCLUSION

The children's who are physically fit showed good academic performance as compared to under fit Children's. This study aimed to find the impact of physical fitness on children's academic performance. Therefore, the results should be interpreted cautiously. It is a possibility that extraneous variables could have affected the results of this study that have to be evaluated in the future.

SIGNIFICANCE OF THE STUDY

This study will be beneficial to the teachers as they will understand the relationship between physical health and academic achievements of their students. This study will also help counselors to inculcate physical activity in to their behavior therapy used for treatment so as to enhance child's learning problem. This study will help parents to understand the cause of poor academic performance of their child & would be able to provide appropriate physical activity to their children.

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Rapid Identification of Mycobacterium Tuberculosis & NTM by RT-PCR

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ABSTRACT

TB ranks as the second leading cause of death from infectious diseases worldwide Tuberculosis still remains one of the deadliest infectious diseases in the world[1]. As per world health organization (WHO) estimation, 8 million new cases have been detected and 3 million people die from this disease every year (WHO report 2002)[2]. Despite several control programs, Tuberculosis continues to be a leading cause of mortality and morbidity in India. As per the current disease rate, every minute one Indian is dying due to TB[3]. TB is a leading cause of death among people who are HIV positive. Over 11million people are dually infected with TB and HIV worldwide. A thorough understanding of the disease and its etiological agent, the clinical presentation, the epidemiology of TB, the role of various intervention strategies and efficient application of diagnostic tools are important for a successful control of tuberculosis spread[4].

Keywords: *TB-Tuberculosis, WHO-World health organization, NTM-Non Mycobacterium Tuberculosis & RT-PCR-Real time Polymerase chain Reaction*

INTRODUCTION

TB has had many aliases throughout history. According to ancient Greeks it is phthisis (to waste). The swollen glands of the neck were called scrofula. It was called The Kings Evil in medieval times because newly crowned kings of England and France were believed to have powers to heal TB with their touch[1]. TB of the skin was known as lupus vulgaris. TB of the bone as Potts disease with characteristic vertebral fusion and deformity of the spine. It was also popularly known as White Plague[5].

The currently referred name Tuberculosis was derived from the word tubercles, lesions appear in the lungs during the course of the disease. According to World Health Organization (WHO), TB is the single most common cause of death in individual's aged 15-49 especially in low-income countries[1]. Among adults,

tuberculosis (TB) is the leading cause of death due to a single infectious agent[6]. In the developing world it causes more than 25% of avoidable adult deaths. Tuberculosis still is a leading killer among infectious diseases[7]. As per current WHO data, one Indian is dying at every one minute due to Tuberculosis. The *Mycobacterium tuberculosis* complex organisms are Gram-positive, non-motile, slightly curved Bacilli, belonging to the family of Actinomycetales[8].

There are five closely related *Mycobacterium* grouped in the tuberculosis complex: *M. tuberculosis, M. bovis, M. africanum, M. microti, and M. canetti. Mycobacterium tuberculosis* is transmitted through the airborne route and there is no known animal reservoir[9]. *Mycobacterium bovis* may penetrate the gastrointestinal mucosa or invade the lymphatic tissue of the oropharynx when ingested in milk containing large numbers of organisms. Human infection with *M. bovis* has decreased significantly in recent times[10].

TB is considered as highly contagious and the mode of transmission usually through air. Droplet nuclei are produced when persons with pulmonary

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or laryngeal tuberculosis cough, sneeze, speak, or sing. They also may be produced by aerosol treatments, sputum induction, and aerosolization during bronchoscopy, and through manipulation of lesions or processing of tissue or secretions in the hospital or laboratory[11]. Droplet nuclei, containing two to three *M. tuberculosis organisms,* are so small that air currents normally present in any indoor space can keep them airborne for long periods of time[12]. Droplet nuclei are small enough to reach the alveoli within the lungs, where the organisms replicate. Although patients with Tuberculosis generate larger particles containing numerous bacilli, these particles do not serve as effective vehicles for transmission of infection because they do not remain airborne, and if inhaled, do not reach alveoli[13]. Other modes of infections are through GI tract (rare, by ingestion of contaminated milk) and through the skin (also rare). Four factors determine the likelihood of transmission of *M.tuberculosis[12]:* (1) the number of organisms being expelled into the air, (2) the concentration of organisms in the air determined by the volume of the space and its ventilation, (3) the length of time an exposed person breathes the contaminated air, and (4) presumably the immune status of the exposed individual. HIV-infected persons and others with impaired cell mediated immunity are thought to be more likely to become infected with M. tuberculosis after exposure than persons with normal immunity[11].

MATERIALS & METHOD

Sample size: patients during the study period 2013-2014 Our tertiary care centre, Wanless Hospital Miraj medical centre Miraj India is a multi-specialty tertiary care centre. All hospitalized patients who admitted in ICU, dialysis unit, with broad spectrum antibiotics and patients who had exposed to antifungal drugs are included in this study. Detailed clinical history, laboratory investigations and management of each patient were recorded prospectively and analyzed.

The study was carried out over a period of twelve months, from August 2013 to July 2014. The study protocol was approved by the institutional ethics committee and written informed consent was recorded from each of the study subjects. A total of 28 TB positive isolated 11 in BAL, 09 in asicitic fluid, CSF 07 & 01 in urine the isolates by using RT-PCR bitron kits for amplification & DNA extraction by qigen including Internal, Positive & Negative controls 28 Mycobacterium Tuberculosis identified by RT-PCR &

33 are found to be NTM Species.

Table Number-1

No of Samples	Sample	TB	NTM
01	**BAL**	11	17
02	Asicitic fluid	09	13
03	CSF	07	00
04	Urine	01	03

DISCUSSION

Over several decades tuberculosis species are an important cause for pulmonary & extra pulmonary infection but now days the extra pulmonary infection is increasing as compared to pulmonary infection[12]

Conventional diagnosis method like Z-N staining cannot differentiate TB & NTM and culture is an time consuming so such condition the RT-PCR can help to diagnose TB&NTM within 2 hours it will help for treatment of TB patients & isolation of such patients.

In case of NTM infection as this infection is not transmitted by aerosols and even we can make decision for starting TB treatment & for sensitivity as our study not included any sputum samples but we can also observe increasing in extrapulomary TB infection this is might be due to immunocomprimised status of patients

All TB positive samples we referred for sensitivity by MGIT system where we can detect MDR, XDR & TDR so it is very important to come up more labs to setup identification of these TB with drug sensitivity with fastest results to fight against this deadly organism.

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Knowledge and Practice of Anganwadi Workers about the Ongoing National Adolescent Girls Anaemia Prophylaxis Programme: a Study in the Rural Villages of Odisha

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ABSTRACT

Background: In India, constituting over 113 million adolescent girls, prevalence of anaemia is around 56% with a wide range from 33% reported from Andhra Pradesh to 98% in Rajasthan. Govt. of India and state govt.s with technical support from UNICEF and partners have started the Adolescent Girls Anaemia Control Programme since over a decade. The main objective is to reduce the prevalence and severity of anaemia by regular supply of IFA and deworming tablets to school going adolescent girls by making schools as the delivery channel and to out of school girls at the Anganwadi centers, where Anganwadi workers are the key persons in the implementation of this programme. **Objective**: To study the knowledge of Anganwadi workers regarding anaemia and its impact on the health of adolescent girls and the ongoing WIFS (Weekly iron folifer supplementation programme). **Material & method**: It was a cross-sectional study carried out in 30 villages of Khorda district, Odisha, selected by cluster sampling technique. 30 Anganwadi workers were interviewed to find out their knowledge about anaemia, its effect on the health of the adolescents and their role in counselling and distribution of IFA tablets in their village. **Results:** 50% of the AWWs were giving IFA tablets in the prescribed dosage and only 30% were aware about the duration of the supplementation. Almost 43.3% were completely ignorant about anaemia and its complications.

Keywords: Anganwadi workers, Adolescents, WIFS.

INTRODUCTION

Adolescents constitute about 25% of the population and form an important physiological group whose nutritional needs demand special attention. The overall iron requirement of the body increases during this period.[1] During adolescent period the risk of Iron deficiency and anaemia among boys and girls appears to be more due to growth spurt and in girls it remains as such during their reproductive life.[2] Anaemia is more prevalent in adolescent girls as a result of expansion of lean body mass, total blood volume and additional blood loss due to menstruation, which has a negative effect on their survival, growth, development and health of their children later in their lives. Iron deficiency is the most widespread form of malnutrition among women and children. In India, anaemia affects an estimated 50% of the population.[3] Girls constitute a vulnerable group, particularly in developing countries where they are traditionally married at an early age and exposed to a greater risk of reproductive morbidity and mortality. Adolescence represents a real opportunity to make a difference in lifelong patterns.[3,4] The added burden of menstrual blood loss, normal or abnormal precipitates the anemia too often.[5]

In India, home to nearly 113 million adolescent girls, the prevalence of anaemia is estimated to be 56%. There is a large variation seen inside the country

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with the lowest prevalence of 33% being reported from Andhra Pradesh to highest of 98% in Rajasthan.[6] Seeing the magnitude of this problem, the Govt. of India and state governments with technical support from UNICEF and partners have been implementing for over a decade. The Adolescent Girls Anaemia Control Programme.[7-10] The main objective of the programme is to reduce the prevalence and severity of anaemia in school going adolescent girls using schools as the delivery channel and in out of school adolescent girls using the community Anganwadi center of India i.e. ICDS Programme as the delivery platform.[11,12]

As Anganwadi Workers are the key persons in the implementation of the IFA supplementation and not much studies have been made over this aspect of the WIFS (Weekly Iron & Folic acid supplementation) programme, this study was carried out to study the knowledge and practice of the Anganwadi Workers regarding their role in IFA supplementation and associated counselling and advice to adolescent girls.

OBJECTIVE

• To study the knowledge of Anganwadi Workers regarding anaemia and its effects on adolescent girls and the ongoing WIFS programme.

• To find out whether they are carrying out the programme activities like distributing IFA tablets to adolescent girls on weekly basis and counselling regarding proper diet and menstrual hygiene.

MATERIALS & METHOD

It was a cross-sectional study carried out in 30 villages of Khordha district, Odisha which were selected by cluster sampling technique and 30 anganwadi workers were interviewed to find out their knowledge about anaemia and its effect in adolescent girls and their role in distribution of IFA tablets to adolescent girls in their respective anganwadi centers and also their role in counselling about Nutrition and Menstrual hygiene.

RESULTS

Table1: Interview of the Anganwadi Workers

Response of Anganwadi Workers (N=30)		Frequency (%ge)
Heard about Kishori Shakti Yojana	Yes	30 (100)
Who are the beneficiaries?	Adolescent girls	30 (100)
Their role in the programme?	Distributing IFA tablets	24 (80)
	Counselling about prevention of anaemia	23 (76.67)
	Create awareness about programme	13 (43.33)
Giving IFA tab to adolescent girls	Yes	24 (80)
How many IFA tabs you give at a time?	One/week	15 (50)
	Four/month	5 (16.7)
	Confused (didn't give clear answer)	10 (33.3)
For how long it should be taken	Yes, up to 19 years	11 (36.7)
	Don't know	19 (63.3)
Counselling the girls about their health and menstrual hygiene?	Yes	29 (96.7)

Points discussing during counselling	Nutrition	29 (96.7)
	Menstrual hygiene	29 (96.7)
	Benefits of IFA tabs	07 (23.3)
	HIV/AIDS	02 (6.7)
Receiving sufficient amount of IFA	Yes	27 (90)
Receiving IFA tablets in time?	Yes	26 (86.7)
Knowledge regarding anemia	Bloodlessness	14 (46.7)
	Level of Hb <12gm%	06 (20)
	Lack of concentration	09 (30)
	Generalised weakness	10 (33.3)
	Don't know	13(43.3)
Knowledge about complications of anaemia	Weakness	27 (90)
	Complications during pregnancy and childbirth	11 (36.7)
	Others	14 (46.7)
	Don't know	03 (10)

Out of 30 AWW s interviewed 15 had completed Higher secondary education and 18 (60%) had experience of more than 10 years in their respective field.

Almost all of them were aware about Kishori Shakti Yojana (KSY) and all knew that the beneficiaries were adolescent girls. 24 (80%) agreed that they are distributing IFA tablets to adolescent girls regularly, 23 (76.67%) of them were counselling the girls regarding prevention of anaemia, but only 13 (43.33%) told that they were creating awareness regarding KSY. About dosage schedule 15 of them were given one IFA tablet per week and 5 of them were giving 4 tablets per month.

Regarding the time period of IFA distribution, only 11 of them knew that it should be given up to 19 years regularly. 29 (96.7%) of the Anganwadi Workers agreed upon counselling adolescent girls regularly about their health, hygiene and menstruation. 7 (23.3%) of them were counselling about benefits of IFA tablets and only 2 (6.7%) of them were counselling regarding prevention of HIV/AIDS.

When enquired about supply 27(90%) of them were receiving IFA tablets in sufficient amount and 26 (86.7%) were getting it in time.

Regarding their knowledge when enquired about anaemia, 14 (46.7%) of the AWWs told about bloodlessness, 6 (20%) of them knew its Hb% less than 12gm%, 9 of them told about lack of concentration and 10 of them knew its generalized weakness, but unfortunately 13(43.3%) were completely ignorant.

When asked about complications of anaemia, 27(90%) of them knew it would lead to generalized weakness, 11(36.7%) were aware that this may lead to complications during pregnancy and childbirth, 46.7% (14) told about other complications like increased menstrual bleeding, lack of concentration etc, but 3 (10%) of them were completely ignorant about it.

DISCUSSION

The awareness about kishori shakti yojana was good and 80% agreed that they were distributing IFA tablets to adolescent girls regularly, 76. 7% of them were counselling the girls regarding prevention of anaemia, 43.33% told that they were creating awareness regarding the programme. Though the awareness among workers was good but creating awareness among beneficiaries by them was not up to mark.

Only 36.7% of them knew that it should be given up to 19 years regularly. 96.7% of the anganwadi workers agreed upon counselling adolescent girls regularly about their health, hygiene and menstruation is essential. Only 23.3% were counselling the adolescent girls about benefits of IFA tablets and only 6.7% of them were counselling regarding prevention of HIV/AIDS. A re-orientation programme is needed for anganwadi workers so that they can counsel the adolescent girls effectively.

Regarding their knowledge when enquired about anaemia, 46.7% of the AWWs told that it is bloodlessness, 20% of them knew that anaemia was Hb% less than 12gm%, 30% of them told about lack of concentration and 33.3% of them knew anaemia is generalized weakness, but 43.3% were completely ignorant. The workers who are working in the programme should be updated in knowledge about the condition and the programme. Regarding complications, the knowledge is also lacking which is very essential.

CONCLUSION

The key persons involved at the community level for prevention of anaemia among adolescent girls were anganwadi workers, but on the contrary as an important stake holder of the programme most of them are ignorant regarding anaemia, its preventive measures, the complications if not treated in time and even the benefits of Iron and Folic Acid tablets, which is a major drawback in the implementation of the programme at the community level.

So there is a great need for the capacity building of the anganwadi workers which will help to counsel mothers and adolescent girls on various aspects of Health and Anaemia control. Supervised WIFS consumption and recording of the programme adherence through registers and girls self reporting cards is essential.

Ethical Clearance: Ethical clearance from the Institutional ethical committee, IMS & SUM Hospital was obtained.

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Coping Styles in Suicide Attempters Attending a Peripheral Medical College of West Bengal

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ABSTRACT

Background: Various researches in India failed to show diagnosable psychiatric disorders in Deliberate Self Harm (DSH). Faulty coping styles in stressful life situations are the key to the cause of this distinct type of suicide.

Objective: To study the difference in coping mechanism of two distinct group of suicide –'Failed suicide' and 'Deliberate Self Harm'.

Material & Method: It is a cross sectional study. Seventy consecutive patients, surviving a suicide attempt, were studied for suicide intent and coping strategies, using specific scales. Grouping was done by the dimension of suicide intent. Coping strategies were looked for their significant distribution accordingly in various groups.

Results: Median value of suicide intent was 16. 28(40%) subjects were the DSH and 42(60%) were Failed Suicide survivors. In Brief Cope scale DSH group showed significantly difference in the Emotional support (p=0.001) , Positive Reframing (p=0.007), Acceptance(p=0.049), Instrumental Support(p=0.014) – coping from Failed Suicide group.

Conclusions: DSH group had difference in their coping mechanism from Failed suicide group.

Key-words: *Suicide, Suicide intent, Deliberate Self Harm, Coping.*

INTRODUCTION

Deliberate Self Harm is a distinct group of suicide, significantly different from Failed Suicide group in the psycho-socio-demographic characters. Majority of Indian studies failed to show diagnosable

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psychiatric disorders in DSH group of suicide and Adjustment Disorder is one of the most important psychiatric disorder found in this distinct group of suicide. [1] Although people with mental illness do die by suicide in India, the contribution of such suicides to the high rate is small when compared with the number of suicides secondary to stress and conflict. The relationship between stress, impulsivity and suicide is widely agreed by mental health professionals in low and middle-income countries.

Prior suicidal behavior increases the risk

for subsequent death by suicide 10–60 fold. [2,3,4,5] Moreover, adolescents with depressive disorders and a history of DSH are a particularly high risk group for future repetition and completion of suicide. [3,4,5,6]

Coping behavior or the people's positive attitude to reduce the stress, has been a variable that has recently become the focus of research. [7] Coping behavior is operationally defined as the responses to external life stress that serve to prevent, avoid, reduce or control stress and emotional distress. Study reported a negative correlation with minimization, replacement, mapping, and reversal, and a positive correlation with suppression, blame and substitution in suicide victims. [8] It has been increasingly recognized in recent years that people who attempt suicide have certain individual predispositions, part of which is given by personality traits, like impulsivity, aggressiveness, and violent proneness. [9]

Deficiency in positive coping is one of the most important issues in Deliberate Self harm, which have tendency to repeat over time and may lead to complete suicide in future. [10] We aimed to find out the difference in coping strategies of Deliberate Self Harm, which makes its difference from our usual knowledge of suicide, particularly the Failed suicide group.

MATERIALS & METHOD

It was a cross sectional study, conducted in a peripheral medical college in West Bengal, India during the period of 2011-2012, by qualified doctors who collected data from 70 (seventy) (n=70) consecutive suicide attempt survivors admitted in medical inpatient ward, combined of both sex, fulfilling the inclusion criterion. Informed consent was taken from each study subject and the design was approved by local ethical committee. Inclusion criterion for the study were – 1) age $\geq$ 15 years 2) willing to participate and giving valid informed consent. The exclusion criterion were – 1) Mental retardation. 2) Cognitive impairment. Relevant data were then collected in especially designed semi structured socio demographic proforma, documenting socio demographic variables. We used two other instruments (specific scales) for our study–

1) Beck Suicide Intent Scale (BSIS) – it is a widely used, reliable and validated scale for measurement of suicide intent. Total collected score median value was taken to group the patient in DSH group (low suicide intent = less than the median value) and Failed suicide group (high suicide intent = greater than or equal to median value). [1]

2) Brief COPE Scale –It is abbreviated version of the COPE Inventory, presenting fourteen scales, all assessing different coping dimensions: 1) active coping, 2) planning, 3) using instrumental support, 4) using emotional support, 5) venting, 6) behavioural disengagement, 7) self-distraction, 8) self-blame, 9) positive reframing, 10) humor, 11) denial, 12) acceptance, 13) religion, and 14) substance use. Each scale contains two items (28 altogether). It has its usefulness in assessing trait coping (the usual way people cope with stress in everyday life) and state coping (the particular way people cope with a specific stressful situation) in various health related conditions. [11]

Collected data were then statistically analyzed for their significance using standard statistical procedure(MANOVA). Brief COPE Scale coping dimensions were looked for statistically significant distribution among two distinct group of suicide. All the psychiatric diagnoses were according to DSM IV-TR diagnostic criterion.

RESULT

The Socio demographic Characteristics (Age, Gender, Religion, Education, Occupation, Marital Status, Family type, Residence) and important suicide related history (Mode of suicide, Previous History of suicide attempt) of the population were given in Table -1.

Table – 1: Socio-demographic characters and related Suicide history

Age	Mean	27.74	
	Median	23.50	
	Std Deviation	11.92	
N = 70		Number /Count	(%)
Gender	Male	48	68.6
	Female	22	31.4
Religion	Hindu	60	85.7
	Muslim	10	14.3
Education	Illiterate	18	25.7
	Primary School	10	14.3
	Middle School	23	32.9
	High School	6	8.6
	College	13	18.6
Occupation	Unemployed	2	2.9
	Housewife	7	10
	Unskilled Worker	29	41.4
	Skilled Worker	6	8.6
	Professional	9	12.9
	Student	17	24.3
Marital Status	Married	47	67.1
	Single	23	32.9
Family Type	Joint	39	55.7
	Nuclear	31	44.3

Residence	Rural	52	74.3
	Urban	18	25.7
Mode of Suicide	OP Poisoning	50	71.4
	Kerosine Poisoning	1	1.4
	Sedative Overdose	11	15.7
	Acid Ingestion	2	2.9
	Hanging	5	7.1
	Lice Killer Poisoning	1	1.4
Previous H/O Suicide Attempt	None	57	81.4
	One - Two	13	18.6

Median Value of total BSIS score was 16. Total DSH group (Low intent) patients were 28(40%) and Failed suicide group (High intent) number was 42(60%). (Table-2)

Table-2: Suicide intent Score and its distribution

Total Score on Beck Suicide Intent Scale (BSIS)		Comment		Number (n)
Mean	16.00	Low Intent	BSIS< 16	28
Median	16.00			
Std Deviation	5.9368	High Intent	BSIS≥ 16	42

Mean value of various dimensions of Brief COPE Scale were according to Table-3. The value were given in respect of Intent and in total.

Table – 3: Descriptive Statistics (Brief COPE Score)

	INTENT	Mean	Std. Deviation	N
Self Distraction	Low Intent	4.7143	2.22539	28
	High Intent	4.7619	1.98543	42
	Total	4.7429	2.06900	70
Active Coping	Low Intent	5.3571	1.70434	28
	High Intent	5.1190	1.45170	42
	Total	5.2143	1.55006	70
Denial	Low Intent	2.0714	.37796	28
	High Intent	2.0000	.00000	42
	Total	2.0286	.23905	70
Substance Use	Low Intent	3.9286	2.69332	28
	High Intent	4.1190	2.76919	42
	Total	4.0429	2.72102	70
Emotional Support	Low Intent	6.3929	2.00627	28
	High Intent	4.6190	2.05951	42

Table – 3: Descriptive Statistics (Brief COPE Score) (Cont...)

	Total	5.3286	2.20488	70
Behavioral	Low Intent	4.8214	1.54089	28
Disengagement	High Intent	4.5952	1.59358	42
	Total	4.6857	1.56541	70
Venting	Low Intent	6.0357	2.23577	28
	High Intent	5.2143	1.90680	42
	Total	5.5429	2.06900	70
Positive Reframing	Low Intent	2.6786	1.27812	28
	High Intent	2.0952	.37020	42
	Total	2.3286	.89639	70
Planning	Low Intent	5.1786	1.56474	28
	High Intent	5.1905	1.51799	42
	Total	5.1857	1.52556	70
Humor	Low Intent	2.7857	1.25778	28
	High Intent	2.5952	1.25055	42
	Total	2.6714	1.24786	70
Acceptance	Low Intent	4.7500	1.89785	28
	High Intent	3.9286	1.52048	42
	Total	4.2571	1.71680	70
Religion Coping	Low Intent	4.9643	2.09907	28
	High Intent	5.5714	2.41078	42
	Total	5.3286	2.29506	70
Self Blame	Low Intent	4.9643	1.79469	28
	High Intent	5.1667	2.22970	42
	Total	5.0857	2.05534	70
Instrumental Support	Low Intent	6.1071	2.33078	28
	High Intent	4.7143	2.21178	42
	Total	5.2714	2.34627	70

Multivariate ANOVA Test for statistical significance and power of the study were given in Table -4.

Table -4: Multivariate ANOVA Test (Suicide Intent Vs Brief COPE)

Effect		Value	F	Hypothesis df	Error df	Sig.	Noncent. Parameter	Observed Power(a)
Intent	Pillai's Trace	.336	1.989(b)	14.000	55.000	.036	27.852	.896
	Wilks' Lambda	.664	1.989(b)	14.000	55.000	.036	27.852	.896
	Hotelling's Trace	.506	1.989(b)	14.000	55.000	.036	27.852	.896
	Roy's Largest Root	.506	1.989(b)	14.000	55.000	.036	27.852	.896

Statistical Significant distribution of various dimension of Brief COPE in respect of suicide Intent were given in Table-5, noted significance were found for Emotional Support (p=0.001), Positive Reframing (p=0.007), Acceptance (p=0.049) and Instrumental Support (p=0.014).

Table -5 : Tests of Between-Subjects Effects (Suicide Intent Vs Brief COPE)

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.	Noncent. Parameter	Observed Power(a)
Intent	SELF DISTRACTION	.038	1	.038	.009	.926	.009	.051
	ACTIVE COPING	.952	1	.952	.393	.533	.393	.095
	DENIAL	.086	1	.086	1.511	.223	1.511	.228
	SUBSTANCE USE	.610	1	.610	.081	.777	.081	.059
	EMOTIONAL SUPPORT	52.860	1	52.860	12.720	.001	12.720	.940
	BEHAVIORAL DISENGAGEMENT	.860	1	.860	.347	.558	.347	.090
	VENTING	11.336	1	11.336	2.714	.104	2.714	.369
	POSITIVE REFRAMING	5.717	1	5.717	7.817	.007	7.817	.787
	PLANNING	.002	1	.002	.001	.975	.001	.050
	HUMOR	.610	1	.610	.388	.535	.388	.094
	ACCEPTANCE	11.336	1	11.336	4.014	.049	4.014	.506
	RELIGION COPING	6.193	1	6.193	1.179	.281	1.179	.188
	SELF BLAME	.688	1	.688	.161	.690	.161	.068
	INSTRUMENTAL SUPPORT	32.593	1	32.593	6.382	.014	6.382	.702

DISCUSSION

Severe mental illness seems to be related to suicide when the rates are low (i.e. 10 per 100 000 population) but does not seem to contribute significantly when the suicide rates are high, as in India, where social, economic and cultural factors play a much greater part [12] Separating human distress from depression is difficult. [13] The depression seen in the community is often viewed as a result of personal and social stress, lifestyle choices or habitual maladaptive patterns of behavior. Consequently, the general population and general physicians often hold psychological and social models for depression and for suicide. Psychiatrists, with their biomedical frameworks, on the other hand, argue for disease models for these conditions. [14]

Although one can relabel distress secondary to life events and social circumstances as depression using the medical model, it does not reflect severe mental illness. A previous case–control study on risk factors for suicide in India, although documenting the

association between suicide and psychopathology, highlighted its association with adverse life events.[15] Qualitative data suggest that many in the general population view suicide as an option when faced with apparently insoluble personal difficulties and misfortune .

Coping constitutes constantly changing cognitive, behavioral and emotional efforts to manage particular external and/or internal demands that are appraised as taxing or exceeding the resources of the individual.[7] Coping skills are important protective factors against suicide. Study reported healthy coping behaviors such as minimization (ability to de-emphasize the burden of stressful events), replacement (ability to overcome stressful events by engaging in alternative behaviors), and mapping (ability to collect information for planning and to seek out alternative solutions to problems) were higher in controls. Amir et al 1999 reported negative correlation of healthy coping mechanisms such as mapping, minimization, and replacement and positive correlation of coping styles of suppression (avoiding the problem or situation) with suicide risk. [16] But studying further according to Brief COPE dimension we were able to differentiate significant coping strategies, used by DSH group of suicide survivors. Those were Emotional Support (mean–6.3929 ±2.006), Acceptance (mean-4.7500± 1.8978) and Instrumental Support (mean-6.1071± 2.3307). Though Positive Reframing was used more by DSH group than Failed suicide group, till it was low in their value (mean–2.6786 ±1.2781). DSH group used more Emotional Support (p=0.001), Positive Reframing (p=0.007), Acceptance (p=0.049), Instrumental Support (p=0.014) in their stressful life situation. Again those coping strategies were in the Problem focus coping area (planning, positive reframing, religion, instrumental support, active coping and emotional support), rather than those Emotion focus coping strategies (self-distraction, behavioral disengagement, venting, self-blame, denial and substance use). Coping theorists often emphasize the benefits of problem focused coping, such as acceptance, positive reframing, and turning to religion or spirituality. [17,18] A considerable number of research with various patient groups show that an increase in the functioning of spiritual or religious coping in the patients with diabetes decreases anxiety, depression, and hopelessness, and stimulates psychological functions, adaptation to the illness process, life satisfaction, and quality of life. [19,20,21] We also found that both the DSH group and Failed Suicide group lacks in coping dimension of Humor (mean-2.6714), Positive reframing (mean-2.6786), Denial (mean-2.0286).

CONCLUSION

1) DSH group significantly uses more coping strategies in the dimension of Emotional Support, Acceptance, Instrumental Support and Positive Reframing than the Failed suicide group.

2) Both the Failed suicide group and DSH group lacks in the use of Humor, Positive reframing, Denial – coping strategies in stressful life situation.

Future Cognitive- Behavioral approaches and other positive corrective coping strategies must look into these lacking areas to manage suicidal patients properly.

LIMITATIONS

1) It was not possible to include all self-harm patients presenting to the general hospital during the study period.

2) Follow-up information was not available for the patients in the study sample.

3) Some suicides might have been missed owing to their non attending psychiatric department out of stigma.

Conflict of Interest – None

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Prevention of Post Intubation Sore Throat by Inflating Endotracheal Tube Cuff with Alkalinized Lignocaine

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ABSTRACT

Background and objectives: Endotracheal intubation is a routine part of delivering general anaesthesia and pot intubation sore throat is the most common complaint following intubation. Cough, hoarseness, restlessness and PONV are other problems that follow intubation. Injury to the tracheal mucosa due to high intra cuff pressure is thought to be the cause for these problems. Inflating the cuff of an endotracheal tube with alkalinized lignocaine instead of air may decrease the incidence and severity of post intubation sore throat and other post intubation problems by preventing the rise in intra cuff pressure and also anaesthetizing the tracheal mucosa.

Method: The study population consisted of 200 ASA physical status I and II patients undergoing elective orthopedic, spine and general surgeries, who were randomly divided into two groups. In group I the endotracheal tube cuff was inflated with alkalinized lignocaine and in group II air was used to inflate the cuff. Following extubation, the patients were assessed for a 24 hour period for sore throat using VAS scores and for cough, hoarseness, restlessness and PONV using a binary(yes/no) scale.

Results: The mean VAS score for sore throat in the alkalinized lignocaine group at 15 minutes was 22.15 ± 3.64 mm and in the air group it was 39.15 ± 5.17 mm. At 24 hours, the VAS score for sore throat in the alkalinized lignocaine group was 4.15 ± 2.5 mm and in the air group it was 19.1 ± 4.16 mm. The incidence of cough, hoarseness, dysphonia and restlessness in the alkalinized lignocaine group was 25%, 18%, 12% and 18% respectively and in the air group it was 70%, 64%, 32% and 41% respectively.

Interpretation and Conclusion: From the present study it can be concluded that inflating the cuff of an endotracheal tube with lignocaine 40 mg + NaHCO3 (Alkalinized Lignocaine) can significantly decrease post intubation sore throat and other post intubation problems like cough, hoarseness, dysphonia and restlessness. Hence it is a safe and easy practice to inflate the cuff of an endotracheal tube with alkalinized lignocaine instead of air.

Keywords: Endotracheal intubation, endotracheal tube cuff, alkalinized lignocaine, air, sore throat.

INTRODUCTION

Endotracheal intubation is a routine part of delivering general anesthesia. Post operative sore throat is the most common complaint following tracheal intubation. Though not an incapacitating problem, it can be an uncomfortable one[1]. It occurs in 90% of the intubated patients and is referred to as endotracheal tube induced emergence phenomenon as are laryngeal edema and ischemia. Endotracheal tube cuff design, cuff pressure lubrication and tube size are the important factors that affect the incidence and severity of sore throat[2]. Also other post intubation problems like hoarseness dysphonia, restlessness and post operative nausea and vomiting are seen [3]. Despite satisfactory initial sealing of the cuff with air N_2O has been shown to diffuse into the cuff and increase the cuff volume and pressure resulting in an increased incidence of tracheal mucosal lesions[4]. Inflating the cuff with liquid has bee suggested to

overcome this problem [5,6].

Plasma lignocaine level of 3µg/ml has been shown to supress endotracheal tube educed emergence, how ever intravenous lignocaine has shown to delay recovery [7]. Topical lignocaine spray and jelly are as associated with higher incidence of sore throat[8].

Lignocaine has been to diffuse across cuff of the endotracheal tubes made of polyvinylchloride and alkalinisation could further enhance this diffusion, thus reducing the incidence and severity of post operative sorethroat and other problems that follow intubation[1,3,7,8,9,10,11,12,13,14].

MATERIALS & METHOD

After obtaining institutional ethical committee clearance and written informed consent 200 ASA physical status I & II of either sex aged between 18-65 undergoing elective orthopedic, spine and general surgeries under general anesthesia with orotracheal intubation were enrolled for the study.

Patients with respiratory and cardiovascular diseases, airway grade Mallampatty III & IV, those undergoing head & neck surgeries, those requiring placement of nasogastric tube and surgeries with an expected duration less than 60 minutes were excluded from the study.

After preanesthetic evaluation, patients were randomly allotted into two groups

Group I – Endotracheal tube cuff inflated with alkalinized lignocaine.

Group II – endotracheal tube cuff inflated with air.

All the patients were premedicated with oral alprazolem 0.5mg and oral ranitidine 150mg the night before surgery.

On the day of surgery on the table after securing IV line, injection Glycopyrrolate 0.2mg IV, pentazocine 30mg IV and midazolam 2 mg IV, ondansetron 4 mg IV were given.

After 3 minutes of preoxygenation, anesthesia was induced with either propofol 2mg/kg or thiopentone 5mg/kg, and to facilitate entotracheal intubation succinylcholine 2mg /kg IV was used. After obtaining ideal intubating conditions, male patients were intubated with 8.5 mm or 9mm and female patients with 7 or 7.5mm internal diameter oral tracheal tubes with a high volume low presence cuff made of polyvinylchloride that were lubricated with sterile water.

In Group I - 2ml of 2% lignocaine preservative free was injected into the cuff and then a supplementary volume of $NaHco_3$ 7.5% (3-6ml) was added to obtain minimal occlusive leak (no leakage detected under controlled ventilation).

In Group II - cuff was slowly inflated with air to obtain minimal occlusive leak.

Ventilation was controlled in Bains System and anesthesia maintained with

0_2+$N_2$0 (33%/77%) with Halothane 0.5-1% and increments of vecuronium till the end of surgery. At the end of surgery 100% 0_2 was administered and residual neuromuscular block was antagonised with glycopyrollate 0.01mg /kg and neostigmine 0.05mg/kg. Gentle oral suctioning was done just before extubation. Trachea was extubated after deflating the cuff, when all the extubation criteria were met (full reversal of neuromuscular block, spontaneous ventilation, ability to follow oral commands, eye opening and hand grip)

1. The gas and the liquid volumes withdrawn from the cuff of the endotracheal tubes were recorded.

2. Patients were asked for any complaints of sore throat by an anesthestist blinded to the groups and the degree of sore throat measured by visual analogue scale (0-100) at 15 minutes, 1 hour, 3 hours, 12 hours and 24hours following extubation.

3. Cough, hoarseness dysphonia, restlessness and PONV were considered as secondary end points of emergence and evaluated in the 6 hours post extubation period.

Sample size was calculated based on previous studies. Data were analysed used independent T test & ANOVA & repeated measure ANOVA where ever appropriate. P Value <0.05 was considered significant.

FINDINGS

No patients were excluded from analysis. Patient characteristics and duration of surgery were

comparable between the groups. At the end of surgery, the cuff volume recovered in both the groups were as follows. The mean cuff volume inflated in group I was 6.16+0.7ml and in group II was 6.32 +0.7 ml. The cuff volume recovered in group I was 5.43+0.64ml (significant decrease, P<0.05) and in Group II was 7.34+ 0.78 (Significant increase P Value <0.05).

Table 1: Patient Characteristics data. The age distribution of the study population in the two groups is as shown below.

Age (Years)	Group I (n = 100)	Group II (n = 100)
16 – 25	19	18
26 – 35	34	32
36 – 45	18	27
46 – 55	19	16
55 – 65	10	07
Maximum age	65	65
Minimum age	18	18
Mean + SD	37.76 + 12.68	37.55 + 11.47

P value > 0.05

Table 2: Cuff volume inflated and recovered in the two groups

Mean cuff volume (ml) + SD	Group I (n=100)	Group II (n = 100)
Inflated	6.1600 + 0.7	6.325 + 0.73
Recovered	5.43 + 0.644	7.342 + 0.785
P value	**< 0.05**	**< 0.05**

The mean VAS score (severity of sore throat) in group I was always lower than the mean VAS score in GroupII at all the specified time intervals over the 24 hour evaluation period (P<0.05)

Table 3: VAS scores (0-100mm) for severity of sore throat. The severity of sore throat measured using Visual Analogue Scale is shown below.

Table 3: VAS scores (0 – 100 mm) for sore throat at different time intervals

Time interval	Group I (n=100) Mean + SD	Group II (n = 100) Mean + SD	P Value
15 minutes	22.15 + 3.64	39.15 + 5.17	< 0.05
30 minutes	18.6 + 3.6	36.25 + 5.83	< 0.05
1 hour	15.75 + 3.4	33 + 4.8	< 0.05
3 hours	11.55 + 2.8	27.9 + 4.2	< 0.05
12 hours	6.8 + 2.5	22.9 + 4.02	< 0.05
24 hours	4.15 + 2.5	19.1 + 4.16	< 0.05

The incidence of cough, hoarseness, restlessness and dysphonia in the 6 hours post extubation period were less in Group I compared to Group II indicating better tolerance of endotracheal tube (p<0.05). The incidence of PONV was less in GroupI compared to Group II but was not statistically significant (p>0.05).

Table 4: Secondary end points of endotracheal tube induced emergence phenomenon (percentage)

Variables	Group I (n=100)	Group II (n = 100)	P Value
Cough	25	70	< 0.05
Hoarseness	18	64	< 0.05
Dysphonia	12	32	< 0.05
Restlessness	18	41	< 0.05
PONV	12	15	> 0.05

DISCUSSION

It is a routine practice to inflate the endotracheal tube cuff with air. Many studies have shown that during general anesthesia with N_2o, N_2o diffuses across the cuff increases intracuff pressure, thus reducing tracheal mucosal perfusion and increase in the sore throat in the post operative period[4,5]. It has also been suggested that postoperative sore throat may be caused by activation of tracheal pain receptors. Also coughing on emergence and later in the post extubation period are thought to be due to irritant rapidly adapting stretch receptors which are found throughout the trachea and are primarily superficial. Blocking of these receptors can decrease postoperative sore throat and other post intubation problems [10].

The minimum blocking concentration (c_m) of lignocaine for these receptors within 15 minutes is about 155µg ml^{-1}.[7]. Intravenous lignocaine 1-2mgkg^{-1} has been shown to be beneficial in suppressing cough, sore throat and other air way problems, but the duration of action of IV lignocaine is short and it also produces sedation which can result in a delay in emergence from general anesthesia [15].

Topical lignocaine is an alternative, however lubrication of endotracheal tubes with lignocaine jelly and lignocaine spray to the trachea are associated with higher incidence of sore throat[8].

To decrease the intracuff pressure; and decrease the postoperative sore throat various alternative

inflation medias like saline, lignocaine have been studied. There are limited studies using alkalinized lignocaine and hence this study was undertaken.

In Group II the volume of air recovered from the cuff increased significantly from the volume used for inflation (Initial volume 6.32+0.7ml. recovered volume 7.34 + 0.7ml; P<0.05). This is because N_2O diffuses across the cuff and increases intracuff volume and pressure.

On the other hand in Group I the volume of alkalinized lignocaine recovered from the cuff decreased significantly from the initial inflation volume (Initial volume 6.16+0.7ml. recovered volume 5.43+ 0.64ml; P<0.5)

The decrease in the amount of alkalinized lignocaine is due to the diffusion of lignocaine across the cuff of the polyvinylchloride endotracheal tube.

Karaswa etal (4) used 4.6(0.9) ml of air to inflate the cuff and at the end of the procedure recovered 5.5(1.4) ml of air from the cuff (P<0.05) Novarro and Baughman [11] used 5.0(12) ml of air for inflation of the cuff and recovered 6.3(17)ml of air from the cuff at the time of extubation (P<0.05). The volume of lignocaine used for cuff inflation initially was 5.5(1.4)ml while the volume recovered at the end of the procedure was 5.1(1.3)ml (p<0.05). Estebe etal[1]used 6.7(2.2)ml of air to inflate the cuff and the amount of air recovered was 11(2.7) ml (P<0.05).On the other hand they used 6.3(1.5) ml of alkalinized lignocaine to inflate the cuff and recovered 5.9(1.6) ml (9<0.05) at the time of extubation. The results of the present study concurs with the results obtained by various authors.

These was a significant decrease in the VAS scores for sore throat through out the 24 hours period in the alkalinized lignocaine group(Group I) compared to the air group (Group II). The mean VAS score in the alkalinized lignocaine group at 15 minutes was 22.15(3.6) mm while in the air group it was 39.15(mm) (P<0.05). At 24 hours VAS score in alkalinized lignocaine group was 4.15(2.5mm) while in the air group it was 19.1(4.16)mm.

Novarro and Baughman [11] found the mean VAS scores at one hour and 24 hours to be 7.9(1.8) mm and 14.5(24.8) mm in the lignocaine group, while in the air group the mean VAS scores were 18.7(27)mm at one hour and 25.6(27.5)mm at 24 hours, showing a significant decrease is sore throat in the lignocaine group.

Estebe etal[1] also found the mean VAS scores at 15 minutes and at 24 hour to be 15(21)mm and 6(3)mm in the air group it was 31(13)mm and 24(7), respectively, indicating a significant decrease in the post intubation sore throat in the alkalinized lignocaine group through out the 24 hour evaluation period. The decrease in the post intubation sore throat in the alkalinized lignocaine group is explained by diffusion of lignocaine across the tube cuff, resulting in anesthesia of the tracheal mucosa and blockade of tracheal pain receptors involved in post intubation sore throat. The increase in the post intubation sore throat in the air group could be due to an increase in intracuff volume and pressure resulting in tracheal mucosal lesions and subsequent sore throat.

The secondary end points of endotracheal tube induced emergence phenomenon like cough, hoarseness, restlessness and dysphonia were significantly low in alkalinized lignocaine group.

Fagan et al[10] soltani etal[8] Estebe etal[1,3] also reported a lower incidence of cough in the lignocaine group compared to air Group.

Estebe etal [1] also found a significantly lower incidence of restlessness, dysphonia and PONV in the alkalinized lignocaine group. There was no significant difference in PONV between the two groups in our study, though it was lower in alkalinized lignocaine group. The lower incidence of cough in alkalinized lignocaine group could be due to blockade of tracheal irritant stretch receptors by diffusion of alkalinized lignocaine across the cuff of the tube. The better tolerance of endotracheal tube in the alkalinized lignocaine group is reflected by a decrease in the incidence of hoarseness, restlessness and dysphonia. No cuff rupture was found in the present study. Other studies also do not report any incidence of cuff rupture.

In conclusion, the present study showed a significantly lower incidence of post intubation. Sore throat and also a better tolerance of endotracheal tube when the cuff of the tube is inflated with alkalinized lignocaine. It is a safe and easy practice to inflate the cuff of an endotracheal tube with 2ml of 2% lignocaine (40mg) + $NaHco_3$ 7.5% (3 to 6ml) instead of air for prevention of post intubation sore throat and other problems of endotracheal tube induced emergence

phenomenon like cough, hoarseness, dysphonia and restlessness.

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Pre-Operative Diagnosis of Epithelial Ovarian Tumors: Are We on Right Track?

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ABSTRACT

Cancer of the ovary is the fifth most frequent cancer and fourth leading cause of in women worldwide and they need to be diagnosed at an early clinical stage.

Aim: To know the usefulness of clinical history, examination findings and USG findings in pre-operative diagnosis of Epithelial Ovarian Tumors.

Method: The study is carried out for a period of 18months for data collection and data analysis. The present study includes 55 patients of epithelial ovarian tumors.

Results: This study included 41(74.5%) patients with benign tumors and 14 (25.5%) patients with malignant epithelial ovarian tumors. About 30 (73.2%) patients of the benign tumors are in the age range of 21-40 years. 12 (85.7%) patients of malignant epithelial ovarian tumors are in the age range of 31-50 years. Most of the patients are less than G2P2 and in only one patient with benign ovarian tumor, family history was available.

Commonest symptoms in 10 (71.4%) patients of malignant epithelial ovarian tumors are abdominal swelling, abdominal pain and abdominal tenderness. Fatigue had significant p value (0.046) in patients with malignant epithelial tumors. Nausea, vaginal bleeding and bowel and bladder symptoms are experienced in variable proportion both in benign and malignant tumor patients. Pallor, weight loss and pedal edema are significant findings in malignant tumors patients compared to the benign ones with significant p value and also it was significant for tenderness, consistency and P/V mass feeling in malignant tumors on gynaecological examination. On USG most of the malignant epithelial ovarian tumors had solid areas with significant p value(<0.001) Bilateral tumors were common in malignant tumors compared to some component of benign tumors.

Conclusions: Thus the present study stresses the symptom recognition, examination findings and USG findings in early diagnosis of ovarian tumors.

Keywords: Ovarian Epithelial Tumors, EOTs, symptom complexes, early diagnosis, Pre-operative diagnosis.

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INTRODUCTION

Cancer of the ovary is the fifth most frequent cancer in women worldwide. Ovarian cancer occurs equally frequently in the developed and developing countries.[1]

The therapeutic decision in cases of ovarian/tumor depends on the correct diagnosis. Whether

the tumor is malignant or benign, the surgeon will choose between laparoscopy or laparotomy through abdominal access and decides the extent of surgery.

ROMA (Risk of Ovarian Malignancy Algorithm) is a useful diagnostic tool for the preoperative diagnosis with a pelvic mass, revealing a very good sensitivity and specificity.[2]

The present study is undertaken with the **aims and objectives** to know the usefulness of clinical history, examination findings and USG findings in pre-operative diagnosis of Epithelial Ovarian Tumors. An attempt is made to differentiate between benign and malignant tumors by focusing on the solid areas by USG findings, Clinical history and examination findings.

MATERIAL & METHOD

The present work has been carried out at Department of Pathology and its tertiary care hospital of a reputed medical college in Belgaum district of Karnataka state for a period of one and half years from January 2012 to June 2013.

Before starting the work, the permission from the Institutional ethics committee is obtained. The study is carried out for a period of 18months for data collection and data analysis. The study design is a hospital based Cross –Sectional study and has been carried out on patients of epithelial ovarian tumors. All consecutive patients of epithelial ovarian tumors are included in the study.

In inclusion and exclusion criteria, all the patients suspected of epithelial ovarian tumors and those who underwent ovariotomy are included in the study. All the patients with epithelial ovarian tumors are included. All the ovarian tumors patients apart from above group (Germ cell tumors and Sex cord- stromal tumors) are excluded from the study.

DATA COLLECTION

This study is a prospective one. The present study includes 55 patients of epithelial ovarian tumors. Data about age, medication history, parity, family history of ovarian breast cancer, recurrence status etc. are collected from the case records and patients of ovarian tumors. Ultrasonography findings are recorded. Ovarian neoplasm is detected pre-operatively by clinical history, examination findings and ultrasonography. The gross findings

of the specimen are noted.[3] The haematoxyline and eosin stained slides are studied for type of ovarian tumor and are categorized as benign, borderline and malignant tumors.[4]

FINDINGS

The patients of ovarian tumors are analysed for age, clinical features, medication history, parity, family history of ovarian/breast cancer, recurrence status etc.

This study included 41 (74.5%) patients with benign tumors and 14 (25.5%) patients with malignant tumors.

About 30 (73.2%) of the patients of benign tumors are in the age range of 21-40 years and 12 (85.7%) patients of malignant epithelial ovarian tumors are in the age range of 31-50 years (Table. 1). Most of the patients are less than G2P2 and in only one benign ovarian tumor family history was available.

Table 2. shows clinical features in patients with benign and malignant tumors. The commonest symptoms in patients with malignant tumors are abdominal swelling, abdominal pain and abdominal tenderness in 10 (71.4%) patients. In benign tumors only 17(41.5 %) patients had abdominal swelling and 18 (43.9 %) had pain and 24(58.5 %) had abdominal tenderness. Fatigue had significant p value (0.046) in malignant epithelial tumors. Nausea, vaginal bleedingand bowel and bladder symptoms are experienced in variable proportion both in benign and malignant tumor patients.

On general examination (Table 3) pallor, weight loss and pedal edema are significant findings in patients with malignant tumors compared to the patients with benign ones and P value was significant for all.

Gynaecological examination (Table 4) revealed that P/V mass, tenderness and solid consistency are significant findings in patients with malignant tumors on gynaecological examination. P value was significant for tenderness, consistency and P/V mass feeling.

On USG (Table 5), most of the malignant epithelial ovarian tumors have some component of solid areas with significant p value(<0.001). Most of the benign tumors are unilocular or multilocular with no solid areas and the size varied.

Bilateral tumors are common in malignant tumors compared to benign tumors. Significant finding in malignant tumors is presence of solid areas (p value<0.001). Most of the malignant tumors are less than 10cms size compared to benign tumors. In benign tumors > the size varied and tumors more than 20cms are also found.

In the present study, the benign tumors are predominant once, the commonest benign epithelial ovarian tumor being serous cystadenoma followed by mucinous cystadenoma. In malignant tumors serous and mucinous malignant tumors predominated and accounted for 5 cases each. Two cases of transitional cell carcinoma are encountered. Necrosis is a significant finding with p value of 0.003. There were two ovarian tumors of borderline malignancy.

DISCUSSION

Epithelial ovarian tumors have significant mortality. Prognosis depends upon type of ovarian tumor, grade of histological type and stage of the tumor. Early stage (I/II) detection has a survival rate of over 90%. Symptoms of ovarian cancer are complex and often misdiagnosed as other diseases, but recent developments prescribe more well-defined clinical symptoms for a better diagnosis.[5]

Obstetrician-gynecologists play a critical role in the early diagnosis of ovarian cancer. Recent studies focus on the importance of symptom recognition by both the patient and her physician. When diagnosed early, while still confined to the ovary, the five-year survival rate is 92%. Ovarian cancer is not a "silent killer" and almost all women experience symptoms which present several months to a year before diagnosis. Symptoms in women with ovarian cancer are more numerous, more severe, and are of more recent onset than in women in the general population. The constellation of symptoms are reported most often by women with ovarian cancer prior to diagnosis.[6]

In the present study, abdominal swelling, pain and abdominal tenderness are significant findings in malignant epithelial ovarian tumor patients compared to the patients with benign epithelial tumors. Pallor, weight loss and pedal edema are also significant findings in patients with malignant tumors in the present study. On gynaecological examination P value was significant for tenderness, consistency and P/V mass feeling. Thus the symptom complexes of the patient and gynaecological examination findings are crucial in identifying in early ovarian malignancy. Similar observations are made by Golf BA et al.[7]

USG finding in malignant tumors with some component of solid areas is a significant finding compared benign tumors. Similar findings are reported by Timmerman D et al.[8] About 4 out of 14 malignant tumors were bilateral compared to benign tumors.

TABLES

Table 1: Age Distribution

Age group (Years)	Distribution (n=55)			
	Benign (41)	Malignant (14)	Total	Percent
11-20	1	-	1	
21-30	16	2	18	
31-40	14	6	20	
41-50	7	6	13	
> 51	3	-	3	
Total	41	14	55	

Table 2 : Clinical features

Symptoms		Distribution (n=55)				Test applied	P value
		Benign		Malignant			
		n	%	n	%		
Abdominal Swelling	Yes	17	41.5	10	71.4	Chi Square	0.053
	No	24	58.5	4	28.6		
Abdominal Pain	Yes	18	43.9	10	71.4	Chi Square	0.075
	No	23	56.1	4	28.6		

Abdominal tenderness	Yes	24	58.5	10	71.4	Chi Square	0.053
	No	17	41.5	4	28.6		
Fatigue	Yes	1	2.4	3	21.4	Fisher-Exact Test	**0.046***
	No	40	97.6	11	78.6		
Nausea	Yes	1	2.4	1	7.1	Fisher-Exact Test	0.448
	No	40	97.6	13	92.9		
Vaginal Bleeding	Yes	2	4.8	1	7.1	Fisher-Exact Test	1
	No	39	95.2	13	92.9		
B & B symptoms	Yes	14	34.1	5	45.7	Chi Square	0.915
	No	27	65.9	9	64.3		

Table 3: General Examination

General Examination		Distribution (n=55)					
		Benign		Malignant		Test applied	p value
		n	%	n	%		
Pallor	Yes	8	19.5	8	**57.1**	Chi Square	**0.019***
	No	33	80.5	6	42.9		
Weight Loss	Yes	0	0	6	**42.9**	Fisher-Exact Test	**0.001***
	No	41	100	8	57.1		
Pedal Edema	Yes	2	4.9	5	**35.7**	Fisher-Exact Test	**0.009***
	No	39	95.1	9	64.3		

Table 4: Gynaecological Examination:

Gyanecological Examination		Distribution (n=55)					
		Benign		Malignant		Test applied	p value
		n	%	n	%		
Tenderness	Yes	3	7.3	7	**50**	Fisher-Exact Test	0.001*
	No	38	92.7	7	50		
Consistency	Soft	40	97.6	2	14.3	Fisher-Exact Test	<0.001*
	Firm	1	2.4	12	**85.7**		
Vaginal Discharge	Yes	4	9.7	2	14.3	Fisher-Exact Test	0.638
	No	37	90.3	12	85.7		
P/V Mass Felt	Yes	2	4.8	6	**42.9**	Fisher-Exact Test	0.002*
	No	39	95.2	8	57.1		

Table 5: USG Examination

USG Examination		Distribution (n=55)					p value
		Benign		Malignant			
		n	%	n	%		
Solid Area	Yes	0	0	14	**100**	Fisher-Exact Test	<0.001*
	No	41	100	0	0		
Loculations	Uniloculated	31	75.6	8	**57.1**	Chi Square	0.331
	Multiloculated	10	24.4	6	42.9		
Size	0-10cms	17	41.6	8	**57.1**	Chi Square	0.309
	11-20cms	22	53.6	6	42.9		
	>20cms	2	4.8	0	0		

CONCLUSION

Thus the present study stresses the symptom recognition, examination findings and USG findings in early diagnosis of Ovarian tumors.

Conflicts of Interest: None

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A Clinico-Hematological Study of Congenital Bleeding Disorders

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ABSTRACT

Context: Congenital bleeding disorders are abnormalities of hemostasis that may present with significant difficulties in diagnosis and management.

Aims: This study was done to know various clinical presentations of congenital bleeding disorders and also to note the hematological changes associated with them.

Materials and methods: This was a hospital based study conducted at haematology unit, Department of Pathology, JJM Medical College, Davangere. The present study includes 110 cases referred to our department with history of bleeding disease were evaluated clinically and investigated appropriately to detect the underlying cause for the abnormal hemostatic function.

Results: This clinico-hematological study of congenital bleeding disorders showed Glanzmann's thrombasthenia in 4 cases (3.64%). The remaining 106 cases are had diseases affecting clotting factor which included Hemophilia A – 70 cases; Hemophilia B – 19 cases; Factor VII deficiency – 1 case; afibrinogenemia – 1 case; Factor XIII deficiency – 3 cases; vWD – 11 cases and dysfibrinogenemia – 1 case. Vascular disorders were not encountered. Majority of these cases presented with hemarthrosis and muscle hematoma. Plasma clotting tests (APTT) were prolonged in majority of cases, corrected with aged serum, adsorbed plasma, F VIII deficient plasma, F IX deficient plasma. Factor assay showed mild, moderate and severe forms.

Conclusion: In spite of various advanced diagnostic investigations, the basic hematological investigation remains first panel or step towards the approach to the diagnosis of congenital bleeding disorders.

Keywords: Blood coagulation disorders, Inherited, factor VIII, hemophilia A.

INTRODUCTION

Inherited bleeding disorders are usually rare as compared to acquired ones. However they are an important cause of mortality and morbidity in hematological practice. They need to be diagnosed precisely because specific long term management depends on the underlying individual conditions.

Inherited disorders of coagulation or platelet dysfunction usually are the result of deficiency or abnormality of a single plasma protein or platelet glycoprotein. These are as a result of mutation in the genes encoding the coagulation proteins or platelet surface glycoproteins as the case may be.[2]

Inherited coagulation factor disorders usually involve only one coagulation protein[3] rarely two or

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more[2] and if bleeding occurs, from one site at a time.[3]

Diagnosis of inherited bleeding disorders frequently made in childhood, is based on clinical presentation of bleeding and family history together with the laboratory tests. Hemophilia A and B are the most frequent of these disorders. Together with von Willibrand disease [vWD], these X-linked disorders comprise of 95 to 97% of all inherited bleeding disorders. The remaining defects, generally transmitted as autosomal recessive traits in both sexes are rare with low prevalence rate.[4,5]

These inherited bleeding disorders occur in mild, moderate and severe forms depending upon the plasma factor levels of 6-30%, one to five percent and less than one percent respectively. While some patients may only have mild bruising or bleeding following trauma, others with severe deficiency may exhibit intracranial hemorrhages and hemarthrosis.[6] With the exception of vWD, these disorders produce similar signs and symptoms, regardless of the particular factor that is lacking.[5]

Both clinical and basic problems related to the bleeding disorders continue to confront hematologist.[7] Many inherited vascular disorders are overlooked by clinicians.[8]

The aim of this study was to develop an approach to congenital disorders with detailed clinical evaluation and laboratory diagnosis.

MATERIAL & METHOD

This prospective study was conducted for a period of two years from October 2008 to October 2010. The study includes all patients referred to hematology section of Pathology department of J.J.M. Medical College, Davangere and Karnataka Hemophilia Care and Hematology Research Centre with history of bleeding symptoms since birth or early childhood. The patients with acquired bleeding disorders caused by drugs, infections, malignancy (acute leukemia) were excluded.

Detailed clinical history including family history, mode of presentation, age of onset of the disease, associated symptoms and drug history were noted. Pedigree analysis was done for each case and a thorough clinical examination was performed on these patients and the findings were recorded in a specifically designed proforma. Then, the blood sample

was collected from all the patients by vene puncture with necessary aseptic precautions after an informed consent and subjected to battery of coagulation tests which included routine hematological tests like complete blood count using automated hematology analyzer, bleeding time (Modified Ivy's method), clotting time (Lee and White Method), clot retraction time and platelet count. Hematological parameters obtained by analyzer were HB, HCT, TLC, DLC, ESR estimation by Westergren's method, blood grouping by slide method and peripheral smear examination. These tests were followed by tests for coagulation done by coagulatometer (Diagnostic stago) namely, PT (using brain thromboplastin), APTT (using liquid cephaloplastin) and TT (using thrombin). Correction test using adsorbed plasma, aged serum, Factor VIII deficient plasma, Factor IX deficient plasma and normal pooled plasma were performed to identify circulating inhibitors and to know the factor deficiency. Factor assay was performed (by one stage factor assay method) to assess the severity of disease.

The coagulation work up protocol was followed in accordance to the guidelines suggested by Dacie and Lewis.[9]

RESULTS

The study was conducted over a period of two years, during which 110 patients with congenital bleeding disorders were evaluated. Age range of these patients varied from 3 months to 49 years. Majority of the cases (n = 34, 31%) were in the age group of 11-20 years followed by 22 cases (20%) in the age group of 5-10 years.

Out of 110 cases, 100 (91%) were males and 10 (9%) were females suggestive of male preponderance. History of consanguineous marriage of parents was present in 40 cases (36.3%). 55(50%) patients of 110 cases had family history of bleeding disorders.

Out of 110 cases, 106 had coagulation disorders. Among them, 70 patients had Hemophilia A, 19 had Hemophilia B, 11 had von Willibrand disease and 3 had factor XIII deficiency. Factor VII deficiency, afibrinogenemia and dysfibrinogenemia were diagnosed in 1 patient each. Rest 4 patients had disorders of platelet function and all 4 diagnosed to have Glanzmann's thrombosthenia.

Hemophilia A (n=70, 63.64%) was the commonest bleeding disorder. Their age ranged from three

months to forty nine years. Out of 70 cases, sixty nine patients were males and one was a female. Most common presentation was hemarthrosis followed by muscle and subcutaneous hematoma, dental bleed, post traumatic bleed, epistaxis and injection hematoma(Table-1). Mild to moderate disability and chronic synovitis was seen in 36 cases.

Table 1: Distribution of Hemarthrosis in hemophilia A and B

Joint	Hemophilia A		Hemophilia B	
	Number of Cases	Perce-ntage	Number of Cases	Percen-tage
Knee	49	70.00	11	57.89
Elbow	16	22.85	5	26.32
Ankle	3	4.29	2	10.53
Shoulder	2	2.86	1	5.26

The activated partial thromboplastin time was prolonged in all cases. Factor assay showed that 45 cases (64.29%) had severe factor VIII deficiency, 24 (34.29%) cases had moderate deficiency and 1 (1.42%) case had mild deficiency.

Hemophilia B was the next most common bleeding disorder. Their age ranged from six months to thirty five years. All 19 patients were males. Majority of the cases presented with hemarthrosis, followed by muscle and subcutaneous hematoma, dental, post traumatic bleed, surgical bleed. Six cases had mild to moderate disability and chronic synovitis.

The APTT were prolonged in all cases. Factor Assay showed that 12 (63.16%) cased had severe, 7 (36.84%) had moderate factor IX deficiency. Mild deficiency was not seen in any of them (Table 2).

Table 2: Factor Level and Severity of Patients with Hemophilia A and B

11 patients in this study were diagnosed as von Willebrand disease. Their age ranged from four years to thirty two years. Out of 11 cases, 6 patients were males and 5 were females. Gum bleeding was present in five cases, bleeding from nose in three cases and bleeding per rectum in one case. Menorrhagia was noticed in two cases. Consanguineous marriage of parents was noticed in six cases.

Bleeding time and activated partial thromboplastin time were prolonged in all cases. Correction studies with control plasma and adsorbed plasma showed correction which was not seen with aged plasma which suggested low level of Factor VIII activity. Further special investigations like vWF Ag assay and Ricof assay were not performed due to lack of availability.

Factor XIII deficiency was diagnosed in 3 patients (all 3 were males). Afibrinogenemia (1 case), factor VII deficiency (1 case) and dysfibrinogenemia (1 case) were diagnosed by specific factor assay using respective factor deficient plasma.

Disorders of platelet function were seen in 4 patients and all 4 patients had Glanzmann's Thrombasthenia.

DISCUSSION

Bleeding tendencies caused by inherited deficiencies of one or more coagulation factors are distributed worldwide. It is possible to diagnose most of these disorders by means of battery of simple laboratory tests and correlating with clinical presentation.

Inherited bleeding disorders affect both men and women. Symptoms are quite variable, depending on the type and the severity of the disease. For the same disease severity, women are often more symptomatic due to excessive menstrual bleeding and peripartum hemorrhage[10].

Severity and Factor Level	Hemophilia A		Hemophilia B	
	Number of Cases	Percentage	Number of Cases	Percentage
Mild (6-30%)	1	1.42	0	0
Moderate (1-5%)	24	34.29	7	36.84
Severe (<1%)	45	64.29	12	63.16

In the present study, patients age varied from 3 months to 49 years were included. Maximum cases were between 10-20 years (31%). The congenital bleeding disorders were seen more commonly in childhood age group. Males were predominantly affected in present study. The study conducted by Sajid R. et al (2010)[8], shows age group between three to 57 years and male predominance. In Shanthala Devi A.M.et al (1999)[11] study, M:F ratio was 2:1.

In present study, neither other members of the family were affected by similar nor any other illness, but history of consanguineous marriage was seen in 36.3% of cases and in turn the second degree consanguinity was more commonly observed. This suggests the possibility of individual spontaneous mutations and requirement of further genetic studies for evaluation of the same.

In this study, 3.64% had Glanzmann's thrombasthenia, 63.64% had Hemophilia A, 17.27% had Hemophilia B, 0.91% had Factor VII deficiency/Afibrinogenemia, 2.72% had Factor XIII deficiency, 10% had vWD, 0.91% had dysfibrinogenemia. Our findings are closely correlated with the study done by Mansouritorghabeh et al[12] (Table 3).

Table 3: Distribution of various congenital bleeding disorders

Diagnosis	Our study (%)	Mansouritorghabeh H et al study (%)
Disorders of platelet function	3.64	6.9
Hemophilia A	63.64	51.9
Hemophilia B	17.27	16.6
Factor VII deficiency	0.91	3.4
Afibrinogenemia	0.91	0.36
Factor XIII deficiency	2.72	1.99
VWD	10	9
Dysfibrinogenemia	0.91	-

Most common congenital coagulation disorder in India is Hemophilia A followed by hemophilia B[11,13]. This is reflected in present study also.

In our study, majority of hemophilia A and B patients presented with hemarthrosis involving major weight bearing joints like knees, elbows, ankle and hip, commonest being knee joint followed by elbow. This correlated with the previous studies. (Agarwal et al[14] and Alok Srivastava[15].)

APTT were prolonged in all cases of hemophilia A and B, correlated with Kitchens CS (1980)[16].

Severe form was more predominant in cases of both hemophilia A and B which correlated with Taki M[17], Srivastava (2009)[15] and Shanthala Devi et al (1999)[11].

Development of neutralizing antibodies against FVIII and FIX is one of the most serious complications in hemophilia. The prevalence of inhibitors varies from 7 to 33%. But, in our study none of the cases were found to be positive for the inhibitors.

According to western literature, the commonest inherited bleeding disorder in terms of prevalence would be vWD[2]. However in our study; it ranked third, affecting 11 patients. The lower incidence may be due to the fact that many vWD in India may not be diagnosed because of mild mucocutaneous bleeding symptoms like epistaxis, gum bleeding or menorrhagia which may be regarded as normal if several members of same family have similar symptoms.

Factor VII and factor XIII deficiency, afibrinogenemia and dysfibrinogenemia were found to be rare inherited bleeding disorders which correlated with Sajid R. et al[5] study. The inherited disorders of platelet function are rare disorders. They constituted only 3.64% of the total bleeding disorders. This correlated well with 5.03% reported by M. Manisha et al[2]. All patients had Glanzmann's thrombasthenia indicating that it is the commonest among platelet function disorder.

CONCLUSION

The clinical manifestations of congenital bleeding disorders were protean and / or of varying degrees of severity. Congenital bleeding disorders are common in childhood in the age group of 11-20 years. Hemophilia A formed the major group of congenital bleeding disorders in the age group of 1 to 5 years. Routine hematological investigations establish the diagnosis of congenital bleeding disorders and factor assay is done to categorize congenital bleeding disorders.

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A Hospital based Study on Seroprevalence of Hepatitis B Surface Antigen (HBSAG) and Antibodies to Hepatitis C Virus in SRMS-IMS Bareilly

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ABSTRACT

Introduction: Hepatitis B and C infections are a serious global public health problem. They are among the most significant hepatic infections leading to viral hepatitis and hepatocellular carcinoma. Blood or blood products are the important cause for the transmission of these diseases.

Objective: To estimate the seroprevalence of Hepatitis B Surface antigen and antibodies to hepatitis C (Anti HCV Ab) in both sexes and different age groups, in a hospital based population in SRMS-IMS Bareilly.

Method: 19002 & 15914 serum sample were collected over a period of one year from August 2012 to July 2013 from patients attending OPDs and admitted under various departments of SRMS-IMS Bareilly. Serum sample collected were tested for detection of HBsAg & Anti HCV antibodies by immunochromatographic assay (J.Mitra - rapid card tests).

Results: In all 19002 serum samples were tested for HBsAg detection & 15914 serum samples for hepatitis C antibodies, over a period of one year. The seroprevalence of HBsAg was found to be 3.46%, & of Anti-HCV Ab as 2.12%. The seroprevalence of both HBsAg & Anti HCV antibodies are more in males as compare to females.

Conclusion & Recommendation: The study throws light on the magnitude of viral infection in the hospital based patients in SRMS-IMS Bareilly, Uttar Pradesh and provides a reference for future studies. As blood is one of the most important cause of transmission of hepatitis B and C therefore safe blood transfusion, prevention of IV drug addiction & using sterilized syringes and medical equipments etc. can minimize hepatitis B & C infection.

Keywords: *Hepatitis B, HBs Ag, Anti-HCV Antibodies, Seroprevalence.*

INTRODUCTION

Hepatitis B and C infections are a serious global public health problem. They are among the most significant hepatic infections leading to viral hepatitis

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and can be transmitted covertly by percutaneous routes and overtly by blood transfusion. The hepatitis B surface antigen (HBsAg) in serum is the first seromarker to indicate active HBV infection, either acute or chronic[1]. Hepatitis B Virus causes a spectrum of disease from self-limited hepatitis to acute fulminant and chronic hepatitis which may result in liver cirrhosis and hepatocellular carcinoma. Worldwide over 2 billion people have been infected with HBV and more than 350 million have chronic HBV infection[2]. India has been placed into the

intermediate zone of prevalence of hepatitis B (2-7% prevalence rates by WHO)[3].

Prevalence of HBV infection varies greatly in different parts of the world. The World Health Organization (WHO) has classified HBV prevalence into high endemicity (>8%), intermediate (2-7%) and low endemicity (<2%). HBV prevalence in India is in intermediate range. Every year 100,000 Indians die due to HBV infection related illnesses[4].

Hepatitis C Virus (HCV) is a 50-60 nm virus with a linear single stranded RNA genome. Among the viral hepatitis strains, HCV is especially dangerous in that its morbidity rate is high as it establishes a state of chronic infection in as many as 85% of acutely infected patients, whereas about 15% of acutely infected patients spontaneously clear the infection[5]. Chronic hepatitis C is a ubiquitous disease affecting around 200 million people worldwide[6]. The major channels of HCV transmission are all related to exposure to blood and blood products. The presence of anti-hepatitis C virus antibody (anti-HCV Ab) indicates previous exposure to HCV[7]. In India, antibodies against HCV are present in approximately 15 million people with a prevalence rate of 2%[8]. Injecting drug users (IDUs) belong to a group of population, more frequently exposed to many viral infections, including Hepatitis B & C Viruses[9]. The prevalence of blood-borne hepatitis is usually higher among IDU than in other comparable non-IDU population strata[10]. Epidemiological data indicate that IDUs represent the largest risk group for HCV infection[11].

HBV is associated with fulminate hepatitis in approximately 1–2% of acute cases, whereas HCV is rarely associated with this complication. HBV and HCV infections are a major cause of morbidity and mortality[12,13,14]. Surveys for screening Hepatitis B surface Ag & anti Hepatitis C Virus antibodies are the simplest and useful mode of determining infection rates of these viruses.

A teaching Hospital patient based study is helpful in assessing true nature of problem in the community. Prevalence studies help in assessing the magnitude of Hepatitis B &C virus infection and aid in devising preventive measures.

OBJECTIVE

This study was undertaken to estimate the burden of HBV & HCV infection in both sexes & different age groups in a hospital based population in SRMS-IMS Bareilly & compare the prevalence rates in different part of India and to understand the dynamics of transmission.

MATERIAL & METHOD

This was a descriptive cross-sectional study carried out over a period of one year from August 2012 to July 2013. Subjects included are inpatients and outpatients for whom HBsAg & anti HCV antibody detection was tested on the basis of clinical findings, risk factors and as a part of preoperative evaluation of HBsAg & anti HCV antibodies status. Blood sample to obtain serum was collected with standard procedure. A one step rapid immunochromatographic assay (ICA) for the qualitative detection of HBsAg & antibodies to Hepatitis C virus was done. Immunochromatography is a rapid and highly sensitive as well as specific method for detecting HBsAg and anti-HCV antibodies. They have been recommended for routine use in clinical microbiology laboratories[15]. The speed, simplicity and sensitivity of the immunochromatographic assay make it economical[16]. Immunochromatographic assay do not require special instrumentation for analysis and have attractive, particularly for large-scale surveillance studies[17].

FINDINGS AND DISCUSSION

Hepatitis B & C are global problems mostly of developing countries. In India, HBsAg prevalence among the general population ranges from 2-7%, which places India in an intermediate HBV endemicity zone

In this study sera of 19002 patients were tested for Hepatitis B surface Antigen and 15914 patients for anti-hepatitis C antibodies over a period of one year from August 2012 to July 2013. The seroprevalence of HBsAg & Anti-HCV Ab was found to be 3.46% and 2.12% respectively (Table 1 & 2). The overall seroprevalence of both HBsAg & Anti HCV antibodies are more in males as compare to females. Smita Sood and Shirish Malvankar have noted 0.87% prevalence in a study of HBsAg prevalence in hospital based population similar to ours. But the relative low prevalence in their study could be due to the fact that it was conducted in a private hospital catering usually to economically privileged class patients[18].

Further on doing analysis of age distribution

it was found that there is an increase in prevalence of both diseases in age group of 41-50 years. It was even found that prevalence of both disease in this age group is more among males as compared to females (For HBsAg in age group 41-50 years; Male = 5.84% and Females = 3.31% similarly for HCV antibodies Males = 3.38% and Females = 2.90%)(Table 3,4,5 & 6). In a study conducted in a hospital-based population at Kathmandu Medical College Hospital, Nepal, the prevalence rate of viral hepatitis B was found to be 2.5%[19].Another review of Hepatitis B prevalence in India by Lodha et al has concluded that it is between 1-2 %[20]. The seroprevalence of HCV among our hospital-based population was found to be 2.12%. This seroprevalence is slightly higher than the 1.7% seroprevalence reported in an earlier study from Jaipur (Rajasthan) in 2007 by Sharma *et al*[21]. In India, the seroprevalence of HCV varies among hospital-based populations with 1.57% reported from Cuttack (Orissa)[22] 4.8% from Pondicherry[23], and 2.46% from Jodhpur (Rajasthan)[24]. This report defines the rate of infections with these blood borne agents among the hospital-based population in Bareilly UP. However, it also throws light on the dynamics of viral transmission in the community in this part of the country and provides a good reference for future studies because of the large number of cases investigated.

Table 1 - Genderwise seroprevalence of HBsAg

Patients	Reactive	Nonreactive	%R	Total
Male	459	10155	4.32	10614
Female	198	8190	2.36	8388
Total	657	18345	3.46	19002

Table 2 – Genderwise seroprevalence of anti-HCV Ab

Patients	Reactive	Nonreactive	%R	Total
Male	202	8718	2.26	8920
Female	135	6859	1.93	6994
Total	337	15577	2.12	15914

Table 3 - Age distribution of HBsAg positive male patients

Patients' Age Group	Reactive	Nonreactive	%R	Total
0-10	10	326	2.98	336
11-20	40	966	3.98	1006
21-30	67	1466	4.37	1533
31-40	83	1354	5.78	1437
41-50	100	1612	5.84	1712
51-60	76	1938	3.77	2014
>60	83	2493	3.22	2576

Table 4 - Age distribution of anti-HCV Ab positive male patients

Patients' Age Group	Reactive	Nonreactive	%R	Total
0-10	2	295	0.67	297
11-20	8	793	1.00	801
21-30	22	1197	1.80	1219
31-40	27	1192	2.21	1219
41-50	50	1429	3.38	1479
51-60	41	1689	2.37	1730
>60	52	2123	2.39	2175

Table 5 - Age distribution of HBsAg positive female patients

Patients' Age Group	Reactive	Nonreactive	%R	Total
0-10	4	145	2.68	149
11-20	18	937	1.88	955
21-30	51	2682	1.87	2733
31-40	36	1277	2.74	1313
41-50	39	1140	3.31	1179
51-60	28	1034	2.64	1062
>60	22	975	2.21	997

Table 6 - Age distribution of anti-HCV Ab positive female patients

Patients' Age Group	Reactive	Nonreactive	%R	Total
0-10	1	125	0.79	126
11-20	4	734	0.54	738
21-30	34	2148	1.56	2182
31-40	21	1121	1.84	1142
41-50	30	1003	2.90	1033
51-60	24	877	2.66	901
>60	21	851	2.41	872

CONCLUSION & RECOMMENDATION

The study throws light on the magnitude of viral infection in the hospital based population in SRMS-IMS Bareilly UP and provides a reference for future studies. As blood & blood product are, one of the most important causes of transmission of hepatitis B and C therefore safe blood transfusion, prevention of iv drug addiction & usage of sterilized syringes and medical equipment's are one of the most important precautions to prevent the spread

of infection. Prevention of multiple sexual partners, use of condoms, and avoidance of unprotected sex by infected women during menstruation are also important precaution to be taken. People with Hepatitis B & C virus infections should be advised not to share personal articles, nail clipping and toothbrushes with other house hold members. Avoid skin piercing procedures e.g. tattooing, body piercing, or acupuncture etc., to minimize the transmission of these infections.

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Assessment of Job Satisfaction among Dental Educators in a Dental College at Davangere City, Karnataka: a Cross-Sectional Questionnaire based Study

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ABSTRACT

Context: Low job satisfaction has been linked to high turnover of dentists and dental auxiliaries with resultant loss of productivity and reduced quality of patient care. An uncomfortable atmosphere that does not welcome all members can create a negative work environment that undermines productivity.

Aims: The aim of this study was to assess the Job Satisfaction among Dental Educators in a dental college at Davangere city, Karnataka.

Method and Material: Settings and Design: A questionnaire measuring dimensions of job satisfaction was distributed to dental faculty and was collected back with two rounds of follow-ups.

Statistical analysis used: The test for significance to find out association between various variables was done using chi square.

Results: A total of 84 dental faculty responded (100% response rate). Analysis showed that the overall job satisfaction was 62.76%. However, analysis could not show significant associations between levels of job satisfaction and variables like gender, age, academic post, marital status, administrative responsibility in job, years of experience in the profession and vacations per year.

Conclusions: Overall the job satisfaction is high among the dental faculty in the present study, however the least satisfying aspect being salary and reasonable level of financial security.

Keywords: *Job satisfaction, dentist, faculty, educators.*

INTRODUCTION

Faculty members are vital resources for any academic institution. Their mastery over the subject, talents and dedication towards the organization makes an institute unique, famous and characteristically

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different from others. However there are increasing concerns with issues related to recruitment and retention of the faculty in dental colleges in India. Job satisfaction denotes positive emotions toward a particular job whereas organizational commitment is the degree to which an employee feels loyalty to a particular organization[1]. Job satisfaction has also been correlated with factors related to the work itself or to the outcomes (such as the rewards for excellence and performance) directly derived from it such as the nature of employees' jobs, achievement of work, promotional opportunities and chances for personal growth and recognition[2]. Low job satisfaction has been linked to high turnover of dentists and dental

auxiliaries with resultant loss of productivity and reduced quality of patient care[3]. The future of dental education is largely dependent on the continued existence of a sufficient number of dental faculty who possess content knowledge, pedagogical expertise, and commitment[4].

In 1999, a report of American Association of Dental Schools[5] showed that the actual number of full- and part-time dental school faculty has decreased from 12,492 in 1990 to 11,627 in 1997. However no such data is available for the Indian scenario.

An uncomfortable atmosphere that does not welcome all members can create a negative work environment that undermines productivity. There is a demand for increased participation of faculty in scholarly activity and the competition for grants[6].

The purpose of this study was to examine job satisfaction among dental educators and to examine the differences in job satisfaction related to factors like age, academic post/ experience and gender and to develop an understanding of specific issues which impact upon recruitment and retention of dental educators, to identify areas where improvements could increase career productivity and satisfaction that enriches the career of individual faculty members should also benefit the institution as a whole.

Objective: To assess the Job Satisfaction among Dental Educators in a dental college.

SUBJECTS AND METHOD

Design and sampling: This study utilized a questionnaire based cross-sectional survey of dental educators in a dental college in Davangere city, Karnataka, India. The self-completed questionnaire was handed to all the dental educators with two rounds of follow-ups. The questions were mainly adopted from a study done by Ezeja EB[8] in Nigeria.

The questionnaire was divided into two sections which collected the information as follows:

Section A assessed the demography of the respondents- gender, age, academic post, marital status, administrative responsibility in job, years of experience in the profession and vacations per year.

Section B was made up of 25 questions on job satisfaction and work related conditions and issues like work conditions, facilities at the work place,

nature of work, salary, promotion, professional training, interpersonal relationships and co-workers, intention to leave the profession.

The response in a Five point Likert scale: strongly agree, agree, undecided, disagree and strongly disagree.

Written permission was obtained from the Dean of the institute prior to the start of the study. The survey was anonymous and participation was voluntary.

Inclusion criteria: A list of dental educators in the institute was obtained from the office and majority of the dental educators in the institute were included in the study.

Exclusion criteria: Dental educators were given a choice and those who did not want to participate voluntarily were excluded from the survey, however there were no dental educators who refrained from participating in the survey.

Statistical procedure: The responses received were entered into an Excel spreadsheet and analyzed using the Statistical Package for the Social Sciences (SPSS; Version 17.0 for Windows 7 OS, SPSS Inc., Chicago, IL). The test for significance to find out association between various variables was done using chi square. $p \leq 0.05$ was considered significant. Confidence interval was set to 95%.

Results: A total of 84 questionnaires were returned by the dental educators who completed the survey, providing a response rate of 100%. Mean age of the respondents was 35.74 ± 5.872, (Table 4) Mean years of experience was 8.59 ± 7.10. Male:Female ratio was 1.33:1 and 23.8 % were single, 75.0 % married and 1.2 % divorced.

Table 1 presents demographic characteristics of the respondents: distribution of faculty by academic posts, Gender where 57.1% of respondents were males and 49% were females, 23.8 % of the respondents were single, 75% were married and 1 respondent was divorced.

In the present study Sixty nine (82.14%) of the respondents expressed satisfaction and fulfillment in their career as Oral healthcare worker. Fourty one respondents (48.80 %) would still choose to be in the same profession, however only 18 respondents (21.42%) would like one of their children to take

up their profession. About 16 respondents (19.04%) had thought about leaving their profession in the last 12 months. Majority of about 78 respondents (92.85%) respondents knew what is expected at work. (**Graph 1**) Sixty four respondents (76.19 %) agreed that they have opportunity to do their best at work every day and 59 respondents (70.2 %) felt that they have a comfortable working area well enough to do the best and 55 respondents (65.47 %) agreed that they have the necessary facilities and equipment to perform their work successfully, however a total of 57 (67.85%) respondents are worried about contracting infection at work. A majority 72 (85.71%) respondents see themselves as a team player. (**Graph 2**). Seventy six respondents (90.47%) have good friends at work, 61 (72.61%) agree that their co-workers are committed to doing quality work, 61 (72.61%) felt that are adequately valued, recognized and appreciated as a member of dental staff and only 31 out of 84 respondents (36.90%) are frequently stressed out at work. only thirty two (38.09%) reported their job as repetitive, not challenging and boring. (**Graph 3**). Exhaustion at the end of each day at work was reported by 33 respondents (39.28%). 53 respondents (63.09%) still have enough energy at the end of work to attend to the people the care for and 40 (47.61%) can engage in their hobbies. Only 17 respondents (20.23%) agreed that their salary was enough to cater for their personal and family needs. 23 respondents (27.38%) agreed that their job gives them a reasonable level of financial security. (**Graph 4**) Sixty seven respondents (79.76%) agreed that their job gives them a relatively high status in the society and 42 (50%) respondents feel that they get promoted as and when due. Seventy four (88.09 %) respondents feel that they get respect due to the profession which they are in and 72 (85.71 %) feel that they are being able to help out people and derive pleasure because of the profession. Twenty two respondents (26.19%) have started developing problems like anxiety, nervousness, loneliness, sleeplessness, depression due to work load. (**Graph 5**).

Applying chi-square test to find out the whether association exists between the variables like gender, age, academic post, marital status, administrative responsibility in job, years of experience in the profession and vacations per year we found no such associations to be statistically significant ($p > 0.05$).

DISCUSSION

Before actually discussing the findings of this study, let us first discuss the limitations of this study. The respondents only included teaching faculty post graduate dentists in their fields in just one college in India, so the findings cannot be generalized to the entire population of dentists in India and worldwide. Also the study did not include dentists who were no longer in the teaching faculty, which affects the mean satisfaction scores and does not take into consideration the reason of discontinuing the teaching faculty either possibly due to dis-satisfaction or retirement.

Dentistry as a profession is attractive, innovative, interesting, but dentists are exposed to a wide variety of factors, occupational, emotional, work-environment, duties expected at work, quality of care to the patients, administrative responsibilities in the job all of which affect the general and emotional well-being at one point of time in their life. A more favourable academic work environment must be created to reduce existing deterrents to the satisfactory pursuit of a career in academic dentistry[4].

The scenario in India is different from the global scenario in which there is a surplus of dental educators in India and many of the freshers do not get a job in a dental school as an educator. For them private practice remains the whole and sole source of income. The output of dental post graduates is 2768 per year as contrast to only 290 dental colleges in India[7].

Overall this study showed that 62.76% of dental educators are satisfied with their job, which is similar the job satisfaction score obtained by Ezeja et al[8] where it was seen that 70.1% of the respondents were satisfied. However the above mentioned study was carried out on Dentists as well as Dental auxiliaries like dental nurse/DSA, dental therapist, dental technologist and dental record officers.

Most faculty members who responded to this survey expressed a satisfied life, this could be influenced by the positive work environment of the dental school. Faculty retention is an important variable in achieving adequate faculty numbers[9].

There are not many studies to compare the job satisfaction rates of dental faculty in India. However the study conducted by Ezeja et al[8] showed that most of the full-time faculty members expressed an intent

to remain in dental academia for both the short (one to three years) and long (five to eight years) term. However a study conducted by Shepherd et al[4] showed that salary is an important issue for most faculty. If, however, the faculty member is satisfied with the work environment and is part of a mentoring program that will allow for professional development, salary may not become an issue.

An interesting study was conducted by Nesbitt et al[10] to find out whether Gender or Age Matters in Dental Educators' Job Satisfaction showed that the older the faculty members are (<36 years vs. 36 to 45 years vs. 46 to 55 years vs. > 55 years of age), the more satisfied they were overall with all four aspects of job satisfaction. However women were less satisfied in the oldest cohort than in the middle age groups, while men were increasingly more satisfied as they age. In the present study no such associations were found.

Variations exist in job satisfaction among dental professional. Many global data shows that dental practitioners are satisfied and content with their profession. A study conducted by Luzzi et al[3] revealed that dentists in active clinical practice are reasonably satisfied with their job. A study conducted by Roth et al[11] to find the Job satisfaction among Canadian orthodontists concluded that overall job satisfaction among orthodontists is high, owing to factors like delivery of care, relationships with patients, staff, and colleagues, and the respect received as a member of the profession. The present study also has used similar variable to assess the job satisfaction.

A study conducted by Puriene et al[12] to find self-perceived mental health and job satisfaction among Lithuanian dentists, concluded that overall the majority of Lithuanian dentists are satisfied with their job and also enjoy their professional lives however, nervousness (89.2%) and burnout (83.6%) were the most prevalent mental complaints and they also tended to be the most chronic of all reported mental disorders. The present study shows that only 22 respondents (26.19%) have started developing problems like anxiety, nervousness, loneliness, sleeplessness, and depression due to work load. Workplace is assumed a second home for workers as the time spent at work accounts for one third of man's life span. Job satisfaction can be influenced by the quality of the physical environment in which they work and degree of fulfilment in their work. In the present study 59 respondents (70.2 %) felt that they

have a comfortable working area well enough to do the best and 55 respondents (65.47%) agreed that they have the necessary facilities and equipment to perform their work successfully.

Salary is cited most frequently as a negative aspect of the work environment. Salary has also shifted to be more prominent as reason faculty members are leaving academia and the primary factor in filling a position[8]. In the present study only 17 respondents (20.23%) agreed that their salary was enough to cater for their personal and family needs. 23 respondents (27.38%) agreed that their job gives them a reasonable level of financial security.

Dissatisfied tenured faculty who intend to remain at an educational institution can present several unique challenges as faculty satisfaction with the work environment affects the opportunity to apply and maintain educational advances[8].

The authors would further recommend that more studies be carried out in other institutes and dental schools in the country to get a better idea of faculty job satisfaction so that if found low, the administrators be better alarmed at an early stage. It is further recommended that workplaces need to find ways in which to offer employees competitive pay, status, potential to achieve personal growth, flexible hours and defined career pathways.

Table1 :Demographic details of the respondents

Faculty by academic posts	Frequency (n)	Percent (%)
Assistant Professors	36	42.9
Associate Professors	12	14.3
Professors	27	32.1
Heads of the Departments	9	10.7
Total	84	100.0
Gender		
Males	48	57.1
Females	36	42.9
Total	84	100.0
Marital status		
Single	20	23.8
Married	63	75.0
Divorced	1	1.2
Total	84	100.0
	Mean	S.D
Age (n=84)	35.74	5.872
Years of experience	8.59	7.10
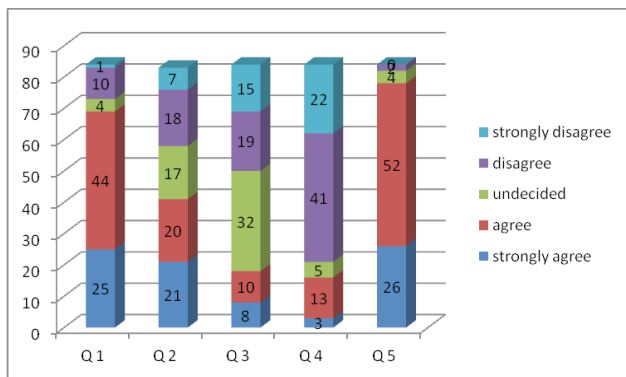
Graph 1: showing responses from questions 1 through 5.

Graph 2: showing responses from questions 6 through 10.
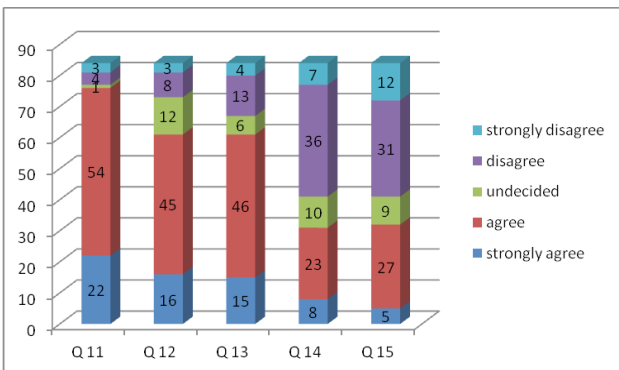
Graph 3: showing responses from questions 11 through 15.
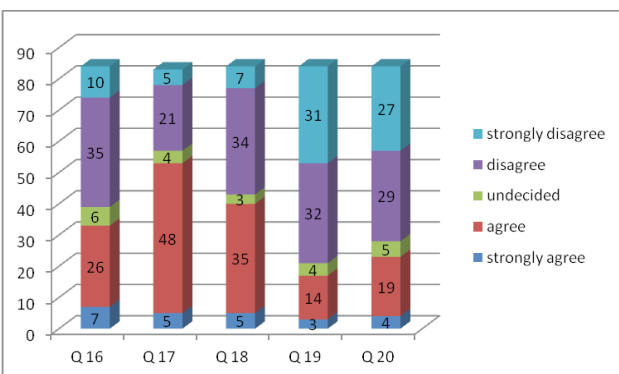
Graph 4: showing responses from questions 16 through 20

Graph 5: showing responses from questions 20 through 25.

CONCLUSION

Both positive aspects of job satisfaction and negative factors that impede productivity should be analyzed within the framework of each institution in order to retain and recruit viable faculty for the future. Dental administrators have a responsibility to create an academic dental work environment that welcomes all faculty members. Each dental institution needs to evaluate its environment as perceived by its faculty and make significant progress toward welcoming all faculty members.

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A Comparative Study of Clavicle Fractures by Conservative and Operative Management

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ABSTRACT

Clavicular fractures are one of the most common shoulder girdle injuries seen in casualty. 94 cases of clavicle fractures managed by conservative and surgical fixation were evaluated. 52 out of 94 patients were treated by conservative methods. 42 by surgical intervention. 50 patients had fracture in the middle one third and 44 patients had lateral third fractures.4 cases of nonunion were seen in cases managed by conservative means and 2 with tens fixation. All fracture treated with plate and screws united in our series united.

Keywords: *Clavicle fracture, recon plate, tens.*

INTRODUCTION

Clavicle fractures comprise 44% of all shoulder girdle injuries[1]. They are more common in young men and account for 5% to 10% of all the fractures[2]. The mechanism of injury is either a fall on the outstretched hand, a fall onto the point of the shoulder, or a direct blow to the shoulder[3].

Management of clavicle fractures has undergone tremendous changes in the recent past from conservative nonoperative management to operative management and internal fixation with various implants. Conservative methods include plaster casts, strapping, slings, Bohler's braces, Velpeau wraps. Most of the fractures unite successfully with one of these treatment methods.

However, open reduction and internal fixation are indicated in selected cases. These include[4] (1) severe angulations or comminution of a fracture in the middle third of the clavicle; (2) fracture of the distal third of the clavicle with disruption of the coracoclavicular ligament; (3) symptomatic non-union following treatment by closed methods. (4) associated neurovascular compromise due to posterior displacement and impingement of the bone fragments on the brachial plexus, subclavian vessels, and even the common carotid artery; (5) the patient's inability to tolerate prolonged immobilization due to Parkinsonism disease, a seizure disorder, or other neuromuscular disease;

The internal fixation of clavicle fractures include using circlage wires, intramedullary devices[5,6,7,8] (Steinmann pins, K wires, Knowles pins, rush nails, titanium elastic nails), and plate and screws[9,10,11] (reconstruction plate, dynamic compression plate, semitubular plate).

The aim of this retrospective study was to assess the outcome of clavicle fractures managed by conservative and operative methods and to compare results with published series.

MATERIALS & METHOD

94 cases of clavicle fractures managed by conservative and surgical fixation with reconstruction plate, titanium elastic nail or k wires, between 2010 to 2013, in a rural tertiary care centre were included in this study. Formal informed consent and ethical committee clearance was obtained. The medical

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records including follow up details and radiographs of all the 94 patients were collected and reviewed. Patients included in the study were treated as either outpatients or in-patients.

Details of their age, gender, mechanism of injury, associated injuries and x-ray findings were recorded. Preoperative x-rays, postoperative x rays, follow up x rays at 6 wks, 3 months and at 6 months were reviewed for all the patients. Follow-up continued until there was evidence of clinical and radiological union.

The classification of clavicle fractures have been described by Allman, depending on anatomical site as fractures of medial third, middle third and distal third. The Robinson-Edinburgh classification is based on the displacement and comminution – both predictive of non-union.

Type 1A1:	nondisplaced	medial	Extraarticular
Type 1A2:	nondisplaced	Medial	Intraarticular
Type 1B1	displaced	Medial	Extraarticular
Type 1B2	displaced	Medial	Intraarticular
Type 2A1	nondisplaced	Middle	
Type 2A2	angulated	Middle	
Type 2B1	displaced	Middle	simple or wedge
Type 2B2	displaced	Middle	Comminuted
Type 3A1	nondisplaced	Lateral	Extraarticular
Type 3A2	nondisplaced	lateral	Intraarticular
Type 3B1	displaced	lateral	Extraarticular
Type 3B2	displaced	Lateral	Intraarticular

We use a descriptive classification depending on whether the fracture is Open or closed; Skin condition: normal, tented or threatened; Location: medial, middle, lateral, displaced or not, comminuted or not. Associated injuries including neurovascular compromise.

52(55.32%) out of 94 patients were treated by conservative methods. The type of fracture in these patients was closed, with minimal displacement or undisplaced, without much comminution, with normal skin condition and no associated neurovascular compromise.

42(44.68%) out of 94 patients were treated by surgical intervention. These patients had the indication for open reduction and internal fixation.

In that 15(15.96%) patients were treated by open reduction and internal fixation with titanium elastic intramedullary nail. Remaining 27(28.72%) were treated by open reduction and internal fixation with 3.5mm reconstruction plate and screws.

PROCEDURE

CONSERVATIVE METHODS: At first a closed reduction is attempted. The patient was seated on a stool and the surgeon stood behind. To reduce the clavicular fracture, the surgeon places his knee in between the scapulae and with his both hands the outer edges of the shoulder were held securely and were pulled upward, outward and backward. Then the fracture was manipulated into place. In patients with multiple injuries reduction was done in supine position.

After reduction, strapping was done and a commercially available clavicle brace was applied. Additional support was given for the arm in all the cases using an arm sling pouch. The patients were assessed clinically and radiologically for evidence of union at 3 wks, 6 wks and 3 months. The patients were allowed for gentle isometric and mobilization exercises after 3wks but lifting of heavy weights and overhead abduction were delayed upto 3 months

OPERATIVE TREATMENT

Titanium elastic nail and plate and screw fixation (3.5mm reconstruction plate) were used for internal fixation in our study. The surgery is done under general anesthesia with the patient in supine position with the head turned to the opposite side and a sandbag being placed beneath the affected shoulder. The extremity and the shoulder were draped free so that the entire extent of the clavicle could be exposed.

INTRAMEDULLARY FIXATION

A linear incision was placed directly over the fracture site and dissection carried down to the bone. Then with minimal periosteal stripping, the fracture fragments were mobilized. A 2.5mm k-wire was then drilled into the distal fragment from the fracture

site and out through the posterior border of this fragment and the subcutaneous tissue and skin on the posterior aspect of the shoulder. Then it is removed and a 2.5mm titanium elastic nail is introduced into the distal fragment through the fracture site exiting from the lateral end. It is then backed out through the lateral fragment. The fracture fragments were then reduced and held temporarily by pointed reduction clamps and the nail is advanced to the proximal fragment across the fracture site. Any loose fragments present were repositioned in its place and secured with encirclage wires if needed. The periosteum and muscles were closed in one layer as a sleeve over the fragments. The wound is then closed in layers.

PLATE AND SCREW FIXATION

The fracture site was exposed as described above. The fracture was reduced using pointed reduction forceps. Then a 3.5mm reconstruction plate is contoured to the shape of the clavicle and placed over the superior/anterior surface of the clavicle ,any loose fragments present were repositioned in its place and secured with encirclage wires or interfragmentary screw if needed and held temporarily with forceps or bone clamps in such a way that at least three holes were present on either side of the fracture. Then drill holes were made using 2.5mm drill bit, tapped using 3.5mm tap and 3.5mm cortical screws were driven to hold both cortices. A periosteal elevator was placed posterio-inferiorly to prevent penetration of the drill into deeper structures. The muscle and subcutaneous tissue were sutured over a suction drain. Skin closed with ethilon no.3-0.The drain is removed after 48hrs. Post-op antibiotics were continued for 5-7 days. Arm sling pouch was used for immobilization of the arm till suture removal in case of fixation with plate and screw and for about a month in cases treated with titanium elastic nail. The patients were allowed for gentle isometric and mobilization exercises after 3wks but lifting of heavy weights and overhead abduction were delayed upto 3 months after surgery.

RESULTS

52(55.32%) out of 94 patients were treated by conservative methods(fig1) and 42(44.68%) were treated by surgical intervention. In that 15(15.96%) patients were treated by open reduction and internal fixation with titanium elastic intramedullary nail(fig 2) and 27(28.72%) were treated by open reduction and internal fixation with 3.5mm reconstruction plate

and screws(fig3). The mean follow up was 8.2 months ranging from 6 to 13 months.

The age of the patients ranged from 21 years to 55 years with a mean of 32.1 years. 68 were male patients and 26 were female patients showing male preponderance. 50 patients had fracture in the middle one third and 44 patients had lateral third fractures. 64 had sustained the fracture following a road traffic accident and the remaining 30 due to trauma (fall on out stretched hand, assault, direct fall over the shoulder). 72 patients had fracture of right clavicle and the remaining 22 had fracture on left side.

4 patients had open fracture and all were treated by operative methods by titanium elastic intramedullary nail. Skin tenting was present in 22 cases and was treated by operative intervention. All 42 patients treated by surgical intervention had displacement of fracture fragments, and shortening of clavicle length more than 2cm. Out of 42 patients treated by surgery 8(20%) had lateral one third fracture and 34(80%) had middle third fractures.

The clinical criteria of union were lack of tenderness to palpation at the fracture site, no pain at the fracture site, and a full range of motion of the shoulder. The roentgenographic criterion of healing was obliteration of the fracture site by callus, with trabeculae crossing the fracture gap. Based on these criteria, the average time to solid union was three months, the range being two and half to five months.

OPERATIVE GROUP

It took a mean of 9.3 weeks for union with middle third fractures and mean of 10.2 weeks for fractures of lateral third treated by operative intervention. The duration of immobilization of the arm was till suture removal (1 – 2 weeks) in case of fixation with plate and screw and for about a month (3 – 4 weeks) in cases treated with titanium elastic nail. 2 cases treated by open reduction with titanium elastic intramedullary nail failed to unite. All the fractures treated with plate and screws united in our series.

None of the patients treated by operative intervention developed shoulder stiffness. The displacement was corrected and the clavicular length was maintained and deformity was not seen in any of these patients. No patients complained of a painful or unsighty scar in our series.

Superficial infection was seen in one case (%) operated with titanium elastic intramedullary nail. One case had outer migration of the nail within two weeks following surgery. Two patients operated with plate and screws had prominent metal (plate and screw) causing discomfort, and they underwent removal of implant one year following the fixation.

CONSERVATIVE GROUP

It took a mean of 7.9 weeks for union with middle third fractures and mean of 6.8 weeks for fractures of lateral third treated by conservative methods. The duration of immobilization ranged from 6 – 8 weeks (Mean – 5 weeks) till clinical union.

Non union was seen in 4(7%) cases, 1 in middle third fracture and 3 in lateral third fractures. In the one case of nonunion middle third fracture, the end result was satisfactory as he had no symptoms and had good range of movements. In the other three case of nonunion lateral third fracture, one had good range of movements and there was no limitation of function, the other two required operative intervention as they had symptomatic non-union.

Most of the cases treated by conservative methods united with a deformity (44 cases – 85%). However, there was no limitation of function attributable to the malunion in these patients.

6 patients treated by conservative methods developed shoulder stiffness after immobilization for 6 – 8 weeks. 4 of these were lateral third fractures and 2 were middle third fractures. All cases recovered from shoulder stiffness with good physiotherapy 12 weeks from the date of fracture.

DISCUSSION

An attempt has been made in this study to compare results of this study with that of the previous studies in the treatment of fractures of clavicle by either by conservative or open methods. Though the number of cases studied in this series is less, the case related data and the results appear to be comparable to some of the other series.

In this study the middle third fractures constituted about 86.2% and lateral third about 13.8%. No fracture of proximal third was recorded. The average age of the patient was 27.02%. This is comparable to nordqvist and Peterson series[2] (76% - middle third, 21% - lateral third and 3% - proximal third) and average age of 30

years. There was significant preponderance of men in all 2 groups of both series (M:F=59:14 in our series)

MECHANISM

The mechanism of injury in this series was 82.2% a fall on the lateral shoulder(direct forces) and 17.8% fall on outstretched hands(indirect forces). Our series is also comparable to that of Sankarankuty and Turner series[12](91%- direct and 9% indirect).Our series is also comparable to that of Stanley and associates(94% - direct and 6%- indirect).

CONSERVATIVE TREATEMENT OF FARCTURE CLAVICLE

In our series the nonunion rate in middle third fractures was 2.3%, with 88% of these fractures maluniting. This is comparable with the Nordqvist series[2](non union rate of 3.11%). However the malunion rate in Nordqvist series was 23.5%. The high malunion rate in our series was because even small degree of shortening/angulation was included as malunion in our series and a long term followup of these patients to assess remodeling was not possible in our series.

In our series the non union rate in lateral third fractures was 12.5%.This is comparable to the non-union rates of nordqvist[2] et al(9.11%). However, our non union rate in lateral third fractures were lower than that of Deffenbaugh et al (30%) and Brunner et al (31%).

OPERATIVETREAMENTOFFRACTURES OF CLAVICLE

In one out of the 2 non unions, we had introduced small tens which were not sufficient to control the rotations in a bone which exhibits so much movement in multiple planes. This resulted in loosening of the pin. Our complications in this series were superficial infections (1 case) and outer migration of the pin (1 case).

All fracture treated with plate and screws united in our series(nonunion – 0%) . this is comparable to similar excellent results in other series .- Manske et al[13](Non union – 0%),boyer et al(Non union – 0%) , Mullaji[10] et al(Non union – 0%)and EDwardson et al(Non union – 0%). The success rate of 100% in our series is because we used in all 7 holed plates. We attribute this gives better fixation, early mobilization and no evidence of non union as seen in our series.

We strongly recommend 7 holed plate fixation. The plate fixation on superior surface is recommended, if possible depending on fracture comminution, because the check x rays (AP view) will give a better view of the fracture healing and plate fixation. However, bad results have been seen in -Schwarz[14] et al (nonunion-8.33%), series attributed to the use of plates which were too small.

Fig 1Fracture clavicle malunited with conservative management

Fig 2 Fracture clavicle managed with orif with tens
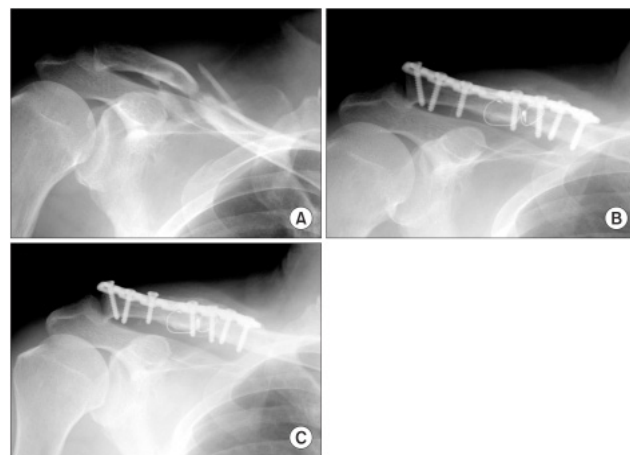
Fig 3 Fracture clavicle managed by orif with plate and screws

CONCLUSION

After review of literature and our own cases we believe the indications for open reduction are as follows:

1) Severe comminution or angulation of a fracture of the middle one third, causing compromise of the integrity of the skin overlying the fracture site

2) Neurovascular compromise caused by posterior displacement of the fragments and impingement of the bone fragments on the brachial plexus, subclavian vessels and sometimes the carotid

3) Fracture of distal third with disruption of the coracoclavicular ligament and marked displacement of the fragments

4) An unsightly cosmetic result anticipated because of displacement and comminution of fragments

5) Symptomatic non union when treated by closed methods

At the end of this study we have come to the conclusion that operative treatment of fracture clavicle with a 3.5 system reconstructive plate if practiced with proper asepsis and fine surgical skills is excellent for treatment of displaced and communized clavicle fractures.

Conflict of Interest : No

Source of Support: No

Ethical Clearance: Yes

References in Vancouver style: Yes

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Effectiveness of Yogic Practices on Glycemic Control and Body Mass Index among Type-2 Diabetes Mellitus Patients in a Selected Health Centre at Mangalore

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ABSTRACT

Background: It was estimated that the global burden of type 2 diabetes mellitus (T2DM) for 2010 would be 285 million people which was projected to increase to 438 million in 2030; a sixty five percentage increase. Similarly, for India this increase was estimated to be 58%, from 51 million people in 2010 to 87 million in 2030. Majority of people living in the developing nations do not possess the financial resources to pay for the modern drugs owing to the high costs. In order to taper down the usage of conventional drugs so as to reduce their side effects, complementary and alternative therapies are gaining importance these days which have shown remarkable effects in the management of diabetes and Body Mass Index.

Materials and method: A quasi experimental research approach with a time series design using a purposive sampling technique was adopted to draw 40 diabetic patients as subjects; 20 in the experimental group and 20 in the control group. A glucometer was used to analyze the FBS & PPBS levels of patients. Morrison's weighing machine and inch tape was used to record weight (in kilograms) and height (in meters) of the subjects respectively on first day (Pre test) following which Vakrasana yoga was taught to the experimental group at the PHC (individual as well as in small groups).Weekly supervision of the subjects was carried out and a compliance diary to ensure adherence to the treatment was also provided. Post tests were conducted on the 21st and 31st days in the experimental and control group.

Results: There was a significant difference in the mean FBS scores ($t_{(39)}$=0.035, p<0.05) and mean PPBS scores ($t_{(39)}$=0.052, p<0.05) of diabetic patients in the experimental group before and after practising yoga therapy. No significant difference was seen in the mean BMI scores of diabetic patients in the experimental group before and after practising yoga therapy ($F_{(2,57)}$ =0.743, p<0.05) and between the experimental group and control group ($t_{(38)}$= 1.417, p< 0.05). There was significant difference in the FBS level ($t_{(38)}$= 5.029, p<0.01) and PPBS level ($t_{(38)}$=6.101, p<0.01) between the experimental group and control group. There was no significant association of physiological factors with the selected demographic variables ($p_{(4)}$ = 2.776, $p_{(3)}$= 3.182, $p_{(2)}$=4.303, $p_{(1)}$ =12.706, p<0.05).

Discussion: In this study, yogic practices (Vakrasana) were effective in reducing the blood sugar values, but failed to bring about significant difference in body mass index among type 2 diabetes mellitus patients.

Keywords: *Effectiveness; yoga therapy; diabetic patients.*

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INTRODUCTION

Expert Committee on the Diagnosis and Classification of Diabetes Mellitus of American Diabetes Association defined diabetes mellitus as a group of metabolic diseases characterized by elevated levels of glucose in the blood resulting from defects in

insulin secretion, insulin action, or both. The primary goals of treatment for patients with diabetes include controlling blood glucose levels and preventing acute and long-term complications. Thus, the nurse who cares for diabetic patients must assist them to develop self-care management skills.[1] Diabetes cannot be cured, but it can be controlled. By nature, diabetes can be significantly influenced by daily self care. No other disease demands so much of patient's self knowledge and skill as diabetes mellitus. Thus the professional nurse has challenge and responsibility of helping patients gain the knowledge, skills, and attitudes necessary for self care.[2]

The goal of treatment in type 2 diabetes is to keep blood sugar levels at normal or near-normal levels. Careful control of blood sugars can help prevent the long-term effects of poorly controlled blood sugar (diabetic complications of the eye, kidney, and cardiovascular system). These goals are most likely to be met when the patient is able to maintain blood glucose levels as near to normal as possible. Nutritional therapy, drug therapy, exercise and self monitoring of blood glucose are the tools used in the management of diabetes.[3]

Yoga has been utilized as a therapeutic tool to achieve positive health and control and cure diseases. There is increasing evidence suggesting that even the short-term practice of **Yoga** can decrease both psychological and physiological risk factors for Cardio Vascular Disorders and may reduce signs, complications and improve the prognosis of those with clinical or underlying disease.[4]

MATERIALS & METHOD

A quasi experimental time series design was adopted for the study. In the present study, the independent variable is the yogic practice of "Vakrasana" and the dependent variables are glycaemic index (FBS, PPBS) and body mass index and 40 type 2 diabetes mellitus patients who fulfilled the inclusion criteria were selected from a health center in Mangalore. Non probability purposive sampling technique was used to select the samples and assign them to experimental (n=20) and control groups (n=20) from selected health centers at Mangalore. Data collection tools used in the study was Demographic proforma, Physiological measurement tool, Compliance diary and Yogic intervention package.

The prepared tools along were sent to 7 experts for validation, 3 experts from the field of medical surgical nursing and 4 experts from the field of yogic sciences. The investigator underwent yoga therapy training programme from Pranava Yoga Centre, Mangalore and obtained a certificate as a licensure for teaching yoga to the subjects who wished to participate in the research. In order to establish reliability, the tool (demographic proforma) was translated into Kannada and tested on 15 diabetic patients. Reliability of the physiological measurement tool and Morrison's weighing machine was established by inter rater reliability method by two independent investigators. Karl Pearson's correlation coefficient was found to be 0.991 indicating that the tool was highly reliable.

Ethical clearance was obtained through the Institutional Ethics Committee. An informed consent was obtained from the participants on the first day. Prior to data collection, permission was obtained from the concerned authority to conduct the study. On the first day, a pre-test was conducted on the experimental and control group. A glucometer was used to analyze the FBS & PPBS levels of patients. Morrison's weighing machine and inch tape was used to record weight and height of the subjects respectively. Vakrasana was taught to the experimental group at the primary health centre. Weekly supervision of the subjects was carried out and a compliance diary to ensure adherence to the treatment was also provided. The post tests were conducted on the 21st and 31st days on the experimental and control group.

Data was analyzed by both descriptive and inferential statistics (frequency and percentage, Paired & Unpaired 't' test, Repeated measures anova, Fischer's probability test. To compute the data, a master sheet was prepared by the investigator. The data was analysed using Statistical Package for Social Sciences (SPSS) version 17.0

FINDINGS

Highest percentage of subjects (40%) belonged to the age group of 50-60 years in the experimental group. In the control group, the highest percentage of subjects (45%) belonged to the age group of 60-70 years. In the experimental group majority, of the subjects were females (55%); On the contrary, there were an equal proportion of males and females in the control group (50%). Concerning the marital status, all the subjects in the experimental as well as the

control group were married.

In the experimental group, the majority (55%) of the subjects were diagnosed of Diabetes >3 years ago. In the control group, the highest percentages of subjects (45%) were diagnosed 1-3 years ago. All subjects (100%) belonging to the experimental and control group were consuming oral hypoglycemic agents as a treatment for diabetes. In the experimental group majority of subjects (70%) had no co-morbidities. In the control group majority of subjects (75%) had no co-morbidities. None of the subjects (100%) belonging to the experimental nor control group had any knowledge regarding yoga therapy.
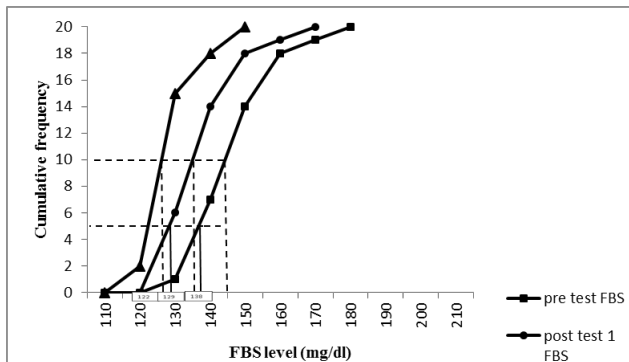
Figure 1: Cumulative Frequency Curve Showing the Distribution of Pre Test, Post Test 1 And Post Test 2 FBS Levels in the Experimental Group.

Figure shows that the pre test FBS median 144.5 is higher than the post test 1 median 136 and post test 2 median 128. The post test cumulative frequency curve of FBS lies over to the right over the entire range showing that post test 1 FBS level and post test 2 FBS level is consistently lower than that of pre test FBS level.
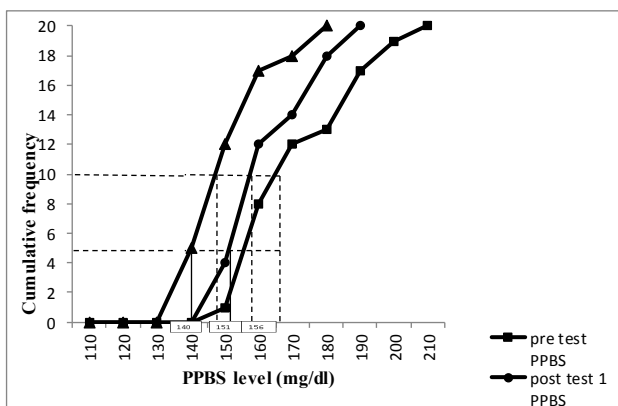
Figure 2:Cumulative Frequency Curve Showing the Distribution of Pre Test, Post Test 1 And Post Test 2 PPBS Levels in the Experimental Group

Figure 2 shows that the pre test PPBS median 165.5 was higher than the post test 1 median 157.5 and post test 2 median 149.5. The post test cumulative frequency curve of PPBS lies over to the right over the entire range showing that post test 1 PPBS level and post test 2 PPBS level were consistently lower than that of pre test PPBS level.
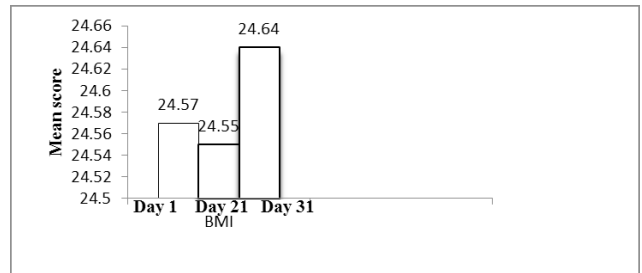
Figure 3: Bar Diagram Showing the Comparison of Mean Scores of the Pre Test and Post Test BMI of the Experimental Group.

Figure shows that at pre test the mean BMI level of the subjects in the experimental group is 24.57 which reduced to 24.55 (lowest) at post test 1 and then rose up to 24.64 (highest) at post test 2.

Table 1: Bonferroni 't' test Showing Significant Difference between the Pre Test and Post Test FBS Values of the Experimental and Control Group Assessed Over 3 Different Days.   N=20+20

group	(I)time time	(J)	Mean difference (I – J)	p
Experi-mental	Pre test test 1	Post Post test 2	8.1500 16.5500	0.035 sig <0.001 vhs
	Post test 1 test 2	Post	8.4000	0.028 sig
Control	Pre test test 1	Post Post test 2	-1.2500 -3.8000	1.000 0.830
	Post test 1 test 2	Post	-2.5500	1.000

$t_{(39)}$=1.960, p< 0.01, significant

The data depicted in table 1 show that there is a significant difference between the pre test and post test FBS values of the experimental group.

Table 2:   Bonferroni't' test Showing Significant Difference between the Pre Test and Post Test PPBS Values of the Experimental and Control Group Assessed Over 3 Days.

N=20+20

Group	(I)Time	(J) Time	Mean difference (I – J)	p
Experimental	Pre test	Post test 1 Post test 2	10.8500 21.7000	0.052 sig <0.001 vhs
	Post test 1	Post test 2	10.8500	0.052 sig
Control	Pre test	Post test 1 Post test 2	-2.8000 -4.4500	1.000 1.000
	Post test 1	Post test 2	-1.6500	1.000

$t_{(39)}$= 2.262, p< 0.01, significant

Data depicted in table 2 shows that there is a significant difference between the pre test and post test PPBS values of the experimental group.

Table 3: 'F' Value Showing the Significance of Difference between the Pre-Test and Post-Test BMI Values of the Experimental Group.

N=20

Obsevations	Mean	Source of variation	Degrees of freedom	Sum of squares	Mean square	F ratio
Pre test	24.57	Between groups	2	783	391	
Post test 1	24.55	Within group	57	74.598	1.309	0.743
Post test 2	24.64	Total	59	75.380	1.277	

$F_{(2,57)}$ =3.15, p<0.05, not significant

Data depicted in table 3 shows that there is no significant difference between the pre test and post test BMI values of the experimental group.

Table 4: 't' Value of Post-Test Scores of Physiological Factors among Diabetic Patients between the Experimental and Control Group.

N= 20+20

Factor	Parameters		Group	Observations	Mean	SD	't' value
Physiologic	Glycaemic Level	FBS	Experimental Control	Post test 1 Post test 1	137 174	9.43 10.6	2.436
			Experimental Control	Post test 2 Post test 2	128.8 144.8	8.26 11.19	5.029
		PPBS	Experimental Control	Post test 1 Post test 1	160.7 174	12.76 16.89	2.738

Table 4: 't' Value of Post-Test Scores of Physiological Factors among Diabetic Patients between the Experimental and Control Group. N= 20+20 (Cont...)

			Experimental Control	Post test 2 Post test 2	149.8 175.6	10.90 14.86	6.101
		BMI	Experimental Control	Post test 1 Post test 1	24.55 24.25	1.06 0.75	1.006*
			Experimental Control	Post test 2 Post test 2	24.64 24.30	1.03 0.77	1.417*

t(38) =1.960, p<0.05, significant, *not significant

The data depicted in table 4 shows that there is a significant difference between the post-test scores of FBS & PPBS of the experimental and control group and no significant difference between the post-test scores of BMI values.

Table 5: Fischer's Probability Test of the Experimental Group Showing Association of Pre Test of Physiological Factors with the Selected Demographic Variables.

N= 20+20

Groups	Demographic variables	Physiological parameters		
		p value		
		FBS	PPBS	BMI
Experimental (N=20)	Age Sex Education Diagnosis Co-morbidities	0.348 0.315 0.348 0.021 0.244	0.348 0.315 0.348 0.021 0.244	0.348 0.315 0.135 0.315 0.244
Control (N=20)	Age Sex Education Diagnosis Co-morbidities	0.409 0.315 0.3301 0.3301 0.383	0.307 0.315 0.308 0.3301 0.298	0.068 0.021 0.308 0.3301 0.298

$p_{(4)}$=2.776, $p_{(3)}$=3.182, $p_{(2)}$=4.303, $p_{(1)}$=12.706, Not significant; p<0.05

The data depicted in table 8 show that there is no significant association of physiological factors of diabetic patients with the selected demographic variables at 0.05 level of significance.

DISCUSSION

In this study, yogic practices (Vakrasana) were effective in reducing the blood sugar values, but failed to bring about significant difference in body mass index among type 2 diabetes mellitus patients. Highest percentage of subjects in the experimental group (40%) and in the control group (45%) belonged to the age group of 50-60 years and 60-70 years respectively. Majority of the subjects in the experimental group were females (55%) while there were an equal proportion of males and females in the control group (50%). In the experimental group majority (55%) of the subjects were diagnosed of diabetes >3 years ago.

These findings were supported by an interventional study conducted among 40 NIDDM samples that were selected from the outpatient clinic of G.T.B. hospital, Delhi where the age group of patients ranged between 30-60 years and subjects

were diabetic since 10 years.[5]

The mean FBS level was 145.3± 10.98 which significantly came down to 128.8± 8.26 in the experimental group (Beginning Vs end of the study). These findings are supported by the study conducted among 40 NIDDM samples selected from the outpatient clinic of G.T.B. hospital, Delhi, where a 40 day yoga asana regime under the supervision of a yoga expert was done. The fasting and one hour postprandial blood glucose levels and anthropometric parameters were measured before and after yoga asanas. The results indicate that there was a significant decrease in fasting glucose levels from basal 208.3 +/- 20.0 to 171.7 +/- 19.5 mg/dl.[5]

The mean PPBS level was 171.6±16.58 which significantly came down to 149.8± 10.90 in the experimental group (Beginning Vs end of the study). A randomized controlled study to assess the effects of yoga - pranayama practices on metabolic parameters and anthropometry in 44 type 2 diabetes was conducted at Dr B.R. Ambedkar Medical College, Bangalore. The test group (T1 and T2) were taught yoga and pranayama for 3 months, 1 hour every day in the morning by yoga expert. The results showed significant decrease in metabolic parameters, in PPBS with p< 0.001 [T1- 270.64 + 76.6 to 196.90 + 64.67, T 2 – 230.62 + 71.32 to 183.46 + 52.20], Hb A1c with p< 0.001 in both the T1 and T2 sub groups, [T1- 9.77 + 0.5 % to 7.68 + 0.4% and T 2 – 8.46 + 0.3% to 7.23 + 0.3%].[6]

There was no significant association of physiological factors of diabetic patients with the selected demographic variables ($p_{(4)}$=2.776, $p_{(3)}$=3.182, $p_{(2)}$= 4.303, $p_{(1)}$= 12.706 , p<0.05). This finding was supported by a multi-ethnic; community-based cohort study of women transitioning the menopause was conducted. Glycaemic Load (GL) and Glycaemic Index (GI) were estimated from dietary information obtained at study follow-up visit 05 using a modified Block food frequency questionnaire. GI and GL were consistently lower in Caucasian women than African American, Japanese or Chinese women. There are no significant associations between age, smoking status, supplement use, education level, sports index and vegetable intake with GI among all the ethnic groups.[7]

These findings showed that yoga therapy was effective in controlling physiological factors like glycaemic levels (FBS, PPBS) but unsuccessful in optimising body mass index (BMI) of patients in the experimental group within a month's time.

Ethical Clearance: Got clearance from institutional ethical committee before the study commenced.

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Gender Preference and Awareness on Sex Determination among Married Woman in Ranchi

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ABSTRACT

Sharp decline in sex-ratio has been observed in India resulting in 40-50 million missing girls since 1901 which cannot be explained by migration, undercount or biologically-ordained differentials at birth alone. A Cross-sectional study was undertaken among married women (in the reproductive age group, 15-45 years) attending G/O OPD, RIMS, Ranchi to study the extent of gender preference and socio-demographic factors associated with it, awareness regarding sex determination techniques and laws governing them. Sample Size — 127; Overall male preference was seen in 66.7%, 23.5% of respondents preferred female child, whereas 9.8% of respondents were indifferent. For male preference the reason offered most commonly being prestige in society. Preference for male child was higher in rural respondents (76.9%). Majority of respondents (70.59%) were aware of sex-determination techniques. Awareness about USG as technique for PNDT was universal. Main sources of information about sex-determination were media (72%). 2/3rd of subjects were aware of place where sex-determination could be carried out. 61% of them had also knowledge about existing laws on PNDT. Rural respondents (60%) were more willing for sex-determination compared to urban counterparts (37.5%).

Keywords: Gender preference, Sex selection, PNDT, Ultra-sonography.

INTRODUCTION

As in societies of East Asia, North Africa, the Middle East and other parts of South East Asia, couples in India have been observed to have a strong preference for sons over daughters. [1] The Sex ratio (number of females per 1000 males) in India is 940. The past century was marked by a steady decline in the country's S.R, 972 in 1901 to 927 in 1991. The beginning of 21st century shows a marginal increase, 933 in 2001 to 940 in 2011. [2] According to UNICEF, 40-50 million girls have gone missing in India since 1901. [3] According to Nobel Laureate Amartya Sen One third of the worlds missing women are in INDIA. The low sex ratio in India is termed "Missing Women" phenomenon by Dreze and Sen. [4] There has been a change in the much written about north south (Narmada -Sone axis) divide in sex ratio pattern,

making ingress into entire Gujarat and Maharashtra. The "northernization" of sex ratios [5] is rapidly taking the urban route. One defining indicator of the grim scenario is the sharp decline in CSR (Child Sex Ratio 0-6 Years) which is more marked in urban area. [6] It's a powerful indicator of i) Social response and attitude towards the girl child in past ii) Effectiveness of recent interventions and guide to future. CSR is primarily influenced by sex ratio at birth and mortality in the early childhood. The natural sex ratio at birth usually has higher male births. [7, 8, 9] It ranges between 943 and 954. But it is neutralized due to higher male infant mortality in the normal population. Prior to 2001, the child sex ratio was close to sex ratio at birth but due to rapid decline, this has fallen even below the natural SRB in Census 2001 and 2011. [2, 10]. Sharp decline in F/M ratio among children cannot be explained by the escape hatches of migration, undercount or biologically ordained high sex ratio at birth. It clearly points out to one factor SEX SELECTIVE ABORTION. [1] An analysis of NFHS data roughly estimates the use and misuse of Pre Natal Diagnostic Tests, it shows that 6% of female foetuses were aborted after P.N.D.T.

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and assuming undisclosed use the % rises to 17%. [11] A study in Lancet estimates 5 million female foetuses are aborted each year in India after P.N.D.T. [12] The reason for this overwhelming son preference lies buried in a number of economic ,social, and religious reasons like financial support, old age security, property inheritance, dowry, family lineage, prestige, religious duties and salvation.[1, 13] A deleterious fallout of the subjugated position of women is their vulnerability to violence like domestic violence, rape, sexual abuse, dowry harassment, trafficking etc. Jharkhand is a state with a predominant tribal population. The state still has a good S.R. of 948 as compared to the national average of 940. Although the 2011 Census recorded an increase of 7 points in the overall sex ratio, the C.S.R. of Jharkhand has shown a decrease by 17points, the fall is sharper in urban area which is a matter of great concern. [10]

MATERIAL & METHOD

Objectives - 1) To study the extent of gender preference and socio-demographic factors associated with it; 2) To study awareness regarding sex determination techniques and laws governing. *Methodology* - A Cross-sectional study was conducted in Gynaecology and Obstetrics OPD, RIMS, Ranchi using a pretested and pre-structured proforma. Every tenth women fulfilling our criteria for target population (married women in the reproductive age group, 15-45 years) was interviewed after taking written informed. 127 females formed a part of our study in the time period of three month.

FINDINGS

Gender preference was studied in currently pregnant as well as non-pregnant women. Currently pregnant women were asked about the gender preference for the ongoing pregnancy, where as for non-pregnant women desire for another children and then gender preference in future pregnancy was asked for. Overall, male preference was seen in 66.7% of respondents. Majority of respondents (73.5%) preferring a male child did so for social acceptance the reason offered most commonly being prestige in society and respect in family from in-laws. Economic reasons (58.8%) as well as Birth order (58.8%) were other major reasons for male preference. Economic reasons most commonly included the fact that sons do not burden the family with dowry, on the contrary their earnings contribute to the family income unlike

an earning daughter who takes away dowry and her earnings are an asset for her in laws and not parents. Birth order was also an important determinant for male preference as 53% of the respondents had either no son or 2 or more daughters. Whereas, religious believes were responsible for male preference in 5.9% of the total respondents. Preference for male child was higher in rural respondents (76.9%) as compared to urban respondents (23.1%) [Table1]

Table 1: Association between place of residence and male preference

Residence	Male Preference	Percentage	χ^2value	P value
Urban	Present	42.11%		
	Absent	57.89%	4.69168	<0.05
Rural	Present	76.92%		
	Absent	23.08%		

A) Gender preference among pregnant women and socio-demographic factors associated: In currently pregnant women, it was observed that male preference was 43.5% as against female preference and it decreased with literacy. [Table 2].

Table 2: Association between education and male preference

Literacy	Male Preference	Percentage	χ^2 value	P value
Illiterate	Present	81.82%		
	Absent	18.18%		
Primary	Present	62.5%		
	Absent	37.5%		
Matriculation	Present	44.44%	5.36384	<0.05
	Absent	55.56%		
Intermediate	Present	28.57%		
	Absent	71.43%		
Graduate & Above	Present	12.5%		
	Absent	87.5%		

Male preference was absent in tribals & maximum in general category. Among the rural women, female preference was absent. Female preference was 50% in both Christians & Muslims but only 5% in Hindus. No trends were seen with income variation. When Gender

preference was studied with order of pregnancy it was found that male preference was 36.4% for the first pregnancy, 40% for second pregnancy and increased to 100% for 5th order pregnancy [Table 3]. Also, of the currently pregnant women, only those with first pregnancy preferred females (27.27%).

Table 3: Gender preference in pregnant women with order of pregnancy

Number Of Living Children	Male Preference (%)	Female Preference (%)	Indifferent (%)
0	36.36	27.27	36.36
1	40	0	60
2	66.67	0	33.33
3	33.33	0	66.67
4	100	0	0

B) Gender preference among non-pregnant women and socio-demographic factors associated: In case of non pregnant women, it was found that though the mean ideal number of children was around 3 but majority women wanted 2 children only, which may play a role in sex selection. Of all the non pregnant women wanting another child, all those who had 2 living daughters did not want another daughter so male preference was 100%. In those having one daughter only, female preference was nil but 33.33% were indifferent. Where the only child was a son equal preference for male &female was found. I also studied desire for more children which indirectly expresses the preference for a male child by taking into account the gender composition of children of women who do not want another child. I studied women with two children only. It was seen that in those women were both the children were male, or one child male and one female, none of them wanted another child. Whereas, 80% of women with no living male child wanted another child and the male preference was 100% in them irrespective of their literacy level and place of residence. Many tribal women ideally wanted first order child, male, although they would not prefer to abort a female foetus. This is an indication of the effect of the socio cultural milieu affecting the tribal population.

C) Awareness on technique used for sex determination, its source and place for sex determination: Majority of the respondents

(70.59%) in our study were found to be aware of sex determination. The urban respondents were found to be more aware of sex determination. As expected awareness on sex determination increased with increasing literacy status of the respondents. Awareness for USG as a method for sex determination was found to be universal and that for amniocentesis 5.56%. Only a mere 5.56% of the respondents were however found to be aware of the traditional methods used for determining the sex of foetus. Media (72.2%) was found to be the most instrumental in increasing the awareness for sex determination. Friends, neighbours and relatives also significantly contributed to increasing the level. A majority (66.67%) were aware of the place where sex determination was carried out. It was found that the level of awareness for the place was more in the urban respondents (72.41%) than in the rural (42.86%). The level of awareness again was found to be increasing with increasing literacy status of the respondents. 95.83% of those aware of place where sex determination is carried out believed that it is done in Private hospitals and 16.67% in mobile vans. A meagre 12.5% said that sex determination is also done in government hospitals provided a request for the same is made.

D) Awareness on the existence of any law in relation to sex determination: A majority (61.11%) of those aware of sex determination and its techniques were found to be aware of the existence of law in connection with it. The level of awareness for the existence of law in connection with it was found to be more in the urban respondents than their rural counterparts. Awareness for law among the Hindus was found to be 57.58%. A rising trend in the level of awareness was noted among the respondents with increasing literacy status. Of those aware of law, 22.73% believed that it was illegal to determine the sex of the foetus while 13.63% of the respondents were not aware of the contents of the law. Majority (63.64%) of the respondents were of view that it was not illegal to determine the sex of the foetus but it is illegal to abort a female foetus after determining its sex. No specific relation was found between the literacy status and the level of awareness on the legal implications of sex determination.

CONCLUSION

The present study indicates alarmingly high son preference in our society which is the root cause of inclination to pre natal sex determination and female

feticide. Socio-demographic factors like residential area and sex of the previous child affects preference for next child, while education increases awareness regarding consequences of adverse effects of sex selection.

DISCUSSION

Son preference was noted to be present among 66.7% of the respondents of our study. Similar findings were seen in study by Vadera *et al* in Jamnagar [17] as well as by Puri *et al* [18] in the slums of Chandigarh in which male preference was seen in 58.5% and 56% respectively. Our study revealed preference for male child was higher in rural respondents (76.9%). Similar findings were reported in the rural population of Jamnagar[17] where preference to male child among women was about 70.68% but that for the urban women was much higher (53.28%) than our study. The reasons behind male preference were social acceptance in 73.5%, Economic reasons (58.8%), Birth order (58.8%) and religious beliefs in 5.9% of the total respondents. In the study by Vadera *et al* [17] the major reasons for male preference social responsibilities carried out by males (42.5%), for propagation of family name (23%), dependable in the old age (16%), pressure from family (11%), to perform cremation (4%), dowry (3%) and females are economic liability (3%). Son preference was observed more in women having more daughters. This can be seen from the fact that very few women with 2 living daughters wanted to terminate child bearing. In a study in Punjab, Das Gupta [19] also found that the sex differential in child mortality was much higher for second and subsequent daughters. This subset of girls experiences 53% higher mortality than other children. Whereas, NFHS-3 data for 2004-05 [1] also shows that the proportion of women terminating a pregnancy bears no relation to the number of previous sons. In other words, women who already have two or more children seem to be terminating their next pregnancy for reasons of not wanting another child, irrespective of sex. In our study it was found that male preference decreases with literacy of women. Also, in her study in rural Punjab, Das Gupta [19] found that women's education was associated with a reduction in overall child mortality together with a stronger discrimination against higher birth order girls. The commonest source of awareness on sex determination techniques being media, was high and most women knew that it could be carried out in a private setting only. In our study awareness for USG as a method for sex determination was found to be universal. Using the data from the National Family Health Survey of India [1] provide evidence on the widespread use of ultrasound for sex-selective abortions in India, and for particular 21 states. Majority of women in our study knew that sex determination was illegal. There was confusion as to what is illegal in relation to sex determination and most of the respondents believed that it was aborting the female child which was illegal and not finding sex of the foetus, irrespective of the educational status. In another study by Bhagat *et al* [20] in Delhi the majority of respondents were aware of one or more method for sex detection and selection; however, less than half of the participants were aware that sex detection and selection is illegal.

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A Study of Under Nutrition among Under 5 years Children by Literacy Status of Parents

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ABSTRACT

It is increasingly being recognized that good health is an important contributor to productivity as economic growth. In a poor country like India there the only assets most people have is their body's health assumes even greater significance. Good health and its natural defense against illness are fundamental to every man, women and child not only for their well being but also for their survival.

India in the past few decades, has witness rapid progress in terms of industrialization and agricultural production. Yet malnutrition especially under nutrition continues to be a major problem of public health significance in the country. It is a major contributor to high rates of childhood mortality maternal mortality and morbidities in the community. Though poverty is a major underlying cause, scores of other factors such as socio-demographic, socio-economic socio-cultural and lifestyle practices contribute significantly to the problem of malnutrition.

The survey instrument was a structured questionnaire which was finalized after pre-testing and pilot study.

Keywords: *Literacy status of parents, Preschool Children.*

INTRODUCTION

There have indeed been large gains in health status since independence life expectancy has gone up to 36 years 1951 to 62 years in1995. Infant mortality rate is down from 146 in 1951 to 71 in 1997 crudebirth rate has been reduced to 36.9 in 1970 to 26.1 in 1998 and crude death rate to 14.9 to 8.7 in same the same period. One of the major reasons for these gains has been the development of an impressive vast three tiered system of rural health infrastructure with sub centre for each 5000 population primary health center (PHC) for each 100000 population. Children below five and women in the reproduce age group make up 36.2% of the population of the India. In the term of survival and well being, they constitute the valuable most group in society. The estimates available show that the maternal mortality rate (MMR) continues to remain at an unacceptable level 408 for 100000 live births. The cause for these poor indicators of maternal health are well documented the low socio-economic status of women the under nourishment and anemia among them the low proportion of institutional deliveries and the absence of trained birth attendants in as many as two third of cases.[1]

Introduction of "PD" (Positive Deviance) Programme was a step to accelerate the process of reduction and prevention of under nutrition among under 3 year children, in a sort time, by enabling the communities to adopt "best local practices of childcare", on sustained basis. The "PD" is defined as 'on asset based approach, built on the belief that in every community, there exists few mothers with special efforts or batter child care practices, which enable them to prevent under nutrition among their children, compared to their counterparts, who live with similar socioeconomic background and

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resources, and are exposed to the same risks from the existing environment". Therefore, it is assumed that the PD Programme acts as a quality improvement tool for ICDS, to improve its process as well as outcome variables.[2] It emphasizes on "Community Investment" and "Participation by change in behaviors" through practice.[3]

A double blind randomised placebo controlled study is in progress to evaluate the impact of supplementation of a cocktail of micronutrients in the form of a specially fortified beverage on physical and mental development of school children with a positive placebo control. Analysis of baseline data indicated that the boys achieved higher IQ as compared to girls. [4.]

OBJECTIVES

1. The general objective of the study was to assess the health and nutritional status of <5 year children.

2. To assess nutritional status of preschool children by literacy status of parents.

HYPOTHESIS

1. To study nutritional awareness level of preschool children parents.

2. There will be no significant difference between mean score of child nutrition awareness of parents.

MATERIAL AND METHOD

To study nutrition awareness level of parents studying in different educational stream questionnaire was used.

Selection of sample: For the study surendranagar district was selected. From anganwadi of surendranagar hundred anganwadi were selected.frome each anganwadi 5 child were selected and total sample size of 100 anganwadi was 512.

Collection of data: Information was collected through questionnaire. Sample was selected from present child. Child were selected randomly and selected child's parents were given nutrition awareness questionnaire and the scores obtained were calculated according to opinion given by parents.

Data analysis and findings:- To check hypothesis statistical method t test were used the collected information. Correlation between data was calculated by correlation technique for collected data. After application of statistical test derived finding are as under.

RESULT

Literacy status of father:- About 80% of the fathers of the index children were literates. About 13% had an education level of 1-5th class, about 52% had schooling of 6th-10th class, 9%were studies up to intermediate, and 6% had graduation or above.

Literacy status of Mother:- About 72% of the mothers of the index children were literates. About 20% of them had an education level of 1-5th class, 46% were educated up to 6th-10th class, while only 5% had education level of intermediate or above.
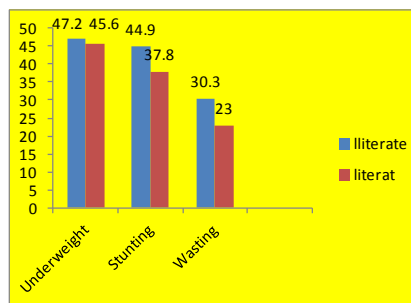
Figure-1: Prevalence (%) of under nutrition among <5 yrs children according to SD classification (<Median-2SD) -By Literacy status of father

Literacy status of father:- Though not significant, the children of illiterate fathers were more under weight, stunted and wasted (47%,45% and 30% respectively) compared to the children of literate fathers (46%,38% and 23% respectively)(fig.1).
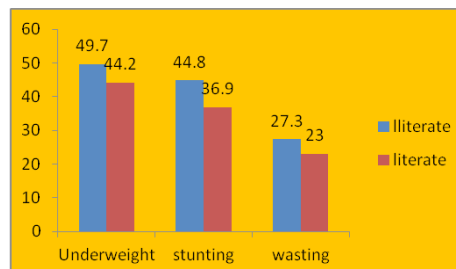
Figure-2: Prevalence (%) of under nutrition among <5 yrs children according to SD classification (<Median-2SD) -By Literacy status of Mother

Literacy status of mother:- The prevalence of underweight, stunting was wasting was found to be higher among children of illiterate mothers (50%,

45% and 27% respectively), compared to those of literate mothers (40%, 37% and 235 respectively). The differences, however, were not statically significant (fig. 2).

CONCLUSION

Based on the findings it could be concluded that if literacy status of parents is good than the nutritional status of the child will be superior.

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Laboratory Diagnosis of Tuberculosis in India: Challenges and Opportunities

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ABSTRACT

India is the highest TB burden country in the world in term of absolute number of incident cases that occur each year. It accounts for one-fourth of the estimated global incident TB cases in 2010. In India, TB control relies on passive case finding among individuals self-presenting to health care facilities, followed by either diagnosis based on clinical symptoms or laboratory diagnosis using sputum smear microscopy. Since RNTCP relies on sputum smear microscopy for diagnosis, categorization of patients and assessment of treatment progress, the credibility, success and sustainability of the programme depends on the strength of the laboratory network.

Keywords: *Tuberculosis. MDR TB, TB-HIV, Laboratory Diagnosis.*

INTRODUCTION

In many developed countries, tuberculosis (TB) is considered a disease of the past. However, the impact of this disease can be devastating even today[1]. India is the highest TB burden country in the world in term of absolute number of incident cases that occur each year. It accounts for one-fourth of the estimated global incident TB cases in 2010[2]. Drug resistance TB is another challenge in India, As per WHO's "Global Tuberculosis Report, 2012", India account for an estimated 64000 patients out of 310000 cases of Drug Resistant TB estimated to have occurred amongst the notified cases of TB across the globe in a year[3]. In this review, we describe the TB diagnostic tools, and issues involved in providing quality-assured (QA) TB laboratory services. Much of the scientific foundation for the internationally recommended Directly Observed Treatment Short course chemotherapy strategy, "DOTS", was established in India. Since 1993, the Revised National Tuberculosis Control Programme (RNTCP), utilizing the DOTS strategy, is being implemented in India. By March 2006, RNTCP had expanded to cover over a billion populations. To date, entire country is fully covered under RNTCP. Since RNTCP relies on sputum smear microscopy for diagnosis, categorization of patients and assessment of treatment progress, the credibility, success and sustainability of the programme depends on the strength of the laboratory network. The establishment of a well functioning laboratory network that provides the population with easy access to high quality smear microscopy services is of the highest priority for RNTCP. Poor quality microscopy services have serious implications for the programme, including the failure to detect persons with infectious TB who will continue to spread infection in the community, or leading to unnecessary treatment for "non-cases." Errors in the reading of follow up smears may result in patients being placed on prolonged treatment, or in treatment being discontinued prematurely[4].

Burden of tuberculosis in India: Though India is the second-most populous country in the world, India has more new TB cases annually than any other country. In 2011, out of the estimated global annual incidence of 9 million TB cases, 2.3 million were estimated to have occurred in India [2,5,6].

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	Number (Millions) (95% CI)	Rate Per 100,000 Persons (95% CI)
Incidence	2.3 (2.0–2.5)	185 (167–205)
Prevalence	3.1 (2.0–4.6)	256 (161–373)
Mortality	0.32 (0.21–0.47)	26 (17–39)
	Number (Millions) (95% CI)	Percent (95% CI)
HIV among estimated incident TB patients	0.11 (0.075–0.16)	5% (3.3–7.1%)
MDR-TB among notified pulmonary TB patients	0.064 (0.044–0.075)	5.3% (3.6–6.2%)
Notified New pulmonary TB patients	0.021 (0.015–0.027)	2.1% (1.5–2.7%)
Notified Re-treatment pulmonary TB patients	0.043 (0.039–0.048)	15% (13–17%)

Laboratory Diagnosis of TB: In India, Case detection is based on identification of TB suspects attending health facilities and subjecting them to sputum examination in a RNTCP Designated Microscopy Centre (DMC). An adequate specimen is essential for the success for culture of *Mycobacterium tuberculosis*. Specimens are to be collected with the utmost care and promptly transported to the laboratory. Although *M. tuberculosis* is capable of causing disease in almost any organ of the body, more than 85% of tuberculosis disease in India is pulmonary. Therefore, sputum is the specimen of choice in the investigation of tuberculosis and should always be collected. If extra-pulmonary disease is suspected, sputum should be collected in addition to any extra-pulmonary specimens. The following criteria were being used for the diagnosis of sputum smear positive Pulmonary TB Cases. Any patient presenting with cough for more than 2 weeks is a pulmonary TB suspect and is be referred to the DMC. All TB suspects undergo 2 sputum smear examination (spot and morning) over two consecutive days at the DMC. RNTCP standardized diagnostic algorithms are used for diagnosing both smear positive and smear negative pulmonary TB in adult and pediatric patients. All specimens are examined by Ziehl-Neelsen staining technique (bright field binocular microscopes) and auramine staining techniques (200 Medical college DMCs using LED FM Microscopes)[7].

Diagnosis of Drug Resistant TB: Diagnosis is based on clinical indication to offer DST to initially all failures of first line regimen, contacts of known MDR TB case. Subsequently, services will be extended to all smear positive re-treatment cases at diagnosis, smear positive follow up case and finally to all smear negative retreatment cases at diagnosis and HIV associated TB

cases at diagnosis. For diagnosis of XDR-TB, DST for secondline drugs is extended to patients on failure of MDR TB treatment when culture remains positive at 6 months. For drug susceptibility testing sputum specimen is transported to accredited reference laboratory. Drug resistant TB cases are diagnosed using solid culture/liquid culture DSTs/ Line Probe Assay (LPA). Till 2012, 35 laboratories have been certified for solid C & DST, 10 laboratories for liquid culture and 35 laboratories has been certified for Line Probe Assay by RNTCP. CBNAAT (Cartridge based Nuclei acid amplification test) is used for diagnosing TB and DR-TB in 18 sites[8].

Diagnosis of Paediatric TB: The actual burden of paediatric TB (i.e., TB among the population aged less than 15 years) is not known due to diagnostic difficulties but has been assumed that 10% of total TB load is found in children. TB diagnosis is based on clinical features, smear examination of sputum where this is available, positive family history, tuberculin skin testing, chest radiography and histo-pathological examination as appropriate. All efforts should be made to demonstrate bacteriological evidence in the diagnosis of paediatric TB. In cases where sputum is not available for examination or sputum microscopy fails to demonstrate AFB, alternative specimens (Gastric lavage, Induced sputum, bronco-alveolar lavage) should be collected, depending upon the feasibility, under the supervision of a paediatrician[9].

TB-HIV coinfection: HIV infection increases the risk of progression of latent TB infection to active TB disease thus increasing risk of death if not timely treated for both TB and HIV and risk of recurrence even if successfully treated. Correspondingly, TB is the most common opportunistic infection and

cause of mortality among people living with HIV (PLHIV), difficult to diagnose and treat owing to challenges related to co-morbidity, pill burden, co-toxicity and drug interactions[10]. Diagnosis of TB in HIV-infected patients is often difficult due to several reasons (*i*) frequently negative sputum smears, (*ii*) atypical radiographic findings. (*iii*) higher prevalence of EPTB especially at inaccessible sites, and (*iv*) resemblance to other opportunistic pulmonary infections. However, the diagnostic approach to suspected TB in a HIV infected individual is similar to that in immunocompetent patients[11]. The lack of co-ordination between the voluntary counselling and testing centres (VCTCs) and the directly observed treatment short-course (DOTS) centres in India, is a cause of concern and calls for increasing the collaboration between the RNTCP and the National AIDS Control Organization (NACO)[12]. Only 56% of TB patients are screened for HIV and knew their HIV status, of those identified as HIV positive, only 74% about are linked to ART as the majority are poor and unable to reach centralized ART centres. As compared to TB services, which are mostly decentralized and integrated into the general health system, HIV services remain largely centralized. Thus, this gap between RNTCP and NACP infrastructure results in suboptimal linkages.

LABORATORY NETWORK IN INDIA

National Reference Laboratories (NRL): The four NRLs under the programme are National Institute for Research in Tuberculosis [NIRT] Chennai, National Tuberculosis Institute [NTI], Bangalore, Lala Ram Swarup Institute of Tuberculosis and Respiratory diseases [LRS], Delhi and JALMA Institute, Agra. The NRLs work closely with the IRLs, monitor and supervise the IRL's activities and also undertake periodic training for the IRL staff in EQA, Culture & DST activities.

Intermediate Reference Laboratory (IRL): One IRL has been designated in the STDC / Public Health Laboratory /Medical College of the respective state. The functions of IRL are supervision and monitoring of EQA activities, mycobacterial culture and DST and also drug resistance surveillance (DRS) in selected states. The IRL ensures the proficiency of staff in performing smear microscopy activities by providing technical training to district and subdistrict laboratory technicians and STLSs. The IRLs undertake on-site evaluation and panel testing to each district in the state, at least once a year.

Designated Microscopy Centre (DMC): The most peripheral laboratory under the RNTCP network is the DMC which serves a population of around 100,000 (50,000 in tribal and hilly areas). Currently over 13,309 DMCs had been stabilised in India[9].

CONCLUSIONS

Building capacity and enhancing universal access to rapid and accurate laboratory diagnostics are necessary to control TB and HIV-TB in India. The establishment of a well functioning laboratory network that provides the population with easy access to high quality smear microscopy services should be the highest priority for RNTCP. Poor quality microscopy services have serious implications for the programme, including the failure to detect persons with infectious TB who will continue to spread infection in the community, or leading to unnecessary treatment for "non-cases.

Conflict of Interest –None

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A Community-based Study on the Prevalence of Behavioral Risk Factors of Non-Communicable Diseases in Davangere City, Karnataka, South India

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ABSTRACT

Background: As we slowly advance into the 21st Century, we find that the challenges posed by non-communicable diseases (NCDs) present an imminent threat to people worldwide. The rapidly growing epidemic of non-communicable diseases is clearly related to changes in life styles.

Objectives: 1) To study the socio-demographic factors of the region. 2) To assess the prevalence of behavioral risk factors for non-communicable diseases.

Methods: Study Design: A Community-based cross-sectional descriptive study.

Study participants: 2000 urban people of Davangere city, belonging to the age group 15-64 years.

Study Period: 1st December 2008 and 30th November 2009 (1 year).

Methodology: A multi-stage sampling method with households as sampling unit. Information on behavioral risk factors was obtained through standardized methods as recommended by the STEPS 1 survey guideline of the World Health Organization after modifying to suit the local requirement.

Statistical analysis: Proportion and Chi-square test.

Results: Total participants in the study were 2000, comprised of 1000 males' and1000 females. High burden of NCD risk factors was observed among urban population: current smoking- 15.2% (Male- 30.1%, Female-0.2%); current smokeless tobacco use -17.8% (Male- 28.8%, Female-6.8%); current alcohol use -17.5% (Male- 32.8%, Female-1.3%); physical inactivity -30.4% (Male- 17.6%, Female-43.3)

Interpretation and Conclusions: Substantially high levels of the various behavioral risk factors in this urban population suggest an urgent need for adopting healthy life style modifications among the population in general. The increased risk observed among the younger generation for risk factors such as smoking, alcohol consumption calls for urgent corrective steps and measures for long-term monitoring of all major risk factors as well as the major chronic disease conditions.

Keywords: Non-Communicable Diseases, Smoking, Alcohol, WHO STEPS, Behavioral Risk Factors.

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INTRODUCTION

As we slowly advance into the 21st Century, we find that the challenges posed by non-communicable diseases (NCDs) present an imminent threat to people worldwide. Globalization delivers the uniform cause for the spread of chronic diseases to every

corner of the World.[1] Chronic non-communicable diseases (CNCDs) are reaching epidemic proportions worldwide. These diseases- which include cardiovascular conditions (mainly heart disease and stroke), some cancers, and chronic respiratory conditions and type 2 diabetes mellitus - affect people of all ages, nationalities and classes.[1]

Chronic non-communicable diseases (CNCDs) are the leading cause of death in the

World.[1] Accounting for around 60% of all deaths and 44% of premature deaths worldwide.[1] The rapidly growing epidemic of non-communicable diseases is clearly related to changes in life styles.[3]

India too illustrates the phenomenon of "health transition" which positions NCDs as a major public health challenge of growing magnitude in the 21st century. The incidence of Cardio vascular diseases (CVDs) and other NCDs are greater in urban areas when compare to rural areas in India.[5] NCDs account for 53 and 44% of all deaths and disability-adjusted life years (DALYs) respectively in India.[4] According to World Health Report 2002, cardiovascular diseases (CVDs) will be the largest cause of death and disability by 2020 in India.[6] Currently Indians experience CVDs deaths at least a decade earlier than their counterparts in countries with established market economies (EME).[7]

Since the underlying risk factors for all the NCDs are common, therefore primordial prevention of occurrence of risk factors along with their early identification and management can help delay the progress to non-communicable diseases. [4] With this scenario of the health situation, it is important to study the burden of non-communicable diseases risk factors using Indian data to know the real dimensions of the problem and work towards preventive measures.[3] Hence a community based study on prevalence of behavioral risk factors for non-communicable diseases in Davangere city among 15-64 years of population was undertaken, with the intention that the results of this study will provide necessary inputs for effective non communicable disease control in this region.

OBJECTIVES

• To study the socio-demographic factors of the region.

• To assess the prevalence of behavioral risk factors for non-communicable diseases.

METHODOLOGY

Study Design: A Community-based cross-sectional descriptive study

Study Period: 1st December 2008 and 30th November 2009 (1 year).

Study Area: Davangere City

Study Population: Data was collected from house hold members aged 15-64 years, who were residents of Davangere city.

Sample Size: Based on previous nationwide household survey, lowest prevalence of non-communicable diseases, about 5% was considered for the study.

Using Formula

$$2\sqrt{\frac{pq}{n}}$$

Substituting values we got sample size of 1900. (Approximately 2000).

Collection of Data: Multistage sampling was used. The study included males and females in the age group of 15-64 years and this age group was further stratified in to five age and sex categories, each stratum with 10 years interval. There were 400 individuals in each of these strata, with this the total effective sample size of the study became 2000. In Davangere urban there are 40 wards, 20% of wards were selected for the study by simple random sampling method and which came to about 8 wards. In each of these wards, houses were selected by systematic random sampling procedure by visiting every "k" th house (data on number of houses in each ward was obtained from records of Municipal Corporation of Davangere City). From each house one person was interviewed according to need.

All subjects in the sample were informed about the purpose of the study. After obtaining the informed consent they were interviewed using a pre-structured and pretested questionnaire adopted from WHO STEPS 1 approaches for non-communicable diseases risk factors surveillance, after modifying to suit the local requirements[8]. Data was collected for following,

STEP 1: Information on socio-demographic variables and behavioral NCD risk factors including smoking tobacco, smokeless tobacco, alcohol

consumption, physical activity (Job, Leisure time and Travel related physical activities). All the standard parameters and definitions were used according to WHO-STEPS recommendations. [8]

Data analysis statistical tests: Data was analyzed by using Percentage proportions, Pearson's Chi-square(X^2) tests.

RESULTS

Table 1: Age & sex wise distribution of participants

Age groups (Yrs)	Males	Females	Total	Percentage
15-24	200	200	400	20
25-34	200	200	400	20
35-44	200	200	400	20
45-54	200	200	400	20
55-64	200	200	400	20
Total	1000	1000	2000	100

Of the total 2000 participants, 1000 were males & 1000 were females. All participants were in the age group of 15- 64 years. The age group was divided in to five categories of 10years age interval, in each category there were 400 participants with equal number of males and females (Male-200, Female-200). **(Table 1)**

Table 2: Religion & education of participants

Variable	Variable categories	Number (%) N=2000
Religion	Hindu	1570 (78.5)
	Muslim	412 (20.6)
	Christian	18 (0.9)
Education level	Illiterate	326 (16.3)
	Literate	1674 (83.7)

Majority (78.5%) of the subjects were belonging to Hindu religion, followed by Muslims (20.6%) and Christians (0.9%). Majority of the participants were literate (83.7%), while few were illiterate (16.3%). **(Table: 2)**

Table 3: Occupation of participants

Occupation	Number	Percentage
Professional	38	1.9
Semi professional	80	4
Clerical/ Shop/ Farm	281	14.1
Skilled Worker	195	9.8
Semi-skilled worker	37	1.8
Unskilled Worker	430	21.5
Home maker	650	32.5
Students	289	14.4
Total	2000	100

Most of the participants were home makers (32.5%), followed by unskilled workers (21.5%) and semiskilled (1.8%) workers. **(Table: 3)**

Table 4: Current Smoking Status in men and women

Smoking Status	Men Number (%)	Women Number (%)	Total Number (%)
Daily	301 (30.1)	2 (0.2)	303 (15.2)
Occasionally	4 (0.4)	0	4 (0.2)
Never	683 (68.3)	998 (99.8)	1681 (84.1)
Past Smokers	12 (1.2)	0	12 (0.6)
Total	1000 (100)	1000 (100)	2000 (100)

The prevalence of current smoking was 15.3%; among them almost all subjects were daily smokers (prevalence-15.2%). The prevalence of daily smoking habit was 30.1% among males, but the same was 0.2% among females. **The mean age of initiation of smoking among men was 23.4 years. Among daily smokers the mean duration of smoking was 23.1 $\pm$ 14.9 years. (Table 4)**

Table 5: Relation between age and smoking tobacco

Age group	Smoking Tobacco	
	Yes Number (%)	No Number (%)
15-24	28 (9.2)	372 (21.9)
25-34	24 (7.9)	376 (22.1)
35-44	68 (22.4)	332 (19.5)
45-54	81 (26.7)	319 (18.7)
55-64	102 (33.7)	298 (17.5)
Total	303 (100)	1697 (100)
X^2= 108.4, P< 0.001 HS		

Prevalence of smoking was found to be highest

in the age group of 55-64 years (33.7%), followed by 26.7% in 45-54 years and 22.4% in 35-44 years. Prevalence of smoking was least in the age group of 25-34 years (7.9%). Increase in the prevalence of smoking as age increased among participants was found highly significant (P< 0.001).**(Table 5)** Regarding type of smoking, the data revealed that the habit of using cigarette (70.2%) was more than beedi (27%) and pipe (2.6%). Average frequency of smoking among daily smoking men was 13.8/ day. (Not shown in table)

Table 6: Current Smokeless Tobacco use in Men and Women

Smoking Status	Men Number (%)	Women Number (%)	Total Number (%)
Daily	288 (28.8)	68 (6.8)	356 (17.8)
Occasionally	2 (0.2)	0	2 (0.1)
Never	704 (70.4)	930 (93)	1634 (81.7)
Past users	6 (0.6)	2 (0.2)	8 (0.4)
Total	1000 (100)	1000 (100)	2000(100)

The study revealed that 17.7% of the subjects were current oral tobacco users, while few were used it in the past (0.4%). Prevalence of daily smokeless tobacco use was 17.8%, it was noticed that the prevalence was found more in males (28.8%) than females (6.8%). **(Table 6)**

Table 7: Types of Smokeless Tobacco

Types	Men Number (%)	Women Number (%)	Total Number (%)
Gutka	119 (41.7)	0	119 (33.8)
Chew Tobacco	169 (58.3)	68 (100)	237 (66.2)
Total	288 (100)	68 (100)	356 (100)

(Table 7). The most common form of smokeless form of tobacco used was chewing tobacco (66.2%), followed by gutka (33.8%). The mean age of initiation of the same was 24.2 ± 7.9 years. Among daily users the mean duration of using smokeless tobacco was 24.8 +

14.9 years among participants. Average frequency of using oral tobacco was 7 per day.

Figure 1: Age- wise distribution of smokeless tobacco
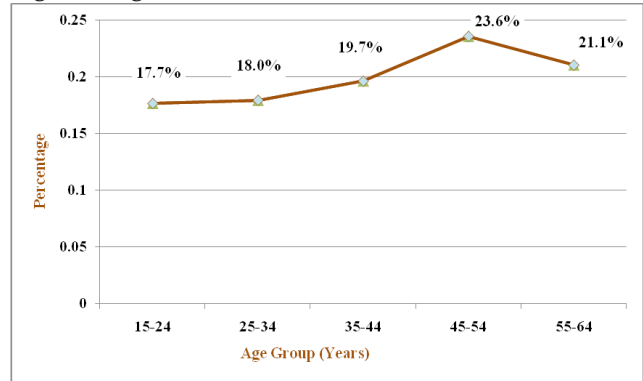
Overall, the prevalence of consumption of smokeless tobacco increased with the age. Prevalence of smokeless tobacco use was more in the age group of 45-54 years (23.6%), while it was found to be least in the age group of 15-24 years (17.7%).

Table 8: Alcohol Consumption in Men and Women

Consumption	Men Number (%)	Women Number (%)	Total Number (%)
Ever	446 (44.6)	16 (1.6)	462 (23.1)
Never	554 (55.4)	984 (98.4)	1538 (76.9)
Total	1000 (100)	1000 (100)	2000 (100)
X^2= 520.4, P< 0.001 HS			

Alcohol consumption was defined as ever used alcohol in the lifetime, it was 23.1%. Consumption was more prevalent among men (44.6%), compared to women (1.6%). This difference was found statistically significant (P< 0.001).Among total alcohol users, current alcohol use (within 12 months) was observed in 73.8% of participants. **(Table 8)**

Table 9: Current Alcohol Use

Consumers	Men Number (%)	Women Number (%)	Total Number (%)
Yes	328 (32.8%)	13 (1.3%)	341 (17.5%)
No	672 (67.2%)	987 (98.7%)	1659 (83%)
Total	1000 (100%)	1000 (100%)	2000 (100%)
X^2= 350, P< 0.001 Highly Significant			

Prevalence of current alcohol use was 17.5%

and prevalence was more among men (32.8%) than women (1.3%). This difference was found statistically highly significant (P< 0.001). **(Table 9)**

Figure 2: Age-wise distribution of physical in-activities
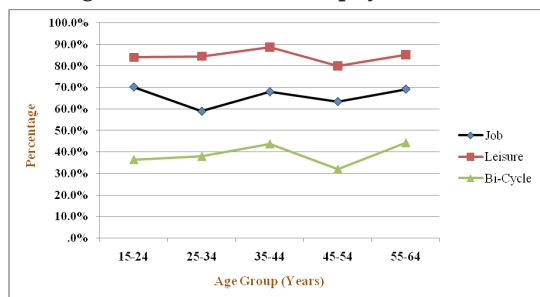
Leisure time sedentary activities were more prevalent among all the age groups, which is followed by job related and travel related sedentary activities in that order. Job related (69.3%) and travel (44.3%) related sedentary activities were more prevalent among the age group of 55-64 years as compared to other age groups, while leisure time physical activities were more prevalent in the age group of 35-44years (88.7%). Overall prevalence physical inactivity (includes work, leisure time and while going and coming from market) was found 30.4%.

DISCUSSION

The risk factors of today are the diseases of tomorrow. Identifying these risk factors in populations occupies a central place in the surveillance system. Prevalence of smoking in our study was 15.2%. This finding is supported by the multi centric study conducted in Chandigarh, Delhi, Kanpur, and Bangalore (15.6%). [9] Prevalence of smokeless tobacco was 17.9 % in our study. Study conducted by Joshi et al [10] reported more prevalence (32.7%) compared to our study. Present study revealed that prevalence of chewing form of tobacco was more seen in older age group of 45-64 years and this finding is supported by the studies conducted by Joshi et al and Sen U et al. [10, 11]

Usage of smoking tobacco (Male – 30.4% and Women–0.2%) and smokeless tobacco (Male – 29% and Women – 6.8%) were high in males, in the present study. This can be attributed to the fact that in the Indian population mostly men indulge in this unhealthy practice. This is also reported in other studies by Joshi et al, Meenakshi BM et al, Gupta OP et al, Thankappan KR, Suguthan T N et al and Nath et al. [10, 12, 13, 14, 15, 16]

The prevalence of current alcohol use in the present study was 17.5%. Prevalence was more among males (32.8%) compared to females (1.3%). A multi centric study conducted by Bela shah et al reported that prevalence of alcohol use was 40 – 50% in men, is slightly more than our study finding. [17] As noted above, women had a very low prevalence of alcohol intake, suggesting potentially beneficial influences of social mores.

In the present study, 66% of the subjects performed sedentary activities during working hours; similarly, 38.9% used motorized vehicle for travel and 84.5% were sedentary at leisure time. This could be attributable to poor awareness and high use of paid labor by housewives and use of mechanized means in kitchen preparations by females, leading to sedentary life style. Similarly, in men also, higher use of motorized vehicles and mechanization at workplaces lead to inactivity. The prevalence of overall physical inactivity among the free living urban population, in the present study was found to be 30.4%. The result of the present study is comparable with figures (31-51%) given by the WHO, and findings are also in accordance with studies conducted by Suguthan TN et al in Kerala and Nath et al. [14, 15, 18] Studies conducted by Meenakshi BM et al, Gupta R et al reported much high prevalence (> 70%) of overall sedentary activities in urban population as compared to our study. [19]

RECOMMENDATIONS

• Strengthening the evidence for NCD prevention and control by assessing its burden and risk factors through NCD risk factors surveillance.

• A nationwide initiative to create awareness among the people regarding the harmful effects of tobacco and alcohol, with main focus on children, adolescents and adults, so as to deter early initiation of smoking and alcohol.

• Effective implementation of COTPA (Cigarette Other Tobacco Product Act), to prevent the advertisement of tobacco products and to prevent use of cigarette in public places, as well as legislation to reduce alcohol intake.

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Conflict of Interest – NIL

Source of Funding- Self

Ethical Clearance – Taken from ethical committee of J.J.M. Medical College, Davangere

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To Find Out Prevalence of Anaemia among Adolescent Girls in Rural Area of District Jabalpur (MP)

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ABSTRACT

Anaemia is a world- wide problem, In India especially in rural population anaemia is a major threat to safe motherhood as it contributes to increased postpartum maternal mortality, therefore anaemia should be treated in childhood and adolescent girl. Among adolescents, the girls constitute a more vulnerable group because it is a crucial period particularly with reference to reproductive health. There are plenty of evidences that suggest that control of anaemia in pregnant women may more easily be achieved if satisfactory iron status could be ensured during adolescence.

Keywords: Anaemia, adolescence, maternal mortality.

INTRODUCTION

Anaemia is a world- wide problem most commonly due to wide-spread nutritional deficiencies.[1] Anaemia is defined as a reduction in the haemoglobin concentration, the haematocrit or the number of red blood cells to a level below the normal level.[2]

Among adolescents, the girls constitute a more vulnerable group, particularly in developing countries where they are traditionally married at an early age and exposed to greater risk of reproductive morbidity and mortality.[3]

The highest prevalence of anaemia (60-88%) exists in the developing world where its causes are multifactorial.[4] In the developing world 53% of children 5–14 years of age are anaemic.[5]

Anaemia has been related to reduce work capacity[6] reduced ability to execute activities of daily living[7], poor pregnancy outcomes[8] and reduced cognitive function[9].

It is estimated that iron deficiency is liable to affect the health of more than one billion people worldwide.[10] In a country like India with varying social customs and taboos against females predisposes the malnutrition among girls. The nutritional status which is often poor during early life gets worsened as the adolescent growth spurt occurs.[11]

The prevalence of anaemia may be attributed to poor iron intake from the diet known for poor bioavailability of iron from typical cereal based diets (vegetarian diet), infection like malaria (which is endemic in our country), worm infestation (poor hygiene, open field defecation) and heavy blood loss (menorrhagia) through menstruation could be probable reasons, for anaemia.

India continues to be one of the countries with the highest prevalence of anaemia. National Family Health Survey (NFHS-3) estimates reveal the prevalence of anaemia to be 52-88% in adolescent girls, 70-80% in children, 70% in pregnant women and 24% in adult men.[12]

In MP, National Family Health Survey (NFHS-3)(20) estimates reveal the prevalence of anaemia to be 52-88% in adolescent girls, 82.6% in children,

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57.9% in pregnant women and 24% in adult men.

Objective: To find out prevalence of anaemia among adolescent girls in rural area of district Jabalpur (MP).

Assessment of Anaemia: according to WHO, Haemoglobin levels indicative of anaemia in population[13] :

Table: 1

Age/Sex group	Haemoglobin level (gm/dl)
Children 6 months-5 years	< 11
Children 6-14 years	< 12
Adult males	< 13
Adult female (Non-Pregnant)	< 12
Adult female (Pregnant)	< 11

In this study prevalence of anaemia in adolescent girls were considered to be mild, moderate and severe according to Hemoglobin concentration[14]

Table: 2

Grade of Anaemia	Hb concentration (gm/dl)
Mild	10- 12
Moderate	7- < 10
Severe	< 7

Type of study: Cross sectional (Observational) study.

Study period: August 2007-July 2008.

Research Setting: Detailed information was collected on a predesigned and pretested performa about socio-demographic chacteristics and Hemoglobin estimation by Sahli's Haemogolobinometer examined in the Department of Microbiology, NSCB Medical College Jabalpur.

Sample Size Population of PHC Belkhera is around 27,478 and it consist of approximately 23% of adolescents population i.e 6000. Sex ratio in PHC Belkhera is 927:1000. Taking prevalence of anaemia as 60% the sample size was estimated by using the formula-

$$N = \frac{4pq}{L \times L}$$

P = (Positive character), In this case P = Prevalence

Q = 1-P

Q = 100-P

L = Allowable error

Prevalence of anaemia   60%

Q = 100-p

Confidence interval   95%

Relative precision   10%

$$N = \frac{4 \times 60 (100-60)}{7 \times 7}$$

N= 196

Approximately, 200.

Selection of villages: PHC Belkhera covers 27 villages .There are 5 Sub Health Centres (SHCs) in Belkhera each SHC Covers 5-6 villages. In order to have an effective coverage of these villages from each SHC one village was selected randomly. Adjacent village was surveyed for study for those villages were adolescent girls were less in number i.e. less than forty girls as per my study samples from each village.

Selection of AWC's (Anganwadi Centers):

From each randomly selected village, AWC'S of that village was taken for the study.

Selection of adolescent girls: The sample size of 200 adolescent girls was equally divided among randomly selected villages from each of the 5 Sub-Health Centers (SHC's). These adolescent girls were selected on the basis of Systemic Random Sampling which was obtained from the list of adolescent girls provided by AWWs of villages. In order to have an effective coverage the study was conducted through randomly selected house to house visit till the 40 girls between the age group of 10-19 years in each sub centre village was covered.

Study variables: Age, family type, family size, haemoglobin and drinking water supply.

Findings: Data Analysis and discussion -Data was collected during period of August 2008-Sept 2008, compiled and tabulated, and it was analysed with the help of different statistical test like Chi square, T test etc.

Table -3 Age wise Distribution of Anaemia in Adolescent   Girls

Age Group (Years	Anaemia -nt No. %	Anaemia +nt No. %	Total No. %
10-14	54 (43.5)	70 (56.4)	124 (62)
15-19	41 (54)	35 (46)	76 (38)
Total	95	105	200

Chi square test= 2.043, df=1,P=.153

Among study population 62% were in the age group of 10-14 and 38% were in 15-18 years of age group . As shown in table-3 the prevalence of anaemia in age group 10-14 years was 56.4% as compared to 46% in age group 15-19 years. However this difference in prevalence of anaemia in relation to age of adolescent girls was not found to be statistically significant (p=.153)

The overall prevalence of anemia was 52.5% in adolescent girls which is higher than 27% among rural girls reported by Vasanthi et al (1981).[15] But is reported to be low as compared to multicentric study recently completed in 3 regions of India (Mumbai-Mehta et al, Gujrat-Seshadri et al, Delhi – Aggarwal et al) which showed anemia prevalence as 62-65%, 57-65%, 48-50% respectively in adolescent girls.[16]

Table 4 Distribution of Anaemia in adolescent girls according to its Severity

Severity	Hb(gm%)		Adolescents	
	Range		No	%
Mild	10-12		57	(54.4)
Moderate	7-10		45	(42.8)
Severe	<7		3	(2.8)
Total			105	(100)

As shown in table-4 the overall prevalence of anaemia in adolescent girls was found 52.5%. Majority having mild anaemia (54.4%) and only 1.5% had severe anaemia, rest (22.5%) girls were with moderate anaemia.

Indian Council of Medical Research (ICMR) had undertaken a multicentre study "District Nutrition Project" in 18 districts from 13 states of the country

The overall prevalence of moderate (7-10 g%) and mild (>10-11.9 g%) anaemia among adolescent girls was 50.9 per cent and 32.1 per cent, respectively whereas overall prevalence of severe anaemia was 7.1 per cent; the highest (24.3%) in Bikaner and the lowest (nil) in both Bishnupur and Kohima districts.[17]

Study done in rural areas of Meerut District observed that 174 (34.5%) of the 504 adolescent girls were anaemic. The prevalence of mild, moderate and severe anaemia among adolescent girls was 19 per cent, 14.1 per cent and 1.4 per cent, respectively.[18]

Table 5 Distribution of Anaemia in adolescent girls according to the type of family

Family Type	Anemia -nt No %	Anemia +nt No %	Total No %
NUCLEAR	63 (57.7)	46 (42.2)	109 (54.5)
JOINT	32 (35.1)	59 (64.8)	91 (45.5)
TOTAL	95	105	200

Chi -square test= 10.18 df=1,P<0.0014

Table showing that 54.5% adolescent girls belonged to nuclear and rest 45.5% to joint type family. The prevalence of anaemia among girls of Joint families was 64.8% as compared to 42.2% of those of nuclear families. This difference in prevalence of anaemia in relation to Family type of adolescent girls was found highly statistically significant (p<0.0014).

Study done in rural areas of Meerut District on anaemia in adolescent girls shows that out of all, 63.9% adolescent girls belonged to nuclear type and rest 36.9% adolescent girls belonged to joint type family. This may be due to availability of quantitatively and qualitatively adequate food in nuclear families.[18]

Table 6 Distribution of Anaemia in adolescent girls according to the total number of Family Members

Family members	Anaemia -nt No %	Anaemia +nt No %	Total No %
<5	45 (58)	32 (42)	77 (38.5)
>5	50 (40)	73 (60)	123(61.5)
Total	95	105	200

Chi -square test= 6.01 df=1, P<0.0142,OR=2.053

In this study 61.5% adolescent girls belonged to Family of more than five members and 38.5% adolescent girls to <5 family members. As shown in table 6 the prevalence of anaemia in girls belonging to >5 Family members was 60% as compared to 42% in adolescent girls belonging to<5 Family members. It indicates that in the bigger families girls are more anaemic due to these possible reasons like –getting less share of foods, lack of nutritious food etc. This difference in prevalence of anaemia in relation to Family members of adolescent girls was found to be highly statistically significant (p<0.0142).

Study done in rural areas of Meerut District observed that about one third (32.1) of adolescent girls who were anaemic belonged to families members less than three, where as about two third (67.9%) adolescent girls were from families of >3 members. This may be due to availability of adequate diet to all the family members in small families.[18]

Table 7 Distribution of Anaemia in adolescent girls according to Water Supply

Water Supply	Anemia -nt No %	Anemia +nt No %	Total No %
Handpump	42 (43)	54 (57)	96 (48)
Pipe	53 (51)	51 (49)	104 (52)
Total	**95**	**105**	**200**

Chi -square test= 1.04 df=1,P=0.308

As shown in the Table 48% adolescent girls belonged to Family using Handpump as water supply and 52% adolescent girls family were using pipe as water supply. The prevalence of anaemia in girls using Handpump was 57% as compared to pipe supply 49%. This difference in prevalence of anaemia in relation to type of water supply of adolescent girls was not found to be statistically significant (p=0.308). Garg (1981) in his study reported that majority of adolescent girls (94.0%) were using hand pump water than piped.[19]

CONCLUSION

We can infer that certain attributes that are prone to cause anaemia in adolescent girls can be augmented by timely and periodically interventions measures in society. In our study, we found that the overall prevalence of anemia was 52.5% in adolescent girls.

Ethical Clearance – The research work was cleared by Ethical committee, NSCBMC, Jabalpur.

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Prevalence of Chronic Energy Deficiency (CED) among Adolescents in the age Group of 15 -19 years

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ABSTRACT

Introduction: The Chronic Energy Deficiency (CED) is a condition where the BMI is less than 18.5 kg/m^2. In the field of adolescent nutrition, there is a dearth of research on CED in Indian subcontinent. In this context, present research was planned to assess the prevalence of Chronic Energy Deficiency (CED) among the adolescents in the age group of 15-19 years.

Methodology: The study was conducted among the adolescents (15-19 years) studying in the Pre University Colleges. Using pretested structured questionnaire the socio-personal information such as age, sex, religion, type of family and their dietary practices such as type of diet and intake of snacks were collected. The anthropometric measurements such as standing height and body weight and percentage body fat were measured. The perception of body weight and body image was also studied among these subjects.

Results: A total of 1170 (males 53.1% and females 46.9%) subjects were analyzed. The prevalence of CED was 48.6%. The mean percentage of body fat among those with CED, normal BMI and obesity was 16.0%, 22.6% and 29.4% respectively and the difference between the three groups was statistically significant (P <0.0001) with CED subjects having the lowest mean percentage body fat. When the actual prevalence of CED is 48.6%, only 18.3% of subjects were aware that they have a low BMI.

Conclusion: CED is significantly prevalent and there is a need to create awareness and initiate measures to tackle this problem at the early age.

Keywords: Chronic Energy Deficiency, prevalence, adolescents, percentage body fat, perception of body image.

INTRODUCTION

Adolescence is an important transitional phase between childhood and adulthood and is considered as crucial period of human growth and development. Adolescent population in Inda is around 243 million which is highest compared to any other country.[1] WHO acknowledge that adolescents are neglected, difficult-to-measure and hard-to-reach population.[2]

Adolescents are future of any country and their nutritional needs are critical for wellbeing of the society. Good nutrition during adolescence is important to cover the deficits suffered during the childhood to prevent the adult onset of nutrition related disorders and breaking the intergenerational cycle of malnutrition.[3] In this regard, nutrition status of adolescents attracted the global attention.

The Chronic Energy Deficiency (CED) is a condition where the BMI is less than 18.5 kg/m^2 which is caused due to absolute or relative deficiency of essential nutrients. CED can affect the attendance,

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concentration and academic achievement in school and colleges.[4] CED is considered as a serious risk factor for ill health and significantly associated with impaired physical capacity, reduced economic productivity, poor reproductive outcomes and increased mortality.

In the field of adolescent nutrition, there is a dearth of research on CED in Indian subcontinent. In this context, present research was planned to assess the prevalence of Chronic Energy Deficiency (CED) among the adolescents in the age group of 15-19 years.

MATERIALS & METHOD

The Pre university colleges which come under the rural field practice area of Kempegowda Institute of Medical Colleges, Bangalore were considered for the study of prevalence of Chronic Energy Deficiency (CED) among adolescents. These are government aided colleges situated in the outskirts of the Bangalore city. The colleges cater to both the rural and urban population. The colleges had students studying in 11th and 12th standard belonging to the age group of 15-19 years. Out of the total 1205 students, 1170 (97.1%) students who were present at the time of study were included. Those students with physical deformities or chronic illnesses were excluded from the study.

After obtaining the informed consent of the college authorities and students, all the available students were interviewed by using pretested structured questionnaire to collect the socio-personal information such as age, sex, religion, type of family and their dietary practices such as type of diet and intake of snacks.

The anthropometric measurements such as standing height and body weight were measured by trained investigators following the standard guidelines by using calibrated gadgets. The height was measured to the nearest 0.5 cm with stadiometer. Body Weight was measured to the nearest 0.5 kg with analog weighing scale. The subjects were classified under CED if the BMI was below 18.5 kg/m^2 as per Asia Pacific guidelines.

Percentage body fat was assessed by Bio-electrical impedance (BIA) method. It is based on the principle that tissues containing water such as muscles, blood vessels and bones are highly conductive

with electricity, but fat tissues are not, therefore by using this principle it is possible to determine the ratio of fat tissues compared to other tissues in the body by measuring the electric resistance of the body tissues by extremely weak electric current applications (50-500 micro amp) to the body. In the bio-electrical impedance method, a small alternating current is passed through the body to assess the body fat percentage by feeding details such as age, sex, height and body weight of the subject in to the instrument OMRON body fat monitor (HBF – 306).[5] The standardization of the BIA was designed in such a way that following conditions were maintained (a) BIA measurement were taken 2 hours after breakfast. (b) Students were advised not to engage in vigorous exercise in the morning and not to take large amount of fluids along with breakfast. (c) Inform about having fever, in such cases measurements were postponed. The repeated measurements of anthropometry and percentage body fat (PBF) were taken on a subsample of study subjects for reliability analysis. The perception of body weight and body image was also studied among these subjects.

In the Present study, both descriptive (percentage, mean and standard deviation) and inferential statistics were used to analyze the data. Chi-square test was used to find out the association between CED and socio-personal characteristics. The Standard error of the mean (SEM) was used for the analysis of percentage body fat. The Student's t-test was used to find out difference between the mean values of PBF with socio-personal characteristics, BMI for two groups. All the statistical analysis were performed by using Statistical Packages for Social Sciences (Window version 17.0; SPSS Inc, Chicago (IL), US)

RESULTS

A total of 1170 (males 53.1% and females 46.9%) subjects were analyzed. 81% of them belonged to the nuclear family. 94% of the subjects were Hindus. The overall prevalence of CED, normal BMI and overweight / obesity was 48.6%, 38% and 13.3% respectively.

The prevalence of CED among those in the age group of 15-16 years and 17-19 years was 53.1% and 43.5% and this was statistically significant. The prevalence among males and females was 53.5% and 44.5% respectively which was statistically significant. The difference in the prevalence of CED among

those from nuclear family and non-nuclear family, among hindus and non-hindus and those who are primarily on vegetarian and non-vegetarian diet was statistically not significant (Table 3).

The mean percentage of body fat among those with CED, normal BMI and obesity was 16.0%, 22.6% and 29.4% respectively and the difference between the three groups was statistically significant (P <0.0001) with CED subjects having the lowest mean percentage body fat (Table 4).

The perception of body weight among the subjects revealed that among those with CED, 3.3% and 66.8% of subjects perceived themselves to be fat and normal built respectively. 15.1% of the subjects with normal BMI perceived themselves to be fat. 30.8% of the subjects with actual obesity perceived themselves to be having normal built (Table 5). When the actual prevalence of CED is 48.6%, only 18.3% of subjects were aware that they have a low BMI (Graph 1).

DISCUSSION

In the present study overall prevalence of CED was found to be 48.6%. In a study conducted by Nitish Mondal et al[6] the prevalence was found to be 42.4%, Deshmukh et al[7] observed the prevalence of 53.8% and Shahabuddin et al in Bangaldesh observed 67%.[8] When compared with these studies, the prevalence in present study was found to be moderately high. These evidences strengthen the fact that CED continues to be significant health problem in the study area.

The prevalence of CED among those in the age group of 15-16 years was higher compared to 17-19 years, which was statistically significant. This indicates that adolescents in later part were less prone for CED. Many studies have found similar result of significant inverse relationship between age and CED.[8-10] This could be due to early growth spurt which results in increased height.

The prevalence among males and females was 53.5% and 44.5% respectively which was statistically significant. This shows that CED was more in males when compared to females. In a study conducted in Haryana and another multistate study found similar observation.[11, 12] In a study conducted by de Oniset[13] reported prevalence of CED to be 50.5% among Indian adolescent boys which is lower compared the present study. The CED is associated with reduced lean muscle mass and muscular strength leading to decreased work capacity and productivity, increases susceptibility to illness and the evidence based on historical data from Europe and America suggests a positive relationship between CED and mortality.[14] In a study undertaken by Venkaiah [15] reported that the prevalence of CED was lower among girls (39.5%) which is also lower compared to the current study. Current trend of CED continues in to womanhood it can result in poor reproductive outcome and starts vicious cycle of malnutrition in to future generation. This fact was strengthening by the evidence that children malnutrition is strongly correlated with mothers' poor nutritional status.[16]

This study observed significant differences in mean percentage of body fat (PBF) among those with CED, normal BMI and obesity. This observation demonstrates that adolescents with CED were having low percentage body fat compared to other category. This calls for further in-depth research due to paucity of information.

The perception of body weight revealed that among those with CED, 3.3% and 66.8% of subjects perceived they were fat and normal built respectively and when the actual prevalence of CED is 48.6%, only 18.3% of subjects were aware that they have a low BMI. These findings show that there is a lack of awareness about thinness and its consequences. This needs to be tackled by incorporating the concept of health and nutrition education in curriculum from childhood and utilizing the opportunity provided by the government by implementing Public Distribution System (PDS), Integrated Child Development Services (ICDS) program and, **Rashtriya Kishor Swasthya Karyakram (RKSK), Reproductive, Maternal, New born, Child and Adolescent Health (RMNCH+A) and** several employment schemes providing food for work in proper manner and from the government extending existing National Mid-day Meals Program (NMMP) to the colleges and providing due importance to adolescent nutrition in National Health Mission can go a long way in curtailing the menace of CED in near future.

CONCLUSIONS

In the present study, the prevalence of CED was 48.6%, which is considered as moderately high. In this regard, all the efforts should be channelized to curb the menace of CED in later part of adolescence by creating awareness and utilizing interventions

properly in near future.

Table 1: Socio-demographic characteristics of the study subjects

Variable	Category	Males (n=548)	Females (n=622)	Total (N=1170)
Age (years)	15-16	246 (44.9)	375 (60.3)	621 (53.1)
	17-19	302 (55.1)	247 (39.7)	549 (46.9)
Type of family	Nuclear	453 (82.7)	495 (79.6)	948 (81.0)
	Non nuclear	95 (17.3)	127 (20.4)	222 (19.0)
Religion	Hindus	516 (94.2)	584 (93.9)	1100 (94.0)
	Non-Hindus	32 (5.8)	38 (6.1)	70 (6.0)

Figures in parenthesis indicate percentages

Table 2: Prevalence of CED

BMI classification	No of subjects (%)	
CED Grade III (<16.0)	150 (12.8)	
CED Grade II (16.0-16.99)	152 (13.0)	Overall, CED = 569 (48.6%)
CED Grade I (17.0-18.49)	267 (22.8)	
Normal (18.5-22.9)	445 (38.0)	445 (38.0)
Obese (≥23.0)	156 (13.3)	156 (13.3)
Total	1170 (100.0)	100.0

Table 3: Association between CED and socio-demographic characteristics and type of diet

Variable	Category	CED (%)	OR	95% CI	Chi	P value
Age (years)	15-16	330 (53.1)	1.47	1.16-1.87	10.76	<0.001
	17-19	239 (43.5)				
Sex	Male	293 (53.5)	1.44	1.14-1.83	9.64	<0.001
	Female	276 (44.4)				
Type of family	Nuclear	464 (48.9)	1.07	0.79-1.45	0.20	>0.05
	Non-nuclear	105 (47.3)				
Religion	Hindu	532 (48.4)	0.84	0.50-1.39	0.53	>0.05
	Non-Hindu	37 (52.9)				
Type of diet	Vegetarian	203 (52.2)	1.24	0.96-1.59	2.94	>0.05
	Mixed	366 (46.9)				

Table 4: Mean percentage body fat among CED, normal and obese

Variable	No. of subjects	Mean PBF	SD	SEM	P value
CED	569	16.003	4.963	0.208	
Normal BMI	445	22.556	5.177	0.245	<0.0001
Obese	156	29.430	5.639	0.452	

Harmonic mean of the group sizes used = 288, since the group sizes are unequal

Table 5: Perception of body weight among adolescents

Category	Fat (%)	Normal (%)	Thin (%)	Total (%)
CED	19 (3.3)	380 (66.8)	170 (29.9)	569 (48.6)
Normal BMI	67 (15.1)	339 (76.2)	39 (8.8)	445 (38.0)
Obese	103 (66.0)	48 (30.8) 171.	5 (3.2)	156 (13.3)
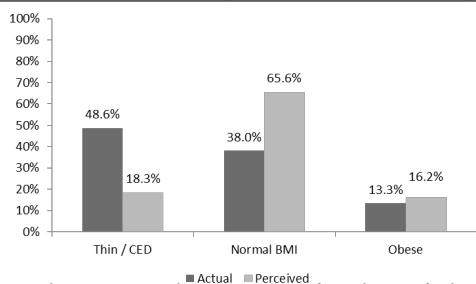
Graph1: Actual vs perceived weight status (n=1170)

Ethical Clearance: Ethical clearance was not obtained separately as there was no intervention, but consent of the college authorities and informed consent of the subjects were taken before conducting the study.

Conflict of Interest: Nil

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A Study on Temporary Contraceptive Practices among Eligible Couples of Rural Field Practice Area of ASRAM Medical College, Eluru

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ABSTRACT

Background: The success of any contraceptive method depends not only on its effectiveness in preventing pregnancy but on the rate of continuation and proper use. The present approach in family planning programmes is to provide a "cafeteria choice" that is to offer all methods from which an individual can choose according to his/her needs and wishes. **Objectives:** 1.To know the contraceptive practice in the selected population. 2. How the demographic factors influencing the contraceptive practice. **Methodology:** The present community based cross sectional study was conducted at Rural field practice area of Alluri Sita Rama Raju academy of Medical Sciences, Eluru with the help of Community Medicine staff during the period from April 2014 to May 2014. A total of 188 eligible couples age group between 15-45 years population were interviewed with prestructured questionnaire and using simple random sampling method. Data was analysed with MS Excel and necessary statistical tests were applied. **Results:** Out of 188 reproductive age group population, about 36% were using different contraceptive practices. About 54.1% were females and 45.9% were males. Illiterate people were 15%. There was statistically significant association was found between contraceptive practice and teacher occupation (x^2 -19.6, P<0.01). **Conclusions:** Based on the results obtained in this study, contraceptive practice was 36%. Hence, couple protection rate (CPR) in this study was low when comparatively with national average figure of CPR and strengthening of family planning programme is required.

Keywords: Age, Sex, occupation, literacy, type of contraceptive method.

INTRODUCTION

Contraceptive measures are highly relevant to the adolescent age group and researches are going on their preference for specific methods to prevent pregnancies and their health burden7. A related review to identify the most effective measures to save newborn lives also concluded with an integrated approach to safe motherhood and newborn health and emphasized the importance of health systems research and evaluation.8 The success of any contraceptive method depends not only on its effectiveness in preventing pregnancy but on the rate of continuation and proper use. The present approach in family planning programmes is to provide a "cafeteria choice" that is to offer all methods from which an individual can choose according to his/her needs and wishes.

Family planning is a process of thinking and a life style. Attitude is an important factor in choosing suitable contraceptive methods[1]. A small family infrastructure is preferred and encouraged in our middle class society as it is considered to promote happiness and well-being. It is universally accepted that family planning services are essential for promoting birth spacing to reduce maternal and infant mortality. If these services were more widely available, up to 42 percent of maternal deaths could be prevented in developing countries. The mean

proportion of maternal deaths that could have been averted was 24 percent [2, 3, 4].

Family planning services are given from indoor and also from outdoor camp services. It was seen that these camps expanded the availability and accessibility to sterilization services without jeopardizing the quality of sterilization services. Yet there is a need to reinforce access to information about other contraceptive methods and to make them available [5, 16].

With the above perspectives the present study was undertaken to assess the current status of contraceptive practice among the eligible couples, to determine social factors influencing it, and to recommend suggestive measures for promotion of contraceptive acceptance.

OBJECTIVES

1. To know the contraceptive practice in the selected population.

2. How the demographic factors influencing the contraceptive practice.

MATERIALS & METHOD

The present community based cross sectional study was conducted at rural field practice area of ASRAM medical College, Eluru during the period from April 12th 2014 to May 24th 2014. A total of 188 individuals were selected from the eligible couple registry availability at rural health centre. Of which, 10% of the sample taken from the eligible couple registry by using random method. Informed consent was taken and Importance of the study was explained to the participants. House to house survey carried out till the completion of required sample.

Inclusion criteria: Consenting members of eligible couples, physically and mentally fit persons,

and only residents of the surveyed locality were taken as inclusion criteria for the study population.

Exclusion criteria: Physically and mentally unfit persons, those not giving consent and visitors in the area surveyed were the exclusion criteria of the selected population.

Statistical analysis: Data was entered and analyzed using Microsoft Office Excel 2014 and statistical tests like simple proportions and chi square tests were used.

RESULTS

Table 1: Age and sex wise distribution of study population

Age	Male	Female	Total
15-25 yrs	8 (36.3%)	14 (63.7%)	22 (100%)
26-35 yrs	34 (42.5%)	57 (46 5%)	80 (100%)
36-45 yrs	44 (51.2%)	42 (48.8%)	86 (100%)
Total	**86 (45.7%)**	**102 (54.3%)**	**188 (100%)**

About 45.7% people were males and 54.3% were females.

Table 2: Sex in relation to contraceptive usage

Sex	Contraceptive practice yes	No contraceptive practice	Total
Male	5 (5.8%)	81 (94.2%)	86 (100%)
Female	63 (61.7%)	39 (38.3%)	102 (100%)
Total	**68 (36.1%)**	**120 (63.9%)**	**188 (100%)**

In the study population, there was contraceptive practice was 36.1%. Among males, contraceptive practice was very low that was 5.8%.

Table 3: Education versus contraceptive practice

Education	Contraceptive practice yes	Contraceptive practice no	Total
Illiterate	16 (57.1%)	12 (42.9%)	28 (100%)
Primary school	12 (23.1%)	40 (76.9%)	52 (100%)
Secondary school	18 (37.5%)	30 (62.5%)	48 (100%)
Intermediate	10 (35.8%)	18 (64.2%)	28 (100%)
Degree and above	12 (37.5%)	20 (62.5%)	32 (100%)
Total	**68 (36.1%)**	**120 (63.9%)**	**188 (100%)**

In the study population contraceptive practice was low (23.1%) in primary school completed individuals. Contraceptive practice was more in illiterate and high school above completed individuals.

Table 4: Occupation in relation to contraceptive practice

Occupation	Contraceptive practice yes	contraceptive practice no	Total
Daily wage worker	11 (37.9%)	18 (62.3%)	29 (100%)
Housewife	28 (35%)	52 (65%)	80 (100%)
Teacher -private	8 (44.4%)	10 (55.6%)	18 (100%)
Agricultural worker	17 (35.5%)	31 (64.5%)	48 (100%)
Employee govt.	4 (30.7%)	9 (69.3%)	13 (100%)
Total	68 (36.1%)	120 (63.9%)	188 (100%)

In the study population, about 44.4% of teachers occupation people were using contraceptive practice and lowest (30.7%) contraceptive practice was observed in government employees.

Table 5: per capita income versus contraceptive practice

Per capita income	Contraceptive practice yes	Contraceptive practice no	Total
<1000/ p.m.	32 (44.4%)	40 (55.6%)	72 (100%)
1000-2000/ p.m	24 (30%)	56 (70%)	80 (100%)
>2000 / p. m	12 (33.3%)	24 (66.7%)	36 (100%)
Total	68 (36.1%)	120 (63.9%)	188 (100%)

Out of 188 eligible couples, maximum (44.4%) contraceptive practice was noticed in less than 1000/- per month income individuals.

Table 6: Type of contraceptive use among eligible couples

Type of contraceptive	No.of people	Percentage
OC pills	32	17.02%
Condoms	24	12.76%
Cu- T	12	6.38%
No contraceptive	120	63.82%
Total	188	100%

In the study population, contraceptive practice was 36.1%. Of which, oral contraceptive pill (OC pill) usage was 17.02% and lowest Cu-T usage..

Table 7: Duration of usage of contraceptive methods among females

Duration	No of people	Percentage
<1 yr	30	44.4%
1-3 yrs	32	50.85%
>3 yrs	6	4.8%
Total	63	100%

Out of 68 contraceptive users, 63 were females and 5 were males. Among female users, 50.85% were using for the last 3 years and only 4.8% were using more than 3 years.

DISCUSSION

The present cross sectional community based study was conducted at out rural field practice area of Alluri Sita Ramaraju Academy of Medical Sciences, Eluru, Andhra Pradesh during the period of April 12th 2014 to May 24th 2014 by using stratified random sampling method. The main purpose of this study is to know the current status of contraceptive practice by the eligible couples and social factors which may influence the contraceptive practice have been taken care of in this study.

In our study, temporary contraceptive practice was 36.1% among currently married women was less than in NFHS-3 of West Bengal (71.2%), but higher than NFHS-3 national data (56.3%) and other studies[17]. The couple protection rate in the present study (36.1%) was lower than that for NFHS-3 of West Bengal (50 %) and national figure (48.5%). The couple protection rate was found to be less (43.4%) in Sharma AK et al study [18]. The contraceptive acceptance rates, the couple protection rates and fertility rates were higher in Paschim Midnapore district than in Howrah district. This may be due to adoption of permanent methods after completion of family size in Paschim Midnapore district [16]. Similar findings were observed in earlier studies that might be due to male dominance in Indian society (which prevailed in the study area) and was corroborated by observations of Sharma A K et al (1997) and Shobha J [18].

In the study population, contraceptive practice was 36.1%. Of which, oral contraceptive pill (OC pill) usage was 17.02% and lowest Cu-T usage. This usage was lower than what was seen in a study by Chankapaet al (43.41%)[19]. Acceptance of Copper-T (2.2%) and rate of condom use (5.2%) in the present study was more or less similar to the findings of NFHS 3 of India[18] but less than that of previous references[19], In comparison to West Bengal figures (32.3%) of NFHS 3, female sterilization (28.7%) was lower. But this was higher than what was reported by Sharma et al[18] and lower in comparison with studies done by Chandhick N[20].

Out of 188 eligible couples, maximum (44.4%) contraceptive practice was noticed in less than 1000/- per month income individuals. Contrast finding of Contraceptive acceptance rate was higher among higher income groups in both districts; but this was contrary to the findings of the earlier studies [11].

There was inter-district variation of observation in two districts in the present study. One Bangladesh study found no socio-economic difference among acceptors and non-acceptors of family planning method. Adoption of family planning measures was significantly higher among those respondents who acquired education from institutions than illiterate and just literate group in both the districts. A similar observation was made by Sharma et al in South Delhi[18]. All the findings were comparable with one study at Hyderabad by Shobha J.

CONCLUSIONS

Based on the results obtained in this study contraceptive practice was 36%. Hence, couple protection rate in this study was low when comparatively with national average figure of CPR and strengthening of family planning programme is required

Recommendations: Awareness of this contraceptive practice was considerably poor. Hence family planning activities need to be improved, strengthened and maintained.

Ethical Clearance: taken from Institutional ethical Committee

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A Clinico-Pathological Study of Non - Neoplastic and Benign Lesions of Breast at a Tertiary Care Center

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ABSTRACT

Introduction: Benign breast diseases have assumed increased importance in recent times because of public awareness of breast cancer. Breast masses, especially in young age group are a source of anxiety for the patients as well as surgeons because of the risk of cancer and potential cosmetic disfigurement following surgery[1]. As many studies focused on breast cancer, this project was taken up to study the benign breast lesions.

Materials and method: This retro-prospective descriptive study included all cases referred to histopathology section of department of Pathology JJMMC, Davangere, from Jan 2010 to July 2013 (Three and half years). Relevant case details, cytological diagnoses were retrieved from the case records. Inclusion criteria: All breast biopsies reported under benign category. Exclusion criteria: All breast biopsies reported under malignant category.

Results: A total of 507 cases were analyzed, of which 494 (97.5%) were females and 13 (2.5%) were males, with age range of 11-70 years, commonest diagnosis being Fibroadenoma (314 cases; 61.9%), followed by Fibrocystic disease (47 cases; 9.3%). FNAC reports were available in 212 cases, with good correlation with subsequent histopathologic diagnoses, especially for Fibroadenoma (100%).

Conclusion: The present study revealed Fibroadenoma as the commonest benign breast lesion. The results obtained were comparable to similar studies published in literature.

Keywords: Benign breast diseases, Fibroadenoma, Fine needle aspiration cytology.

INTRODUCTION

Benign breast diseases have assumed increased importance in recent times because of public awareness of breast cancer. Breast masses, especially in young age group are a source of anxiety for the patients as well as surgeons because of the risk of cancer and potential cosmetic disfigurement following surgery[1]. However, proliferative changes can sometimes transform into malignancy which

imparts importance to accurate diagnosis and treatment[2]. As many studies have focused on breast cancer, this project was taken up to study the benign breast lesions.

It is established in the literature that women who underwent breast biopsy for benign breast lesions were at an increased risk of developing breast cancer. The histological diagnoses of these lesions are of variable magnitude of risks, some have mild increased risk (1.5 - 2 folds over that of normal population), others have higher risk (10 x normal). The published reports of patients with proliferative breast disease estimate less than 10% of these patients will develop invasive carcinoma in the same breast after 17-21 years of follow up[3]. On the other hand, the risk of development of invasive carcinoma in the other breast is 0.7-4.9 %.3 These data suggest that detection

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of proliferative breast lesions carry some increased risk of developing invasive carcinoma in one or both breast. Furthermore, proliferative breast lesion is a marker of mammary epithelial tissue disturbances of variable effect. The risk of bilaterality is more pronounced with mammary intraepithelial neoplasia (MIN) diagnosis. This fact should be considered in breast screening programs and the patient should be followed up for longer period for both breasts. The criteria used to diagnose proliferative and non-proliferative breast disease and carcinoma in situ (CIS) is well documented in literature and it was used to make the diagnosis reported in the study. Furthermore, due to difficulties, sometimes in differentiating between atypical hyperplasia (AH) and CIS which histologically based on architecture, morphology and extent of the disease, Rosai suggested that both lesions to be amalgamated together in a single diagnostic category termed MIN[3].

MATERIALS & METHOD

This retro-prospective descriptive study included all benign breast lesions reported at the department of Pathology, J.J.M Medical college, Davangere, over a period of three and half years from January 2010 to July 2013. Relevant clinical findings including detailed history and local and systemic examination findings were recorded in a specifically designed proforma. Cytological diagnoses were retrieved from the case records. Histopathological examination was done after conventional method of fixation, processing and staining with routine Hematoxylin & Eosin stain. All breast biopsies reported under benign category were included and biopsies reported under malignant category were excluded.

RESULTS

A total of 507 cases were studied. The diseases encountered with their frequencies (shown in Table 1)were as following: Fibroadenoma(61.9 %),Fibrocystic disease (9.3%), Adenosis (9.0%), Granulomatous mastitis (8.3%), Benign Phyllodes (2.9%), Gynaeccomastia(2.5%), DCIS (2.5%), Breast abscess (2.4%), Tubular adenoma(0.6%) and Fat necrosis(0.6%). Females comprised of 494 cases (97.5%) and 13 cases (2.5%) were males. Laterality was also assessed which showed that the left breast was affected in 278 cases (54.9%), followed by 211 cases (41.6%) affecting right breast, bilaterality was seen in 18 cases (3.5%). Age range was between

11-70 years, commonest age group affected was between 21-30 years (38.7%). Cytological diagnosis was available in 212 cases, which were categorized as unsatisfactory, benign non-specific, benign specific and atypical. Under benign specific we included the following diagnosis i.e fibroadenoma, granulomatous mastitis, fibrocystic disease, usual ductal hyperplasia, fibroadenoma with usual ductal hyperplasia and fibroadenosis. The distribution of cytological diagnosis in the present study has been shown in Figure 1. Cyto-Histological correlation was studied as depicted in Table 2. It showed 100% correlation for Fibroadenoma. False positive cases were noted in 14 cases of usual ductal hyperplasia (UDH) which on histopathology were reported as fibroadenosis in 6 cases, fibroadenoma in 4 cases and benign phyllodes in 4 cases. The 4 cases reported as unsatisfactory on cytology were histopathologically reported as fibrocystic disease and 5 cases reported as atypical on cytology were reported as ductal carcinoma in situ (DCIS) on histopathological examination. The morphological variants of Fibroadenoma and the comparison of their occurrence with that described by Sazan A. Al-Atrooshi is shown in Table 3.

Table 1: Table showing distribution of cases in the present study

Diagnosis	Number of cases(n)	Percentage (%)
Fibroadenoma	314	61.9
Fibrocystic disease	47	9.3
Adenosis	45	9.0
Granulomatous mastitis	42	8.3
Phyllodes tumour	15	2.9
Ductal carcinoma in-situ	13	2.5
Gynaeccomastia	13	2.5
Breast abscess	12	2.4
Tubular adenoma	03	0.6
Fat necrosis	03	0.6
Total	**507**	**100.0**

Figure 1: showing cytological diagnoses in the present study
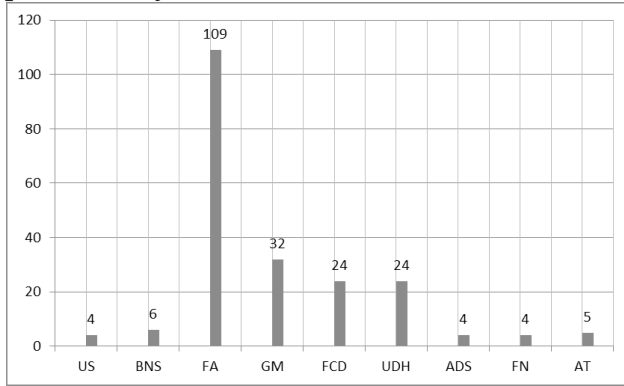
US-unsatisfactory, BNS-benign non-specific,FA-fibroadenoma,GM-granulomatous mastitis,FCD-fibrocystic disease,UDH-usual ductal hyperplasia,ADS- adenosis, FN-fat necrosis, AT-atypical

Table 2: Cyto–histological correlation in present study

HP diagnosis	FA	ADS	FCD	BA	GM	FN	BP	DCIS
Cytological diagnosis								
US(4)	-	-	4	-	-	-	-	-
BNS(6)	1	2	3	-	-	-	-	-
FA(109)	109	-	-	-	-	-	-	-
GM(32)	-	-	-	4	28	-	-	-
FCD(24)	3	1	20	-	-	-	-	-
UDH(24)	4	6	10	-	-	-	4	-
ADS(4)	2	2	-	-	-	-	-	-
FN(4)	-	-	-	-	-	4	-	-
AT(5)	-	-	-	-	-	-	-	5

US-unsatisfactory, BNS-benign non-specific,FA-fibroadenoma,GM-granulomatous mastitis,FCD-fibrocystic disease,UDH-usual ductal hyperplasia, ADS- adenosis, FN-fat necrosis, AT-atypical, BA-breast abscess, BP-Benign phyllodes, DCIS-ductal carcinoma in-situ

DISCUSSION

The result of this study shows that fibroadenoma is the most common benign breast lesion. Similar findings were reported by other studies by Kathcy et al., 1990; Adesunkanmi and Agbakwuru, 2001; Adeniji et al., 1997; Ajao, 1979; Mayun et al., 2008; Anyikam et al., 2008; and Otu, 1990[4,5,6,7,8]. Khanzada et al. (2009) also reported similar finding[9]. However, Memon et al. (2007) in a different study reported that fibrocystic change constituted the majority (66.3%) of BBD in their study area, and they concluded this

represented a change in pattern from a previously more prevalent fibroadenoma[10] . Its peak incidence is in 2nd and 3rd decade of life, but can also occur after menopause due to hormone replacement therapy. These findings were consistent with other studies. The causes of high frequency of fibroadenoma is not known, but racial predisposition and hormonal imbalance may have some influence[11]. Morphological variations of Fibroadenoma were noted in 312 cases, the variations included Sclerosing adenosis 89 cases(28.5%), Apocrine metaplasia 75 cases (24%), myxoid change 50 (16%) cases, hemorrhagic infarct 37 cases(11.9%) cases, hyalinization 37 cases(11.9%) cases and lactational change was seen in 24 cases(7.7%) cases which is compared with a similar other study by Sazan. A. Al- Atrooshi, who studied in 220 cases[12] as seen in Table 2. Gynecomastia was the most commonly reported lesion in the male breast constituting 3% with a mean age 31.23 which is similar to other study[11]. The results of our study showed FNA of breast masses to be a reliable method to diagnose breast mass with high sensitivity and specificity. From the review of Chaiwun and Thorner (2007) and the recent meta-analytic review of Akçil et al. (Akçil et al., 2008), the sensitivity of FNA of breast masses ranged approximately from 76%-100% while the specificity and the accuracy were 60%- 100%[13,14]. Collective analysis shows that among experienced cytopathologists, the false-positive rate varies between 0% and 0.86%, with an average rate of 0.17% [13,14]. This is close to the frequency observed in our study. From a morphologic point of view, false-positive diagnoses seem to be related to peculiar types of breast lesions. Incriminated false-positive diagnoses were Fibrocystic disease, Papillomatosis, Sclerosing adenosis , Dystrophic cysts with apocrine cells, Tubular adenomas, Gynecomastia , Pregnancy-related epithelial modifications, Fat necrosis, Granulomas, Organizing hematomas[15].

Table 3 : Morphological variation in fibroadenoma in present study in comparison to the study by Sazan A. Al-Atrooshi

Present study	Number of cases (%)	Sazan A Al-Atrooshi	Number of cases (%)
Hyalinization	37(11.9)	Hyalinization	14(6.4)
Myxoid change	50(16)	Myxoid change	03(1.4)
Hemorrhagic infarct	37(11.9)	Infarction	08(3.6)
Apocrine metaplasia	75(24)	Apocrine metaplasia	26(11.9)
Lactational change	24(7.7)	Lactational changes	10(4.5)
Sclerosing adenosis	89(28.5)	Ordinary(not otherwise specific)	94(42.7)

CONCLUSION

From this study, it is obvious that the most common benign breast disease in this environment is fibroadenoma. With adequate smears, cytology has been shown to be highly specific. As in this study it showed 100% specificity in detecting fibroadenoma as a most common benign lesion when correlated with histopathology. Hence FNAC is a better screening tool. Meticulous follow up with frequent screening may be useful for prevention of cancer development.

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Hot Water Irrigation versus Conventional Nasal Packing in Epistaxis

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ABSTRACT

Study design: Prospective comparative study.

Method: This comparative study was conducted in the department of ENT & HNS SMHS hospital, an associated hospital of Government Medical College Srinagar, from 01/10/2012 to 01/03/2013. In this prospective comparative study we included 58 patients of posterior epistaxis, 30 of them were managed by modified irrigation technique and rest of 28 patients were managed by conventional nasal packing.

Results: With modified irrigation technique we were able to achieve haemostasis in 22 patients with a success rate of 73.3%. While the success rate in case of conventional nasal packing was 85%. The complications of nasal packing like crusting and adhesions were significantly less with modified irrigation technique. Mean hospital stay with modified irrigation was also significantly less.

Conclusion: Although hot water irrigation has less success rate as compared to the conventional nasal packing but it should be considered as an alternative method in the management of posterior Epistaxsis considering its cost benefit effect and less complication rate as compared to the conventional nasal packing.

Keywords: Epistaxsis, Crust, Adhesion.

INTRODUCTION

Epistaxis is the most common ENT emergency, affecting about 60% of the population. It is beyond doubt that the problem of Epistaxis constitutes a significant amount to the workload of Otorhinolaryngology department. The condition can occur at any age but is mainly seen in adults. Between 7% and 14% of adults have Epistaxis at some time or other, but only 6% seek medical attention[1,2]. Hot water irrigation as a method for control of epistaxis was frequently in use in the nineteenth century. It was almost forgotten mainly due to the newer nasal

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packing techniques, especially with the advent of nasal endoscopy in the later half of twentieth century. This technique of hot water irrigation was used in the past by obstetricians for the management of postpartum bleeding.[3]

The basis of this method is to control bleeding by inducing mucosal oedema with hot water which in turn leads to compression of blood vessels contained in the tissues. It may also have a role in triggering and accelerating the coagulation cascade. The key factor in this practice is a precise temperature control of water, as the temperatures below 48 degrees fail to induce mucosal oedema and subsequent control of bleeding, while on the other hand higher temperatures (>52degrees) cause local tissue necrosis.[4]

Using this technique in cases of posterior epistaxis, we were able to achieve good results compared to the conventional nasal packing, while taking into consideration the undesirable effects of the later.

INCLUSION CRITERIA

1. Patients with posterior epistaxis with no visible source of bleeding on anterior rhinoscopy.

2. Patients refusing / not co-operating with nasal packing.

EXCLUSION CRITERIA

1. Patients coming with secondary haemorrhage due to some intranasal surgery.

2. Patients with anterior epistaxis, with visible source of bleeding.

3. Patients who presented with recurrent Epistaxis.

4. Patients who were hemodynamically unstable.

MATERIAL & METHOD

This comparative study was conducted in the department of ENT & HNS SMHS hospital, an associated hospital of Government Medical College Srinagar, from 01/10/2012 to 01/03/2013. In this study a total of 58 patients of posterior epistaxis presenting to our emergency department were included and all of the patients selected were within a half hour of driving distance. These patients were randomly divided into two groups, the first group (group A) included 30 patients and second group (group B) included 28 patients.

Patients of group A were treated by hot water irrigation using modified irrigation technique, while the patients of group B were treated with conventional posterior nasal packing. Patients in whom control of bleeding could not be achieved by conventional nasal packing were managed by endoscopic ligation of sphenopalatine artery/ bipolar electro-cautery method. None of the patient required embolization / ligation of major vessel.

An industrial thermometer for monitoring the temperature of water was used, having a wide range up to 120 degrees Celsius.

The catheter used was a modified Folleys catheter. The tip of the catheter beyond the balloon was tied with silk to obstruct its lumen. A separate opening was created proximal to the balloon, taking care not to puncture the second smaller lumen for balloon. The port of the catheter for urinary bag was fitted with a small rubber tube so that it could be fixed to a syringe *(fig 1)*.

Figure 1: Tip of Folleys catheter tied with silk thread

After explaining the procedure and taking

consent, patients were prepared with 10% xylocaine spray. The catheter with applied xylocaine jelly was introduced along the floor of bleeding nasal cavity and its tip was visualised in the oropharynx. The balloon was inflated with 10ml of water and was withdrawn slightly to engage it in the choana taking care it does not kink. The catheter was placed so that its distally created opening lied along the sphenopalatine foramen. The patients were made to bend over the wash basin and hot water was introduced using a 50ml syringe. Around 500ml of water was instilled over 3 minutes through the catheter. Slight traction was kept on the catheter to keep it tightly engaged in the choana so that hot water does not flow beyond it into the oropharynx. *(fig 2)*

Second attempt was made after a period of 10 minutes if the earlier attempt failed to control bleeding and in cases of failed second attempt posterior nasal packing was done. This was the group in whom bleeding couldn't be controlled and we had to resort to conventional nasal packing.

Figure 2: Folleys catheter inflated with saline

After the procedure patients were kept in observation for 3 hrs and were watched for vitals and any signs of bleeding. Successfully treated patients

were discharged after this observation period with proper instructions, explaining them the risk of recurrence of bleeding. Follow-up of patients was maintained by providing them with a contact number and were followed for a period of 2 months on OPD basis.

The group B patients were treated with convention posterior nasal packing, i.e a small gauze roll with 3 silk ties, with an anterior nasal pack and were kept admitted for 48 hours.

RESULTS

Amongst the 30 patients of the group A, complete haemostasis was achieved in 22 patients (success rate of 73.3%). Rest of the 8 patients had to be managed by conventional nasal packing / endoscopic ligation of sphenopalatine artery / bipolar electro-cautery method. *(fig 3)*
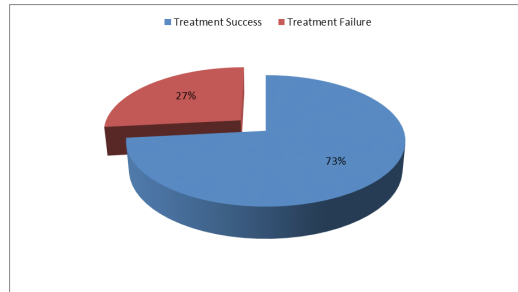
Figure 3: Hot water irrigation outcome

In this first group out of the 22 successfully treated patients, bleeding was controlled during the procedure in 13 patients, and during the first five minutes in 7 patients. While in rest of the 2 patients bleeding was controlled in first 10 minutes of the procedure. *(Table 1)*

Table 1: Time Duration for control of bleeding in group A:

Time	During the procedure	In the first 5 minutes	In the first 10 minutes
No. of patients (%age)	13 (59%)	7 (31.8%)	2 (9%)

Of the 28 patients of group B haemostasis was achieved in 24 patients with conventional nasal packing (success rate of 85%), while the other 4 patients were managed by either endoscopic ligation of sphenopalatine artery/ bipolar electro-cautery method. *(fig 4)*
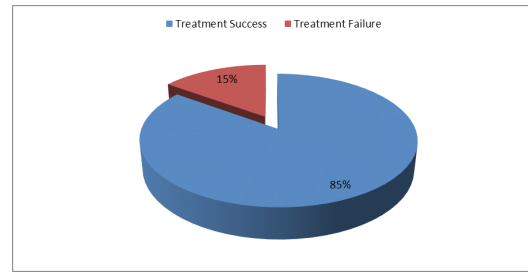
Figure 4: Conventional nasal packing outcome

Eight patients of group A who failed to respond to the hot water irrigation were treated by conventional nasal packing and out of these eight patients only in three patients bleeding could be controlled with conventional nasal packing while the rest of five patients required endoscopic ligation of sphenopalatine artery/ bipolar electro-cautery method. *(fig 5)*
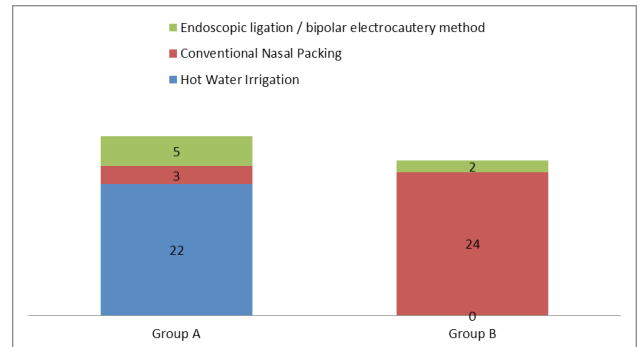
Figure 5: Treatment distribution in each group.

Mean hospital stay was calculated in each treatment groups and it was found that the patients who were treated with hot water irrigation the mean hospital stay was significantly *(p< 0.001)* less as compared to the patients who were treated with the conventional nasal packing. *(Table: 2)*

Table 2: Mean hospital stay of each treatment group.

Group	Mean hospital stay (in days)
Group A	0.9 days
Group B	2.9 days

0n subsequent OPD follow up the extent of crust formation was significantly less in the patients treated with hot water irrigation when compared to the second group with conventional packing *(fig67)*. None of the patients of the first group had adhesions *(fig 7)*.*(Table 3)*

Table 3: Treatment Complications in each group.

	Group A(no of patients,%age)	Group B(no of patients,%age)
Crust formation	6 (20%)	15 (58%)
Adhesions	0 (0%)	3 (11%)

Figure 7: Nasal crusts

Figure 8: Intranasal adhesion

DISCUSSION

Posterior Epistaxis is less common than anterior Epistaxsis and usually is managed in the emergency department. Most of these patients are managed by posterior nasal packing while few others managed by using Folleys catheter with an inflated bulb in place of posterior pack. These patients had to be kept admitted and various complications had to be managed. Besides pain and discomfort there can be some serious complications of packing like, sinusitis, nasal septal pressure necrosis, abcesses formation, neurogenic syncope, toxic shock syndrome etc.

In our study we found statistically no significant difference (p>0.05) in the ability of two methods to control bleeding. However there was a significant difference (p< 0.001) in the mean hospital stay and complication rates in the two treatment groups. Modified irrigation was carried as an outpatient procedure, hospital stay which is one of the main concerns of the patients and attendants treated with nasal packing, was eliminated. The other main advantage of the procedure was the relative ease of the procedure, since nasal packing was associated with a lot of pain and discomfort and complications during the procedure as well as thereafter. Irrigation method is also a quicker procedure, requiring less expertise as compared to the conventional nasal packing. This technique was also found to be easier and much effective in patients of epistaxis with deviated nasal septum.

Complications of nasal packing like crusting and adhesion formation observed during the follow-up period was significantly less (p<0.001) in the group A patients as compared to the group B patients. However hot water irrigation method needs strict monitoring of water temperature as temperatures below 48 degrees will fail to induce mucosal odema and the subsequent control of bleeding, while temperature above 52 degrees can cause local tissue necrosis.

Conclusion: Although hot water irrigation has less success rate as compared to the conventional nasal packing but it should be considered as an alternative method in the management of posterior Epistaxsis considering its cost benefit effect and less complication rate as compared to the conventional nasal packing.

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Acknowledgement: None

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Modifiable Risk Factors of Cardiovascular Diseases: Awareness among Patients Attending Tertiary Care Hospital in Delhi, India

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ABSTRACT

Background: The proportion of the death and disability due to cardiovascular diseases in developing countries is increasing rapidly and have significant economic and health consequences. Our present study assess the awareness of non pharmacological treatment modalities for modifiable risk factors of cardiovascular diseases (CVD) among the patients attending tertiary care hospital.

Objectives: The objectives of the study were to assess the awareness of modifiable risk factors of cardiovascular diseases.

Method: A cross sectional descriptive, interview based study was done in 203 adult patients attending cardiology OPD in a tertiary care hospital located in Delhi. Consecutive sampling method was followed for recruiting the study participants. The study tool used was modified WHO STEPS approach for assessment of risk factors for non communicable diseases. Data analysis was done using SPSS v.20.

Results: Among 203 study participants, 137(67.5%) were males and 66(32.5%) were females. 40 (19.7%) were current smokers and 36(17.8%) were past smokers. 30 (14.8%) of study participants were current consumers of alcohol.197 (97%) of the study participants were following healthy dietary practices. Significant association of residence with awareness about harmful effects of smoking 3.48(1.73 – 7.01)[OR(CI)] (*p*=0.001) and harmful effects of alcohol consumption 2.26(1.15– 4.43)[OR(CI)] (*p*=0.026) was found.

Conclusion: The prevalence of smoking among the study participants was high and their awareness regarding the risk of occurrence and worsening of existing CVD due to smoking was low. There is an urgent need to educate patients having CVD about modifiable risk factors and healthy lifestyle practices.

Keywords : *Awareness, modifiable risk factors, cardiovascular diseases.*

INTRODUCTION

Cardiovascular diseases(CVDs) are the leading causes of deaths in both developing and developed countries.[1] Around 80% of the CVD deaths take place in low- and middle income countries.[2] In India, there is a sharp rise in the incidence and prevalence of cardiovascular diseases due to rapid demographic and epidemiologic transition[3]. The prevalence of CVDs in India was 3- 5% in rural and 7 - 10% in urban population with a total number of 30 million cases.[4] A total number of 3.4 million deaths occur due to the cardiovascular diseases. By the year 2015, the total cases of CVDs is expected to rise to nearly 64 million, of which coronary heart diseases alone would contribute 61 million cases.[5] This increasing proportion of the death

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and disability due to cardiovascular diseases have significant economic, social and health consequences and has been a very concerning for the health care providers. WHO ICMR six site study[7] reported that in urban areas the prevalence of smokers was 26.5% and for alcohol consumption was 40.1%. Smoking, consumption of alcohol, decreased consumption of fruits and vegetables, abdominal obesity, physical activity have been found as the modifiable risk factors for cardiovascular diseases.[2,6] By addressing the risk factors such as physical inactivity, unhealthy diet, obesity, tobacco and alcohol use, most of the cardiovascular diseases could be prevented.[1] An effort was taken in the present study to assess the awareness of non pharmacological treatment modalities for modifiable risk factors of cardiovascular diseases (CVD). Non pharmacological treatment modalities for CVDs include cessation of smoking, abstinence from alcohol, dietary modification and regular physical activity. Raised fasting blood glucose also increases the risk of cardiovascular deaths, and was estimated to cause 22% of coronary heart disease deaths.[2] The objective of the study was to assess the awareness of modifiable risk factors of cardiovascular diseases. A secondary objective was to find the determinants of the fasting blood sugar of study participants.

STUDY METHODOLOGY

The study was a descriptive, cross sectional, hospital based study. The study was conducted in cardiac outpatient department in Safdarjung Hospital, a tertiary care hospital, Delhi.The data collection period was from March 2012 to May 2012. The study population comprised of adults with known cardiovascular diseases attending cardiology outpatient department.The study included the patients with known cardiovascular problems such as hypertension, coronary artery disease, heart failure. Severely ill patients, patients with congenital heart disease, rheumatic heart disease, stroke, peripheral vascular diseases and heart failure were excluded. Patients with congenital heart disease and rheumatic heart disease were excluded since they do not share the risk factors of Non communicable diseases. Consecutive sampling method was followed for recruiting the study participants. A pre-tested, structured, close-ended, interview based questionnaire was used for data collection. The study

tool was designed on the basis of STEPS approach for assessment of risk factors for Non communicable diseases by WHO. The information collected included socio-demographic profile, awareness about the risk factors of cardiovascular diseases, anthropometric measurement, blood pressure and fasting capillary blood sugar levels. Totally 203 patients were interviewed. The data was entered into a spread sheet on Microsoft Office Excel and later was transferred to IBM SPSS version 20.0 for analysis. Chi square tests was used to look for associations between the knowledge of risk factors and various factors. P value ≤ 0.05 was considered as significant. Correlation and logistic regression was carried out to determine the factors associated with fasting blood sugar. The study was approved by the Institutional Review Board of Safdarjung Hospital, New Delhi. Written Informed consent was obtained from each study participant.

DEFINITIONS

Vigorous intensity activities are those activities that require hard physical effort and cause large increase in breathing or heart rate. Moderate intensity activities are those activities that require moderate physical effort and cause small increase in breathing or heart rate. Current Smoker is one who smoked within last one year and current consumer is the one who consumed alcohol within last one year. One standard drink is approximately 10 gm of ethanol. It is 285 ml of regular beer or 30 ml of spirit or 120 ml of wine. (WHO STEPS Approach)

RESULTS

The total study participants comprised of 203 patients with age of the participants ranged from 25years to 84years with mean(SD) of 55.8($\pm$10.9). Among the study participants, 147(72.4%) and 130(64%) were aware about the harmful effects of smoking and alcohol respectively.

Table 1   Distribution of   study participants according to socio-demographic profile. (N=203)

S. No.	Socio demographic variable	N(%)
1.	**Gender** Male Female	137(67.5) 66 (32.5)
2.	**Age** 25-39 years 40-59 years 60 and above	11(5.4) 101(49.8) 91(44.8)
3.	**Residence** Urban Rural	158(77.8) 45(22.2)
4.	**Education** Primary Secondary Higher Secondary Graduate and above Can read & write Illiterate	50(24.6) 46(22.7) 25(12.3) 38(18.7) 10(4.9) 34(16.7)
5.	**Occupation** Employed Unemployed Housewife Retired	115(56.6) 10(4.9) 42(20.7) 36(17.7)
6.	**Family History of CVD** Yes No	36(17.7) 167(82.3)
7.	**Religion** Hindu Muslim Sikh	176(86.7) 23(11.3) 4(2.0)

Diet and Physical activity

Around 90% of the participants had changed their dietary pattern to decreased salt and fat intake. 102(50.3%) participants had increased their daily consumption of fruits and vegetables. Daily consumers of vegetables and fruits were 115(56.7%) and 57(28.1%) respectively. 54(26.6%) participants eat at least one serving of vegetables per day. 19(9.4%) of the study participants use mixed oil for meal preparation. 154(75.9%) study participants were aware that physical activity helps to reduce the risk of cardiovascular diseases. Regular physical activity involves vigorous intensity activity in only 5(2.5%) of the participants and moderate intense activity in160(78.8%) study participants. Leisure time activity was a moderate intensity activity in 186(91.6%). In a typical day, 46(22.7%) of the participants spent >6 hours in reclining and sitting.

Among the study participants 69 (34%)were in impaired fasting glucose range and 58 (28.6%)were in diabetic range. 80(39.4%) study participants were overweight and 17(8.4%)were obese.

Table 2 Knowledge about harmful effects and practice of smoking and alcohol among the study participants. (N=203)

S.No.	Variables	N(%)
Smoking		
1.	**Knowledge about the harmful effects Smoking affects*** Lungs Heart Brain Causes no harm Don't know	120(59.1) 44(21.7) 13 (6.4) 1(0.5)
2.	**Smoking status** Current Smoker Past Smoker Never a smoker	55(27.1) 40(19.7) 36(17.8) 127(62.5)
3.	**No. of smoking per day (n = 40)** <10 10-20 >20	18(45) 11(27.5) 10(25)
4.	**Reason for not quitting smoking(n=40)** Addiction Peer pressure Stress	38(95) 1(2.5) 1(2.5)
Alcohol		
5.	**Knowledge about the harmful effects Alcohol affects*** Liver Heart Kidney Other organ Causes **no** harm Don't know	112(55.2) 40(19.7) 10(4.9) 1(0.5) 13(6.4) 60(29.5)
6.	**Alcohol consumption status** Current consumer Past consumer Never a consumer	30(14.8) 18(8.8) 155(76.3)
7.	**No. of standard alcohol drink per on consumption days (n=30)** One Two Three Four	6(20) 16(53.3) 6(20) 2(6.7)
8.	**Reason for not quitting alcohol consumption (n=30)** Addiction Peer pressure Stress	24(80) 2(6.7) 4(13.3)

* Multiple response

Significant association was found between residence and current smoking status, with higher smoking levels in urban residents (*p*=0.029). Awareness about positive effect of physical activity was seen in participants with positive family history (*p* =0.040) and higher educational status (*p*=0.003) .There was statistically significant association of residence with awareness about harmful effects of smoking 3.48(1.73 – 7.01)[OR(CI)] (*p*=0.001) and harmful effects of alcohol consumption 2.26(1.15–4.43)[OR(CI)] (*p*=0.026). Similarly positive family history of CVDs was associated with high awareness about harmful effects of smoking 3.62(1.22 – 10.76) [OR(CI)] (*p*=0.025) and alcohol consumption 3.35(1.32 – 8.49) [OR(CI)] (*p*=0.013).

Table 3   Distribution of study participants according to socio-demographic profile and knowledge about harmful effect of smoking and alcohol consumption. (N =203)

S.No.	Variables	Awareness about harmful effects of smoking (n=147) n(%)	p value	Awareness about harmful effects of alcohol consumption (n=130) n(%)	p value	Awareness about beneficial effects of physical activity (n=154) n(%)	p value
1.	**Gender**		0.921				0.469
	Male	99 (72.2)		84(61.3)	0.312	106(77.3)	
	Female	48 (72.7)		46(69.6)		48(72.7)	
2.	Age Group		0.678		0.970		0.208
	25-39 yrs	6(54.5)		11(100)		8(72.7)	
	41- 59 yrs	78(77.2)		69(68.3)		82(81.1)	
	60yrs & above	61(67.0)		39(42.8)		64(70.3)	
3.	Residence		0.001		0.026		0.734
	Urban	124 (78.4)		108(68.3)		119(75.3)	
	Rural	23 (51.1)		22(48.8)		35(77.7)	
4.	Education		0.747		**0.01**		0.001
	Primary	38(76.0)		28(56.0)		28(56.0)	
	Secondary	32(69.5)		32(69.5)		35(76.0)	
	Higher Secondary	20(80.0)		17(68.0)		23(92.0)	
	Graduate & above	38(100)		32(84.2)		35(92.1)	
	Can read & write	5(50.0)		2(20.0)		7(70.0)	
	Illiterate	17(50.0)		13(38.2)		26(76.4)	
5.	Family History		0.025		0.013		0.004
	Yes	32(88.8)		30(83.3)		34(94.4)	
	No	115(68.8)		100(59.8)		120(71.8)	

Chi square test applied

Analysis was done to determine correlation of fasting blood sugar with BMI, hip and waist circumference. It was found that there was a positive correlation between fasting blood sugar with BMI (r=0.690), waist circumference (r=0.691), hip circumference (r=0.492). This was found to be significant (*p*= 0.000,0.000,0.0000). The variability of BMI and waist circumference with fasting blood sugar could be explained by the variability of fasting blood sugar(R^2 = 0.478,0.476).

Table 4 Logistic Regression showing risk factors for High Fasting Capillary Blood Sugar among study participants (N=203)

S No.	Variable		Normal FBS	High FBS**	Adjusted OR	p value
			N(%)	N (%)		
1	Age group	25 - 39 yrs	10(52.6)	9(47.4)	1	
		40 - 59 yrs	36(33.3)	72(66.7)	2.312	0.104
		≥ 60 yrs	30(39.5)	46(60.5)	1.737	0.307
2.	Sex	Male	51(37.2)	86(62.8)	1	
		Female	25(37.9)	41(62.1)	0.952	0.884
3.	Family history of CVD	Present	15(41.7)	21(58.3)	1	
		Absent	61(36.5)	106(65.8)	1.457	0.348
4.	Smoking	Present	12(30)	28(70)	1	
		Absent	64(39.3)	99(60.7)	0.632	0.235
5.	BMI	Normal	51(41.8)	71(58.2)	1	
		Pre obese	20(31.2)	44(68.8)	1.568	0.044
		Obese	5(29.4)	12(70.6)	2.067	0.012

**>110mg/dl

DISCUSSION

Majority of the study participants, 147(72.54%) were aware of harmful effects of smoking and 130 (64.0%) were aware of harmful effects of alcohol. These results are consistent with previous hospital based study result of 68% (Saeed O *et al* [15]) and another study with 77% (Pandian DJ et al [14]). Lower awareness, 42% was also reported(Khan MS *et*[16]). In the present study, the awareness could have been better, as the study participants were known cardiac patients on treatment from a tertiary care hospital. In the present study, urban residence, higher education and positive family history had a positive influence on knowledge about harmful effects of smoking and alcohol consumption. These findings were similar to previous study (Khan MS *et*[16])

Prevalence of current smokers (19.7%) in our study, is similar to 21.5% in previous study done on diabetic patients (patnaik L *et al*[17]) and 19.9% (Chow C *et al* [8]). Community based, non communicable disease risk factors surveillance study by WHO-ICMR[7] found a prevalence of 26.7%. Similarly current

alcohol consumption status in our study (14.8%) is comparable to 19% found in a study (Gupta R *et al*[9]). Only 12.3% of study participants were taking 3 servings of vegetables per day. This figure is very low and comparable to 7.9%(men) and 5.4%(women) in previous study (Anand K *et al*[10]). Undertaking vigorous intensity activity was very low (2.5%) in our study participants, similar figure (4.3%) was seen in previous study (Khan MS *et*[16]).

In our study, 39.4% and 8.4% were overweight and obese respectively. In previous studies, obesity was found in, 36.8%(Ahmed J *et al*), 24.1%(Nazil M *et al* [12]) and 32% (Sharma SK *et al* [13]) of study participants. Thirty four percent of our study participants were at risk of diabetes (impaired fasting glucose levels). As mortality due to CVDs increase with the presence of risk status of diabetes, more emphasis on healthy life style practices has to be done.

CONCLUSION

The burden of risk factors for cardiovascular disease among the study population was high. Almost half of the patients of cardiovascular disease were consumers of tobacco and their awareness

regarding the risk of occurrence and worsening of existing CVD due to smoking was extremely low. As preventive strategies help in reducing the escalating increase of CVD, there is a compelling need to educate patients having CVD about modifiable risk factors and healthy lifestyle practices. Our study also calls for efforts including targeted health education to enhance the level of knowledge of risk factors of cardiovascular diseases.

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An Epidemiological Study Analyzing Morbidity Pattern and the Role of Antibiotics in Acute Respiratory Tract Infections (Pneumonia) in Children Under Five Years of Age in the Rural Area of Dist. Amritsar and to Study the Utilization of Public Health Care Utility by the Community

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ABSTRACT

Acute respiratory Tract infections especially Pneumonia account for millions of visits to health care facilities or to family physicians each year in India. Though antibiotics are warranted in some cases, but in most of the cases these are greatly inappropriately & overused. Judicious, evidence-based use of antibiotics will help contain costs and prevent adverse effects and drug resistance.

Keywords: *Acute Respiratory Infection, Pneumonia, Community Health Workers, Antibiotics.*

INTRODUCTION

Acute respiratory infections are one of the commonest causes of deaths in children in both developing and developed world. They are responsible for 4 million out of the estimated 15 million deaths that occur in children under 5 years of age., 2/3rd of these deaths are in infants, under one year of age. Almost all acute respiratory infection deaths, in young children are due to pneumonia and require antimicrobial therapy in the form of oral co-trimoxazole, ampicillin or erythromycin and supportive therapy. Thus acute respiratory infection is a serious threat to the infant and child survival in India

Various supportive measures include breast feeding, cleaning the child's nose, providing warmth in cold weather and increasing the moisture in the air to soothe the upper respiratory passages. The provision of appropriate support will increase the effectiveness of community health worker and the acceptability in the community, particularly if the linkages between the worker and the referral facility are good.

However, it has been observed that in the management of acute respiratory infections, it is a common practice to give various antimicrobials. The empirical use of these antibiotics in acute respiratory infections is based on the premise that they will prevent secondary bacterial infections which is primarily responsible for pneumonias, which may affect the duration and severity of acute respiratory infections. The exact impact of use of various antimicrobials on mortality has not been evaluated. The most commonly antimicrobials used in clinical practice are, ampicillin, amoxicillin, cotrimoxazole and erythromycin. This study was undertaken to compare the results of standard case management according to the National Programme of Acute respiratory infection and empirical use of various antimicrobials especially during the winter months of December to Feb. When the incidence of acute

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respiratory infection is maximum.Hence this study was planned with the following aims & objectives.

OBJECTIVES

To find out

i. 1.Effectiveness of commonly used drugs on ARI.

ii. The morbidity pattern of ARI in children under 5 years of age.

iii. To compare the results of standard case management as per the national Programme of ARI and empirical use of various antimicrobials.

iv. To study the utilization of public health care services by the community.

MATERIAL AND METHOD

The proposed study was carried out in the Village Gumtala during the winter months of Dec 1998 through March 1999, which is a field practice area of the Department of Community Medicine, Government Medical College, Amritsar. A case of acute respiratory infection is defined as per the guidelines of the World Health Organization.

"Any episode of acute symptoms and signs resulting from infection of any part of the respiratory tract or its related structures including the paranasal sinuses, middle ear and pleural cavity."

A new episode was considered as one occurring after a symptom free interval.The study area was divided into four zones. Each zone consisted of approximately 160 houses. A team of Pre-trained interns and anganwadi worker of each zone, assisted the survey for a cluster of approximately 125 children below 5 years of age. Each house was visited twice a week by the team. The mother or any other responsible family member was interviewed in a local language after explaining the purpose and aims of the study so as to get their co-operation.

The study was conducted by house to house visit. A pretested Performa was used to collect the information and it was compiled, analyzed and valid conclusions were drawn.

OBSERVATIONS & DISCUSSION

Table 1: Showing the sex-wise incidence of acute respiratory traction infection episodes among children of 0-5 years age.

Sex	No.of children	No.of ARI episodes	Average No.of ARI episodes	Range of episodes	Standard deviation
Male	286	332	1.16	0-4	0.0033
Female	217	228	1.05	0-3	0.0037

Z+ 354.88; $p<0.01$ (Significant)

This table shows that in male children (n-286) the incidence of acute respiratory infection for 3 months period was 332 episodes (average 1.16 episodes/child) while in female children (n=217), it was 228 episodes (average 1.05 episodes/child). This difference was observed to be statistically significant in both these groups of children ($p<0.05$) which might be due to the reasons that the parents pay more attention towards their male children as compared to females. In some of the female children mild acute respiratory infection episodes might have been ignored. The findings were analogous to the study of **Reddaiah, V.P. et al (1990).**

Singh M.P. et al (1990-91) in a community based study carried out in a rural area of wardha district (Maharastra) in children below 5 years of age on the incidence of acute respiratory infection episodes observed no sex difference.

Table 2: The age wise incidence of acute respiratory infection episodes among children of 0-5 years age

Age in years	No.of children	No.of ARI episodes	Average No.of episodes	Range of episodes	S.D.
0-1	66	68	1.03	0-3	0.011
1-2	88	114	1.3	0-5	0.019
2-3	93	108	1.16	0-5	0.004
3-4	136	142	1.05	0-3	0.007
4-5	120	128	1.06	0-3	0.005

$z_1=24.55$ $p<0.01$(significant); $z_2=8.75$ $p<0.01$ (significant)

$z_3+20.00$ $p<0.01$(insignificant); $z_4<2.86$ $px0.01$(significant)

According to this table minimum number of ARI episodes (average 1.03 episodes'/child) were observed in children of 0-1 years age group and maximum incidence was observed (average 1.3 episodes/child) in 1-2 years age group followed by those in 2-3 years, 4-5 years and 3-4 years of age group who had experienced 1.2, 1.06 and 1.05 ARI episodes/child. The difference observed was statistically significant.

The frequency of attacks of ARI was minimum in 0-1 year age group as compared to older age groups. This is because that most of the babies in the early months of age are absolutely on breast feeding which has a protective role and also most of the children during this period remained in the protective environment.

Table 3: Showing the symptoms of acute respiratory infection according to frequency of occurrence.

Symptom	Frequency	Percentage
Runny nose	475	94.4
Cough	385	76.5
Red and watering eyes	102	20.3
Discharging ear	43	8.6
Ear ache	32	6.4
Rapid respiratory rate	33	6.7
Inability to feed	8	1.7

Running nose was the most commonly occurring symptom observed in 475 (94.4%) of ARI cases followed by cough, watering of eyes, discharging ears, ear ache, rapid respiratory rate and inability to feed in 76.5%, 20.3%, 8.6%, 6.4%, 6.7% and 1.7% respectively.   Kumar V (1987) in his study in selected villages of Haryana observed that cough was the hallmark feature of ARI in children under five years of age.

Table– 4: Showing the signs of acute respiratory infections episodes according to the frequency of occurrence signs

	No. of episodes	Percentage
Fever	241	43.00
Rapid rate of respiration	89	15.90
Irritability	38	6.80
Diarrhoea	32	6.00
Working of accessory muscles	5	0.90
In drawing of chest	5	0.80
Cyanosis	5	0.80

According to this table fever was most commonly occurring sign observed in 43% cases followed by rapid rate of respiration (15.9%), irritability (6.8%), diarrhea (6%), working of the accessory muscle (0.9%) and indrawing of chest (0.8%) and cyanosis (0.8%).

Kumar V (1987) in a study of selected villages in Haryana reported that fever was present in 30% cases while rapid breathing in 10.9% cases. Raddaiah et al (1990) reported fever in 69.6%, cough in 63.2% and inability to feed in 19.2% cases of pneumonia admitted in a rural hospital of Haryana.

Table 5: Showing the approach of the parents towards the various categories of practioners

No treatment	Home treatment	RMP,s	Govt. agency (SHC/PHC,s etc)	Qualified Gen. Practitioners	Consultants
26 (4.6%)	55 (8.0%)	295 (52.7%)	176 (31.4%)	6 (1.07%)	2 (0.36%)

This table shows that majority (52.7%) acute respiratory infection episodes were treated by RMPs followed by 176 (31.4%) acute respiratory infection episodes by Govt. Health Agency 6(1.07) episodes were treated by general qualified practitioners and 2 (1.4%) episodes were treated by child consultant. Whereas 55 ARI episodes were home treated. in the form of hot drinks, herbal tea etc. 26 episodes had no treatment at all. Maximum acute respiratory infection episodes were treated by RMPs as compared to the Govt. institutions because of the non availability of drugs and indifferent attitude of the officials at the Govt. Health Agencies.

Table – 6: Showing average duration of acute respiratory infections (no pneumonia) in relation to intervention with cotrimoxazole and control (supportive therapy)

Cotrimoxazole group				Supportive therapy (Control) group			
Duration of illness in days	No. of children on cotrimoxazole	Total duration in days	Average duration	Duration of illness in days	No. of children on cotrimoxazole	Total duration in days	Average duration
3	42	126		3	21	63	
4	49	196		4	18	72	
5	6	30		5	-	-	
6	3	18	3.7 days	6	-	-	5.3 days
Range 3-6	100	370		Range 3-9	64	337	

This table show that average duration of illness in cases where only supportive treatment (n+64) (clearing the child's nose, providing warmth in cold weather, continuation of breast feeding, hydration and increasing moisture in the air etc) observed to be 5.3 days with a range of 3-9 days. In cases where intervention (cotrimoxazole) was done (n=100), the average duration of illness observed was 3.7 days with a range of 3-6 days. This difference was statistically significant.

Kumar V et al (1987) in a similar study of case management found the mean duration of acute respiratory infection, episode was slightly lower in the intervention group (5.7 days) as compared to controls (8.7 days).

There were 12 cases of pneumonia out of 560 acute respiratory infection episodes. They were divided into 3 subgroups viz. group I, II, III, Group 1 (n=4) pneumonia cases were put on erythromycin, group 11 on cotrimoxazole, and group III amoxicillin.

Table – 7: Showing the effect of commonly used drugs in pneumonia cases

Drug given	Case	Response of the symptoms in days				Average duration
	No.	Fever	Respiratory Rate	Reputations	Cough	of illness
Drythromycin (group I)	1	5th	5th	9th	11th	11.5 days
	2	3rd	3rd	8th	12th	
	3	Worsened during treatment within 48 hours and was referred to hospital				
	4	Not responded (neither improvement nor worsening symptoms) during 96 hours of treatment and was shifted to amoxicillin (group 1)				
Cortimoxazole (Group II)	1	5th	6th	11th	9th	10.5 days
	2	6th	4th	10th	8th	
	3.	Showed worsening of symptoms and signs during 48 hours of treatment and was referred to paediatric ward/S.G.T.B. hospital, Amritsar.				
	4	Not responded (neither improvement nor worsening of symptoms and signs) and was shifted to amoxicillin (group 1)				
Amoxicillin (group III)	1	3rd	5th	6th	6th	5.4 days
	2	5th	5th	8th	6th	
	3	3rd	4th	6th	8th	
	4	3rd	5th	8th	4th	
	5	2nd	4th	9th	7th	
	6	3rd	3rd	8th	7th	

Group I : According to this table 4 children put on erythromycin, 2 responded completely Kumar V et al (1987) in a similar study of case management found the average duration of illness observed was 11.5 days in them. One child did not respond (neither improvement nor worsened) during 96 hours of treatment and was put the average duration of illness observed was 11.5 days in them. One child did not respond (neither improvement nor worsened) during 96 hours of treatment and was put

Group III : The above table shows that there were 6 children (4 from group III and I each from group I and II) put on amoxicillin. All the six children showed complete remission of their symptoms and signs. The average duration of illness observed was 5.4 days in this group.

In double blind clinical study was conducted in the urban areas of Pakistan to assess the clinical efficacy of cotrimoxazole v/s amoxicillin in childhood pneumonia cases showed amoxicillin was more effective than cotrimoxazole which was analogous to the findings of this study (Strauss WL et al (1999).

Test of significance was not applied as the sample size was very small.

SUMMARY AND CONCLUSIONS

The study "An epidemiological study of morbidity and mortality of respiratory infection episodes in children under 5 years of age and the effects of commonly used drugs on these parameters" was carried out in the village Gumtala which is a field practice College, Amritsar. The study was undertaken during the winter months of Dec. 1998 to Feb. 1999.

- A sample of 503 children under 5 years of age were studied. There were 286 (56.8%) male and 217 (43.2%) female children.

- Running nose and cough were the most frequently occurring symptoms observed in this study, being observed in 94.4% and 76.5% cases respectively.

- Fever and fast breathing were commonest signs observed in 43% and 15.9% cases respectively.

- There was no mortality due to ARI during this study period of three months.

- This could be attributed to the high levels of health awareness among people, availability and accessibility of various health services in the vicinity of the village.

- Case identification and management was made simple by following the guidelines laid down by WHO for diagnosis and managements of ARI.

- Maximum number of ARI episodes were treated by RMPs as compared to Govt. Health Agency or consultants/specialists.

- Where cotrimoxazole was given in no pneumonia (cough and cold) cases the average duration of illness observed was 3.7 days against 5.3 days per episode where only supportive therapy was given.

- Amoxicillin was observed to be more effective than cotrimoxazole in children with pneumonia.

RECOMMENDATIONS

• A comprehensive health education campaign should be launched to :

1. Promote breast feeding in infants.

2. Improve the nutritional status of the children.

3. Increase immunization coverage in children.

4. Reduce discrimination in health care of female children.

5. Provide education to parents with special emphasis on female literacy.

6. Promote small family norms to educate community regarding hazards of smoking which will help in reducing morbidity and mortality due to ARI.

7. ARI represents a particularly strong argument for a primary care perspective on needs assessment. It is the second most common diagnosis made in under 5 children consulting their general practitioner, and the commonest cause of disability.

i. 8. A programme needs to be developed to provide facilities in the form of early diagnosis, counseling and family support in addition to treatment. Along with this both community based and hospital based strengthening of pediatric health care services is required.

Parents/primary health care workers/RMPs need to be educated regarding the importance of early recognition of signs and symptoms and appropriate treatment of acute respiratory infection and referral.

An in-depth study in a larger sample of population is required before recommending the routine use of Co-trimoxazole, Amoxicillin and other antimicrobials in cases of ARI by Primary Health Care Workers.

ABBREVIATIONS

Govt. : Government of India

OA: Acute respiratory tract infection

QOL: Quality of Life

SES: Socio-economic status

WHO: World Health Organization

Conflict of Interest: The authors declare that they have no competing interests.

Ethical Approval: Ethical approval was obtained from Baba Farid University of Health Sciences wide letter no. BFUHS/2K/TH/2413 Dated 21.06.2000

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A Histopathological Study of Cystoscopic Bladder Biopsies in a Tertiary Care Hospital

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ABSTRACT

Aim: To study the histopathology of various lesions of the bladder through cystoscopic biopsies.

Materials and method: This study was carried out in the Department of Pathology, Victoria hospital, BMCRI, Bangalore on 50 cystoscopic biopsies obtained between June 2014 to January 2015.

Results: Out of the 50 cases, 40 were malignant, 5 were inflammatory lesions, 4 were benign tumors and 1 was a case of diverticulum of the bladder. The age of the patients ranged from 8 months to 95 years, among which 38 were males and 12 females. Among the malignant cases, Urothelial carcinoma was the most common-34 cases (85%), with squamous differentiation in 3 cases, giant cell differentiation in 1 case and focal glandular, squamous and neuroendocrine differentiation in one. 3 cases of PUNLMP, 1 case of Squamous cell carcinoma and 1 case of metastasis-adenocarcinoma ? primary from uterus were also reported. The most common benign tumor was inverted papilloma-2 cases(50%), followed by one each of inflammatory myofibroblastic tumor (25%) and benign mucinous cystadenoma(25%). 5 cases were diagnosed as cystitis.

Conclusions: Our study has revealed that bladder tumours are the commonest lesions in cystoscopic biopsies and urothelial carcinoma is the predominant tumour type.

Keywords: Cystoscopy, biopsy, urothelial carcinoma.

INTRODUCTION

Urinary bladder lesions, non-neoplastic and neoplastic, are collectively responsible for significant morbidity and mortality throughout the world[1.] Diseases of the bladder, particularly inflammation (cystitis), constitute an important source of clinical signs and symptoms. Urinary bladder cancer is the sixth most common cancer worldwide and the second most common malignancy of the genitourinary tract after prostate cancer[2]. Urothelial carcinoma is the most common tumor of the bladder, representing 90% of malignancies with this origin[3,4] . The prevalence of these tumors is higher in developed countries as compared to developing countries. The most common sign is gross and microscopic hematuria and is seen in more than 75% of the patients. Men are affected more often than women and about 80% of patients are between the age of 50 and 80 years [5]. Cystoscopy is the primary diagnostic tool for patients who are suspected of having bladder tumours, which allows a direct visualization of the bladder mucosa and biopsies of the suspected lesions [6,7]. Bladder transurethral resection of the tumor is a therapeutic procedure that ensures the material necessary for histopathological diagnosis because allows assessment of the degree of differentiation, depth of tumor invasion, parameters useful in elaboration of diagnosis and prognosis assessment [3].

The present study aimed to study the histopathology of various lesions of the bladder through cystoscopic biopsies done in a tertiary care hospital in Bangalore.

MATERIALS & METHOD

This study was done in the department of Pathology of Bangalore Medical College and Research Centre over a period of eight months (June 2014 to January 2015) . All patients who visited the Surgery/

Urology outpatient department and presenting with haematuria and dysuria were included in the study. Cystoscopic bladder biopsies were performed. The biopsies were preserved in 10% formalin. The tissues were processed for paraffin blocking. Five micron sections were cut and they were stained with haematoxylin and eosin. The histological features were studied and relevant findings were noted. Patient's history, clinical diagnosis and any significant preoperative or operative findings were also obtained from the patient's record file and histopathological forms.

RESULTS

A total of 50 cystoscopic biopsies were studied in a period of eight months. All biopsies were considered as satisfactory. The biopsies were considered as satisfactory if they showed mucosa with lamina propria and without any crush artifacts. Forty four cases (88%) had neoplastic lesions and 6cases (12%) had non neoplastic lesions.

Of the 44 neoplastic lesions, 40 (91%) were malignant and 4 (9%) were benign. Among the 40 malignant lesions, 34 (85%) were Invasive urothelial carcinomas, 3 (7.5%) were diagnosed as Papillary urothelial neoplasms of low malignant potential (PUNLMP), 2 (5%) cases of Squamous cell carcinoma were diagnosed and one case (2.5%) of Metastatic deposits (? Adenocarcinoma of uterine origin) was reported. Among the invasive urothelial carcinomas, 3 had squamous differentiation, one had giant cell differentiation and one showed focal glandular, squamous and neuroendocrine differentiation. The Urothelial neoplasms were graded according to the WHO grading system.

Of the four benign tumors, two (50%) were Inverted papillomas, one was Inflammatory myofibroblastic tumor (25%) and one was a Benign mucinous cysadenoma (25%). The remaining 6 cases were 3 of non specific chronic cystitis (50%), one each of Eosinophilic cystitis (16.6%) and Cystitis glandularis (16.6%) and one case of Diverticulum of the bladder (16.6%) which was reported in a male child 8 months of age.

Table 1: Histopathological diagnoses :

Diagnosis	Number of patients (total-50)	Percentage (%)
Urothelial carcinoma	34	68
Papillary Urothelial Neoplasm of Low Malignant Potential	03	06
Squamous cell carcinoma	02	04
Metastasis ?Adenocarcinoma of uterine origin	01	02
Inverted papilloma	02	04
Benign mucinous cystadenoma	01	02
Inflammatory myofibroblastic tumor	01	02
Eosinophilic cystitis	01	02
Cystitis glandularis	01	02
Non specific chronic cystitis	03	06
Diverticulum	01	02

Table 2: WHO Histological Grading of Urothelial neoplasms:

Tumor Grade	Cases (total-37)	Percentage (%)
PUNLMP	3	8
Urothelial Carcinoma-Low grade	16	43.5
Urothelial carcinoma-High grade	18	48.5

Table 3-Specific diagnoses in Urothelial Neoplasms

Specific diagnosis	Cases (total-37)	Percentage (%)
Urothelial Carcinoma-low & high grade	29	78
Papillary Urothelial Neoplasm of Low Malignant Potential	03	8
Urothelial Carcinoma with squamous differentiation	03	8
Urothelial Carcinoma with giant cell differentiation	01	3
Urothelial Carcinoma with focal squamous, glandular and neuroendocrine differentiation	01	3

The age of the patients ranged from 8 months to 95 years, among which 38 were males and 12 females.

The most common diagnosis made was Urothelial neoplasms which accounted for 74% (37 cases) of the 50 cases. Among the urothelial neoplasms, urothelial carcinoma-high grade was the most common (18 cases), followed by urothelial carcinoma-low grade (16 cases) and PUNLMP (3 cases). Muscle invasion was noted in 10 of the 37 cases (27%).

The age distribution of the malignant cases ranged from 24-95 years with the maximum cases in the age group of 51-70 years (22 cases-55%). The male :female ratio in the malignant cases was 9:1 (32: 8 cases).
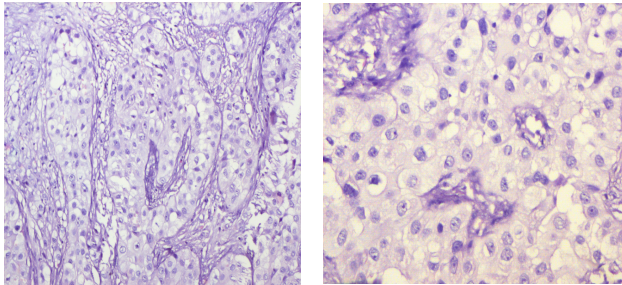
Fig I- High grade Urothelial Carcinoma (H&E, 10X and 40X).
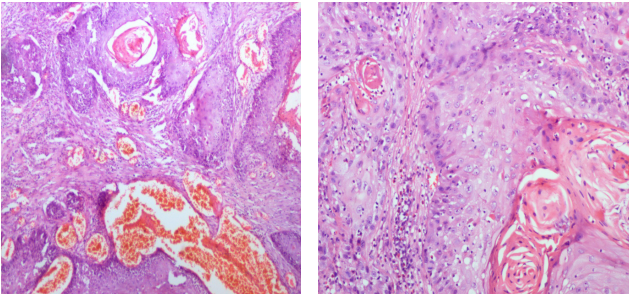
Fig II- Well differentiated squamous cell carcinoma of urinary bladder (H&E, 10X and 40X).
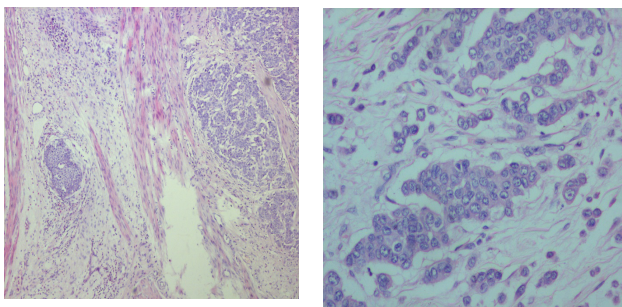
Fig III- Urothelial carcinoma with neuroendocrine differentiation (H&E, 10X and 40X)
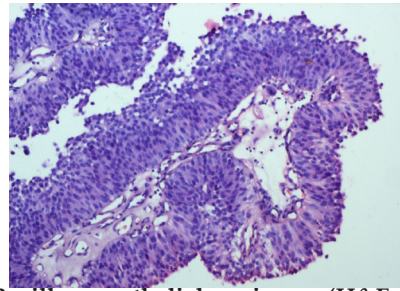
Fig IV- Papillary urothelial carcinoma (H&E, 10X)
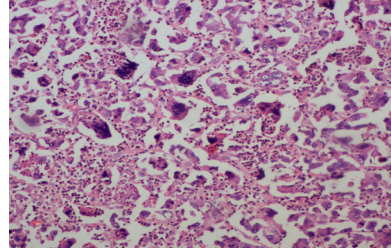
Fig V-Giant cell variant of urothelial carcinoma (H&E, 10X).
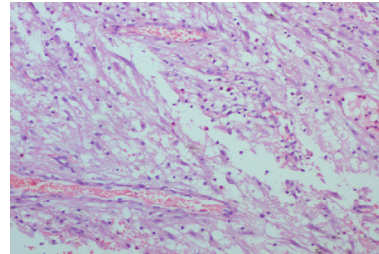
Fig VI- Inflammatory myofibroblastic tumor of the bladder (H&E, 10X)
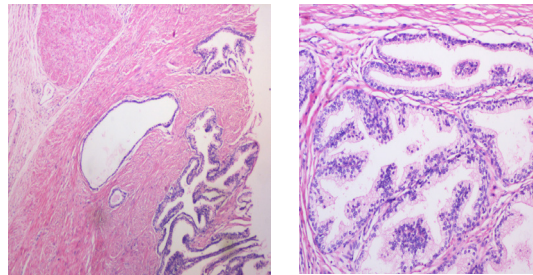
Fig VII-Inverted papilloma of the bladder (H&E, 10X And 40X)
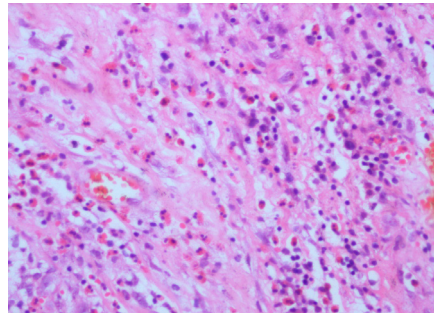
Fig VIII: Eosinophilic cystitis (H&E, 40X)

DISCUSSION

Cystoscopy is the primary diagnostic tool for patients who are suspected of having bladder

tumours, which allows a direct visualization of the bladder mucosa and biopsies of the suspected lesions. The role of the pathologist is not just limited to giving a diagnostic label, but also to giving additional information that can have an impact on the treatment[8].

A vast majority of tumours of the urinary bladder are of epithelial origin, which arise from the urothelium. Approximately 90% of malignant bladder tumours are transitional cell carcinomas. The remaining 10% comprises all other types of carcinomas [9].

Most cases of urothelial carcinoma of the bladder present in patients over the age of 50 years, but they can also occur in younger adults and children. Men are affected more often than women. Gross or microscopic hematuria is the most common form of presentation, followed by symptoms related to associated urinary tract infection. Dysuria is more often seen with high-grade tumors, perhaps because of involvement of the bladder wall [10] .

Several factors have been implicated in the causation of urothelial carcinoma. Some of the more important contributors include cigarette smoking, industrial exposure to arylamines, Schistosoma haematobium infections, long-term use of analgesics is, heavy long-term exposure to cyclophosphamide and prior exposure of the bladder to irradiation, often administered for other pelvic malignancies [11].

Our study showed that the most common neoplasms of the bladder were Urothelial neoplasms (74%) , most common being high grade (48.5%) , and seen more in males (M:F-9:1), with most patients presenting in the age group of 51-70 years (55%). We have also reported a case of high grade Urothelial carcinoma in a male patient age 24years.

Numerous cytoarchitectural variations of urothelial carcinoma exist: Foci of glandular metaplasia are common, usually in the form of intracytoplasmic mucin-containing vacuoles. Many otherwise typical urothelial carcinomas (especially high-grade lesions) show foci of squamous differentiation.[10]

The giant cell variant of urothelial carcinoma is characterized by the presence of epithelial tumor giant cells exhibiting marked nuclear atypia, along with a component of conventional urothelial

carcinoma. Microscopically, the giant cell variant of urothelial carcinoma shows marked nuclear pleomorphism, typically with multiple nuclei, and consists of cohesive cells with abundant eosinophilic or amphophilic cytoplasm. A component of conventional urothelial carcinoma is present by definition [12]. The true incidence of giant cell urothelial carcinoma is not known, as it is a very rare entity. The significance of diagnosing the giant cell variant of urothelial carcinoma is that it is associated with a poor prognosis [13].

We found a case of Giant cell variant of Urothelial carcinoma in our study which showed highly pleomorphic multinucleated giant cells as well as areas of conventional high grade urothelial carcinoma.

Neuroendocrine differentiation is uncommon in pure urothelial carcinoma and is more frequently found in neoplasms with glandular differentiation. The presence of mixed histologic features indicates locally aggressive disease [14].

In this study, we reported a case of High grade urothelial carcinoma with focal squamous, glandular and neuroendocrine differentiation.

Squamous cell carcinoma comprises approximately 5% of all malignant bladder tumors. Some of these neoplasms arise on a background of chronic cystitis with marked squamous metaplasia. Cases have also been reported in association with exstrophy, defunctionalized bladder, chronic infection, lithiasis, chronic indwelling catheters, and prolonged medication with cyclophosphamide. Another well-known association, reported from Egypt, Sudan, and other countries, is with schistosomiasis. Some squamous cell carcinomas of the bladder probably represent metaplastic changes in tumors that were originally of urothelial type. Since focal squamous cell changes are common in high-grade urothelial tumors, the term squamous cell carcinoma should be reserved for those tumors that are squamous throughout [10].

Our study showed 3 cases of Urothelial carcinoma with squamous differentiation and 2 cases of pure Squamous cell carcinoma.

Secondary malignant involvement of the bladder is most often by direct extension from primary lesions in nearby organs like cervix, uterus, prostate, and rectum [11].

In our study, we found a case of ?Uterine adenocarcinoma metastatic deposits in the bladder in a 50 year old female.

Papillary urothelial neoplasms of low malignant potential (PUNLMPs) share many histologic features with papilloma, the only differences being either thicker urothelium or diffuse nuclear enlargement in PUNLMPs. Mitotic figures are rare. PUNLMPs may recur with the same morphology, are not associated with invasion, and only rarely recur as higher grade tumors associated with invasion and progression[11.]

Our study reported 3 cases of PUNLMP (8% of total urothelial neoplasms).

Inverted papilloma (Brunnian adenoma) is thought to represent a benign epithelial tumor. It is more commonly seen in adult and elderly males and is almost always located in the trigone, bladder neck, or prostatic urethra. Cystoscopy reveals a polypoid and usually pedunculated lesion of smooth contours. Microscopically, the most characteristic feature is the invagination of the epithelium, which usually shows no atypical features. Papillae are absent or present only very focally, and connective tissue is very scanty[10]

We reported 2 cases of Inverted papilloma in our study.

Mucin-secreting cystadenoma of possible mullerian origin is a rare benign tumor of the urinary bladder. Possible theories of histogenesis include metaplastic change in the lining epithelium, such as interchange of one type of Mullerian epithelium to another, especially within the female genital tract and germ cell origin arising as a single cell type teratoma[15]

In this study, we reported a case of benign mucinous cystadenoma in a female patient aged 19 years.

Inflammatory Myofibroblastic tumor is an uncommon benign tumor of bladder of unknown neoplastic potential characterized by spindle cell proliferation with characteristic fibroinflammatory and pseudosarcomatous appearance. It is rare in the genitourinary tract with the most common site being urinary bladder. Adult males are predominated but the disease can also affect children and elderly patients [16.] Because the IMT of the bladder has similar clinical features to uroepithelial cancer and it is sometimes aggressive on imaging, this lesion is often mistaken as a malignant process in the diagnostic procedure and during surgery[17].

In our study, we reported a case of Inflammatory myofibroblastic tumor in a 20 year old male patient who presented with hematuria and was suspected to have a malignant growth on cystoscopy.

Eosinophilic cystitis is often associated with allergic disorders and eosinophilia or with bladder injury related to other disorders of the bladder and prostate. It presents with dramatic and recurrent episodes of dysuria and hematuria. The cystoscopic appearance is that of a diffusely edematous and erythematous mucosa, with broad-based polypoid growths that may simulate a neoplastic process. Microscopically, a dense inflammatory infiltrate rich in eosinophils, often accompanied by fibrosis and muscle necrosis and sometimes by giant cells, is present.[10]

In this study we reported a case of Eosinophilic cystitis in a male 31 years of age who presented with hematuria and dysuria and had a polypoidal growth simulating malignancy on cystoscopy.

Cystitis glandularis results from chronic inflammation or other causes of mucosal irritation, such as ureteral reimplantation, neurogenic bladder, or bladder exstrophy. Grossly, they usually present as irregular mamillated lesions that may be confused cystoscopically with carcinoma[10]

We reported a case of Cystitis glandularis in a male patient aged 52 years in this study.

A bladder or vesical diverticulum consists of a pouchlike evagination of the bladder wall. Diverticula may arise as congenital defects but more commonly are acquired lesions caused by persistent urethral obstruction. The congenital form may be due to a focal failure of development of the normal musculature or to some urinary tract obstruction during fetal development. Although most diverticula are small and asymptomatic, they may be clinically significant, since they constitute sites of urinary stasis and predispose to infection and the formation of bladder calculi. They may also predispose to vesicoureteral reflux as a result of impingement on the ureter. Rarely, carcinomas may arise in bladder diverticuli [11]

A case of Diverticulum of the bladder was reported in a male child of 3 months of age in this study.

CONCLUSIONS

Our study has revealed that malignant neoplasms are the commonest lesions seen in cystoscopic bladder biopsies and Urothelial carcinoma is the predominant tumour type. Most commonly elderly males are affected. Urothelial carcinoma can exhibit different histologic variants which have prognostic significance. Rare tumors such as Benign mucinous cystadenoma and Inflammatory myofibroblastic tumor have also been encountered in our study. Cystoscopic studies and biopsies help in an early detection of bladder neoplasms and they form the mainstay of the diagnosis and follow up.

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Trends of Dengue Cases in District Amritsar from the Year 2009 to 2013

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ABSTRACT

Introduction: Key facts and recent situation: Dengue is a mosquito-borne viral infection. Its global incidence has grown dramatically in recent decades. There is no specific treatment for this, but early detection and proper medical care lowers fatality rates below 1%. Dengue prevention and control depends on vector control measures. It is found in tropical and sub-tropical climates worldwide. Recently, transmission has increased predominantly in urban and semi-urban areas. Today, severe dengue affects most Asian and Latin American countries. There are four distinct serotypes of the dengue virus. **Global burden of dengue:** WHO currently estimates 50–100 million dengue infections worldwide every year. The disease is now endemic in more than 100 countries. **Situation in India:** Dengue is present almost throughout India and is a major public health concern. Aedes aegypti is the main vector and A. albopictus is secondary for its transmission. Outbreaks of dengue were first reported in 1963–1964 along the eastern coast**.** Under IDSP above 350 outbreaks have been reported from 2010 to 2013. More cases are reported between mid-Septembers to November. **Trends in Punjab:** The reporting of dengue cases and deaths started in Punjab in the year 1997. It gradually increased showing spurt after every 2-4 years. From 1997 to 2008 the magnitude of cases and deaths reported from the district Ludhiana remained the highest. There was reporting of 239 cases of dengue and 1 death in the year 2009. There were 12820 cases of dengue in Punjab from the year 2010 to 2013. Maximum number 5421 and minimum 3 had been observed in months of October and April respectively. During these years no case has been found from January to March. **Trends in Amritsar:** There was reporting of 4 suspected cases of dengue in Amritsar in the year 1997 and gradually increased to196 cases and one death in the year 2008 from the city area only. Maximum cases, 174 (88.78%) were reported in the age group of 16 to 50 years and no case was reported in infants. Higher number of male cases was reported. Majority of the cases have been reported in the months of October and November. **Material and Methods:** Data were collected from the IDSP branch of Civil Surgeon's Office, Amritsar. These were analyzed and the valid conclusions were drawn. **Findings:** In the district Amritsar suspected cases of dengue found positive by Ig G and Ig M tests were reported till the year 2008 and after that confirmed cases of dengue found positive by Ig M Mac Elisa and NS-1 Ag Elisa Kits have been reported. From the year 2009 to 2013 period 557 confirmed cases of dengue have been reported. Out of these maximum number 244 (43.8%) is reported in the year 2013. A rising trend of dengue has been observed in these years except for the year 2012. No dengue case has been reported in infants. Maximum no. of cases 161(28.9%) have been reported in the age group 21-30 years with the age wise difference significant statistically. There were 215 (38.6%) female cases and 342 (61.4%) male cases. The minimum % age was 36.1% (88 out of 244 in year 2013) and maximum was 47.2% (25 out of 53 in year 2009). The difference of sex wise distribution was insignificant statistically. No case was reported from January to July in all the years. Out of total 557 cases 291(52.2%) were reported in October and 200 (35.9%) in November with the month wise difference highly significant statistically.

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Guru Nanak Dev, Civil, Escorts, Guru Ram Das, EMC the major hospitals in Amritsar city reported 323 (57.9%) cases while other hospitals reported 230 (41.3%) cases and 4 (0.7%) cases of this district sought treatment from DMC hospital, Ludhiana. The difference of hospital wise distribution was highly significant statistically.

INTRODUCTION

Global situation

Contents of fact sheet of WHO describing the global situation on the World Health Day 2014 about dengue and severe dengue are stated below.

(i) Key facts and recent situation

Dengue is a mosquito-borne viral infection. The infection causes flu-like illness, and occasionally develops into a potentially lethal complication called severe dengue. The global incidence of dengue has grown dramatically in recent decades. About half of the world's population is now at risk. Severe dengue is a leading cause of serious illness and death among children in some Asian and Latin American countries. There is no specific treatment for dengue/ severe dengue, but early detection and access to proper medical care lowers fatality rates below 1%. Dengue prevention and control solely depends on effective vector control measures. Dengue is found in tropical and sub-tropical climates worldwide. In recent years, transmission has increased predominantly in urban and semi-urban areas and has become a major international public health concern. Severe dengue (also known as Dengue Haemorrhagic Fever) was first recognized in the 1950s during dengue epidemics in the Philippines and Thailand. Today, severe dengue affects most Asian and Latin American countries and has become a leading cause of hospitalization and death among children in these regions. There are four distinct, but closely related, serotypes of the virus that cause dengue (DEN-1, DEN-2, DEN-3 and DEN-4). Recovery from infection by one provides lifelong immunity against that particular serotype. However, cross-immunity to the other serotypes after recovery is only partial and temporary. Subsequent infections by other serotypes increase the risk of developing severe dengue.

(ii) Global burden of dengue

The incidence of dengue has grown dramatically around the world in recent decades. Over 2.5 billion people – over 40% of the world's population – are now at risk from dengue. WHO currently estimates there may be 50–100 million dengue infections worldwide every year. Before 1970, only nine countries had experienced severe dengue epidemics. The disease is now endemic in more than 100 countries in Africa, the Americas, the Eastern Mediterranean, South-east Asia and the Western Pacific. The American, South-east Asia and the Western Pacific regions are the most seriously affected. Cases across the Americas, South-east Asia and Western Pacific have exceeded 1.2 million cases in 2008 and over 2.3 million in 2010. Recently the number of reported cases has continued to increase. In 2013, 2.35 million cases of dengue were reported in the Americas alone, of which 37 687 cases were severe dengue. The threat of a possible outbreak of dengue fever now exists in Europe and local transmission of dengue was reported for the first time in France and Croatia in 2010 and imported cases were detected in three other European countries. In 2012, an outbreak of dengue on Madeira islands of Portugal resulted in over 2000 cases and imported cases were detected in 10 other countries in Europe apart from mainland Portugal.

In 2013, cases have occurred in Florida (United States of America) and Yunnan province of China. Dengue also continues to affect several south American countries notably Honduras, Costa Rica and Mexico. In Asia, Singapore has reported an increase in cases after a lapse of several years and outbreaks have also been reported in Laos. In 2014, trends indicate increases in the number of cases in the Cook Islands, Malaysia, Fiji and Vanuatu, with Dengue Type 3 (DEN 3) affecting the Pacific Island countries after a lapse of over 10 years.[1]

(iii) Situation in India

The virus causing dengue/dengue hemorrhagic fever (DHF) is present almost throughout India and has emerged as a major public health concern. It is the most common mosquito-borne viral disease

of humans. Aedes aegypti is the main vector for transmission of dengue. A. albopictus, a secondary dengue vector in Asia, has spread to North America and Europe largely due to the international trade in used tyres (a breeding habitat) and other goods (e.g. lucky bamboo). A. aegypti is common in urban locations. Cement water tanks, water coolers, plastic containers and tyres are the preferred breeding habitats of Aedes mosquitoes. NCDC has developed a modified cooler with a covered water tank which prevents breeding of mosquitoes. Use of this cooler can be very helpful in preventing vector breeding and thus contribute towards control of dengue as a public health problem particularly in urban areas.

By the last decade of the 20th century A. aegypti and the four dengue viruses had spread to nearly all countries of the tropical world. Dengue fever was first reported in India in 1946. Outbreaks of dengue were first reported in 1963–1964, along the eastern coast of India, 1967 in Delhi and 1968 in Kanpur. The first major widespread epidemic of DHF/DSS occurred in 1996 involving areas around Delhi and Lucknow, which later spread to the whole country. Under IDSP more than 350 outbreaks of dengue fever have been reported from 2010 to 2013 (up to September 22). Maximum outbreaks were reported from Tamil Nadu (93), Maharashtra (83), Karnataka (49), West Bengal (28) and Kerala (22). IDSP data show that more dengue fever cases are reported during the post monsoon period every year with a peak between mid-septembers to November. During 2013, the rise in trend was seen early owing to an early monsoon. Trends of dengue cases and deaths observed in India from the year 2007 to 2013 are as follows: 5534 cases with 69 deaths in 2007, 12561 cases with 80 deaths in 2008, 15535 cases with 96 deaths in 2009, 28292 cases with 110 deaths in 2010, 18860 cases and 169 deaths in 2011, 50222 cases and 242 deaths in 2012; and 22092 cases and 74 deaths in 2013. [2]

(iv) Trends in Punjab

The reporting of dengue cases and deaths started in the state of Punjab in the year 1997 when 23 cases and 3 deaths were reported. It reached to the level of 4349 cases and 21 deaths in the year 2008. During the period from 1997 to 2008 a total number of 7337 cases and 50 deaths have been reported in Punjab. The reporting of cases and deaths gradually increased showing spurt of cases after every 2-4 years.

During the period from 1997 to 2008 the magnitude of cases and deaths reported from the district Ludhiana (4973 cases and 32 deaths) remained the highest as compared to the other districts of Punjab (2364 cases and 18 deaths from the remaining districts of Punjab). An outbreak of dengue fever/dengue haemorrhagic fever was reported from Ludhiana city in Punjab during 1996 for the first time These cases have not been reported by the government institutions as the surveillance for this was started in the year 1997. The disease is mostly prevalent in urban areas of Ludhiana but now has been reported from the rural areas also. Age wise distribution of cases shows maximum incidence per lakh population in 31-50 years (52.06) followed by 16-30 years (49.0%) and the lowest in infants (0.36). Sex wise distribution of cases shows higher incidence per lakh population in males (66.7%). Month wise distribution of cases shows incidence per lakh population to be the highest in October (90.28) followed by November (33.39) and September (23.18). Dengue problem needs necessary control measures especially regarding BCC (behavior change communication) activities and appointment of Biologists at the district levels in Punjab. [3]

There was reporting of 239 cases of dengue and 1 death in the year 2009. [4] There were 12820 cases of dengue in Punjab from the year 2010 to 2013. Year wise these were 4012, 3921, 770 and 4117 cases in the years 2010, 2011, 2012 and 2013 respectively. Maximum number 5421 and minimum 3 had been observed in months of October and April respectively. During these years no case has been found in the months from January to March. In the year 2010 the cases started appearing in August, while in the years 2011, 2012, 2013 these started appearing in the months of May, June and April respectively which shows the trend of appearance in the earlier months of the year with the passage of time. [5]

(v) Trends in Amritsar

Dengue is becoming an increasingly problem all over the world and has now become endemic in many parts of India. It is believed that the virus was transmitted to man by the bite of tiger-striped mosquito (Aedes albopictus). The commonest vector now is the female Aedes aegypti mosquito having the highest breeding during the pre-monsoon and post-monsoon periods. An outbreak of febrile illness with haemorrhagic manifestations was reported

from many parts of North India during September to November 2003. There was reporting of 4 suspected cases of dengue fever in Amritsar in the year 1997 and after that it has gradually increased to the level of 196 cases and one death in the year 2008. All the suspected cases of dengue were reported from the Amritsar city area only. Maximum cases, 174 (88.78%) have been reported in the age group of 16 to 50 years and there was no reporting of cases in infants. There was reporting of 117 (59.69%) male and 79 (40.31%) female cases. That may be due to the reason that many people pay less attention for seeking of treatment for the females in the hospitals. Majority of the cases i.e. 149 (76.02%) have been reported in the months of October and November. [6]

MATERIAL & METHOD

Data were collected from the IDSP branch of Civil Surgeon's Office, Amritsar. These were analyzed and the valid conclusions were drawn.[7]

FINDINGS

There was reporting of the suspected cases of dengue found positive by Ig G and Ig M tests till the year 2008. Since the year 2009 there is the reporting of confirmed cases of dengue found positive by Ig M Mac Elisa Kits and NS-1 Ag Elisa Kits. There is the also the provision of finding confirmed cases of dengue by using the Pan Bio kits under NVBDCP but so far this kit has not been used in the district Amritsar.

Year wise distribution of dengue cases in district Amritsar from the year 2009 to 2013 is shown in table 1. During this period 557 confirmed cases of dengue have been reported. Maximum number of confirmed cases, 244 (43.8%) is reported in the year 2013. This is followed by 176 (31.6%), 58 (10.4%), 53 (9.5%) and 26 (4.7%) cases in the years 2011, 2010, 2009 and 2012 respectively. This shows that there is a rising trend of dengue in these years except in the year 2012.

Table 2. is showing the age wise distribution. No case of dengue has been reported in infants. In the 1-5 year age group only 1(0.2%) and in 6-10 years only 8 (1.4%) cases have been reported. Maximum no. of cases 161(28.9%) have been reported in the age group 21-30 years. The month wise difference in the number of cases reported has been found significant statistically.

Table 3 shows the sex wise distribution. There were 215 (38.6%) female cases and 342 (61.4%) male cases. The minimum %age was 36.1% (88 out of 244 in year 2013) and maximum was 47.2% (25 out of 53 in year 2009). The difference of sex wise distribution was insignificant statistically.

Table 4 shows month wise distribution. No cases were reported from January to July in all the years. Out of total 557 cases 291(52.2%) cases were reported in October and 200 (35.9%) in November. The difference of month wise distribution was highly significant statistically.

Table 5 shows hospital wise distribution. Guru Nanak Dev, Civil, Escorts, Guru Ram Das, EMC are the major hospitals situated in the Amritsar city from where 323 (57.9%) cases were reported. There were 4 (0.7%) cases that sought the treatment from DMC hospital, Ludhiana and the remaining 230 (41.3%) cases were reported from the other hospitals. The difference of hospital wise distribution was highly significant statistically.

Table 1. Year wise distribution.

Year	Cases	
	No.	%
2009	53	9.5
2010	58	10.4
2011	176	31.6
2012	26	4.7
2013	244	43.8
Total	557	100

Table 2. Age wise distribution.

Age in years	Cases	Years					Total
		2009	2010	2011	2012	2013	
1-5	Count	0	0	0	0	1	1
	% in age	0%	0%	0%	0%	100%	100%
	% in years	0%	0%	0%	0%	0.4%	0.2%
6-10	Count	1	2	1	0	4	8
	% in age	12.5%	25.0%	12.5%	.0%	50.0%	100.0%
	% in years	1.9%	3.4%	.6%	.0%	1.6%	1.4%

Table 2. Age wise distribution.   (Cont...)

11-20	Count	11	12	22	5	25	75
	% in age	14.7%	16.0%	29.3%	6.7%	33.3%	100.0%
	% in years	20.8%	20.7%	12.5%	19.2%	10.2%	13.5%
21-30	Count	15	17	52	9	68	161
	% in age	9.3%	10.6%	32.3%	5.6%	42.2%	100.0%
	% in years	28.3%	29.3%	29.5%	34.6%	27.9%	28.9%
31-40	Count	9	17	38	4	54	122
	% in age	7.4%	13.9%	31.1%	3.3%	44.3%	100.0%
	% in years	17.0%	29.3%	21.6%	15.4%	22.1%	21.9%
41-50	Count	6	7	31	4	43	91
	% in age	6.6%	7.7%	34.1%	4.4%	47.3%	100.0%
	% in years	11.3%	12.1%	17.6%	15.4%	17.6%	16.3%
>50	Count	11	3	32	4	49	99
	% in age	11.1%	3.0%	32.3%	4.0%	49.5%	100.0%
	% in years	20.8%	5.2%	18.2%	15.4%	20.1%	17.8%
Total	Count	53	58	176	26	244	557
	% in age	9.5%	10.4%	31.6%	4.7%	43.8%	100.0%
	% in years	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

$X^2 = 22.495$ d. f. = 24 $P > 0.0$

Table 3. Sex wise distribution.

Sex	Year						
	Cases	2009	2010	2011	2012	2013	Total
Female	Count	25	21	70	11	88	215
	% within sex	11.6%	9.8%	32.6%	5.1%	40.9%	100.0%
	% within years	47.2%	36.2%	39.8%	42.3%	36.1%	38.6%
Male	Count	28	37	106	15	156	342
	% within sex	8.2%	10.8%	31.0%	4.4%	45.6%	100.0%
	% within years	52.8%	63.8%	60.2%	57.7%	63.9%	61.4%
Total	Count	53	58	176	26	244	557
	% within sex	9.5%	10.4%	31.6%	4.7%	43.8%	100.0%
	% within years	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

$X^2 = 2.697$ D. F. = 4 $P > 0.05$

Table 4. Month wise distribution.

Month	Cases	Years					Total
		2009	2010	2011	2012	2013	
August	Count	0	1	0	0	4	5
	% in age	.0%	20.0%	.0%	.0%	80.0%	100.0%
	% in years	.0%	1.7%	.0%	.0%	1.6%	.9%
September	Count	1	21	2	0	26	50
	% in age	2.0%	42.0%	4.0%	.0%	52.0%	100.0%
	% in years	1.9%	36.2%	1.1%	.0%	10.7%	9.0%
October	Count	19	33	87	13	139	291
	% in age	6.5%	11.3%	29.9%	4.5%	47.8%	100.0%
	% in years	35.8%	56.9%	49.4%	50.0%	57.0%	52.2%

Table 4. Month wise distribution.   (Cont...)

November	Count	32	3	81	10	74	200
	% in age	16.0%	1.5%	40.5%	5.0%	37.0%	100.0%
	% in years	60.4%	5.2%	46.0%	38.5%	30.3%	35.9%
December	Count	1	0	6	3	1	11
	% in age	9.1%	.0%	54.5%	27.3%	9.1%	100.0%
	% in years	1.9%	.0%	3.4%	11.5%	.4%	2.0%
Total	Count	53	58	176	26	244	557
	% in age	9.5%	10.4%	31.6%	4.7%	43.8%	100.0%
	% in years	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

$X^2 = 1.239$ D. F. = 16 $P < 0.01$

Table 5. Hospital wise distribution.

Hospital	Cases	Years					Total
		2009	2010	2011	2012	2013	
Guru Nanak Dev Hospital	Count	4	15	59	4	31	113
	% in age	3.5%	13.3%	52.2%	3.5%	27.4%	100.0%
	% in years	7.5%	25.9%	33.5%	15.4%	12.7%	20.3%
Civil Hospital	Count	17	12	0	2	56	87
	% in age	19.5%	13.8%	.0%	2.3%	64.4%	100.0%
	% in years	32.1%	20.7%	.0%	7.7%	23.0%	15.6%
Escorts Hospital	Count	3	3	44	1	26	77
	% in age	3.9%	3.9%	57.1%	1.3%	33.8%	100.0%
	% in years	5.7%	5.2%	25.0%	3.8%	10.7%	13.8%
Guru Ram Dass Hospital	Count	0	0	0	0	32	32
	% in age	.0%	.0%	.0%	.0%	100.0%	100.0%
	% in years	.0%	.0%	.0%	.0%	13.1%	5.7%
EMC Hospital	Count	3	0	5	1	5	14
	% in age	21.4%	.0%	35.7%	7.1%	35.7%	100.0%
	% in years	5.7%	.0%	2.8%	3.8%	2.0%	2.5%
DMC Hospital	Count	0	2	0	0	2	4
	% in age	.0%	50.0%	.0%	.0%	50.0%	100.0%
	% in years	.0%	3.4%	.0%	.0%	.8%	.7%
Others Hospitals	Count	26	26	68	18	92	230
	% within Hospitals	11.3%	11.3%	29.6%	7.8%	40.0%	100.0%
	% within YEARS	49.1%	44.8%	38.6%	69.2%	37.7%	41.3%
Total	Count	53	58	176	26	244	557
	% within Hospitals	9.5%	10.4%	31.6%	4.7%	43.8%	100.0%
	% within YEARS	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

$X^2 = 1.597$ D. F. = 24 $P < 0.01$

CONCLUSION

The study on the trends of confirmed cases of dengue reported in district Amritsar from 2009 to 2013 has shown the rising trends. No confirmed case of dengue has been reported in infants and the maximum number has been observed in the adult age groups. This study shows the observations similar to previous studies conducted in Ludhiana and Amritsar districts of Punjab. [3, 5] Sex wise the higher numbers and rates observed for males also resemble previous studies, Maximum number of cases observed in months of October and November in this study also resembles the previous studies conducted. [3, 5] Guru Nanak Dev, Civil, Escorts, Guru Ram Das and EMC hospitals from where the maximum number no of cases have been reported need special attention for the prevention and control of dengue by the establishment of special dengue wards, early diagnosis by quick testing of the blood samples of suspected cases so as to prevent its spread, complications and better management of cases. The urban malaria scheme meant to control the mosquito vectors is operating in Amritsar but the trends of the dengue show the rise. The sale of NCDC Desert coolers developed by National Centre for Disease Control is very less as compared to the desert coolers with the open tank which is due to the less awareness created and less emphasis given by the district health authorities for its use. As the disease is showing the rising trends, if not controlled well in time it can cause heavy loss due to sickness, deaths and for the management of cases. This also brings heavy economic burden, as its treatment is very costly and many man days of working are also lost.

The control of Aedes mosquitoes is very challenging and requires community involvement. Behavioral change must be promoted at the individual, household and community levels to control the dengue vector especially for its breeding and biting. To run the urban malaria scheme efficiently appointments of the biologists at the district levels needs to be done for the control of vectors causing diseases in humans.

Ethical Clearance: Not needed as the study is based on records and review of previous studies.

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Role of Ultrasonography in Diagnosing Choroidal Masses in Centers Located in Periphery

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ABSTRACT

Choroidal masses have very wide range of presentation, ranging from innocuous nevus to life threatening malignant melanomas and metastatic deposits. So it is very essential to diagnose accurately and timely the choroidal masses to save the eye as well as life of patients. Many early treatable lesions go undiscovered due to non availability of affordable imaging modality especially in peripheral regions. Also there is lack of experienced radiologist in the periphery. Most of the time, either these lesions remain undiagnosed or wrongly diagnosed. So we lose many lives and salvageable eyes due to lack of timely and accurately diagnosis of these masses. But in recent years, ophthalmic ultrasounds like A-scan, B-scan (10 MHz) and ultrasound biomicroscopy have become very useful and indispensible tools for management of such type of lesions. Apart from eyes with opaque media, B-scan is also used in detection, differentiation, measurement of accurate dimensions, monitoring growth, looking for extra orbital extension and monitoring of regression in response to treatment. It is cost effective, non invasive and reproducible which are important consideration especially in rural settings. A normal ultrasound machine can be converted for ophthalmic use by simply upgrading to high frequency probe.

Keywords: *A-scan, B-scan, Choroidal masses, Ultrasound biomicroscopy, Acoustic shadow.*

INTRODUCTION

The past two decades have seen tremendous improvements in the eye care services in India[1, 2]. There have been large surveys to document prevalence and causes of blindness across all over India[3]. These surveys were planned to help a nonprofit organization to assess need for eye care services in peripheral and underserved areas but not evidenced and to help setup a secondary eye care center in order to contribute the broad objective of VISION 2020: The Right to Sight. The rapid assessment of avoidable blindness has been developed as a simple and rapid survey methodology that can provide data on the prevalence and causes of blindness [4, 5]. In modern era of technology we have very advanced technology in tertiary centers but in periphery we do not have such sophisticated equipments. In such type of scenario the ultrasound machine remains the very useful tool.

MATERIAL & METHOD

A prospective analysis of 52 cases of choroidal masses was done between June 2012 to may 2014 in Saraswathi Institute of Medical Sciences Hapur. Most cases were referred from Hapur and nearby places to us with suspected posterior segment masses while some of patients were under treatment for some other common conditions like retinal detachment, glaucoma, and proptosis and were referred to our center. After presenting to opd of the eye department of SIMS, we evaluated the patient with thorough history and basic clinical examination. Then detailed indirect ophthalmoscopy was done. The A-scan was done in opd. Then patient was referred to radiology department of SIMS. There B-scan (10 MHz) was done by the radiologist in our presence.

The various acoustic features studied were as follows: anatomical location, extent, approximate dimensions, shape, internal reflectivity, ecogenicity,

acoustic hollowing, choroidal excavation, hemorrhage, calcification, retinal detachment, sclera or extra-scleral excavation and involvement of iris and ciliary body.[6]

Ancillary investigations were ordered when needed. Expert/second opinion were taken from oncologist, chest physician, neurosurgeon and pediatrician. A whole abdomen ultrasound and chest x-ray was done to rule out secondaries or metastasis. Inflammatory, tuborculous and other benign lesions were managed conservatively with specific and non specific therapy and response to treatment was monitored with repeated ultrasonography and other clinical tests. Malignant conditions were referred to the oncology department for further management and response to treatment was monitored with repeated ultrasonography of lesions.. the cases treated surgically were confirmed histopathologically.

RESULTS

In our study , we included 52 cases of choroidal masses comprising n = 8 (%) malignant melanoma, n = 12 (%) metastasis and infilteration, n = 7 (%) hemangiomas, n = 6 (%) tuberculomas, n = 7 (%) inflammatory masses, n =2 (%) disciform masses, n = 4(%) macular cyst, n = 2 (%)coats disease, n =1(%) melanocytoma, n= 1 (%) nevus, and n = 2(%) osteomas. ultrasonography alone could identify 44 leisons, while other investigations like fundus fluoroscene angiography, OCT, ultrasound biomicroscopy were done to confirm rest of 8 casest. thirty five eyes had mass limited to the choroidal tissue behind the equator(%), four eyes had diffuse involvement of the choroidal tissue(%), four masses filled the whole posterior segment (%), and rest nine had involvement of iris or ciliary body in addition to choroidal tissue(%), a total of 40% cases had hazy media, while 73% cases had associated retinal or choroidal detachment. the various features of the leison or condition of affected eye which made ultrasonography useful and essential in evaluation is described in table.

DISCUSSION

the ecogenic profile of various choroidal masses closely mathched with our study in B-scan with slight variations in the types of leisons. [7,8,9,] because most of the studies of choroidal masses have been done on western pobulation in western countries, the avalable data on such studies in our subcontinent is not very wast. for example the melanoma is very commonly seen in indian population unlike the usual belief. specefic and not non specific inflammatory masses like tuberculomas are very coomon in indian populatios which are not very common in western population because tuberculosis is very prevalent in indiann subcontinent. the type of choroidal masses have been shown in table. 1&2. is showing the indication for B-scan , while in table 3 the classical features shown in choroidal masses have been described.

Table-1 Types of choroidal lesions

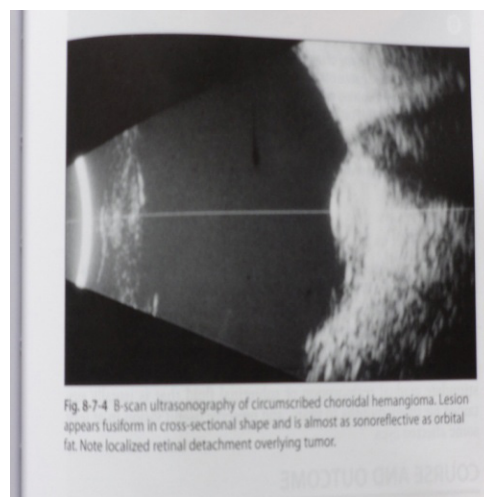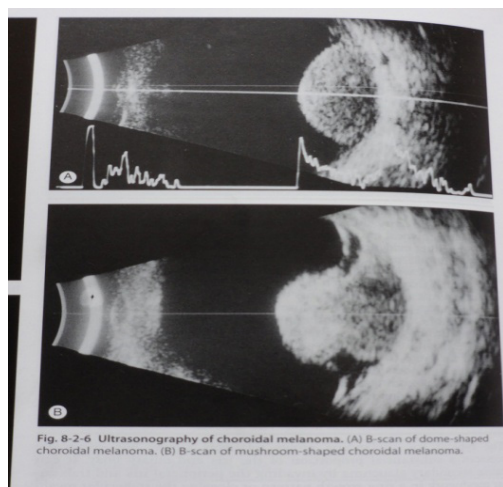| Diagnosis	Shape(%)	Echogenicty
Malignant Melanoma	Collar Stud (70%) Lobulated (30%)	Hyper echoic (100%) with acoustic hallowing
Metastasis	Lobulated (65%) Diffuse (35%)	Hetrogenously hyper echoic, low to moderatelyheterogeneous
Hemangioma	Dome shape (65%) Concave diffuse (35%)	Heterogeneously hype echoic (100%)
Inflammatory	Dome shape (75%) Concave diffuse (25%)	low to moderately heterogeneous (100%)
Retinoschisis	Bullous (100%)	Hype echoic (100%)
Disciform	Local thinking (100%)	Heterogeneously hype echoic (100%)
Coats disease	Concave diffuse (100%)	low to moderately heterogeneous (100%)
Nevus	Local thinking (100%)	Homogenous hype echoic (100%)
Osteoma	Concave diffuse (100%)	Hype echoic calcified

Table -2 Indications of ultra sonography in the choroidal Lesions

Indication of imaging	No of cases (%) (No= 52)	Associated lesions
Retinal/choroidal detachment	40 (76.92%)	Melanoma, inflammatory masses, metastasis, hemangioma, retinoschisis, coat's disease
Corneal opacity	16 (30.76%)	Melanoma, inflammatory masses, hemangioma
Dense cataract	8 (15.38%)	Various
Non dilating pupil	5 (9.62%)	Malignant melanoma, inflammatory masses,metastasis,
Iris/CB involvement	6 (11.54%)	Melanoma,metastasis, leukemic infiltrates
Vitreous hemorrhage	5(9.62%)	leukemic infiltrates
Vitreous haze	7 (13.46%)	inflammatory masses, retioschisis, coat's disease
Mass filling eye	9 (17.31%)	Melanoma, inflammatory masses, metastasis, hemangioma, coat's disease
Scleral involvement	5(9.62%)	Melanoma, metastasis
Calisification	3 (5.77%)	Osteoma, disciform scar

Table-3 Chief acoustic features of choriodal masses

Diagnosis	Chief acoustic features
Malignant Melanoma	Mushroom/ dome shape, solid homogenous, low to modrate internal echoes, +- acoustic hollowing, chorodal excavation, internal vascularity, serous retinal detachment
Metastasis	Flat, elevated or lobulated, at posterior pole/ mutifocal, hetrogenous, mild to modrate reflectivity +- central necrotic area, non vascular, retinal detachment.
Hemangioma	Moderatly elevated, solid, dome shaped, diffuse in sturge- weber syndrome, homogenious, high spike with two peaks, static, non vascular
Inflammatory masses	Smooth. Thinkined, dome shaped/ multiloculated, posterior to equator, regression on treatment
Retinoschisis	Smooth, bullous, localized, high spike, inferotemporal, bilateral
Disciform scar	Locatised at macula, plaque like, highly reflective, calcified , flatten on followup
Coats disease	Multifocal low reflective retinal elevation, exudative retinal detachment , internal echoes with after movements of eyes ball
Choroidal nevus	Small, minimally elevated (less then 3mm), high reflective, non vascular , no or minimal growth
Osteoma	Plaque like , high reflective even at low gain , calcified , posterior acoustic shadowing
Tuberculoma	Diffuse, mild elevation , heterogeneous , modrate internal reflectivity , dramatic regression on treatment

Fig. 8-2-6 Ultrasonography of choroidal melanoma. (A) B-scan of dome-shaped choroidal melanoma. (B) B-scan of mushroom-shaped choroidal melanoma.

Fig. 8-7-4 B-scan ultrasonography of circumscribed choroidal hemangioma. Lesion appears fusiform in cross-sectional shape and is almost as sonoreflective as orbital fat. Note localized retinal detachment overlying tumor.

CONCLUSION

A better understanding of clinicopathological correlation combined with an early echography can diagnose the choroidal masses and hence can propose a timely therapeutic approach even in peripheral center. Follow up echography ascertain diagnose and monitor the response to the treatment modalities. The diagnostic dilemma in case of suspicious choroidal masses can be majorly resolved with a judicious echography reducing the incidence of wrong diagnosis. Echography helps in reducing the morbidity and mortality due to late or wrong diagnosis of malignant melanoma and other lesions.

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An in vitro Study of the Effect of Spray Disinfectant on the Compressive Strength of Type III Gypsum Product

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ABSTRACT

An indirect source of disease transmission is contaminated dental casts. To disinfect dental cast number of methods are employed. Spraying a disinfectant looks more handy and convenient method of disinfecting the cast. However in the process some mechanical properties of the material of the cast may be affected that are not desired. In this study three commercially available spray disinfectant namely- Iodophor, Unidex and Lysol were used to see their effect on the compressive strength of Type III (dental stone) gypsum product. The results were compared and statistically analyzed by one way analysis of Variance and Bonferroni test. It was found that Unidex (2.09% Acid glutarladehyde) affected the compressive strength of the Type III (dental stone) gypsum product in terms of significantly decreasing the strength. Though other two spray disinfectants also affected the compressive strength but Iodophor (1.64% available iodine) caused statistically non significant decrease and Lysol (cresol with soap solution) caused non significant increase in the compressive strength.

Keywords*: Compressive Strength, Type III gypsum product, Spray disinfectant.*

INTRODUCTION

Dentists and the dental auxiliary personnel in a dental clinic and laboratory are exposed to various infectious agents. They may come across to the dental patients who are carriers of Hepatitis B virus and /or the AIDS virus. American Dental Association recommended the use of various protective measures for dentist and the auxiliary personnel as well as to sterilize , disinfect , or discard the dental instruments and devices after each use to minimize the potential cross contamination.[1,2] An indirect source of disease transmission is contaminated dental impressions which can transfer bacteria to dental stone casts.[3] It is necessary to disinfect these dental casts to have an effective infection control in the dental office. [4]

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The methods to disinfect the dental casts, however can affect the mechanical/physical properties of the gypsum products. [5, 6, 7]

Most of the dental prostheses are fabricated using indirect method which requires models and dies made up of gypsum based dental products. One of the pre-requisite of these products is adequate compressive strength which describes the behavior of a material when it is subjected to a compressive load at a relatively low and uniform rate of loading. [8] Any step that could alter this physical property would be significant for the clinician. The effect of using disinfecting solutions on the physical properties of gypsum products needs to be addressed so that some precautionary measure can be taken to ensure the success of the dental prosthesis.

The objective of this study was to analyze the effect of spray disinfectants on the compressive strength of Type III (dental stone) gypsum product in order to select a disinfectant from commercially

available disinfectants which has the least negative effect on the Type III (dental stone) gypsum cast.

MATERIALS & METHOD

Following equipments were used in the study

1. Metal split mould [Figure 1] for standardization of specimens of 10mm diameter and 12mm length.

Figure 1.Metal split mould

2. Vacuum Mixer (Multivac Compact)

3. Universal testing machine (M/s Hounsfield Test Equipment Ltd., Model No. H10K-S, U.K) [Figure 2]

Figure 2.Universal testing machine

The materials taken for the study were:

1. Type III (dental stone) gypsum product (Kalstone, Batch no.80574, Kalabhai Karson Pvt. Ltd, Mumbai, India).

2. Iodophor (1.64% available iodine with pH 3.94,Batch no.O/003/10, Unilab Chemicals Ltd., Mumbai ,India).

3. Unidex (2.09% Acid glutaraldehyde with pH 3.27, Batch no. F/238/09, Unilab Chemicals Ltd., Mumbai, India).

4. Lysol (Cresol with soap solution with 50.20%v/v, Batch no. F/215//09, Unilab Chemicals Ltd., Mumbai, India).

Fabrication of specimens

A total number of 60 specimens of Type III (dental stone) gypsum product were fabricated using metal split mould. A set protocol was followed while preparing the specimens. The mould cavity was first cleaned with the gauge soaked in methanol, then rinsed with distilled water and then air dried. A thin layer of petrolatum was applied to the surface of metal mould cavity. Following the manufacturer's instructions a measured amount of water was placed in a vacuum mixing bowl and the measured amount of powder was slowly added to it. Powder was allowed to soak, hand spatulated for 10 seconds and then spatulated for 20 seconds in a vacuum mixer. Metal split mould was assembled forming a cylindrical mould cavity. Assembly was kept on the vibrator with a glass slab in between the vibrator and one of the open ends of the mould cavity. The other open end was covered with a glass plate after pouring the vacuum mixed dental stone (Type III gypsum product) to get the flat and smoother surfaces of both ends of cylindrical specimen. The specimen was allowed to set for an hour, retrieved and allowed to air dry at room temperature for a minimum period of 24 hours before testing.

All the sixty specimens thus fabricated were divided into four groups of 15 specimens each. Group A was used as control group while Group B, Group C and Group D were subjected to the various spray disinfectants.

Disinfecting the specimens

Three spray disinfectants namely Iodophor, Acid glutaraldehyde and Lysol were used to disinfect the specimens of Group B, Group C and Group D respectively. The specimen was held with the help of Boley gauge and disinfectant solution was

sprayed until saturation of surface of the specimen was apparent. The specimen was then wrapped in a disinfectant moistened paper towel to maintain the concentration of the disinfectant for 6-8 minutes in case of Iodophor & Lysol while 8-10 minutes in case of Acid glutaraldehyde. Then specimens were allowed to air dry for 24 hours, again disinfection process was repeated. The process of disinfection was repeated for seven times before the specimens were tested for compressive strength.

Testing the specimen for compressive strength

The cylindrical shaped specimen was placed with one of its plane surfaces on the supporting jig of the universal testing machine [Figure 3]. The other plane surface of the specimen was to face the compression tool of the machine. The speed by which the compression tool comes towards the supporting jig was set at 1.3 mm/minute (i.e. the standard speed while testing the compressive strength of a rigid specimen) and the maximum load which it would exert was set at 7000N. Once the compression tool contacted the specimen, the specimen came under the compression. The compression load went up to a point from where it started decreasing. The point where the load started decreasing was considered the maximum compressive load which the specimen could bear. The data, visible in the form of values as well as graphically on the machine monitor were recorded and subjected to statistical analysis.

Figure 3.Testing the compressive strength

RESULTS

Table 1 shows the compressive strength of specimens from all the four groups. Mean and standard deviation were calculated as shown in Table 2.Data were statistically analyzed. One way analysis of variance applied for the groups, shows significant value (p-value < 0.05) [Table 3]. For multiple comparisons post hoc test (bonferroni test) was used. The results indicate statistically significant value when control Group A compared with Group C (Acid glutaraldehyde) but statistically insignificant value with Group B (Iodophor) and Group D (Lysol) [Table 4].

DISCUSSION

One of the most important requirements for a dental cast used in various procedures of prosthetic work is its adequate compressive strength. This mechanical property may be affected when the casts are subjected to any disinfectant to control cross contamination. American Dental Association recommends the immersion or spray method of disinfecting the stone casts. [2, 9, 10] The immersion method was used by Peyton et al, [5] Sarma A C et al [6] and Abdullah M A [7] but they found adverse affect on the mechanical properties of the final quality of the cast. A spray disinfectant system is an alternative method. It is less expensive, time effective and convenient method to disinfect not only the mounted casts but the articulator as well. Thus alleviate the problems associated with immersion method.

However the effect of spray disinfectants on the mechanical properties of stone casts is not clearly known because of the limited number of studies which have been reported. [9, 11] The surface hardness of dental stone casts (gypsum products) has been stated to be related to its compressive strength. More the compressive strength, higher will be the hardness. The crushing strength is generally accepted to express the strength of gypsum. [5, 8, 12] In this study the effect of spray disinfectants on the compressive strength of dental stone has been evaluated.

Type III gypsum product was selected for the study as it was regularly used to obtain working dental casts .These casts most often get contaminated during the various clinical & laboratory procedures. The specimens were made according to ADA Specification No. 25 [13] as well as fulfilling the requirements of the testing machine used for the study.

There are multiple chances of cross contamination

through impressions, record bases, trial dentures etc and subsequently disinfecting the cast each time. During the study also the test specimens were sprayed with the spray disinfectants seven times. [7, 11] After each spray they were air dried for 24 hours to achieve the optimum compressive strength. [8]

The Universal testing machine was used to evaluate the compressive strength of each specimen. The results show that the mean compressive strength of Type III (dental stone) gypsum product is highest (36.54 N/mm²) when specimens were sprayed with Lysol and lowest (26.16 N/mm²) when sprayed with Acid glutaraldehyde [Table 2].

One way analysis of variance was applied to check the equality of means of compressive strength between the groups (Group A, B, C & D).The variation between the groups was found to be statistically significant because at a confidence level of 95%, the p-value obtained was 0.000 which was less than 0.05 [Table 3]. It means that there is significant difference in the compressive strength of specimens from different groups but it does not indicate the specific group/groups having significant difference.

To further delineate the significant variation between the means of compressive strength of groups, the post hoc test (bonferroni test) was performed. The test was conducted to evaluate the difference among the means of compressive strength of the four groups [Table 4]. Statistical analysis revealed that when the mean compressive strength of the control group i.e. Group A was compared with the Groups that were sprayed with Iodophor & Lysol i.e. Group B & D respectively, the difference among the means were found to be statistically insignificant [Table 4].The results obtained were in accord with Ibrahim RM [14] & Stern MA et al [11] who in their studies concluded that there exists no significant difference in compressive strength and hardness of dental stone after disinfection. The disinfectants used in their study were iodophor and phenol. In the present study though Group D (Lysol) exhibits the maximum compressive strength but it is statistically insignificant when compared with the control Group A. Same way the Group B (Iodophor) shows a decrease in the compressive strength but statistically

insignificant. The probable reason for the insignificant change could be due to the incomplete solubility of the iodophor solution in the dental stone. [15]

The mean compressive strength of Type III (dental stone) specimens sprayed with the Acid glutaraldehyde was significantly less than the control specimens [Table 4]. Stern MA et al [11] concluded in one of their studies that Acid glutaraldehyde spray significantly decreased the compressive strength of type III stone (p=0.000). The percentage decrease of the compressive strength in the study was found to be 26%. The reason for this decrease with regard to type III dental stone was not clear. The possible reason for the decrease in the compressive strength could be due to the intergranular retention of the Acid glutaraldehyde solution in the crystals entered through the interstices, which has a weakening effect on the gypsum product. [6]

Compressive strength even though an important parameter as it is related to the surface hardness and also expresses the strength of the dental stone other properties like abrasion resistance, surface quality, surface reproduction of the material should be evaluated. Moreover, the choice of disinfecting agent is also affected by other properties eg. its spectrum, toxicity, surface compatibility, cost, ease of use etc. [16]

CONCLUSION

The present study was carried out to compare the effect of three spray disinfectants on the compressive strength of Type III (dental stone) gypsum product. There was significant difference in the compressive strength among the groups related to Iodophor, Acid glutaraldehyde and Lysol including the group not subjected to any of these disinfectants. While Lysol as a spray disinfectant increased the compressive strength, Iodophor and Acid glutaraldehyde decreased the compressive strength. But statistically with Lysol & Iodophor the change was insignificant and with Acid glutaraldehyde the change was statistically significant.

Table 1: Compressive Strength (in Newtons/ square millimetre) of Type III (dental stone) gypsum product

S. No.	Group A	Group B	Group C	Group D
1	38.68	31.07	21.86	36.18
2	30.36	32.62	22.04	35.39
3	42.34	33.57	29.24	39.46
4	34.62	27.99	26.60	31.06
5	28.76	35.17	34.04	35.69
6	33.52	25.25	27.61	33.10
7	28.34	31.80	25.26	39.85
8	33.53	39.61	24.74	36.24
9	37.86	31.39	26.08	38.01
10	31.38	36.24	27.25	36.57
11	32.78	39.76	23.68	36.66
12	39.90	27.34	28.00	35.45
13	40.76	26.75	23.78	36.22
14	36.57	23.62	28.76	39.86
15	34.08	31.99	23.52	38.37

• Table 1 shows the compressive strength (i.e. the maximum compressive load applied per unit original cross-sectional area of the specimen) of Type III (dental stone) gypsum product of 15 specimens in each of the four groups.

Table 2: Mean and Standard Deviation

	N	Mean	Standard Deviation	Standard Error
Group A	15	34.90	4.34	1.12
Group B	15	31.61	4.85	1.25
Group C	15	26.16	3.19	0.82
Group D	15	36.54	2.41	0.62

• Table 2 shows Mean and Standard Deviation of compressive strength of Type III (dental stone) gypsum product calculated for each group (values in N/mm^2).

Table 3: One-way Analysis of Variance for Type III (dental stone) gypsum product

Source of variation	SS	df	MS	F	p-value
Between Groups	943.140	3	314.380	21.568	0.000
Within Groups	816.274	56	14.576		
Total	**1759.415**	**59**			

• Table 3 shows the result of one way ANOVA, which denote the significance value between the groups of Type III (dental stone) gypsum product. SS-sum of squares, MS-mean square, df- degree of freedom, F- variance ratio. It was statistically significant ($p < 0.05$).

Table 4: Post hoc test (Bonferroni test)

	Various Groups	p-value	Result
Group A	Group B	0.131	NS
	Group C	0.000	S
	Group D	1.000	NS
Group B	Group C	0.002	S
	Group D	0.005	S
Group C	Group D	0.000	S

• Table 4 shows the result of post hoc test (Bonferroni test) for multiple comparisons between the groups of Type III (dental stone) gypsum product. S-Significant ($p < 0.05$), NS – Non significant

NS- Non significant , S – Significant

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Evaluation of Availability of Physical Facilities at the Subcentres in Mandla District of Madhya Pradesh, India

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ABSTRACT

Background: The delivery of Primary Health Care services through a network of Primary Health Centers and Subcentres is the foundation of rural healthcare system. Since the Eighth Five Year Plan the emphasis has shifted from expansion of healthcare establishments to qualitative improvement in health services through strengthening of physical facilities.

Objective: To evaluate the availability and functional status of physical facilities at the subcentres in Mandla district

Method: An observational study was carried out in 40 randomly selected subcentres using checklist containing 50 items. In order to evaluate the various physical facilities, these were grouped into 3 categories viz: Basic Amenities, Drugs and Supplies and furniture and equipments. A scoring system was adopted for ranking the subcentres. Staffing pattern of subcentres was assessed separately.

Results: Government building was present in only 27.5% of the subcenters. 77.5% of subcentres were adequately staffed while the post of male health worker was lying vacant in 17.5% of subcenters. Grading of subcenters on the basis of physical facilities were as follows: Good (10% only), Satisfactory (42.5%) while Poor (47.5%). At many places where equipment and supplies were adequate, they were lying unused as the health workers were insufficiently trained in their proper usage or were too complacent to use them.

Conclusion: The physical facilities at the subcenters were grossly inadequate, only 10% of subcenters were graded as good. Majority of subcenters were adequately staffed.

Keywords: Subcentres, Physical facilities, Evaluation.

INTRODUCTION

India is a signatory to the Alma Ata Declaration of 1978 and is committed to attaining "Health for All" by 2000 A.D. (now to be attained by 2020 A.D.) through Primary Health Care approach. To accelerate the process of socio-economic development and attaining improved quality of life, Primary Health

Care is accepted as one of the main instrument of action. Primary Health Care is essential health care of all citizens, easily accessible and at a cost, which the citizens and the county can afford. [1]

The delivery of Primary Health Care services is the foundation of the rural health care system and forms an integral part of the national health care system. The key institutions for the delivery of primary health care are the primary health centers and the sub centers. Subcentres cater to the needs of relatively smaller population size, between 3000 to 5000 and are the most peripheral contact point between the primary health care system and the community. [2]

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Each Subcentre is manned by one male Multipurpose worker and one female Multipurpose Worker [3] now designated as health worker male and female respectively. Since the eighth Five Year Plan emphasis shifted from expansion of the health care establishments to consolidation of the existing health infrastructure through strengthening of physical facilities like provision of essential equipments, supply of essential drugs and consumables, construction of buildings and staff quarters, filling up of vacant posts of medical and paramedical staff and in – service training of staff. [5]

Despite presence of these subcentres since 1974, healthcare services delivered to the rural population are far from satisfactory. The condition is all the more dismal in BIMARU states viz. Madhya Pradesh with a heterogeneous tribal and non-tribal population and varied terrain. Under present circumstances and with the available infrastructure and staff these subcentres have not been able to achieve the targets set for them under the various National Health Programmes.

Development of infrastructure and health personnel in subcentres of Mandla district have been attempted with support from various international agencies like World Bank, WHO, DANIDA, UNICEF, UNFPA etc. [6, 7] Hence, assessment of the availability and functional status of various physical facilities and staff becomes vital in order to improve the functioning of these subcentres.

OBJECTIVE

To evaluate the availability and functional status of various physical facilities and the present pattern of staffing at the Subcentres in Mandla district

MATERIALS & METHOD

A cross sectional study was carried out from Feb.'04 to May'04 in Mandla district of Madhya Pradesh which is predominantly a tribal district (54.8% of population belonging to schedule tribe). A substantial proportion of the population is illiterate (40.2%) and living below poverty line (59.2%). The primary health care facilities in the district include 248 subcentres, 30 primary health centres and 8 community health centres.

By rule of thumb 15% of subcentres were selected [8] by simple random sampling after line listing the 248 subcentres. The sample size thus obtained was 38, but 40 subcentres were included in the study.

The variables analyzed in the study were structure, staff, equipments and supplies at the subcentres. In order to evaluate the availability of various physical facilities, these were grouped under 3 categories: basic amenities, drugs and supplies and furniture and equipments. A checklist containing the names of all the items under these categories as supplied by the government and other agencies was developed and used to assess the presence or absence of these items as well as record their functional status where applicable. A scoring system was adopted wherein score '0' implied non availability or item not functional and '1' implied item available and functional. Since the checklist contained a total of 50 items, the score ranged from 0-50. Finally Subcentres were graded according to the total scores obtained as follows:

Poor   <= 15

Satisfactory   =16 – 35

Good   >35

Staffing pattern was analyzed separately. The information collected was tabulated and analyzed using the software SPSS version 10.0

RESULTS

The district Mandla has 9 blocks, 8 Community Health Centres, 9 Primary Health Centres, 248 Subcentres and these subcentres cover 1247 villages. The population of the district as per the 2001 census is 8.93 lakhs.

Table 1: Government building was found to be present in only 11 (27.5%) out of the 40 subcentres whereas nearly two - thirds of the subcentres did not have a government building and was being run from the residence of the health workers.

Table 2: The current staffing pattern of these subcentres showed that 77.5% of them were presently adequately staffed with 1 male and 1 female healthworker each while 17.5% of subcentres had no male healthworker. Similarly one subcentre (2.5%) was found with no worker posted there and healthworker male of the nearby subcentre was looking after its work.

Table 3 shows that only 35% of the subcentres studied had regular water supply, space for examination of female patient & a store room for storing drugs and other materials whereas 45% of the subcentres had toilet facility and electric supply.

As against this more than 90% of subcentres had regular and adequate supply of family planning materials like Nirodh, oral pills and IUDs, immunization cards, vaccine carrier, gloves, syringe and needles and slides for blood smear examination. Similarly in more than 80% of subcentres ORS packets, IEC materials and equipments such as adult weighing machine, delivery kit and stove were found and in good working condition. Vital items like drug kit, BP instrument, steam sterilizer etc were present in only 50 – 70% of subcentres. Autoclave, hemoglobin kit, uristix, stethoscope, antiseptic ointment was found in < 30 % of subcentres.

Basic furniture like examination table, benches, chairs, cupboard for drugs, foot stool and writing table and mattress, bed sheets, vessel for water storage and waste disposal container was present very less number of subcenters (< 18%).

Table 4 : Grading of subcentres on the basis of these items showed that 47.5% of them were poorly equipped while at only 10% subcentres, physical facilities were found to be good.

Another important finding was that at many places where supplies were sufficient and adequate equipments available, they were lying un-used.

DISCUSSION

Some of the findings of this study portray a rather dismal picture as far as infrastructure for delivery of primary health care services in rural areas of Madhya Pradesh are concerned. Presence of government building in only one-fourth of the subcentres is important because even after a period of > 30 years since launch of this scheme government building is absent in nearly three-fourths of subcentres. This finding is consistent with the report of Rural Health Statistics-2002 that in Madhya Pradesh only 31.95% of subcentres have government building.

As per the Annual Report 2001 – 02, Ministry of Health and Family Welfare, out of 137311 subcentres 44.71% have a government building, 25.85% are functioning from rented building while 15.77% function in rent-free buildings.

In a study by SIFPSA in Jhansi, 71% of subcentres function in rented accommodation, most having a single room. A single room subcentre not only provide less space for storing equipment but also inhibits the privacy needed for performing procedures and discussing personal issues essential for providing effective family planning counseling. The remaining 29% of subcentres are housed in government buildings and have 3 rooms. [9]

Corroborative findings were obtained in a study conducted by National Institute of Health and Family Welfare (2003) in 8 states of North India wherein 8.68% of subcenters did not have any building for rendering proper healthcare services. Mostly they were providing services in a small room either in the temple premises or in schools or Panchayat Bhavan. [1]

Jain et al in their study [11] found that only one-fourth of subcentres were functioning in government building which is very low but comparable to Situational Analysis report of Agra and Sitapur districts (1995). [11,12]

The status of manpower in these subcentres was adequate in majority although the post of male healthworker was lying vacant in about 17% of them which was substantially more than the state of Madhya Pradesh where 12.03% of the subcentres were reported to be functioning without the male healthworker [5]. In study by NIHFW, 94% of posts of female healthworkers were filled. However, nearly 70% posts of male healthworker were vacant. [1]

Ninth Five Year Plan, GOI, reported that shortfall of male healthworker was 50% or more in some areas. This has been cited as one of the reasons for sub-optimal functioning of subcentres. [4] Study by Operations Research Group in 1989 in Andhra Pradesh and Uttar Pradesh reiterated similar findings with more than 95% of subcentres having femaleworkers in position, whereas 35% of subcentres did not have any male worker.

Another basic prerequisite for proper functioning of any health facility is availability and functional status of equipments and consumables. This aspect was grossly inadequate in the present study. Nearly 50% of subcentres graded as poor as far as the physical facilities were concerned. Findings from several other studies closely resemble in this regard. [1], [10]

In a study conducted by SIFPSA, (1998), it was seen that only 11% of subcentres have electricity and 22% have running water. Only one third of subcentres have a separate room for family planning purposes. This is consistent with finding that only 29% of the subcentres function in govternment buildings which usually have 3 rooms, including room for Family Planning counseling. 91% of subcentres have provision for safely storing and locking equipments while 77% provide family planning services like IUD insertion. 74% of these centres receive a regular and adequate supply of condoms but only 26% of subcentres receive a regular and adequate supply of pills. 50% or more subcentres have chairs, work tables, examination tables and pressure sterilizers. [9] It is noteworthy that these centres were receiving additional grants for strengthening their infrastructure and supplies for carrying out family planning services.

CONCLUSION & RECOMMENDATION

The findings of this study point to the fact though three decades have passed since the creation of these centres their infrastructure requirements and functional standards have not been met. Given the status of public health infrastructure in the country, particularly the EAG (Empowered Action Group) and the North Eastern States, it will not be possible to provide the desired services till the infrastructure is sufficiently upgraded. But the National Rural Health Mission mission seeks to establish functional health facilities in the public health domain through revitalization of existing infrastructure, fresh construction or renovation wherever required and corrections in manpower planning.

Table: 1 Status of Building of the Subcentres (n= 40)

S.No.	Status of Building	No. of SC	Percentage
1	Govt. Building Present	11	27.5
2	No Govt. SC Building	26	65
3	Building Under Construction	3	7.5
	Total	40	100

Table: 2   Present Staffing Pattern of the Subcentres (n=40)

S. No.	Present Staff	No. of SC	Percentage
1	1 Male + 1 Female Worker	31	77.5
2	1 Male + 2 Female Workers	1	2.5
3	1 Female Worker Alone	5	12.5
4	2 Female Workers	2	5.0
5	No Worker	1	2.5
	Total	40	100

Table 3: Availability of Various Physical Facilities at the Subcentres (n=40)

S. No	Facility	No. of SC where Facility is Available	Perce-ntage
	Basic Amenities		
1	Waiting area for patient	22	55
2	Space for examination of female patient	14	35
3	Electric supply	18	45
4	Water supply	14	35
5	Toilet facility	18	45
6	Store room for drugs & other material	14	35
	Drugs & Supplies		
7	Gloves	37	92.5
8	Syringe & Needle	38	95
9	Slides for blood smear	40	100
10	ORS packets	33	82.5
11	Urostix	4	10
12	Drug kit	24	60
13	New blade	18	45
14	Scissors	31	77.5
15	Gauze	27	67.5
16	Catheter	28	70
17	Antiseptic ointment / solution	12	30
18	Kerosene	8	20
19	IUD	36	90
20	Nirodh / condom	40	100
21	Oral Pills	39	97.5
22	Registers	31	77.5
23	Immunization cards	37	92.5
24	Daily diary	28	70
25	Soap	16	70
26	Posters	33	82.5
26	Pamphlets	32	80
	Equipments & Furniture		
27	Examination table	7	17.5

(Cont....) Table : 3 Availability of Various Physical Facilities at the Subcentres (n=40)

28	Benches for patient	5	12.5
29	Cupboard for drugs	7	17.5
30	Foot stools	4	10
31	Chairs	2	5
32	Writing Table	6	15
33	Vessels for water storage	5	12.5
34	Waste disposal container	2	5
35	Steam Sterilizer	21	52.5
36	Autoclave	14	35
37	Mattress	7	17.5
38	Macintosh	22	55
39	Bed sheets	7	17.5
40	Delivery kit	34	85
41	Torch	21	52.5
42	Stove	35	87.5
43	Weighing Scale (adult)	32	80
44	Weighing Scale (children)	29	70
45	BP Apparatus	28	70
46	Stethoscope	13	32.5
47	Thermometer	30	75
48	Vaccine carrier	37	92.5
49	Haemoglobin kit	5	12.5
50	Spirit lamp	21	52.5

Table : 4 Grading of Subcentres on the basis of Availability of Various Physical Facilities (n=40)

S. No.	Grade	No. of SC	Percentage
1	Poor (<=25)	19	47.5
2	Satisfactory (26 – 35)	17	42.5
3	Good (>35)	4	10
	Total	40	100

Ethical Clearance: Ethical clearance was obtained from the Institutional Ethical Committee for carrying out this study.

Conflict of Interest: None

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Prevalence of Infant and Young Child Feeding (IYCF) Practices among Children Under Two Years of Age in Two Colonies of North East Delhi: A Comparative Study

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ABSTRACT

Background: Adequate nutrition is critical to child health and development. The current status of feeding practices in India as cited by National Family Health Survey-3 (2005-2006) is rather dismal.

Objectives: To study the prevalence of IYCF practices and its socio- demographic determinants among children under two years of age in Vivekvihar and Nandnagri

To compare IYCF practices between the two study areas

Materials and Method: A cross-sectional study was done in children between 0 – 23 months of age in September, 2010 using pretested semi-structured interview schedule in two colonies with different socioeconomic settings. Convenience sampling was done to include a total of 725 children in the study.

Results: Breastfeeding was initiated within 1 hour of birth for 38% of newborns, 18.75% received pre-lacteal feeds while 93% received colostrum. 57% of infants had received exclusive breast feeding for 6 months.

Practice of pre- lacteal feed was seen to be significantly more in infants of Nandnagri as compared to Vivekvihar (p value 0.029). However, infants of Vivekvihar were more likely to be exclusively breastfed as compared to Nandnagri (p value <0.001) and also more likely to receive Colostrum (p value <0.001).

Conclusion: Overall the prevalence of IYCF practices were falling short of national goals set for the year 2007. Socio-demographic factors like place of residence, place of delivery, mother's occupation do have a significant impact on IYCF practices.

Keywords: Infant and Young Child Feeding, Prevalence, Practice.

INTRODUCTION

Infant and young child feeding practices directly affect the nutritional status of children under two years of age and, ultimately, impact child survival[1]. Adequate nutrition is hence critical to child health and development. The period from birth to two years of age is particularly important because of the rapid growth and brain development that occurs during this time. The period is often marked by growth faltering, micronutrient deficiencies and common childhood illnesses such as diarrhoea, as children transition from exclusive breastfeeding to solid foods in addition to breast milk.

Malnutrition alone is responsible for 67% of child death in India[2]. Optimal infant and young child feeding practices (IYCF) rank among the most effective interventions to improve child health [3]. Almost one-fifth of overall under-five mortality can be

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averted if 90% of infants are covered with a package of intervention to protect, promote, and support the optimal IYCF practices[4].

Exclusive breastfeeding up to six months of age and breastfeeding up to 12 months have been established as top most preventive child survival interventions for their effectiveness in preventing under-five mortality followed by nutritionally adequate, safe, age-appropriate complementary feeding starting at six months [5, 6].

The World Health Organization (WHO) recommends the following norms for infant and young child feeding considered optimal for most settings [1]:

• Initiation of breastfeeding immediately after birth, preferably within one hour of birth

• Exclusive breastfeeding for the first six months i.e., the infants receives only breast milk and nothing else, no other milk, food, drink or water.

• Appropriate and adequate complementary feeding from six months of age while continuing breastfeeding.

• Continued breastfeeding up to the age of two years or beyond.

The current status of feeding practices of children below 2 years of age in India cited by the National Family Health Survey-3 (2005-2006) is rather dismal. Although breast-feeding is nearly universal in India and continues for most children beyond infancy, initiation of breast feeding within an hour of birth is reported in about 23% of infants only, pre-lacteal feeds are administered in over half the infants and exclusive breast feeding in infants less than six months is around 35 per cent[9].

Against this background the present study was undertaken to find out the prevalent IYCF practices in North-east Delhi and to compare them in two different socioeconomic sections of society to understand the underlying factors which may impact these practices.

OBJECTIVES

• To determine the prevalence of infant and young child feeding practices among children under two years of age

• To compare the IYCF practices between the two study areas

• To study the socio- demographic determinants related to IYCF in these areas

MATERIAL & METHOD

A community based cross-sectional study was done in the month of September, 2010 in two colonies of north-east district of Delhi viz; Nandnagri & Vivek Vihar with different socioeconomic settings. Nandnagri is an urban resettlement colony with majority of population belonging to the lower socioeconomic class and is the field practice area of the Department of Community Medicine, University College of Medical Sciences, Delhi. Vivek Vihar is one of the most affluent colonies of North East Delhi. The study subjects comprised of children in the age group of 0 – 23 months of age.

The sample size required for the study was calculated using the software Epi Info version 6, taking prevalence of initiation of breastfeeding within first hour after birth of 23% (lowest among the IYCF indicators so as to obtain the maximum sample size) as per the NFHS – 3 report [7], a confidence level of 95% and an absolute precision of 5%. The sample size thus obtained was 283 which was rounded off to 290 from each colony. Convenience sampling was done by consecutive house to house visit to gather the required sample size. Mother of the child or the primary care giver wherever available was the preferred respondent. Informed consent was obtained from the respondent prior to administration of the questionnaire after assuring confidentiality. In case of more than one eligible children present in the house, information was obtained for the youngest child.

Data collection was done by interview technique using a semi-structured questionnaire which was adopted from WHO questionnaire[8] and was modified as per local needs and pretested. Except for the indicator "early initiation of breastfeeding" all indicators are based on current status data, i.e., the current age of child and other information for the day preceding the survey, rather than on retrospective data. The previous-day recall period was selected because it has been widely used and found appropriate in surveys of dietary intake when the objective is to describe infant feeding practices in population[1]. Various background variables like age of the child, birth order, place of delivery, mother's

education and occupation and IYCF practices like early initiation of breast feeding, practice of giving pre-lacteal feed, colostrum, exclusive breast feeding, age at initiation of solid and semi solid food, type of complimentary food given etc. were studied.

The data thus collected was entered into Microsoft Excel and analysed using SPSS software version 16.0. The results were summarized into tables and expressed as percentages. Chi square test was applied to test the association of various background variables with IYCF practices.

The study was in accordance with the institution's ethical standards.

RESULTS

A total of 725 children aged between 0 – 23 months were included in the study, 435 from Nandnagri while 290 children were from Vivek Vihar. Mean age of children from Nandnagri was 9 months while that of study subjects from Vivek Vihar was 11 months.

Table 1 shows that proportion of children in the study with birth order 1 was much higher in Vivek Vihar (62%) as compared to Nandnagri (40.8%). Majority of children in Vivek Vihar ((97.2%) were delivered either in a hospital or nursing home as against 76.6% in Nandnagri. The proportion of mothers of children from Nandnagri who were housewives (88.6%) was mush higher as compared to Vivek Vihar where around 75% of the mothers were housewives.

Table 2 shows that breast feeding was initiated within 1 hour of birth for nearly 38% of newborns, however the proportion was higher in Nandnagri as compared to Vivek Vihar (41% & 34% respectively). 18.7% of infants received pre-lacteal feeds and the practice was found to be more prevalent in Nandnagri (21.3%) as compared to Vivek Vihar (14.8%) while almost 93% of them received colostrum but this practice was more prevalent in Vivek Vihar (97%) as compared to Nandnagri (90%). 57% of infants had received exclusive breast feeding for 6 months with the proportion being much higher in Vivek Vihar (68.6%) as compared to Nandnagri (49.4%). Breast feeding was continued beyond 6 months for nearly 80% of children although children in Nandnagri (84.5%) were more likely to be breastfed beyond 6 months. Mean age of continuation of breast feeding beyond 6 months was also higher in Nandnagri

(12.37 months) as compared to Vivekvihar (11m). Complimentary feeding with solid, semisolid or soft food was introduced at 6 – 8 months for almost 87% of infants with higher proportions of infants in Vivek Vihar (89%) being put on complimentary food. The mean age at initiation of solid and semi-solid food was 7 months for VivekVihar with nearly similar findings being reported from Nandnagri where the mean age was 7.92 months.

Practice of Pre- lacteal feeding was seen to be significantly more in children of Nandnagri as compared to Vivek Vihar (p value 0.029). However, infants of Vivekvihar were more likely to be exclusively breastfed as compared to infants of Nandnagri (p value <0.001) and also more likely to receive Colostrum (p value <0.001).

Moreover, infants delivered in an institution were more likely to receive colostrum as compared to infants delivered at home and this difference was statistically significant (p value 0.027). However, no statistically significant difference was seen between the place of delivery and the practice of giving pre-lacteal feed.

DISCUSSION

The present study was done not only to find out the IYCF practices in two colonies of north- east Delhi with different socio-economic profile but also to compare the prevalence of these practices in the above mentioned settings with an aim to gain insight into factors influencing these practices. The findings revealed that proportion of children being delivered at a hospital or nursing home was much higher in Vivek Vihar possibly due to higher socioeconomic status, better access to healthcare and awareness about the importance of institutional delivery.

Our study showed that initiation of breastfeeding within 1 hour of birth was reported for nearly 38% of newborns with the proportion being higher in Nandnagri, which could be explained by the fact that a higher percentage of births were taking place at home in Nandnagri. Proportion of institutional births was more in Vivek Vihar which could even imply a higher probability of caesarian section thus resulting in a delay in early initiation of breast feeding. However, this prevalence was much more than the national and the Delhi state average (23% and 19% respectively) as per the NFHS – 3 report [7] but far short of the 10th plan target of 50% [9]. A study by Sinhababu

et al in Bankura district of West Bengal reported a much lower prevalence (13.6%) of early initiation of breast feeding [10].

The overall prevalence of pre-lacteal feeding reported in our study was 18.7% with Nandnagri showing a higher prevalence probably due to lower levels of literacy and lack of knowledge about harmful effects of pre-lacteal feeds. The use of prelacteal feeding was far less compared to corresponding NFHS – 3 figures for India (57.2%) [7]. Similar findings were reported by Sinhababu et al (26.7%) and Roy et al [10, 11].

Exclusive breast feeding for first 6 months of life was reported by 57% of the respondents although prevalence varied markedly between the two study settings. Proportionately much lesser prevalence of exclusive breastfeeding was seen in Nandnagri (49.4%) which could be attributed to lower literacy levels of mothers in this area coupled with the belief that breast milk does not contain water and is nutritionally inadequate for the child. Similar prevalence has also been reported by Sinhababu et al (57.1%) in their study[10]. Although findings of the present study are much better than all-India (46.3%) and Delhi state (34.5%) average (NFHS-3)[7], it falls short of the 10th plan target of exclusive breast feeding upto 6 months for 80% of infants [9].

Complimentary feeding with solid, semisolid or soft food introduced at 6 – 8 months was reported for almost 87% of infants in our study with higher proportions of infants in Vivek Vihar (89%) being put on complimentary food at the appropriate age, the probable explanation for which may be better knowledge, exposure to various sources of information and affordability of complimentary food. Our study showed a much higher prevalence of initiation of complementary feeding at the appropriate age as compared to the NFHS – 3 data for India (55.8%) and the state of Delhi (59.8%) [7].

The present study revealed that practice of giving pre-lacteal feed was more prevalent in lower socioeconomic settings whereas infants from upper socioeconomic strata were more likely be given colostrum and exclusively breast fed for first 6 months of age, although these findings do not exactly corroborate with the NFHS – 3 report which states that infants who live in rural areas, whose mothers are illiterate, and whose families have low economic status are more likely than other infants to be exclusively breastfed [7].

CONCLUSIONANDRECOMMENDATIONS

Overall the prevalence of IYCF practices were falling short of the national goals set for the 10th five year plan. Socio-demographic factors like place of residence, place of delivery, mother's occupation do have a significant impact on the IYCF practices.

Optimal infant and young child feeding practices rank among the most effective interventions to improve child health. Appropriate area specific programs must be designed to create an enabling environment for comprehensive nutrition and health education to mothers starting in the antenatal period itself and to primary care givers of children. Knowledge of the health care staff also needs to be updated from time to time so as to ensure propagation of correct messages with regard to IYCF in the community.

Table 1: Socio-demographic Profile of the Study Subjects (n=725)

Variable	Nandnagri (n=435) No. of Children (%)	Vivek Vihar (n=290) No. of Children (%)	Total No. of Children (%)
Birth Order 1 2 or more	178 (40.8) 257 (59.2)	180 (62.1) 110 (37.9)	358(49.4) 367(50.6)
Place of Delivery Home Hospital / Nursing Home	102(23.4) 333(76.6)	8(2.8) 282(97.2)	110(15.2) 615(84.8)
Mother's Occupation Housewife Household- Business Job	386 (88.6) 15(3.4) 35(8.0)	224(77.5) 0 65(22.5)	(n=724) * 609(84.2) 15(2.0) 100(13.8)

*1 subject's mother was dead

Table 2: Prevalence of IYCF Indicators among children aged 0– 23 months (n=725)

IYCF Indicator	Nandnagri (n=435) No. of Children (%)	Vivek Vihar (n=290) No. of Children (%)	Total No. of Children (%)
Initiation of Breastfeeding within 1 hour of birth	179(41.0)	99(34.1)	278(38.3)
Practice of giving pre-lacteal feed	93(21.3)	43(14.8)	136(18.7)
Practice of giving Colostrum	393(90.3)	282 (97.2)	675(93.1)
Exclusive Breast Feeding for 6 months	215(49.4)	199(68.6)	414(57.1)
Continued breastfeeding for more than 6 months	(n=412) 348 (84.5)	(n=277) 194(70.0)	(n=689)* 542 (78.7)
Introduction of solid, semisolid or soft foods at 6-8 months	(n=412) 350 (84.9)	(n=277) 247 (89.2)	(n=689)* 597(86.6)

*689 children in the study were aged >6 months

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Assesment of Coagulopathy in Patients with Systemic Bleeding due to Snake Bite - Correlation with the Dose of Anti Snake Venom

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ABSTRACT

Background: Even though snakebite associated coagulopathy is a common cause of mortality and morbidity in India, the severity assessment and management protocols are poorly defined. Our study aims at identifying -

a) Clinical spectrum of bleeding

B) Hematological markers of severe coagulopathy

C) Optimize the dose of Anti Snake Venom (ASV) in patients with severe coagulopathy

Method : Case records of 59 patients with systemic bleeding following snakebite were studied and their clinical presentation and coagulation parameters were noted. They were grouped depending on total ASV received: **<100ml-group A & >100ml-group B**. Statistical analysis was done to find out correlation between different coagulation parameters with the total dose of ASV required at endpoint in each group.

Results : Patients in Group-B had severe coagulopathy featured by significantly prolonged CT, and APTT ($p<0.05$); prolonged PT and low fibrinogen ($p <0.01$). All these tests have shown strong association with mean higher doses of ASV. Group-B patients presented much later and the mean doses of ASV required in groups A and B were 81.48 ±21.6 ml and 206 ± 73 ml respectively.

Conclusion : A combination of PT and fibrinogen correlated well with severity of coagulopathy in patients with systemic bleeding due to snake bite. These patients may require upto 206 ± 73 ml of ASV. Patients with delayed presentation had more severe coagulopathy and required higher doses of ASV.

Keywords: Anti Snake Venom, Coagulopathy, Snake Bite

INTRODUCTION

Snake bite is often ignored as an important cause of mortality and morbidity in the changing scenario of diseases,especially in tropical countries. The main cause for this is gross underreporting of cases in both government and private hospitals and most of the deaths happen outside the hospital. Annual mortality in India is believed to be about 50000, with the highest rates of snake bites reported from Andhra pradesh[1]. In a study done between 2001-2003 in India, snake bites accounted for 0.45% of overall mortalities[2].

Villages report maximum deaths from snake bites due to lack of awareness among people regarding the availability and efficiency of anti snake venom. No wonder India is known to be the land of snake charmers as it is often these, who are first visited.

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Treatment by quacks with mantras which are believed to block the poison, are surprisingly still adopted in many parts of India, resulting in significant delay in the presentation to the hospital. A survey conducted in India and Pakistan showed that many doctors were unable to recognize systemic signs of envenoming[3]. This establishes the fact that more awareness should be created among doctors working in rural areas regarding the diagnostic and management protocols implemented for victims of snakebite.

There are more than 200 varieties of snakes in India, of which one fourth are venomous. Viper, cobra, Krait and sea snakes are the main species seen in India. Vipers are heamotoxic, cobras and kraits are neurotoxic and sea snakes are myotoxic. Most of the Indian bites are viper bites. The venom of vipers contains many complex proteins both pro and anticoagulant. Each viper bite is known to inject 5-7 ml (400-600mg) of venom[4].Identification of the snake is important in deciding management strategy. Unfortunately, in many cases the biting snake is not seen, and if seen, its description by the victim is often misleading[5]. Even when the dead snake is brought to the health center, correct identification is not assured.

ANTI SNAKE VENOM- Antivenoms are produced by fractionation of plasma obtained from immunized horses[6]. Monovalent anti snake venom is generally available based on the prevalence of local species of snakes. In India, administration of polyvalent ASV is more sensible as snakes are rarely identified and typified. Polyvalent ASV is widely available which consist of antibodies against all four major species of snakes- N. naja, B. caeruleus, D. russelii, and E. carinatus. So many other species may be missing and envenoming by these species shows unpredictable response to existing antivenom[7]. Coagulopathy caused by viper bites shows prompt reversal following ASV institution if done early before organ damage sets in.

MATERIAL & METHOD

MATERIAL: Case records of the patients admitted in the acute medical care unit after snake bite with clinical evidence of systemic bleeding during a three year period in a tertiary hospital in coastal Andhra Pradesh were included in the study. Those patients with bleeding symptoms including Gumbleed, Epistaxes, Hematemesis, Hemoptysis, Hematuria,

Petechial rash and Conjunctival hemorrhage were taken in the study. Cases with a history of prior ASV intake before admission, known patients of coagulopathy, patients on anti thrombotic drugs or anticoagulants, and those who presented with only local bleeding from the site have been excluded from the study.

METHOD OF STUDY: The age, gender, occupation and season of snake bite have been noted. The site of bleeding and the time lag between the bite and the initiation of ASV was noted. Various hematological parameters like bleeding time, clotting time, prothrombin time, activated partial thromboplastin time, platelet count, peripheral smear, and plasma fibrinogen were collected. Patients who developed disseminated intravascular coagulation were identified based on ISTH criteria. The total dose of ASV administered to all the patients, until the time of clinical recovery has been noted. Based on the total dose of ASV given, patients were grouped into <100ml (group-A) and > 100ml (group-B). All the available parameters have been compared between the two groups to find various hematological markers which represent severe coagulopathy.

RESULTS

Out of total of 59 patients, group-A comprised 27 (45.7%), group-B had 32 (54.3%) patients. 19 (32.3%) were females and 40 (67.7%) were males. Common age group affected was between 20-60 years (79.6%) which is the earning age group. 80% of the snake bites were reported between July and October. 53 (90%) patients were farmers. The majority of the bites were on lower limbs (79.6%) followed by the upper limbs (15.2%) and other areas (5.1%).

TABLE 1: Different patterns of bleeding in two groups and statistical significance.

SITE OF BLEED	Total	GROUP-A (n=27)	GROUP-B(n=32)	P value
Gum bleeding	33(55.9%)	13	20	0.20 (NS)
Petechiae	19(32.2%)	9	10	0.54 (NS)
Epistaxes	10(16.9%)	7	3	0.09 (NS)
Hematemesis	12(20.3%)	4	8	0.26 (NS)
Hemoptysis	9(15.3%)	4	5	0.61 (NS)
Hematuria	6(10.2%)	2	4	0.42 (NS)
Conjunctival hemorrhage	9(15.3%)	2	7	0.11 (NS)

Gum bleeding was the most common site of the bleed, seen in 33(55.9%) and Hematuria was least seen only in 6 (10.2%) patients. Epistaxes was more common in group-A where as gumbleed, hematemesis, hematuria and conjunctival hemorrhage and hemoptysis was more common in group-B. The site of bleeding did not show statistical correlation with the dose of ASV required which means that neither the severity of coagulopathy nor the prognosis can be estimated by the clinical site or the area that is involved in the bleeding.

Bleeding time (BT) was prolonged in 32 (62.7%), clotting time (CT) prolonged in 27 (45.8%), prothrombin time (PT) abnormal in 30 (50.8%), activated partial thromboplastin time (APTT) abnormal in 26 (44.1%), platelet count was low in 32 (54.2%), fibrinogen was lower in 13 (23.1%) patients.

STATISTICS

SPSS software trail version 16 was used for statistics. The student T test was used to find out the correlation between different parameters and the total ASV dose required.

The mean age, BT, CT, PT, APTT, Platelet count and fibrinogen levels along with the time lag between the bite and initiation of treatment in the two groups are shown in the TABLE 2

TABLE-2

	GROUP-A (n=27) Mean	St.deviation	GROUP-B (n=32) Mean	St.deviation	P value
ASV Dose (ml)	81.48	21.6	206	73	--
Age	37.7	16.4	38.2	13.7	NS
B.T (Min)	5.33	4.29	5.6	4.7	NS
C.T (Min)	7.91	6.36	11.6	6.87	0.046 (sig)
P.T (Min)	18.88	11.9	34.2	29.1	0.013 (sig)
A.P.T.T(Min)	34.4	10.72	43.03	18.5	0.037(sig)
Pl. Count	1,82,925	1,21,929	1,34,156	1,09,425	NS
FIBRINOGEN (mg/dl)	330.7	96.5	145.78	98.9	< .001(sig)
DIC	5		8		--
TIME LAG (Hours)	10.8	5.5	16.2	12.3	< .001(sig)

Mean values of different parameters between two groups. **sig**-significant, **DIC-**dissiminated intravascular coagulation, **NS**- Not Significant.

Thirteen (23.1%) patients were found to be having DIC according ISTH sub committee criteria[8]. DIC was more common in group B than in group A. Isolated thrombocytopenia was seen In 10 cases. CT, PT, APTT were markedly prolonged in GROUP-B patients than in group A patients . Out of all parameters, CT, PT, APTT and serum fibrinogen showed a significant statistical correlation (P<0.05) with the dose of ASV required which means patients with prolonged CT(>8min), prolonged PT (>15sec), prolonged A.P.T.T (>35sec) and low serum fibrinogen (<150mg/dl) required significantly higher doses of ASV than others, which points to more severe systemic envenomation in them. One patient died, due to intracerebral hemorrhage. The mean dose of ASV required, was substantially higher for group B patients(206 ± 73 ml) than group A patients (81.48 ±21.6 ml) which correlates with more systemic envenomation in group B patients. The time lag between the bite and treatment showed statistical significance between two groups, more in group B than in group A, necessitating higher doses of ASV[9].

DISCUSSION

There are a number of studies on coagulopathy induced by snake bite but very few studies have been done to evaluate coagulopathy for prognosticating the treatment with respect to the dose of ASV that is required for recovery. Also there are no definite

guidelines for the management of coagulopathy in snake bite, partly because of differences in the nature, quantity and site of inoculation of venom. This makes sense why more number of studies are required which could help physicians in managing these cases better.

Snake bite is not an uncommon presentation in rural India. As most common snake bites are due to vipers, coagulopathy and bleeding manifestations are commonly seen in these patients. Various factors determine the severity of envenomation like the type of snake, site of the bite, feeding state of snake etc. Various bleeding manifestations like bleeding from wounds or spontaneous systemic bleeding – from the gums, epistaxis, haemoptysis, hematemesis, rectal bleeding or melaena, haematuria, vaginal bleeding, bleeding into the skin (petechiae, purpura, ecchymoses) and intracranial hemorrhage. coagulopathy is typically attributed to viper bites[10].The pathophysiology underlying the coagulopathy is complex and include an interplay between pro and anticoagulant effects of venom over different hemostatic steps. 20 minute clot test has been widely used in identification of patients with coagulopathy[11]. This test however is more useful In severe coagulopathy and may not identify mild and moderate envenomations.

In our study, the majority of victims were farmers (93%) and most of the snake bites were between July to September (76%), which happens to be the rainy season. This is a busy season for cultivation, when farmers are exposed to snakes that dwell out of rat burrows which are flooded with water. Most of the victims were aged between 25-55 which is the most productive age group in terms of earnings. Snakes were identified and brought to the hospital on only three occasions, all of them being Russels vipers. As thought previously, relying on the species of snake for initiation of treatment can be catastrophic as identification is never infallible, even for experts[12,13].

Gumbleed was the most common site of bleeding(52%) which emphasizes frequent checkup of the oral cavity to trace out minor bleed. Hematemesis may represent severe coagulopathy, which may be worse in patients with pre existing bleeding peptic ulcers. CT, PT and APTT were prolonged and platelet counts and fibrinogen were much lower in group-B. This explains why patients in group-B required higher doses of ASV for recovery. This is attributed to the inhibitory effect of venom on various factors like factor V, VI, VIII and prothrombin. Delayed

coagulopathy after snake bite has been described in many studies.[14,15] One patient died with intra cerebral bleed which is a known fatal complication[16]. There is no major difference in BT between the two groups, which cautions us against using BT alone in assessing the severity of coagulopathy which is often practiced in peripheral health centers as it is simplest of all tests. Thrombocytopenia is generally due to consumptive coagulopathy but isolated thrombocytopenia may be because of intra or extravascular destruction of platelets[17]. DIC was seen in five patients in group-A and eight patients in group-B. The Procoagulant action of venom of some snakes can result in fibrin deposition in the vascular compartment leading to a state of consumptive coagulopathy- ischemic gangrene at one site and bleeding from other sites. In our study, the mean doses of ASV required in Group B is higher than standard doses described (which implies more time taken for correction of coagulopathy). This may be due to geographical differences in the species of snakes and their venoms and local treatments which delays the presentation of the patients.

In our study, group-B patients had more severe coagulopathy. prolonged PT and low serum fibrinogen showed highest statistical correlation with higher doses of ASV i.e group-B (**p<0.001**), even though other parameters like prolonged CT and APTT have shown statistical significance (**p<0.05**). Hence a combination of prolonged PT and hypofibrinogenemia can be used as a marker of severity of coagulopathy which can call attention to early care and ASV at doses 206 ± 73 ml may be considered as approximate amount that may be required in such cases. Time delay from bite to treatment was much higher in group B (p<.001), hence requiring higher doses of ASV implying the need for early referral from centres where ASV is not available.

CONCLUSION

Patients with severe coaguopathy following snakebite may present with gumbleed, hematemesis or hemoptysis apart from local site bleeding. Severe coagulopathy should be suspected if there is prolonged PT and hypofibrinogenemia. These patients require higher than conventional doses of ASV approximating 206 ± 73 ml for the correction of coagulopathy, the clinical endpoint being stoppage of bleeding.

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Study of Lipid Peroxidation and Antioxidant Status in Pre-eclampsia

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ABSTRACT

Pre-eclampsia is a frequent and potentially dangerous complication of pregnancy which affects about 2-4% of all pregnancies and is associated with high maternal and foetal morbidity and mortality in developing countries. Multiple factors, including increased oxidative stress and decreased antioxidant capacity have been associated with pre-eclampsia. The study group included 110 female subjects. Among them 40 subjects are healthy pregnant women as controls and 70 are clinically diagnosed pre-eclamptic cases, further divided into mild and severe pre-eclamptic cases after 20 weeks of gestation. Serum samples were assayed for serum Malondialdehyde, Vitamin E, Superoxide Dismutase and Erythrocyte reduced glutathione in healthy controls and in pre-eclamptic cases to find a correlation of their serum levels with the severity of pre-eclampsia. Pre-eclamptic patients had significantly increased levels of serum malondialdehyde and decreased levels of serum vitamin E, superoxide dismutase and erythrocyte reduced glutathione. These changes were more pronounced in severe pre-eclampsia when compared to mild pre-eclamptic cases. This study evaluates whether pre-eclamptic patients show a higher degree of oxidative stress than normal pregnancies which plays a significant role in the pathogenesis of pre-eclampsia and to determine if this oxidative stress is related to clinical severity of pre-eclampsia. This study suggests that a regular evaluation of oxidant and antioxidant status could provide early predictive indices of risk factors and further intervention to prevent pre-eclampsia.

Keywords: *Pre-eclampsia; oxidant; antioxidant; oxidative stress.*

INTRODUCTION

Pre-eclampsia is a common and highly variable complication of the second half of pregnancy, labour or early puerperium [1]. Pre-eclampsia is characterized by development of hypertension to the extent of 140/90 mmHg or more with proteinuria or oedema or both induced by pregnancy after 20th weeks of gestation in a previously normotensive and non-proteinuria patient.[2] It is further classified into (a) Mild pre-eclampsia characterized by BP ≥ 140/90 mmHg after 20 weeks of gestation, proteinuria ≥ 300 mg/24 hours (b) Mild pre-eclampsia characterized by BP ≥ 160/110 mmHg after 20 weeks gestation, Proteinuria 2.0 g/24 hours.[3] Incidence of pre-eclampsia in India is reported to be 8-10% of pregnancies. [4] The risk of pre-eclampsia is markedly increases in women with previous pre-eclampsia and in those with cardiovascular disease.[5] More recently, antioxidants have been proposed as a potential preventive strategy on the basis of data suggesting that endothelial dysfunction is fundamental to the development of pre-eclampsia and that increased oxidative stress particularly in the placenta, may contribute to the endothelial dysfunction.[6] Oxidant–antioxidant imbalance intensifies the release of placental lipid peroxidation products into the circulation which leads to dysfunction of the defensive vasodilatory and antiaggregatory activities of the vascular endothelium. This in turn contributes to increased peripheral resistance and pressor reactivity to vasoagonists.[7] Lipid peroxidation is considered as marker for pro-oxidant activity and antioxidants

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like serum Vitamin E, Superoxide dismutase and Erythrocyte reduced glutathione are considered as markers for antioxidant defense. Oxygen free radical and lipid peroxidation might be the link between the hypothetical immunologic mechanism and the disturbance of endothelial physiology known to occur in pre-eclampsia.[3]

MATERIALS & METHOD

A study of lipid peroxidation and antioxidant status was conducted in pre-eclamptic patients and healthy pregnant women from Bapuji Hospital and Chigateri General Hospital, Davangere from June 2007 to August 2009. Each gave an informed consent and this study was approved by Ethical and Research Committee of J.J.M. Medical College, Davangere to use human subjects in the research study. The patients and controls voluntarily participated in the study. A total number of 110 subjects participated in the present study .Cases included 70 diagnosed pre-eclamptic pregnant women after 20 weeks of gestation. Among 70 women, 27 were mild and 43 were severe pre-eclamptic pregnant women. Controls included 40 healthy pregnant women after 20 weeks of gestation. The subjects included both primi and multigravida pregnant women. Pre-eclamptic patients with complications like eclampsia, jaundice, ascities and gestational diabetes mellitus were excluded from the study. 6 ml of blood was collected from a large peripheral vein with all aseptic precautions in a sterile bulb. Out of which 2 ml was taken in an anticoagulant bulb (EDTA) for estimation of Erythrocyte GSH and 4 ml was taken in a plain bulb for estimation of serum MDA, vitamin E and SOD. Serum malondialdehyde (MDA) was estimated by Thiobarbituric acid method [8], serum vitamin E by Baker and frank method [9], serum   super-oxide dismutase by marklund and marklund method [10] and   erythrocyte reduced glutathione by Beutler et al method [11]

STATISTICAL ANALYSIS

Results are expressed as Mean ± SD and Range values. One way ANOVA was used for multiple group comparison and student's t-test for group wise comparisons. Relationship between variables was measured by Pearson's correlation coefficient. A p-value of 0.05 or less was considered for statistical significance.

RESULTS

Table-1 shows comparative analysis of serum malondialdehyde, vitamin E, superoxide dismutase and erythrocyte reduced glutathione in controls, mild and severe pre-eclamptic cases. Statistical analysis by student's 't' test showed that the pre-eclamptic patients had significantly lower values of serum vitamin E, superoxide dismutase and erythrocyte reduced glutathione and higher values of serum malondialdehyde when compared to controls. The values were more pronounced in severe pre-eclampsia when compared to mild pre-eclamptic cases The p-value was highly significant ($P < 0.001$) for all parameters between cases and controls.

Table-2 shows the Pearson's correlation coefficients between serum malondialdehyde, vitamin E, superoxide dismutase and erythrocyte reduced glutathione in pre-eclamptic cases and controls. It is evident from the table that there is a negative correlation between serum malondialdehyde, and vitamin E, superoxide dismutase and erythrocyte reduced glutathione in pre-eclamptic cases. As the concentration of serum malondialdehyde, increases there is a simultaneous decrease in serum vitamin E, superoxide dismutase and erythrocyte reduced glutathione levels thus suggesting that this correlation is statistically significant ($p < 0.05$).

Table 1: Serum levels of MDA, Vit E, SOD, GSH in controls, mild and severe pre-eclamptic cases

Groups	Control	Mild PE	Severe PE
No.	40	27	43
S.MDA nmol/ml	3.20 ± 0.60	5.63 ± 0.72	6.52 ± 0.93
S. vit. E Mg/L	11.15 ± 1.00	7.74 ± 0.88	6.44 ± 1.02
S. SOD Units / ml	9.28 ± 0.72	5.86 ± 1.02	4.45 ± 0.75
Ery. GSH Mg/dl	80.13 ± 4.49	62.82± 3.86	49.25 ± 5.86

Unpaired t - test

Table 2: Pearson's correlation coefficients between serum malondialdehyde and other antioxidants in pre-eclamptic cases

Correlation between	Cases	
	r	p
S.MDA and S.Vit. E	- 0.40	< 0.05
S.MDA and S.SOD	- 0.26	< 0.05
S.MDA and Ery. GSH	- 0.23	< 0.06

r = Pearson's correlation coefficient

p < 0.05 = S (Significant)

p > 0.05 = NS (Not Significant)

DISCUSSION

Pre-eclampsia is a pregnancy specific multiorgan disorder which is characterised by hypertension and proteinuria. Free radicals are specific reactive oxygen species which play an important role in pathophysiology of pre-eclampsia. Free radicals cause cell injury by damaging proteins, lipids and nucleic acids by inducing lipid peroxidation.The aim of the study is to evaluate oxidative stress in pre-eclampsia by analyzing serum pro-oxidant and antioxidant levels. Malondialdehyde is a metabolite of lipid peroxide and a marker of lipid peroxidation. Lipid peroxidation is a process normally occurring at low levels in all the tissues and cells. Uncontrolled lipid peroxidation is a key contributing factor in the pathogenesis of pre-eclampsia. Patients with severe pre-eclampsia showed significantly higher levels of serum malondialdehyde when compared to mild pre-eclamptic patients and healthy pregnant women. A high level of serum malondialdehyde showed a positive correlation with the severity of the disease and was statistically highly significant ($p < 0.001$). Vitamin E is one of the most important antioxidative molecules residing mainly at the cell membranes and scavenging a wide variety of free radicals. However, vitamin E is utilized in exerting its action against the abnormal increase in lipid peroxides in pre-eclampsia and hence increased consumption leads to a decreased in the levels of vitamin E. Another possibility is decreased absorption of vitamin E from the gut due to vasoconstriction in pre-eclampsia. In this study severe pre-eclamptic patients had enhanced reduction in vitamin E when compared to that of mild pre-eclamptic patients suggesting that vitamin E level correlates with the severity of the disease and was

statistically highly significant ($p < 0.001$). Vitamin E showed a negative correlation with malondialdehyde in pre-eclamptic cases. This observation suggests that in pre-eclampsia there is an imbalance between lipid peroxidation and antioxidant vitamin status due to oxidative stress. Superoxide dismutase enzyme catalyzes the dismutation of superoxide radicals. In the present study the mean serum superoxide dismutase levels in severe pre-eclamptic patients decreased progressively when compared to mild pre-eclamptic patients suggesting that superoxide dismutase level correlates with the severity of disease and was statistically highly significant ($p<0.001$). The low enzymatic superoxide dismutase activity in pre-eclamptic patients may be explained by the lack of induction for production of superoxide dismutase, since superoxide anion is reacting with nitric oxide to produce high peroxynitrite levels and at the same time explains the low nitric oxide levels that are usually found. In the present study serum malondialdehyde and superoxide dismutase level showed a negative correlation in all pre-eclamptic cases and was statistically significant. These results suggest that pre-eclampsia is associated with an imbalance between lipid peroxides and the antioxidant. Glutathione is a water soluble antioxidant. The major function of reduced glutathione is detoxification of reactive oxygen species such as peroxides either by spontaneous conjugation or by reduction. Oxidative stress in pre-eclampsia might cause a higher consumption of glutathione resulting in low levels. Hence the amount of glutathione might not be sufficient to protect against oxidative stress .In this study erythrocyte reduced glutathione levels in severe pre-eclamptic patients were low when compared to mild pre-eclamptic patients and was statistically significant ($p<0.001$). Serum malondialdehyde and erythrocyte reduced glutathione showed a negative correlation in pre-eclamptic cases. This indicates decreased detoxifying or free radical scavenging capacity of reduced glutathione in pregnancies complicated by pre-eclampsia leading to an imbalance between lipid peroxidation and antioxidant status.Pre-eclampsia is a complex multisystem disorder characterised by hypertension and proteinuria and has the highest maternal and foetal morbidity and mortality. Evidence suggests that placental oxidative stress which results from altered endovascular trophoblastic invasion due to ischemic injury leads to maternal endothelial dysfunction in pre-eclampsiaThe study demonstrates

a close relationship between the degree of oxidative stress and the clinical severity of pre-eclampsia. We have found an increase in serum malondialdehyde levels in severe pre-eclampsia when compared to mild pre-eclamptic cases. At the same time the antioxidant levels were found to be decreased in severe pre-eclampsia when compared to mild pre-eclamptic cases. The increase in oxidative stress was further supported by negative correlation between lipid peroxidation product malondialdehyde and antioxidants serum vitamin E, superoxide dismutase and erythrocyte reduced glutathione, suggesting an imbalance between lipid peroxidation and antioxidant status in pre-eclampsia. It is also emphasized from the study that a regular evaluation of lipid peroxidation and antioxidant status could provide an early predictive index for further intervention in the treatment of pre-eclampsia.

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