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Detection of Malignancies through Camp Approach in Navodaya Medical College, Raichur

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ABSTRACT

Total participants in this camp were 139 out of which, males were 93 (67%) and females were 46 (33 %). Mean age of the participant was 44.50.Males using Tobacco/ Gutka, Alcohol and Smokers were more and most of them were labourers. Use of Tobacco, gutka, Alcohol and smoking were observed as one of the predisposing factors as addicted people's common complaints were dysphagia, burning sensation in mouth, oral pain, and red patch in mouth etc. Gutka, Tobacco addiction was more in younger age group as well as in 56 to 66 age group. Total numbers of cancer cases detected were 5.There is need of awareness about warning signs of cancers and about screening at regular intervals through camp approach as screening may result in detection of cancer at early stage. Thus mortality and morbidity due to cancers can be avoided.

Keywords: *Cancer Screening, Tobacco Addiction, Camp Approach*

INTRODUCTION

Cancer afflicts all communities worldwide, approximately 10 million people are diagnosed with cancer and more than 6 million die of the disease every year. About 22.4 million persons were living with cancer in the year 2000. (1)

In south East Asia Region, cancer accounts for a significant proportion of morbidity and mortality. It is estimated that about half a million people die every year from cancer Cancers contribute to 3.4 percent of all deaths reported from India.(2) It is estimated that there are approximately 2-2.5 million cases of cancer in India at any given point of time, with around 7-9 lakh new cases being detected each year. Nearly half of these cases die each year. (3)

Tobacco is the most widely available harmful product on the market.

Almost 6 million people die from tobacco use each year, both from direct tobacco use and second hand smoke. By 2020, this number will increase to 7.5 million, accounting for 10% of all deaths .Smoking is estimated to cause about 71% of lung cancer, 42% of chronic respiratory disease and nearly 10% of cardiovascular disease. - In India alone, about 700 billion bidies are consumed annually. Risk to health from tobacco use result not only from direct consumption of tobacco but also from exposure to second-hand smoke (4).

Some smokeless tobacco products are manufactured and marketed in such a way as to appeal to young people and thereby stimulate initiation of use.

Packaging, labeling and marketing of smokeless tobacco products affect their appeal, the prevalence of their use, initiation, addiction and therefore the potential for harm (5)

People of lower social and economic positions fare far worse (4)

Tobacco abuse is the single most significant factor in the development of many cancers and in the oral cavity, especially cancer and pre-cancers that can be easily prevented by appropriate awareness programs. India accounts for a major chunk of oral cancer cases worldwide. (6)

Oral cancer, a highly avoidable disease, carries a poor prognosis if detected late and causes damaging functional and cosmetic defects. (7)

The four most frequent cancers in males in India are mouth/oropharynx, oesophagus, stomach and lower respiratory tract. For women, cancers of cervix,

breast, mouth/ oropharynx and oesophagus are the most frequent. [8]

Excessive intake of alcoholic beverages is associated with oesophageal and liver cancer.[9]

Facilities for screening and proper management of cancer patients are grossly limited in India. More than two-thirds of cancer patients are already in an advanced and incurable stage at the time of diagnosis.[9]

OBJECTIVES

1) To identify the cancer cases among the people reported to cancer detection camp.

2) To find out lifestyle habits like Smoking, Tobacco chewing, Alcohol intake among people reported to the cancer detection camp.

MATERIALS AND METHOD

A cancer detection camp was at Navodaya Medical College, Raichur, Karnataka on 13 April, 2010. This is a cross sectional study among participants who attended cancer detection camp. For this camp, wide publicity about the cancer detection through posters and pamphlets was given in and around Raichur city. Participants who reported at the camp on 13 April were 139 in the age group 6-83 years, were screened for various types of cancers. History and clinical findings were recorded. Information regarding lifestyle habits like Smoking, Tobacco/Gutka, and Alcohol were recorded. All suspected cases were subjected to appropriate investigations and follow up and confirmed cases were sent to Mazumdar Shaw Cancer hospital and Narayana Hrudayalaya, Bangalore for further management.

Data analysis: data was tabulated in excel spreadsheet and frequencies and proportions were calculated.

RESULTS AND DISCUSSION

Cancer detection camp was organized at Navodaya Medical College, Raichur on 13 April, 2010.In this camp, total number of participating subjects were 139.As shown in Table 1, age of the participating subjects in this cancer detection camp ranged from 6 to 86 years. Mean age of the participant was 44.50.

Table1: Distribution of subjects according to Age

Age	N	Percent
6-16	2	1.4
16-26	29	20.9
26-36	20	14.4
36-46	15	10.8
46-56	24	17.3
56-66	39	28.1
66-76	7	5.0
76-86	3	2.2
Total	139	100.0

Mean Age = 44.50 SD=17.66

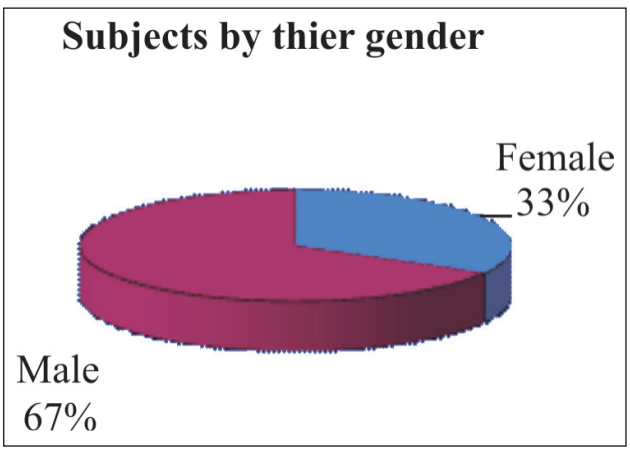

Fig. 1. Shows sexwise distribution of subjects. In this camp, males were 93 (67%) and females were 46 (33 %), out of 139.

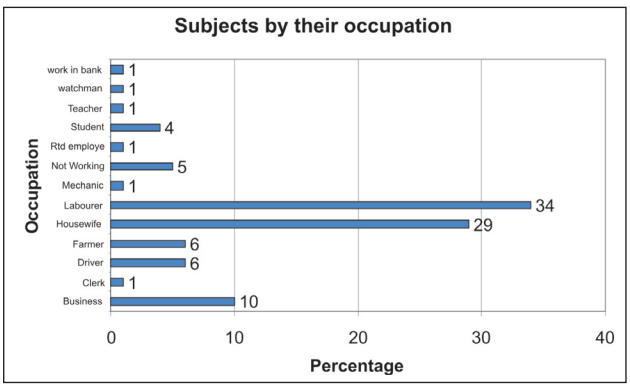

Fig. 2. Participating subjects by their occupation.

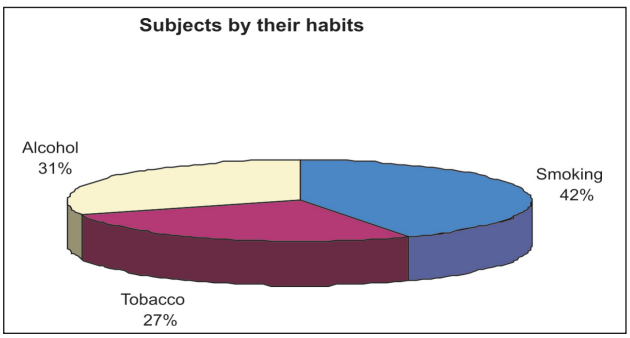

Fig. 3. Distribution of Lifestyle habits among participants.

As shown in figure 3, among all the three lifestyle habits, smoking habit was more among participants.

Table 2: Age wise distribution of lifestyle habits among participants.

Age (in years)	At least one habits from smoking, tobacco & alcohol	Percent
16-26	18	24
26-36	12	16
36-46	3	4
46-56	14	19
56-66	20	27
66-76	6	8
76-86	1	1
Total	74	100

As shown in Table 2, use of Gutka, Tobacco was more in younger age group as teenagers are more likely to be influenced to smoke by cigarette advertising than by peer pressure The majority of smokers start before the age of 18. [10] Also lifestyle habits were found to be more in 56 to 66 age group.

Table 3: Sex wise distribution of lifestyle habits among participants

Gender	Smoking	Tobacco	Alcohol
Male	51	31	37
Female	0	2	0
Total	51	33	37

As shown in Table 2, more males were addicted to all the three lifestyle habits that is 51 were addicted for smoking, 31 for tobacco and 37 for alcohol. Whereas among females, only 2 were addicted and that is for tobacco .According to NFHS-3, [11] Tobacco use is more prevalent among men than women. More than half of men use one or more forms of tobacco compared with only 11 percent of women.

Table 4: Lifestyle habits among different occupations.

Occupation	Smoking	Tobacco	Alcohol
Business	8	4	8
Clerk	0	0	0
Driver	7	4	3
Farmer	3	2	1
Housewife	0	1	0
Labourer	27	21	19
Mechanic	1	0	0
Retired employee	1	0	1
Student	0	0	0
Teacher	0	0	0
Watchman	1	0	0
work in bank	1	0	1
Not Working	2	1	4
Total	51	33	37

Males using Tobacco, smoking and Alcohol were more and most of them were labourers and may be because of easy availability of it in all places. Most cases coming from low socioeconomic group might be due to poor quality of food, low vitamin particularly iron deficiency .According to NFHS-3[11] there is continual decrease with increasing levels of education, among both men and women while 7 in 10 men in the lowest wealth quintile use tobacco. Total malignancies detected in this camp were Right carcinoma Breast, Carcinoma Ovary, Carcinoma Cervix (Squamous cell carcinoma),Carcinoma oesophagus (lower 1/3 rd). Use of Tobacco, Gutka, Alcohol were observed as one of the predisposing factors as addicted people's common complaints were dysphagia, burning sensation in mouth, oral pain, red patch in mouth, difficulty in opening in mouth, etc**.** All these cases were called for follow up.

CONCLUSION

There is need of awareness about warning signs of cancers and about screening at regular intervals through camp approach as screening may result in detection of cancer at early stage. Thus mortality and morbidity due to cancers can be avoided.

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Conflict of Interest: None declared.

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Pattern of Maternal Mortality in a Rural Referral Hospital: A Six Year Retrospective Study

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ABSTRACT

Objective: To find the frequency and the causes of maternal death in a rural medical college hospital.

Method: Retrospective study of 72 maternal deaths over a period of 6 years from January 2007 to December 2012.

Results: Over the study period there were 25,174 live births and 72 maternal deaths, maternal mortality rate being 286/lakh live births. Out of which hemorrhage was the leading cause and anemia being the indirect cause of maternal death. Most of the women died within a period of 24 hours of admission and were between the age group of 20-30 years. Most cases were unregistered and referred from outside.

Conclusion: Maternal mortality rate in this study is 286. Out of which most of them could have been avoided if they had been registered and received proper antenatal care, with early diagnosis and timely intervention and early referral with well equipped transport facilities. Over all promotion of safe mother hood should be emphasized.

Keywords: *Maternal Mortality Rate, Hemorrhage, Anemia*

INTRODUCTION

Maternal mortality is one of the most important burning issues in our country. For every minute one mother is dying due to pregnancy & child birth related issues. A woman in developing country has 30 to 40 times greater risk of dying due to pregnancy and child birth than her counterpart in developed country.[1] In the developing world, "A pregnant woman has her one foot in the grave" as stated by Gwyneth Lewis in 'Beyond the number'.

Maternal mortality is defined as the death of any woman when pregnant or within 42 completed days following termination of pregnancy, irrespective of duration or site of pregnancy but not from accidental or incidental death. Maternal mortality ratio is defined internationally as the maternal mortality rate per one lakh live births.

Maternal mortality remains one of the most daunting public health problems in India. Even today 20% of global maternal deaths occur in India.[2] Globally 1 % of deaths occur in developed world while 99 % occur in developing countries.[3,4] The total maternal deaths in India are around 63,000 a year, approximating one death every minute

It is being estimated that half of all death from pregnancy could be prevented with better prenatal care, quality of care and life style habits. One of the six health related millennium development goals set by WHO is to reduce the maternal mortality ratio.[5] Most of the deaths occur within one week and it is 100 times likely to occur on the first day after birth of the child and within the hospital.

In India current MMR is 212 per lakh live births & that of Karnataka state is 178 per lakh live births (census of India sample registration system 2011).[6] Institutional mortality rates are 2-10 times higher as compared with field surveys because most of the seriously ill patients are referred to the nearest tertiary care centers.

Reduction of mortality of women is an area of concern for the Government across the globe. The millennium development goals (MDG) of UN have let the target of achieving 200 maternal deaths per lakh of live births by 2007 & 100 per lakh of live births by

2015.[5] Similar studies conducted on maternal mortality showed varying rates of maternal mortality. Study conducted by Salhan et al (2000) showed 3.92/lakh live births as the maternal mortality rate, Prasanta et al (2005) showed 6.25/lakh live births & Puri et al (2006) have observed 6.9/lakh live births.[7,8] The study conducted by Puri et al has high MMR which can be due to the fact that it is one of tertiary referral centre. A prospective study on obstetric near miss events in the Netherlands (BJOG, 2008 June; 115 (7): 842-50) has revealed that substandard care was found in the majority of assessed cases.[9] A retrospective study conducted by Smisha M P & Sridevi N S, for 1 year from March 2004 to February 2005 at the institute of MCH, Calicut medical college in Kerala revealed 21,495 deliveries & 338 cases were diagnosed as near miss cases with a frequency of 1,577/lakh deliveries. During this period there were 14 maternal deaths with the maternal mortality rate of 65/lakh live births.[10]

Maternal mortality is the tip of ice-berg, there is a large base of the severe acute maternal morbidity, the identification & analysis of which will tell the story of true complications. It can be reduced by adequate antenatal care & appropriate interventions at the right time.

Materials & Method

A retrospective analysis of 72 cases of maternal mortality over a period of 6 years from January 2007 to December 2012were analyzed with special emphasis on parity, cause of death, time interval from admission to death and antenatal care.

Result:

There were 72 maternal deaths during the period from January 2007 to December 2012 with 25,174 live births.

Table 1: Maternal mortality rate in the six year period

Year	Live births	Maternal deaths	Maternal mortality rate
2007	2979	10	335.68
2008	3938	11	279.32
2009	4277	11	257.18
2010	4717	15	317.99
2011	4767	17	356.61
2012	4496	8	177.93
Total	20678	72	348.19

Table 2: Distribution of clinical cause of maternal death

Cause of death	Number	Percentage	ICD classification
Direct Causes			
• Hemorrhage	24	33.33	O67, 072
• Severe Pre-eclampsia	12	16.66	O14.1
• Septicemia	13	18.05	O85
• Abortion	1	1.38	O08
• CVT (secondary to Eclampsia)	4	5.55	I63.3
Subtotal (direct causes)	54	75.00	
Indirect causes			
• Anemia	10	13.88	O99.0
• Acute renal failure	1	1.38	N17.9
• Cardiac failure	1	1.38	I05.1
• Malaria	1	1.38	B50.0
Subtotal (indirect causes)	13	18.05	
Unrelated causes			
• ARDS	5	6.94	J80

Haemorrhage was the leading cause of maternal death accounting for 33.33% (24) followed by sepsis 18.05% (13). Pre-eclampsia contributed to 16.66% (12) of maternal death, anemia, ARDS & CVT contributed to 13.88% (10), 6.94% (5) & 5.55% (4), respectively. Abortion, acute renal failure, cardiac failure & malaria contributed 1.38% (1) each.

Table 3: Age distribution of maternal deaths

Age group (years)	Number of maternal deaths	Percentage
< 20	15	20.83
21-30	53	73.61
>31	4	
Total	72	

The age group in which most (73.61%) maternal deaths occurred was 21-25 years group. This was followed by <20 years (20.83%) and >30 years age groups (5.55%).

Table 4: Parity distribution of maternal deaths

Parity	Number	Percentage
Primi	30	41.66
Multipara (2-4)	41	56.94
Grand Multipara (>4)	1	1.38
Total	72	

When the parity of the women was compared, it was seen that most maternal deaths was in multi-para

accounting for more than half the maternal deaths (56.94%). The maternal death rate decreased as the parity of the women increased as the frequency of women with higher parity is in the decreasing trend.

Table 5: Maternal deaths according to outcome of pregnancy

Outcome of pregnant women	Number of women	Percentage
Vaginal delivery	45	
Cesarean section	17	
Abortion	1	
Undelivered	9	
Total	72	

The most common method of delivery among women who died was vaginal route (62.5%), followed by cesarean section (23.61%). Out of the 72 maternal deaths, 1 death (1.38%) was due to abortion and 9 (12.5%) women died without delivering in the hospital.

Table 6: Place of delivery

Place of delivery	Number	Percentage
Medical college	34	47.22
District/Government hospital	9	12.5
PHC	8	11.11
Private nursing home	10	13.88
Home delivery	2	2.77
Undelivered	9	12.5
Total	72	

The women who came to our hospital, most of them were referred. Of these, 29 women were delivered outside accounting for 40.27% and 34 (47.22%) were delivered in our hospital.

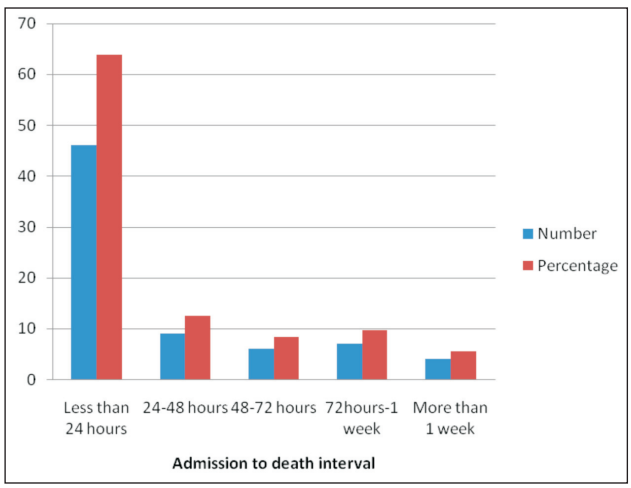

Fig. 1. Time interval from admission to maternal death

Most of the women (62.5 %) died within 24 hours of admission followed by many women dying in the next 24-48 hours being 12.5%. Few women died after 48 hours accounting for 24.99 %.

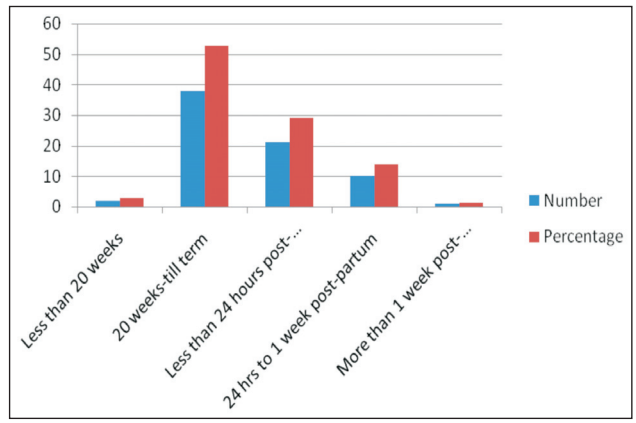

Fig. 2. Gestational age of pregnant women at the time of death

Most of the maternal deaths (52.77%) were in the gestational age from 20 weeks to term. The maternal deaths less than 20 weeks were 2 (2.7%) and within 24 hours after delivery were 16 (25%). The maternal deaths more than 24 hours following delivery were 8 (10.81%).

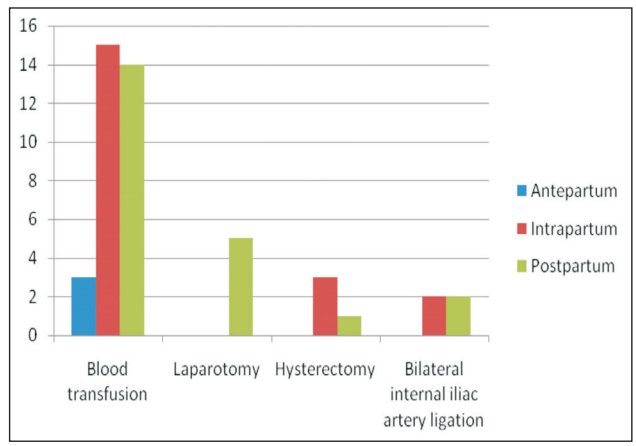

Fig. 3. Intervention done to women before death

As hemorrhage was the main cause of maternal deaths most of the women required blood transfusions. Laparotomy was performed in 5 women in the post-partum period, in which one was due to perforation caused during MTP. Peri-partum hysterectomy was performed in 4 women and bilateral internal iliac artery ligation was performed in 4 women. Post-mortem Cesarean section was performed in 2 women.

Table 7: Comparative Analysis

Name MMR (Year)	PIH (%)	Hm (%)	Sepsis (%)	Anemia (%)	Hepatitis (%)	Early pregnancy deaths (%)	Other indirect causes (%)	Direct obstetric causes (%)	Indirect obstetric cause (%)	Unrelated causes (%)	per 1,000
Sharma S (1994)	17.2	27.5	20.6	10.3	3.4			72.2	27.4	0.4	16.5
Bichli L (1994)	39.6	11.1	29.6		14.8			80.4	17.2	2.4	13.68
Kulkarni S (1996)	24.2	23.7	20.7	17.98	11.98			68.7	30	1.3	17.21
Khosla AH (1999)	35	19.35	32.26	6.45							6.05
Salhan S (2000)	16.3	18.18	14.54	27.27				60	40		3.92
Prasanta R (2005)	50.56	9.72	18.17	4.8	1.84						6.25
Puri A (2011)	18	12	24	13	14	5	14	55.38	40	4.61	6.9
Present study	16.66	33.33	18.05	13.88		1.38		65.27	16.66	6.94	2.86

DISCUSSION

Maternal mortality is the death of a woman in relation to pregnancy. According to WHO "A maternal death is defined as the death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and site of pregnancy, from any cause related or aggravated by pregnancy or its management (ICD-10)".

Revised guidelines for death audit: Target MMR for 2017 is 41 per lakh live births and the audit is conducted within five days of death.

During the study period of 6 year the MMR ranged between 335.68/1lakh live births in 2007 & 177.93/1 lakh live births in 2012. National average of MMR is 540/1 lakh births (NFHS 98-99). Other Indian studies done in the last 15 years have shown wide variations in MMR ranging from 172/1 lakh (1996) to 625/1 lakh live births (2005).[11] Prasanta et. al have observed the MMR of 625/1 lakh live births & that of Salhan et al (2000) showed 392/1 lakh live births.[7,8] This variation could be explained due to many variables.

Our study showed that 73.61 % of women died between the age group 21 & 30 years, as highest number of women belong to this age group. Similarly, multigravidas contribute 56.94 % of maternal deaths. Admission death interval of our study revealed that 62.5 % of women died within 24 hours of admission, probably due to poor general condition of women at the time of admission & late referrals. Thirty four percent of these women died within 6 hours of admission as they were in moribund or comatose condition. More than half (86 %) of the maternal deaths occurred in post partum period and included 62.5 % after vaginal delivery and 23.6 % after cesarean delivery. Antenatal women contributed 12.5 % for the maternal deaths and 1.38 % was due to abortion.

The analysis revealed that 16.66 % death was due to indirect obstetrical causes, 65.27 % due to direct cause & 6.94 % due to unrelated causes. Other studies have shown variations in direct obstetrical death from 60-80 %. Our figure of 65.27 % is closer with Kulkarni et al. at 68.7 % and Salhan et al. (2000) at 60 %. Percentage variation of indirect obstetric death ranges from 17.2 % to 40 % and 16.66 % in our study (2012).[12]

Direct obstetric deaths accounted for 65.27 % of all deaths in our study that included hemorrhage 33.33 %, severe pre-eclampsia 16.66 %, sepsis 18.05 %, abortion 1.38 % & CVT 5.55 %. Hemorrhage especially during post partum is sudden, unpredictable & more dangerous when woman has pre-existing anemia. Globally 25 % of all maternal deaths are due to hemorrhage.[2] Other studies show variation between 9.72 % & 27.5 %. In our study the rate of deaths due to hemorrhage was 33.33 %. This is due to lack of proper antenatal care, poor nutritional status, home deliveries & late referrals.

Pre-eclampsia accounts for 13 % of maternal deaths globally.[2] Other studies revealed a large variation in eclampsia deaths ranging between 50.56 % & 16.3 %.[8] Our study had eclampsia deaths of 16.66 %. Active use of magnesium sulphate regimen, better monitoring and better investigation facilities and vigorous management techniques have failed to cause a significant decrease in eclampsia deaths & CVT deaths. There were 5.55 % deaths due to eclampsia.

Sepsis which is a direct consequence of poor hygiene during delivery, account for 15 % of maternal deaths globally. In our study it was 18.05 % which is

closer to the global figure. This is due to the increasing trend of women delivering in the hospitals under aseptic precautions. Unwanted abortions are terminated with pills & awareness regarding hygiene is maintained.

Globally, indirect cause of maternal deaths account for 20 % of all maternal deaths, particularly from anemia, malaria, HIV, etc. Other studies show their range between 17.2% and 40 %. In our study it was 16.66 % and included deaths due to anemia 13.88 %, ARF 1.38 %, cardiac failure 1.38 % & malaria deaths 1.38 %.[7]

Other studies show anemia death range from 4.8 to 27.27 %, while our study it was 13.88 %. The percentage of deaths due to anemia is a grossly undetermined figure because of pre-existing anemia is major contributing failure of direct obstetric deaths due to post partum hemorrhage & sepsis. Unrelated causes contribute 6.94 % of all maternal deaths due to ARDS.

CONCLUSION

The maternal mortality rate at referral hospitals in India is very high. It varies from highest in Uttar Pradesh to lowest in Kerala.

WHO estimates show that out of the 529,000 maternal deaths globally each year, 36,000 are contributed by India, the highest by a single country.[13]

Accurate estimation of maternal mortality depends mainly on a sound vital registration system and proper reporting of maternal death. Solutions of the issues comprises of 3Ds: Delay in diagnosis, immediate treatment and decision to transfer, delay in transport for reaching to proper hospital and delayed therapy.

Audit of all maternal deaths and near-deaths with periodic reports of recommendations as to their prevention as has been done by the UK confidential enquiry.

The classical triad of maternal mortality causes in our study remained hemorrhage, eclampsia & sepsis. According to WHO report (2005) 'make every mother & child count' hemorrhage is the cause of death. Hemorrhage & sepsis deaths are considered one of the potentially preventable cause of maternal death.

Maternal mortality in this study is 286 per lakh live births. Out of which most could have been avoided, if they had registered and received proper antenatal care, early diagnosis, timely intervention and early referral with a well equipped transport facilities. An attempt has been made in the present study to throw light upon some of the community factors which had contributed to maternal deaths in this tertiary level health center so that steps can be taken to prevent such type of maternal deaths in future. Over all promotion of safe motherhood should be emphasized.

A woman's place is precious in the family…. Her well-being is our priority.

Conflicts of Interest: None Declared.

Source of funding: Self

Ethical Clearance has been obtained from our institute.

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An Assessment on Functioning of Janani Suraksha Yojana in Anugul District of Odisha

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ABSTRACT

Introduction: The JSY Scheme was under implementation in Odisha since April 2006 and cash assistance was provided to the users with the changing rules at different times for mode of fund disbursement.

Objective: To review the implementation process of JSY in the Anugul district of Orissa and to provide inputs for any corrective actions.

Methodology: A cross sectional study was conducted in Anugul district of Orissa during the month of October 2010.Thirty villages were selected using PPS (probability proportionate to population size) sampling and 300 women who have delivered in last 1 yr in any govt or accredited private institution formed the study population.

Result: Total 309 respondents were interviewed. For 96.7% (299) , the place of delivery was government health institutions. The ASHAs played a major role (95%) in motivating the women for institutional delivery.69% of beneficiaries had made arrangement for transportation to health facility at their own cost. In 52.8% (163) cases delivery was conducted by ANM /Nurse. Doctor conducted delivery in 45% (141). Only 10% of beneficiaries had a stay for mandatory 48 hrs in health facility. 60% of those who stayed for less than 48hrs in health institution stated that they were discharged from hospital due to lack of bed facility. 53.4% (160) of respondents found the condition of toilet satisfactory during their stay at health facility. 98.7% have received JSY cash incentive, 52% received the payment within 24-48 hrs where as 30% got it within one week. Most of the beneficiaries utilized JSY money in buying consumable products for the family (44.2%) or in purchase of drugs (39.9%).Conclusion: IEC regarding availability of transport facility under JSY need to be strengthened. Infrastructure, supplies and human resources should be strengthened at all levels under the JSY. E transfer system should be adopted for payment of money and an account for beneficiary should be opened during pregnancy.

Keywords: *Functional Status, Janani Surakhya Yojana*

INTRODUCTION

The Janani Surakhya Yojana (JSY) is a safe motherhood intervention with the objective of reducing maternal and neonatal mortalities by promoting institutional deliveries. It is a 100% Centrally-sponsored scheme that integrates cash assistance with antenatal and postnatal care. The JSY scheme has been under implementation in the Orissa since April 2006 and the cash assistance is being given to the users with the changing rules at different times for mode of operation of funds.[1,2]

Several problems such as delayed release and poor management of funds, poor maintenance of accounts and non -involvement of PRI members are reported as barriers in effective implementation of the project. Inadequate awareness on the part of different stakeholders, including community representatives, has also acted as a hindrance to proper implementation.[3,4,5] Limited studies on procedural constraints in JSY implementation and inadequate feedback from the community is the major factors that necessitated this study. Therefore, a cross-sectional rapid assessment of

the functional status of JSY has been conducted in Anugul district of Orissa.

OBJECTIVE

- To review the operational mechanism of JSY
- To review the usage status and the reasons for non -usage in the district
- To identify the problems/barriers (if any) faced during the implementation of JSY.
- To make recommendations in light of the study findings.

METHODOLOGY

A cross sectional study was conducted in Anugul district of Orissa during the month of October 2010.Three hundred women who have undergone delivery in last 1 yr in any govt or JSY accredited private institution were planned to get included in this survey as study population . Using PPS (probability proportionate to population size) sampling villages from blocks were selected (30 villages were included).A baseline survey was conducted in selected areas to identify houses where delivery has occurred in last 1 yr, calculated number of institutional deliveries in that village as per proportion probability sampling calculation (govt or JSY accredited private), all the cases of complicated delivery and all the cases of home delivery satisfying criteria for JSY were included in this study .By conducting In Depth Interview (IDI) data were collected .Data were analyzed using percentage. Two Research Associates formed one team, for two teams there was one supervisor. Eight teams of two RAs each along with four supervisors worked in Anugul district for 20 days for collection of data.

These research staffs were provided two days of hands -on training on research guidelines, tools and research issues which were pretested on the third day before the commencement of the actual field work.

RESULTS

300 cases of institutional delivery, 5 cases of home delivery and 4 cases of delivery on the way to hospital were included in this study. Total 309 respondents were interviewed, out of which 98% were Hindus, 51.8% had monthly income between Rs 1000-3000, 51% had BPL card, and 40% had education up to IX-X standard, majority were housewives and most of the respondents were in the age group 19 -30 years .The age of mothers during birth of first child was between 19-25 years in 68% of respondents.

Service Usage Pattern

Table 1 reflects the programme usage status of the beneficiaries. About 88 %(271) had, three or more ANC check -ups, first ANC was done within 12wks in 75%(232). In around half(49%) of the cases, ANC was performed by the medical officer. 70% (261)of the respondents had regular ANC during 12 -36 weeks of pregnancy which is the right time for detection of complications during pregnancy and planning for an institutional delivery. The IFA tablets usage was 82%, usage of TT was good with two doses being taken by 99.3% (307).About 60% (185) had undergone USG .

Table 1: Programme Usage by Beneficiary Mothers

Performance Indicators Values	No.	%
Antenatal care services (n=309)		
Ist contact ANC within 12wks	232	75%
ANC done by Medical Officer	151	49.2%
Motivation for institutional delivery by ASHA	289	95%
Place of delivery according to category(n=309)		
Govt Institution	299	96.7
Private accredited Institution	1	0.3
On the way to hospital	4	1.3
Home	5	1.7
Arrangement of Transport to health facility (n=304)		
Own cost	205	69
Arrangement by ASHA	41	13
Free service	33	11
Arrangement by HW(F) /others	25	8

Table 1: Programme Usage by Beneficiary Mothers (Contd)

Performance Indicators Values	**No.**	**%**
Labour room / Operation theater	274	87.6
Bed in ward	7	2.2
Floor of labour room	6	1.9
Floor of corridor	2	0.7
Others	11	3.6
Duration of stay in health facility(n=300)		
<12 hrs	108	36
12-48 hrs	162	54
>48 hrs	30	10

For 96.7% (299) , the place of delivery was government health institutions and 1.7% (5) of deliveries happened at home, where as 1.3%(4) delivery took place on the way to institution. Notably, only one delivery took place at an accredited private hospital (0.3%). Among the 89%, ASHA was the accompanying person for delivery, 57% were accompanied by their husbands.

The ASHAs played a major role (95%) in motivating the women for institutional delivery, ASHA escorted pregnant women in 89% and in 82% (249) she stayed with the pregnant women at the time of delivery.69% of beneficiaries had made arrangement for transportation to health facility at their own cost. 6.6% of respondents were referred to higher facility for delivery. Three maternal death cases were reported while conducting household survey in this study.

99.3 % had a healthy and positive outcome of pregnancy, in 94% the physiological process terminated into normal outcome with 6% having surgical intervention. In 52.8% (163) cases delivery was conducted by ANM/Nurse. Doctor conducted delivery in 45%(141). In 87.6% (274) delivery was conducted in labour room where as it happened on bed of ward in 2.2%(7) cases, on the floor in labour room in 1.9%(6) cases and in 0.7%(two) cases it happened on the floor of corridor.

54 % (162)of beneficiary responded that they had stayed in the facility for about 12-48 hrs where as only 10% had a stay for mandatory 48 hrs. Out of those who stayed for less than 48hrs in health institution 60% stated that they were discharged from hospital due to lack of bed facility. Only 53.4% (160)of respondents found the condition of toilet satisfactory during their stay at health facility.

Table 2 reflects the mode of JSY payment and the time lag between delivery and receipt of payment. A significant finding was that 1.3% delivered on the way to government hospitals and did not receive JSY compensation.

Table 2: Mode of payment of JSY money and time lag in payment of Compensation to the beneficiary

Performance indicator	**No. (n=309)**	**%**
Mode of payment of the Compensation		
Bearer Cheque	286	92
Cash	7	2.5
Yet to be received	8	3.2
Not received at all	4	1.6
Time lag in receipt of JSY money		
Within 48 hrs	157	52%
< 2days	93	30%
7days to one month	40	12%
> 1 month	3	1%
Yet to receive	12	3.6%
Never	4	1.2%

Table 2: Mode of payment of JSY money and time lag in payment of Compensation to the beneficiary (Contd.)

	No. (n=309)	%
No. of trips made to bank or health facility to collect JSY money		
One trip/At the time of discharge-	238	78
Two trips-	39	12.8
More than two trips-	28	9.2
Preference for next delivery		
Hosp delivery with JSY	168	57
Free medicine no JSY incentive	114	38.5
Home delivery with JSY incentive	22	7.5

52% received the payment within 24-48 hrs and 30% got it within one week. In 77% (231) cases beneficiary or their family member collected JSY money where as ASHA collected the money in 20% (68) cases. In 78% money was collected at the time of discharge where as 10% had to pay more than two visits to health facility or bank to collect the amount. Only 60 % of beneficiary knew the exact amount payable to mothers, 20% had idea about payment of ASHA in rural area,2 % for urban area. When the beneficiaries were asked about their satisfaction with institutional delivery and asked about various options in future deliveries 57% opted for hospital delivery with JSY cash incentive where as 37.5% desired to have free medicine at health facility instead of cash incentive for delivery.

Table 3 reflects the mode of utilization of JSY money and Table 4 states the reasons for not having institutional delivery.

Table 3: Utilization of JSY money by the beneficiaries

Utilization of JSY Money for	No.(n=305)	%
Consumable for family	134	44.2
Drugs	121	39.9
Cloths for baby	60	19.8
Food	34	11
Payment to doctor / Nurse	6	1.9
Deposited in the name of the child in Bank	8	2.6

Table 4: Reasons for not having delivery at health institution

Reason	No.	%
Delivered on the way	4	44.4
No complication, so no need for hospitalization	2	22.2
Transport facility not available	1	11.1
No one to accompany	1	11.1
No belief in Govt. health system	1	11.1
Total	9	100

Most of the beneficiaries utilized JSY money in buying consumable products for the family (44.2%) or in purchase of drugs (39.9%).

DISCUSSION

Early registration within 12wks of pregnancy (75%), better coverage of TT (99.3%) and IFA (82%) reflected health conscious behavior of beneficiaries**.** Utilization of antenatal care services was better in this study in comparison to study conducted at Jaipur where 67% of beneficiaries had received IFA and 98.8% had taken Tetanus Toxoid.[5] The ASHAs played a major role (95%) in motivating the women for institutional delivery and giving escort services (89 %), which indicated that ASHAs are well -accepted by the community and are able to reach out to pregnant women and successfully motivate them for undergoing institutional delivery. In 52.8% cases delivery was conducted by ANM/ Nurse. Doctor conducted delivery in 45%. In 2.2% delivery was conducted by other staffs which reflect shortage of trained personnel at health institutions which may adversely affect safe motherhood goal of RCH. Delivery was conducted on the bed of ward in2.2% (7) cases, on the floor in labour room in 1.9 %(6) cases and in 0.7% (2) cases it happened on the floor of

corridor. Only 10% of beneficiaries had a stay for mandatory 48 hrs in health facility. 60% of those who stayed for less than 48hrs in health institution stated that they were discharged from hospital due to lack of bed facility. The condition of toilet was found satisfactory only by 53.4 %(160) of respondents during their stay at health facility. All these reflected lack of space and inadequate infrastructure in the health facilities to meet the increased demand after implementation of JSY scheme .Similar findings are also reported in other studies conducted by Dr B. Mohapatro and Dr Sobha Malini in other districts of Odisha.[3,4]

A significant finding was that all the four pregnant women(1.3%) who had delivered on way to health institution didn't receive JSY compensation in spite of their visit to health facility after getting the baby delivered on the way(3 out 4 reached health institution). This was primarily because of the lack proper knowledge regarding JSY scheme by the beneficiary and by the implementers. In 77%(231) cases, beneficiary or their family member collected JSY money where as in 23 % cases beneficiary had to send someone to bank to collect money because of lack of knowledge regarding location of bank and inadequate knowledge regarding banking procedure, in 10% cases they had to make repeated trips to bank in order to collect money. JSY money was utilized for buying consumables for the family and for purchase of medicine in 44% and 40% respectively. In this study we found 5 cases of home delivery giving various reason for the same(22% didn't felt the need of hospitalization as there was no complication during pregnancy),in all of these cases delivery was conducted by skilled personnel(LHV/ANM) and all have received cash incentive of 500 Rs each.

Recommendations

Based on the study findings, a set of suggestions have been formulated for better and more efficient delivery of services under the JSY:

- Transport facilities must be made available at the sub-centres and block levels
- IEC regarding availability of transport facility under JSY need to be strengthened
- Positioning of more staff to provide quality services should be undertaken and assurance of round the clock services should be done.
- The inadequacy of equipments, drugs and the infrastructure should be accessed through facility surveys and the deficits are to be filled up urgently to meet increased demand for labour rooms. Infrastructure, supplies and human resources should be strengthened at all levels under the JSY.
- Programme guidelines should be clearly explained to the implementers and providers and they should be informed and updated about modifications in the scheme in a regular manner. This will avoid confusion regarding the processes in the minds of functionaries at all levels and bring about a unified and coherent schematic response.
- E transfer system should be adopted for payment of money and an account for beneficiary should be opened during pregnancy.
- Time lag of one month duration needs to be identified early for timely corrective action.
- There is a need for accreditation of private institutions for institutional delivery.

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Conflict of Interest-Nil

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Ethical Clearance: Received by NHSRC to conduct the project.

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Acceptance to Pre-test and Post-test Counselling of HIV in Pregnant Women and their Spouses in Bangalore Rural Hospital

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ABSTRACT

Objective: To analyse the response to implementation of PPTCT program in a peripheral hospital and to study the involvement of husbands for counselling and testing.

Design: Prospective study

Setting: PPTCT centre attached to rural medical college, MVJ Medical College & RH

Study Population: All pregnant mothers attending the ante natal clinic at Dept of Obstetrics and Gynaecology at MVJ MC & RH

Method: Data of 4372 women attending the antenatal clinic from April 2006 to December 2007 was analysed. Data of husband counselling and testing was also analysed.

Results: Out of 4412 women, 4372 (99%) underwent pre test counselling, 2566 (58.6%) underwent post test counselling. Total number of spouse tested 290 (6.6%).Acceptability of the test after pretest counselling is 99%. Women attended post test counselling and collected reports in 58.6%. Sero prevalence of HIV was 0.73% of which 62.5% came for post test counselling and 46.8% patients got Nevirapine. Only 10% of the husbands of total antenatal cases came for counselling of which 65% got tested

Conclusion: The acceptability of test after pretest counselling is satisfactory but the follow up for post test counselling and the proportion of sero positive women getting nevirapine is to be improved. There is need to enhance male involvement to make husband friendly antenatal clinic.

Keywords: *PPTCT (Prevention of Parent to Child Transmission), HIV, Antenatal Check up, Pretest Counselling, post test Counselling*

INTRODUCTION

No other disease has captured people's attention in recent times as much as HIV-AIDS. In 1987, the WHO first recognized the seriousness of emerging AIDS epidemic and since then HIV has become a global problem[1].

Voluntary counseling and testing is a process by which an individual undergoes counseling to enable him/her to make an informed decision about being tested for HIV, assess their personal risk for HIV and develop a risk reduction strategy [1].

The Prevention of Parent to Child Transmission of HIV/AIDS (PPTCT) programme was started in the country in the year 2002 following a feasibility study in 11 major hospitals in the five high HIV prevalence states. Currently, there are more than 4000 Integrated Counselling and Testing Centres (ICTCs) in the country, most of these in government hospitals, which offer PPTCT services to pregnant women. Of these ICTCs, 502 are located in Obstetrics and Gynaecology Departments and in Maternity Homes where the client load is predominantly comprised of pregnant women.

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The Joint Technical Mission on PPTCT (2006) estimated that out of 27 million annual pregnancies in India, 189,000 occur in HIV positive pregnant women. In the absence of any intervention, an estimated cohort of 56,700 infected babies will be born annually. The PPTCT programme aims to prevent the perinatal transmission of HIV from an HIV infected pregnant mother to her newborn baby. The programme entails counselling and testing of pregnant women in the ICTCs. Pregnant women who are found to be HIV positive are given a single dose of Nevirapine at the time of labour; their newborn babies also get a single dose of Nevirapine immediately after birth so as to prevent transmission of HIV from mother to child. It also gives the opportunity to identify infected partners.

In view of the adoption of voluntary counseling and testing (VCTC) for HIV at our hospital this study was designed to to study the response to the implementation of PPTCT program as well as the involvement of husbands for counselling and testing in a rural hospital . We hope that the outcome of this study will guide us in evolving strategies to improve the uptake of voluntary counselling and testing for HIV amongst pregnant women

MATERIALS AND METHOD

This prospective study was carried out in the VCTC centre of rural hospital in MVJ Medical College & RH. This rural hospital caters to around 300 villages in Bangalore rural district. All the antenatal cases registered were included in the study. The study period was from April 2006 to December 2007. A pretested questionnaire was used to collect the relevant details. Data was collected on age, sex, educational status, occupation, literacy status husband's education, occupation was collected. Specialist counsellor did the counselling. Institutional ethical committee of the hospital had approved the study. The data collected was tabulated and analyzed. Findings were described using proportions and percentages.

RESULTS

During the study period from April 2006 to December 2007 there were 4412 total antenatal registrations.Their basic socio-demographic and obstetric characteristics were obtained. Respondents' knowledge about HIV and mother to child transmission were tested. In addition, their willingness toward HIV testing was also reported.

Out of the 4412 women registered 40 antenatal women (0.9%) did not undergo pre test counseling due to various reasons. So the non response rate was almost 1%. These 40 ANC women were excluded from the study group. So the study population is 4372 women.

Almost half of the women were from the age group 21-25 years (48.86%). 24.7% women were in 15-20 while 10.36% above 30 years. The mean age was 22.1 ± 11 years. Only 5.29% of the women were illiterate though being a rural population. As expected two thirds of the women were house-wives (72.71%). 20.2% of them were manual workers also. Out of the total study population primigravida comprised of 47.71%, II gravida 38.63%.

3.69% of the husbands were illiterate and half of them had obtained at least education till primary level (57.75%). 24.9% of the husbands were doing a skilled occupation while 51.9% were unskilled workers.

As mentioned earlier among the total ANC women registered 4372 underwent pretest counseling and HIV testing (99%).73% women were aware of the disease and the routes of transmission. They were aware of the mother to child transmission of the virus.

Out of the women who had the test done, 20 (0.45%) were found to be sero-positive. Out of 4372 women who attended pretested counseling only 2566 women came for post test counseling i.e. 58.6%. Out of 20 sero positive women only 15 came back for post test counselling (75%) and report collection. Total number of seropositive patients who came for delivery was 18 and among them 3 women were referred to higher centres due to some complications. 10 women who delivered in this hospital got Nevirapine for mother and child (50%). Two women delivered at home.

Total 443 husbands were counselled i.e. 10% of the total women attending antenatal clinic. Among the husbands counselled only 290 underwent HIV testing (65.5%). Among the total 20 positive women, only 15 husbands tested for HIV (75%) and 13 were found to be positive.

Out of the 2566 women who came back for post test counselling and collection reports 6.9% were illiterates and 93% were literates.($p<0.001$). Almost two-thirds were housewives (78.1%).and 5.9% were manual labourers.70.6% were primigravida and 56.9% were II gravida.

Out of 290 husbands who underwent HIV testing 73% were literate and 67% were involved in skilled occupation.

DISCUSSION

This data represents the implementation and response to the prevention of parent to child transmission program for HIV in a rural hospital. The women are coming from poor social economic class with poor literacy rate having low awareness of disease. This program is effectively creating awareness regarding testing of HIV among this class, hence the rate of testing is almost 99%. This suggests that PPTCT is becoming an integral part of effective and routine antenatal care. In other studies the rate of testing is 27 % to 90% [2,3,4,5]

When we see post test counselling among all, 58.6% women came for post test counselling. In 20 sero positive women only 15 i.e. 75% women came for post test counselling. So this is the area where more concentration is needed. The low percentage of women who attended post test counselling to collect report is due to various reasons, including fear, ignorance, poor education, etc.

When we compare it with other studies it is still a better figure. In a study by Temmerman et al [6] 35 % of the women came for post test counseling. Temmerman and colleagues reported that, a woman who underwent VCT reserved the right not to know her test result, and that this right ought to be respected by researchers and health workers.

Also when we compare the women who attended post test counseling with the socio-demographic characteristics (Table no 2) it is seen that education or literacy plays a very important role. It was also seen that the attendance for post test was more in younger age group than the older age group. This may be because the younger age group may be more receptive as they may be primigravida or II gravida. The response in housewives was more than manual workers. This may be because the time constraint of working women and loss of wages if they stay away from work. Education of husbands also played an important role for their attendance.

Table No 1. Variables in the present study

Sr No	Variables	Number (Percentages)
1	Antenatal Total Registrations	4412
2	Antenatal cases that underwent HIV testing	4372 (99)
3	Women who underwent post test counselling	2566 (58.6)
4	Total husbands counselled	443 (10)
5	Total husbands tested	290 (6.6)
6	Total HIV Positive mothers	20 (0.45)
7	HIV positive mothers who attended post test	15 (75)
8	Nevirapine give to mother and baby	10
9	Women referred to higher centres	03
10	Positive women who never attended post-test counselling	05
11	Home delivery	02
12	Husbands found positive	50

Table No 2. Variables and post-test counselling.

Study Variable	Post test counseling		p Value
	Yes	Total	
Age group (yrs)			
15-20	1013 (94)	1081	p<0.001
21-25	1453 (68)	2136	
26-30	76 (10.8)	702	
30+	24 (5.4)	453	
Education			
Illiterate	178 (77)	231	p<0.001
Literate	2388 (57.7)	4141	
Occupation			
Housewife	2483 (78)	3179	p<0.001
Manual	53 (5.9)	885	
Skilled	30 (10.8)	308	
Gravida			
I	1473 (70.7)	2086	P<0.001
II	961 (56.9)	1689	
III	119 (24,7)	481	
IV	13 (11.2)	116	
Education of Husband			
Illiterate	86 (53.4)	161	p<0.05
literate	204 (72.3)	282	

Total number of husbands counselled for HIV testing was 443 i.e. 10% of total women. Among them only 290 accepted testing. This suggests that the second area of concentration needed is participation of husbands. Practically the husbands are not always accompanying women in antenatal clinics. Secondly

there is an attitude of why I need to be tested if my wife is pregnant. Thirdly, if the husband had any high-risk behaviour he refused to undergo the test due to fear of diagnosis. In our society, the rearing of a child is still considered to be a job of a woman. Even otherwise husband participation in antenatal clinics is low. In public hospitals it is not a practice for husband and wife to attend the antenatal clinic together. Hence there is no opportunity for the doctor or counsellor to talk to the husband. It is also not possible in public hospitals where there are large number of registrations compared to the availability of manpower.

CONCLUSIONS & SUGGESTIONS

The acceptance rate of HIV testing by women is satisfactory. It is almost becoming an integral part of routine antenatal clinic. But the post test counselling attendance needs to be improved. Almost all sero positive women should be covered under Nevirapine treatment. There is a possibility of women delivering at other hospitals or private hospitals. Therefore a follow up of such women and proper documentation is needed with inter-sectoral coordination between public and private hospitals. Many defaulter actions are suggested for tracing these women. There should be a unique body for a particular area to report all seropositive women delivering under the cover of Nevirapine. This will lead to uniformity in data collection. We should convert the hospital to a husband friendly hospital. There is a need to enhance male involvement in antenatal clinics in the public sector hospitals.

After all antenatal clinics are an effective opportunity for health care providers to create awareness of HIV among the larger community. Apart from prevention of transmission of HIV to the child, it provides a great opportunity for the parents themselves in containing the disease. Prevention is the cure and antenatal clinic is the best opportunity to educate.

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Contribution to author's hip: Collecting the data, coordinating with district aids programme control unit (Bangalore rural).

Details of ethical approval: This study is in lines with the guide lines of NACO.

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Study of Unmet Need for Family Planning in Urban Slum Population of Davangere- A Cross Sectional Study

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ABSTRACT

Background: Unmet need for family planning is the gap between women's reproductive intensions and their contraceptive behavior. Good fraction of married women in the reproductive age group would prefer to avoid pregnancy but are not using any form of family planning because of various reasons.

Objectives: 1. To find out the magnitude of unmet need for family planning. 2. To find out the determinants of unmet need for the family planning.

Materials & Method: This is a community based cross sectional study among married women of reproductive age group residing in slums of urban field practice area of SSIMSRC, Davangere, Karnataka, India. Personal interview method with house to house visit was adopted.

Results: Unmet need for family planning was 107(16%), unmet need for spacing was 55(51%) and that for limiting was 52(49%). Mean age of mothers was 31.63±7.2. There was significant association between prevalence of unmet need and literacy, number of children and knowledge of contraceptives. There was no significant association between age, religion, type of family etc. Commonest contraceptive method used was tubectomy, the most common source of information about contraceptives was health workers. Commonest reason for unmet need was found to be lack of knowledge.

Conclusion: The high prevalence of unmet need for contraception calls for health education campaigns regarding availability, sources and side effects of contraceptives especially in under-privileged areas like urban slums.

Keywords: *Unmet Need, Spacing, Limiting, Contraception*

INTRODUCTION

Many women who are sexually active would prefer to avoid becoming pregnant, but nevertheless are not using any methods of contraception (including use by their partner); these women are considered to have an "unmet" need for family planning. It is usually applicable to married women who are in the reproductive age group (15-49 years). The concept that eventually became unmet need for family planning was explored in 1960s, when data from surveys of contraceptive knowledge, attitude and practices (KAP) showed a gap between some women's reproductive intension and their contraceptive behavior[1]. According to NFHS III[2] the unmet need for family planning is 13% in India and 10% in Karnataka[2], but no data is available on unmet need for family planning in urban slums. With the population of 1.21 billion according to 2011 census, India is second most populous country in the world[3]. It is a challenge to family planning programme to reach and serve millions of these women whose reproductive attitude resembles those of contraceptive users but who are not using contraceptives for some reasons[4].

Over the past forty years, there have been significant advances made in contraceptive methods and their approaches, still many factors contribute for its under utilization[4] . Important reasons for this include lack of information, opposition from the family members, fear of side effects, unsatisfactory services etc. So the present study was designed to assess the extent of unmet need of family planning and its associated determinants.

MATERIALS & METHOD

It is a community based cross sectional study conducted in the field practice area of Urban Health centre, S.S. Institute Medical Sciences & Research Centre, Davangere, Karnataka, India. The study period was from April 2011 to September 2011, ethical clearance was taken from the Institutional Ethical Committee. By taking prevalence of unmet need for family planning in India as 13%[2] sample size was calculated as 670 by using formula $4*p*q/L^2$ with 20% allowable error. The study group included married women in the reproductive age group who were willing to participate. There were 7 slums in the area and a random selection of 3 slums was made by lottery method. Personal interview method with house to house visit was adopted using systematic sampling method to choose the required sample from these three slums. The unmet group included all those married women who are in the reproductive age group (15-49 years) and not using any method of contraception and who either do not want to have any more children or want to postpone their next birth for at least two more years. Those who want to have no more children are considered to have an unmet need for limiting births or limiters, while those who want more children but not for at least two more years are considered to have an unmet need for spacing births or spacers. A pretested, semi structured questionnaire was used to interview after taking informed consent. The study variables included age, religion, education, occupation status of husband and wife, family income, type of family, unmet need for family planning and reasons for unmet need etc. The data was analyzed using the trial version of SPSS 16.0. Descriptive statistics are shown in terms of number, percentage, mean and standard deviation. Chi square test was used to analyze categorical data. A p value less than 0.05 was considered to be significant.

RESULTS

Table No. 1: Prevalence of unmet need for family planning and type of unmet need.

Unmet need of FP	No (%)	Type of Unmet Need	No (%)
Yes	107(16)	Limiting	52(49)
No	563(84)	Spacing	55(51)
Total	670	Total	107

Figures in the parenthesis indicate column wise percentage

It was found (Table No. 1) in our study that the total prevalence of unmet need for family planning was 16%, out of which 49% were for limiting and 51% were for spacing of births. The mean age of 670 respondents was 31.63±7.2 with the range 15-49 years (Table No 2). There was no statistical association seen between unmet need and age of the mothers.

Table No 2: Distribution of study population according to unmet need for contraception by age group.

Age (Years)	Unmet need for FP		Total
	Yes	No	
15-19	2(10.5)	17(18.9)	19(2.8)
20-24	21(13.4)	136(86.6)	157(23.4)
25-29	31(22.0)	110(78.0)	141(21.0)
30-34	20(16.9)	98(83.1)	118(17.6)
35-39	13(12.1)	94(87.9)	107(16.0)
40-44	12(14.5)	71(85.5)	83(12.4)
45-49	8(17.8)	37(82.2)	45(6.7)
Total	107(16)	563(84)	670(100)

$X^2 = 6.5$, P=0.36 NS

Figures in the parenthesis indicate row wise percentage

Table No 3: Distribution of study population according to unmet need for contraception by educational status.

Literacy	Unmet need for FP		Total
	Yes	No	
Illiterate	19(9.7)	176(90.3)	195(29.1)
Primary School	30(19.5)	124(81.5)	154(23.0)
Middle School	20(15.9)	106(84.1)	126(18.8)
Secondary School	22(21.6)	80(78.4)	102(15.2)
Higher Secondary	7(10.0)	63(90.0)	70(10.4)
Above School	9(39.1)	14(60.9)	23(3.4)

$X^2 = 20.48$, P=0.001 S

Figures in the parenthesis indicate row wise percentage

Table No 4: Distribution of study population by unmet need for family planning by number of children.

No. of Children	Unmet need for FP		Total
	Yes	No	
0	0	25(100)	25(3.7)
1-2	60(23.9)	191(76.1)	251(37.5)
3-5	40(12.5)	281(87.5)	321(47.9)
>5	7(9.6)	66(90.4)	73(10.9)

$X^2 = 21.68$, P<0.001 HS

Figures in the parenthesis indicate row wise percentage

Table No 5: Distribution of unmet need for family planning by knowledge of contraceptives.

Knowledge	Unmet need for FP		Total
	Yes	No	
Yes	67(14.0)	413(86.0)	480(71.6)
No	40(21.1)	150(78.9)	190(28.4)

$X^2 = 5.10$, P=0.02 S

Figures in the parenthesis indicate row wise percentage

It is evident from Table No 3 that majority 195(29%) of the respondents were illiterates. Strong association was observed between unmet need and education status. The percentage of unmet need was more (39%) among those with higher education. Majority of them 473(71%) were Muslims. Predominant 407(61%) type of family was nuclear. There were 561(84%) home makers. Majority 259(39%) of the husbands were semi skilled and skilled workers. The mean family size was 3.13±1.9 and the range varied from 0-10. Table No 4 shows that there is highly significant association between number of children and unmet need for family planning. The unmet need was highest among women having 1 to 2 children. The mean age at marriage for the subjects was 18.52±2.7.

As seen in Table No 5, of the total study subjects 480(72%) were aware of the contraceptives. The unmet need was more among people who were not aware of contraceptive methods. The commonest source of information regarding contraceptive methods was health workers 248(37%) followed by friends/spouse/relatives 130(19%) (Fig.1). Among the total subjects, 348(52%) were using contraceptives. Among the users, commonest method used was tubectomy 291(84%), followed by OCPs 30(9%). Contraceptive usage by male partners like condoms and vasectomy accounted for only 2(0.6%) each. Among the respondents who had unmet needs, the commonest reason for not using contraceptive was lack of knowledge 32(29%), followed by fear of side effects 31(28%), opposition from the partner 15(14%), and religious belief 14(13%) (Fig 2).

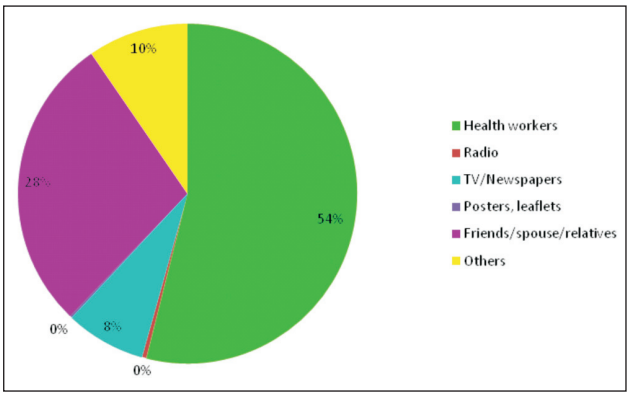

Fig. 1. Distribution of women according to source of information of contraceptives.

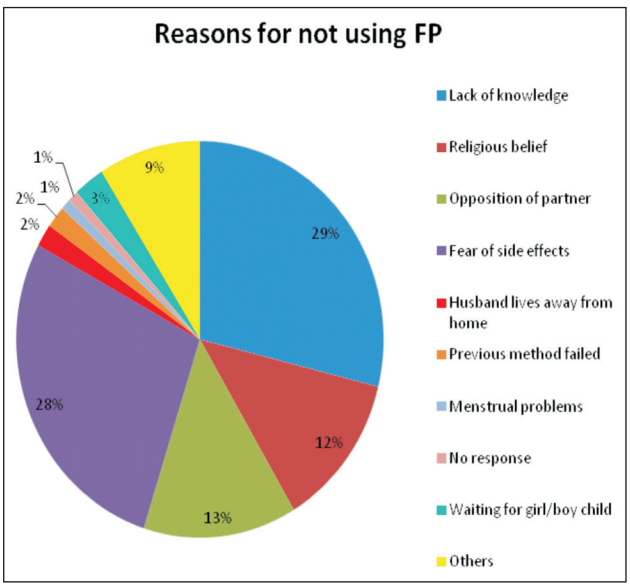

Fig. 2. Distribution of women according to reason for unmet need.

DISCUSSION

The prevalence of unmet need for family planning in our study was 16% which is higher than the average for Karnataka state(10%) as well as National average (13%) according to NFHS III[2]. This could be because there is inadequate access to basic infrastructure or public services for urban slum dwellers, and may also be due to lower literacy level, lack of awareness, fear of side effects compared to general population. A study by Indu D[5] in slums of Trivandrum also showed the prevalence of unmet need as 17%. A study by Supriya SP[4] and Puri et al[6] have showed a high prevalence of 45% and 49.8% respectively.

The unmet need for spacing was slightly higher 55(51%) than that for limiting 52(49%). Unmet need for spacing was reported to be higher in Indu D[5] study and NFHS III findings. In our study strong association was observed between unmet need for family planning and education status. The percentage of unmet need was more (39%) among those with higher education group. This may be due to failure to use family planning methods even with the good awareness in educated class because of various other reasons like opposition from the husband and/or family members. The findings of NFHS III also show a linear relationship between education status and unmet needs[2]. A statistically significant association was found between the number of children and unmet needs for family planning, mothers with 1-2 children had more unmet need. Study by Supriya SP[4] and a study from Ram R[7] revealed similar findings. Unmet need was found to be higher among people who had no knowledge of contraceptives. The results are consistent with the study by Indu D[5].

There was no significant association between unmet need and other factors like age of the mothers, religion, and type of family. This could be due to stronger influence of knowledge and education on contraceptive use than other socio-demographic factors like age, religion and type of family in this study population. But studies by Harbison S[8] and Devi DR[9] showed a clear relationship between woman's age and unmet need, the need was more in younger age group. In a study by S Choudhary[10], it was revealed that unmet need was more in joint families. And a study by Indu D[5] reported unmet need was more in three generation family. The study conducted by Shrivastava DK[11] and Dwivedi SN[12] had reported highest prevalence of unmet need among Muslim religion.

Commonest reason of unmet need for family planning in our study was lack of information about the contraceptives 32(29%), fear of side effects 31(28%), opposition from partner 15(13.5%) followed by religious beliefs 14(13%). A study by Supriya SP[4] also showed lack of information about the contraceptive as the main reason for unmet need. A study by Ram R[7] reveals that 12% of the women were opposed from the partner and the family for using contraceptives.

This shows that health education and motivation is needed to overcome these problems especially in the underserved populations like urban slums. Health care professionals especially field staff should be trained to provide an informed choice to couples and also impart sufficient knowledge regarding reproduction and contraception. Misbelieves regarding side effects of contraception and religious practices should be addressed. Male contraception usage in the study was only 1.2%. Male participation in family planning should be encouraged and family planning programme should also involve husbands in the counseling, couples should be motivated to discuss and accept family planning methods by their choice.

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Ethical Approval: This study was approved by Institutional Ethical Committee of Shamanur Shivashankarappa Institute of Medical Sciences and Research Centre, Davangere, Karnataka.

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Prevalence of Ocular Morbidity in 5 to 14 Years Children in an Urban Resettlement Colony of New Delhi, India

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ABSTRACT

Objective: To study the prevalence of ocular morbidities in children between 5 to 14 years in an urban resettlement colony of Delhi.

Materials and method: It is a community based cross-sectional study in Kalyanpuri, an urban resettlement colony and the urban field practice area of department of Community Medicine, Lady Hardinge Medical College, New Delhi. A semi-structured, pre-tested questionnaire was prepared and filled by the principal investigator himself. A stratified random sample of 650 children using the proportionate allocation method was taken for the study. This was about 10% of the estimated children's population of the colony. Data was tabulated & analyzed using SPSS for windows software version 10.5.

Results: 25% of the study subjects were found to be suffering from some kind of ocular morbidity with 10.46% suffering from infectious & 15.69% from non-infectious disease.

Keywords: *School-age children, Resettlement colony, Ocular morbidity, Prevalence*

INTRODUCTION

"Seeing is believing" is a centuries old saying that highlights the importance of sight in human life. Light in the form of energy from the sun, is part of the fuel that drives the engine of life on Earth. It is therefore not surprising that we possess such remarkably adapted organs for detecting this stimulus – our eyes. Sight is the only way of appreciating the beauty of all things – natural or man-made and it is also indispensable for the normal mental development of an individual.

The gift of sight however is denied to almost 45 million people globally[1]. Although India holds the distinction of being the first country in the world to launch a National Program for Control of Blindness (NPCB) in 1976, yet the number of blind Indians is more than 10 million[1]. The magnitude of the problem in India can be understood by the fact that of the 12 people who become blind every minute in the World, 4 are from south-east Asia and more than one from India. In a country where children under 15 years of age constitute nearly 40% of the total population, the social and economic impact of childhood blindness can be expected to be massive. The number of life-years to be lived with blindness & the impairment of full mental & social development of the child makes childhood blindness particularly challenging. The most regrettable part of this entire situation is that more than 90% of the blindness is avoidable (preventable or curable).

MATERIALS AND METHOD

The present study was carried out in Kalyanpuri colony of East Delhi district. Kalyanpuri is an urban resettlement colony - a residential scheme for rehabilitation of slum dwellers - of Delhi and it is also the field practice area of Lady Hardinge Medical College. The study was carried out over a period of one year which included 10 months for pre-testing, training and data collection & further 2 months for analysis & report writing. Kalynapuri is divided into 11 distinct blocks which are numbered from 11 through 23. The total population of these blocks put together was 26516 in 2001 according to the Anganwadi

household survey register. It is a community based, cross -sectional study. The study population consisted of children between the ages of 5 to 14 years i.e. the school going age children. A sample size of 600 children was estimated after a detailed analysis of the resources and taking into account the restrictions imposed by the limited time available with the researcher. 650 children were finally examined by the researcher. The inclusion criteria were children in the age group 5 to 14 years and residing in Kalyanpuri for at least 1 year prior to the start of the study. The written consent of the parents was obtained for the study. The researcher underwent one month training in the ophthalmology department of the Lady Hardinge Medical College, New Delhi for updating his knowledge & skills in diagnosing various ocular morbidities. Any difficult cases were referred to the weekly ophthalmology clinic at the Kalyanpuri health centre for expert advice & further work-up. After obtaining the details of the socio-demographic profile of the study subject using a pre-designed, pre-tested & semi-structured Performa, a torch-light ophthalmic examination was carried out. Visual acuity was systematically measured in all subjects using the ETDRS (Early treatment of diabetic retinopathy study; LogMAR chart – Precision vision, Villa Park, Illinois) chart & if the vision was less than 20/20, a pinhole vision test was used. An Ishihara's chart was used to assess color blindness. The data was entered into & analyzed using the statistical software SPSS version 10.5.

OBSERVATIONS

Table 1: Age & gender distribution of the study subjects

Age (Years)	Males (%)	Females (%)	Total (%)
5 – 6	69 (20.47)	61 (19.48)	130 (20)
7 – 8	70 (20.77)	67 (21.40)	137 (21.09)
9 – 10	69 (20.47)	62 (19.80)	131 (20.15)
11 – 12	62 (18.39)	64 (20.44)	126 (19.38)
13 – 14	67 (19.90)	59 (18.88)	126 (19.38)
Total	337	313	650 (100)

Table 2: Distribution of the study subjects according to the socio-economic status of their families (Modified Kuppuswamy Scale)*

Socio-economic Status	Number (n)	(%)
Upper-Middle	26	4.0
Lower-middle	114	17.5
Upper-lower	497	76.5
Lower	13	2.0
Total	650	100

*The wholesale price index of 2003-04 was used for categorization of income groups

Table 1 & 2 give the background characteristics of the study subjects. The distribution of the study subjects was nearly uniform across all the age groups & across gender. It is also evident from table no. 2 that none of the subjects came from families which belonged to upper socio-economic status. A vast majority (76.5%) of the subjects were from upper-lower socio-economic status according to the modified Kuppuswamy SE status scale. This is explained by the fact that it is a resettlement colony where former slum dwellers have been relocated.

Table 3: Prevalence of ocular morbidity among the study subjects

(N=650)

Ocular morbidity	Frequency	(%)
Present	163	25.07
Absent	487	74.93
Total	650	100

The prevalence of ocular morbidity of any type was found to be 25.07 % in the current study. These 163 children also included five subjects who had more than one type of ocular morbidity.

Table 4: Pattern of ocular morbidities observed in the study subjects

Disease	ICD Code	Subjects (n)	Percentage
Refractive Error	H 52.7	60	9.23
Conjunctivitis	H 10.9	34	5.23
Xerophthalmia	H 19.8	23	3.53
Trachoma	A 71.9	20	3.07
Blepharitis	H 01.0	9	1.38
Color Blindness	H 53.5	6	0.92
Squint	H 50.9	5	0.61
Stye	H 00.0	4	0.60
Corneal opacity	H 17.9	2	0.30
Others*		7	1.07

The actual number of children having any ocular morbidity is 163 but the total number of morbidities is 170 as six children have more than one disease – Five children with two diseases and one child with three morbidities. It is clear from the table that refractive error is the most common disease in this study population (9.23%) followed by conjunctivitis (5.23%), xerophthalmia (3.53%) and trachoma (3.07%). The others* include 4 cases of posterior segment pathology, 1 case of naso-lacrimal duct obstruction, 1 case of proptosis (bilateral) & 1 case of chalazion (Right eye).

DISCUSSION

India holds the distinction of being the first country in the world to recognize blindness / visual impairment as a public health problem and launch a national program for control of blindness yet the total number of blind Indians is more than 10 million. The social & economic impact of blindness / visual impairment & ocular morbidity is phenomenal for India where 30% of the blind lose their sight before they reach the age of 20 years. The value of early prevention & prompt treatment becomes all the more relevant when 80% of the blindness in the general population is avoidable (curable or preventable). To plan effective preventive, curative & rehabilitative services, the correct picture should be made available which is unfortunately the case in India. Majority of the existing studies are either school or hospital based with a paucity of community based studies only which can reflect the true picture – hence the above study.

A total of 650 subjects in the age group 5-14 years were included in the present study. The sex ratio in the current study 929 was nearly equal to the national average of 933 (2001 census). Since the study area is an urban resettlement colony, it is understandable that majority (76%) of the subjects came from upper-lower socio-economic status families.

163 subjects had some ocular morbidity in the current study thereby giving the prevalence as 25.07% for all ocular morbidity combined. Kumar R (1999) found similar prevalence (22.7%)[2] in primary school children of Delhi aging between 5-14 years. Similar high prevalence results have been given in earlier studies by Rao et.al. (26.5%) in urban school children[3], Mehrotra & Maheshwari (23% in 5-14 years children in urban Kanpur)[4] & Gulati et.al. (34% in an urban resettlement colony of Delhi)[5]. The survey conducted by the Directorate General of Health Services[6] in 1992 estimated the prevalence of ocular morbidity in general population to be 27.99%.

A relatively low prevalence of eye diseases (10%) was seen by Murthy et.al[7]. in a study on childhood blindness, visual impairment & refractive errors in a resettlement colony of Delhi. The difference can be attributed to the fact that it was mainly a study on refractive errors & low vision. Chaturvedi et.al[8]. reported a prevalence of 13.79% among primary school children of Delhi with a higher prevalence in slum children (15%) vis-à-vis' other children (10%).

Refractive errors – visual acuity of < 20/20 (ETDRS-E chart) that improved on looking through a pin hole - were observed to be the commonest ocular morbidity in the present study (9.23%). Only 14 subjects (23.3%) were already using corrective glasses. The remaining 76.7% had uncorrected refractive errors. None of the subjects was found to be economically, socially or absolutely blind. It may however be pointed out that this method is not as accurate as testing for refraction after dilatation which was out of scope for the current study. The results in the present study are comparable to a recent study by Murthy et.al. (2002)[7] where the prevalence of myopia which was estimated after dilatation & refraction, was 7.4% among children 5-15 years of age. Kumar R[2] observed a prevalence of 5.4% of refractive errors among primary school children of Delhi.

CONCLUSION

Eye diseases continue to be an important public health problem in India even more than 50 years of a national program being in place. The children in the school going age are perhaps the greatest sufferers as any ocular morbidity and refractive errors in particular directly affects their academic performance and intellectual development. Since majority of the ocular morbidity is either preventable or curable, it is imperative that all efforts be made for prevention and early diagnosis & prompt treatment.

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A Study of Hospital Acquired Infections in ICU of a Tertiary Care Hospital in Bangalore

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ABSTRACT

Introduction: Infections acquired in health care settings during the course of treatment are among one of the major causes of death and increased morbidity among hospitalized patients. Hospital acquired infections have significant bearing on economic costs owing to the increased length of stay.

Objectives: 1.To find out common organisms causing hospital acquired infection and their antibiotic susceptibility

2. To find the relation between invasive procedures and hospital acquired infections

Methodology: Retrospective analysis of inpatients records of medical intensive care units using a predesigned and structured questionnaire. Hospital acquired infections were identified as per operational definition which was based on microbiological reports.

Results: The rate of Hospital acquired infection was 1.2% among patients admitted to Medical ICU. It is observed that duration of hospital stay is considerably long among these patients. Organisms isolated from the specimens are Pseudomonas, Methicillin resistant staphylococcus, These organisms were sensitive to Amikacin in addition to other drugs such as Cephaperazone, Vancomycin, Linezolid, and Netilmycin. Logistic regression analysis (using statistical package for social sciences) revealed statistically significant association between Hospital Acquired Infections and Patients on Ventilators [Odds ratio =16.66 (P = 0.04].

Conclusion: The rate of Hospital acquired infections are more in intensive care units. Invasive procedures contribute to the development of Hospital acquired infection. Therefore strict infection control programmes and antibiotic policy should be formulated.

Keywords: *Hospital acquired infections, Invasive Procedures, Antibiotic Susceptibilit*

INTRODUCTION

The eternal conflict between man and germs has incessantly existed from times immemorial. Patient care is provided in facilities which range from highly equipped clinics and technologically advanced university hospitals to front-line units with only basic facilities. Despite progress in public health and hospital care, infections continue to develop in hospitalized patients, and may also affect hospital staff. Many factors promote infection among hospitalized patients: decreased immunity among patients; the increasing variety of medical procedures and invasive techniques creating potential routes of infection; and the transmission of drug-resistant bacteria among crowded hospital populations, where poor infection control practices may facilitate transmission.

Infections acquired in health care settings during the course of treatment are among one of the major causes of death and increased morbidity among hospitalized patients. Hospital acquired infections have significant bearing on economic costs owing to the increased length of stay. This not only increases the direct costs to the patients or payers but also

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indirect costs due to loss of productive work. Also, they have a major impact on the functional disability and emotional stress of the patient. [1]

Hospital acquired infections add to the imbalance between resource allocations for primary and secondary health care by diverting scarce funds to the management of potentially preventable conditions. The potential danger for human beings of becoming infected during a stay in hospital is due to the continuous flow of various species of organisms caused by patient, by all personnel who come in contact with them and disseminated by fomites, air, body surfaces, linen and contacts during medical examinations and nursing care.[2]

The primary role of an infection control program is to reduce the risks of hospital acquired infections, thereby serving to protect patients, hospital personnel and visitors.[3]

A prevalence study conducted under the auspices of WHO in 55 hospitals of 14 countries representing 4 WHO regions showed an average of 8.7% nosocomial infections. According to the same study prevalence of nosocomial infections was greater in intensive care units and acute surgical and orthopedic wards.[1]

In ICUs, emergency rooms, urgent care clinics and other areas asepsis is often overlooked in the rush of crisis care. An international survey of the prevalence of hospital acquired infections in 1988 showed that highest frequencies of nosocomial infections being reported from hospitals from the eastern Mediterranean and south East Asian regions ,11.8% and 10% respectively and with a prevalence of 7.7% and 9% respectively in the European and western pacific regions.[4]

Two basic principles govern the main measures that should be taken in order to prevent the spread of nosocomial infections in health-care facilities:

- Separate the infection source from the rest of the hospital
- Cut off any route of transmission [5]

AIM AND OBJECTIVES

1. To find out common organisms causing hospital acquired infections in Intensive Care Unit and their antibiotic susceptibility.
2. To find the relation between invasive procedures and hospital acquired infections.

MATERIAL AND METHOD

Study Area: This study was conducted in Bangalore city located at Karnataka in South India. Study area constituted medical intensive care unit of a tertiary care hospital in Bangalore

Study Design: Retrospective analysis of records

METHOD OF COLLECTION OF DATA

Source of data: Inpatients records of medical intensive care units available in the medical records department of the institution for a period, preceding 6 months

Inclusion criteria: All the inpatients records available for scrutiny

Exclusion criteria: None

The instrument used for the purpose of the study is a predesigned structured questionnaire. The Questionnaire contains the general information of the person along with reasons for admission, infection at the time of admission, details of microbiological investigation such as date of collection of specimen and report, the organisms identified and their antibiotic susceptibility, list of invasive procedures which the patient had undergone.

Case definition used in this study for evidence of hospital acquired infection is as follows

'Any infection acquired while in hospital, which was not present or incubating at the time of admission, manifesting after 48 hours of admission.' (Operational Definition)

Microbiology reports showing evidence of infection after 48 hours of admission of the patient and not related to the infection at the time of admission were considered hospital acquired infection in this study. A total of 250 case records were scrutinized of which 50 case records had reports of microbiology investigations. These case records were studied in detail as per the questionnaire used in the study and analyzed.

Data Entry And Analysis: Using Micro soft excel and Statistical package for social sciences

Statistical Tests Used

1) Descriptive statistics,

2) Logistic regression

OBSERVATIONS AND RESULTS

A total of 250 case records from medical intensive care units were scrutinized of which 50 case records had reports of microbiology investigations. A detailed study of these 50 case records revealed the following results.

- 37 records had no growth of micro organisms in their respective specimens which were subjected to laboratory examination.
- 13 patients had microbiological evidence of infections as confirmed by culture.
- Among patients with evidence of microbiological infections,10 patients showed micro organisms which were related to the infection at the time of admission.
- 3 patients showed evidence of nosocomial infections which amounts to 1.2% among patients admitted to Medical ICU.

Table No 1. Profile of Hospital acquired infections

Details of infection	Study subject: 1	Study subject: 2	Study subject: 3
Duration of stay	34 days	27 days	56 days
Infection at the time of admission	Urinary tract infection	No infection at the time of admission	No infection at the time of admission
Day of specimen collection	11 day after admission	8 day after admission	5 day after admission
Source of specimen for Microbiology investigation	Endotracheal tube	Endotracheal tube Oral swab	Endotracheal tube
Micro organism isolated	Pseudomonas	Methicillin resistant staphylococcus in both the sites	Pseudomonas
Antibiotic susceptibility	Cephaperazon Amikacin	Amikacin Vancomycin Linezolid	Amikacin Netilmycin
Invasive procedures	Urethral catheterization Peripheral vascular line Dialysis Intubation	Urethral catheterization Intubation Re-laprotomy Peripheral vascular line Dialysis Ventillator Ryles Tube	Urethral catheterization Peripheral vascular line Ventillatory support with Tracheostomy

DISCUSSION

In this study, 3 patients showed an evidence of nosocomial infections which amounts to 1.2% among patients admitted to Medical ICU. In contrast, in a study by Mehta. A, Rosenthal.V.D, Mehta.Y et-al, an overall rate of hospital acquired infection is 4.4% among patients admitted to ICU.[6] The probable reason could be good infection control practices in ICU of the tertiary care hospital in this study. It is observed that duration of hospital stay is considerably long among these 3 patients. According to a study by Agarwal. R, Gupta. D, Ray.P et-al findings clearly document a high prevalence rate of infections in the ICU, and the data suggest that occurrence of infections was associated with a prolonged ICU stay which is in support of our findings.[7]

Study subjects 2 and 3 had no infection at the time of admission and has developed hospital acquired infection on 8th day of admission and 5th day of admission respectively. Study subject 1 was admitted with urinary tract infection and later developed hospital acquired infection on 11th day of admission at a different site. The organisms were isolated from the specimens of secretions from endotracheal tube and oral swab as seen in the table. Patients 1 and 3 together showed Pseudomonas isolated from endotracheal tube secretions, where as methicillin resistant staphylococcus was isolated from secretions of oral swab and endotracheal tube from the second patient. According to a study by Mehta.A., Rosenthal. V.D, Mehta. Y et-al 87.5% of all Staphylococcus Aureus hospital acquired infections were caused by Methicillin-resistant strains which is in support of our findings [6]

From the available literature the salient features of Methicillin resistant staphylococcus and Pseudomonas in support of our present findings are as follows:

- **Methicillin resistant staphylococcus:** Possible sites of colonization or infection: nose, throat, perineum, inguinal folds, less frequently vagina or rectum; skin of buttocks area in immobile patients (superficial skin lesions, pressure sores, ulcers, dermatitis); surgical wounds and burns; invasive devices (intravascular and urinary catheters, stoma tubes, Tracheostomy tubes).It is seen among patients with prolonged hospital stay and found among patients in special units, e.g. intensive care unit (ICU) and burns or referral hospitals

- **Pseudomonas:** Reservoirs are humans and the environment. This is an aerobic, non glucose fermenting, gram negative rod which is commonly found in soil and water and is frequently present as a part of normal flora of skin and the gastro intestinal tract. Pseudomonas infections are more prone to develop in persons who have received antibiotics.[1,8]

The various antibiotics to which the organisms were susceptible are as shown in the table. It is always advisable to give antibiotics to which the organism is susceptible for better results and as well as to prevent drug resistance. It is observed that the organisms isolated from 3 patients said to have hospital acquired infection in the present study are sensitive to Amikacin in addition to other drugs as shown in the table. The above table shows list of various invasive procedures which the patients were subjected to. Each of the invasive procedure was taken as a variable and hospital acquired infection as the outcome variable and a logistic regression analysis (using statistical package for social sciences) was done to find the relation between hospital acquired infection and invasive procedures. Statistically significant association on hospital acquired infections was found in Patients on Ventilators [Odds ratio =16.66 (P = 0.04)]**.** According to a study by Rosenthal VD, Maki DG, Salomao R et al Ventilator-associated pneumonia posed the greatest risk of all device-associated infections which is in support of our findings[9]. Similar findings are quoted by Umesh Isalkar in his article that hospital acquired infections are mainly device–associated infections. Devices are invasive procedures and thus they cause infection due to contamination of devices. Similarly contamination during care of the devices also causes infection. Most common hospital acquired infection is ventilator associated pneumonia. The incidence of Ventilator associated pneumonia is 11 per 1000 device days. [10]

CONCLUSION

The rate of Hospital acquired infection was 1.2% among patients admitted in Medical ICU. Duration of stay in hospital among patients of hospital acquired infection is 34, 27 and 56 days respectively. The organisms isolated were Pseudomonas and Methicillin resistant staphylococcus Organisms isolated in the present study are sensitive to Amikacin in addition to other drugs such as Cephaperazone, Vancomycin, Linezolid, and Netilmycin. Statistically significant association on Hospital Acquired Infections was found in Patients on Ventilators.

RECOMMENDATIONS

- Development of Standard operation Protocols for various invasive procedures.

- Central sterile supplies department to be monitored.

- To undertake more refined studies with larger population in different areas of the hospital to actually assess the situation with greater accuracy.

- An infection control committee should be established in order to collect relevant information and analyzing the same to understand the situation and to recommend appropriate measures to control the same and to organize the personnel education programmes.

- Establish a surveillance system - record keeping, data management and also maintain confidentiality.

- Antibiotic policies are a priority in India.

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Microbiological Profile of Organisms Cultured from Medical Staff Mobile Phones in ICU Units at a Tertiary Care Hospital

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ABSTRACT

Mobile phones are widely used as portable electronic devices for communication and it is in close contact with the body of health care workers (HCW) [3]. Mobile phones may serve as vectors for the nosocomial transmission of microorganisms[2].

Aim of this work: To evaluate the role of mobile phones in relation to the transmission of bacteria from the mobile phones to the health care workers (HCW) hands in intensive care units. This study was conducted in intensive care units(ICU); A total of 82 staff-12 Professors, 10 Associate professors,20 Assistant professors,4 PG's, 15 House surgeons, 21 Nursing staff represented the materials for this study.

Samples Collection and Cultures: Obtained from the mobile phones of the participants. Isolated microorganisms were identified and allocated to appropriate genera.

Results: 21swabs showed growth of E.coli,25 swabs showed growth of klebshiella ,10 showed growth of pseudomonas,5 showed growth of proteus,6 bacillus and 15 showed no growth.

Conclusion: This study confirmed that mobile phones were contaminated with nosocomial pathogens. The use of mobile phones in ICU may have serious hygienic consequences. It is needed to work at various levels to minimize the risk of mobile phones as vectors for pathogen transmission. Multidisciplinary hospital infection control teams should develop active preventive policies and stratergies to reduce crossinfection caused by mobile phones in intensive care units[4].

Keywords: *Mobile Phones, Nosocomial Transmission, Intensive Care Units*

INTRODUCTION

Nosocomial infections are a serious problem in all modern hospitals. As early as 1861, Semmelweis showed that bacteria are transmitted to the patients by the contaminated hands of healthcare workers[1].In public opinion, hospital ICU set ups are the workplaces with the highest hygiene standards. The same high hygiene requirements also hold for the personnel working there and the equipment used by them[4].Mobile phones are widely used as portable electronic devices for communication and it is in close contact with the body of health care workers (HCW).Mobile communications and wireless data transmission are playing an increasing role in health care[13]. Hands and instruments used by health care works (HCW) may serve as vectors for the nosocomial transmission of microorganisms[8]. The use of cellular telephones by medical personnel and the associated nosocomial transmission of pathogens have not thoroughly examined[2] .

As for most non-medical electronic equipment, there are no cleaning guidelines available that meet hospital standards, and the hygiene risk involved in using mobile phones in the ICU's has not yet been determined[16]. However, the mobile phones are used all day long but not cleaned properly.

The aim of this study was to evaluate the role of mobile phones in relation to the transmission of bacteria from the mobile phones to the health care workers hands. Mobile phone use was forbidden in the past for a long time[3]. However, for several years now their use has become common, above all because of the lack of reports on serious problems in connection with them[4]. In Austria, the University Hospital in Innsbruck lifted its ban on mobile phones in 2000. A survey of doctors performed in 2004 in an English teaching hospital found that 64% had their telephones on in'high risk' areas such as operating theatres and high dependency units containing vital electronic medical devices[5]. The results of a recent survey of practice in selected European countries also underline the safety of the use of mobile phones in hospitals and reported a trend to relaxation of regulations[6].

MATERIAL AND METHOD

This study was conducted in intensive care unit set ups. These included critical care unit (CCU), Medical intensive care unit (MICU),surgical Intensive care unit(SICU),Neonatal intensive care unit(NICU), Pediatric intensive care unit(PICU).

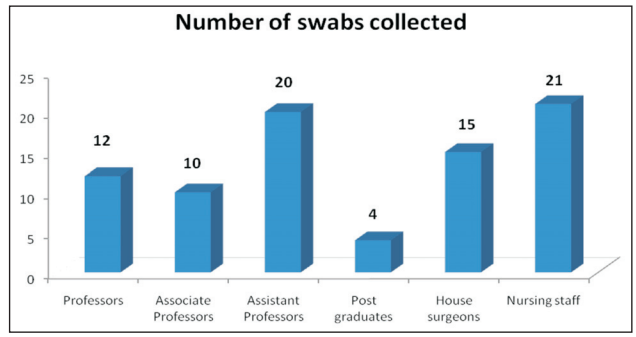
A total of 82 staff-12 Professors, 10 Associate professors,20 Assistant professors,4 PG's, 15 House surgeons, 21 Nursing staff were candidates for samples collection. All participants agreed and informed consent was obtained.

From Critical care unit 12 swabs were collected,from medical ICU 11 swabs were collected,from surgical ICU 12 swabs,from neonatal ICU 22 swabs,from paediatric ICU 17 swabs were collected and from neurosurgical ICU 8 swabs were collected.

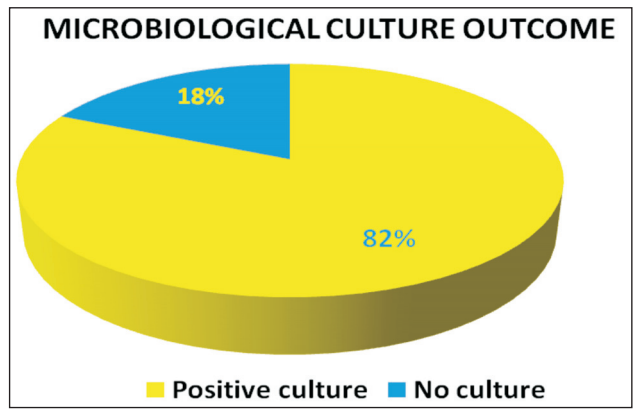
Cultures were obtained from the participants mobile phones. Profession, gender, ring use, dominant hands of HCW,routine cleaning (and the method of the cleaning) of the mobile phones were recorded.

A sterile swab moistened with sterile demineralised water was rotated on both the sides and over the keypad of mobile phone. The swabs were immediately inoculated and streaked onto five per cent sheep blood agar and eosin methylene blue agar (Hi-Media, India) [9]. Plates were incubated aerobically at 37ÚC for 24 hours. Isolated organisms was processed according to colony morphology Bacteria were identified according to standard protocol (Mackie and McCartney).

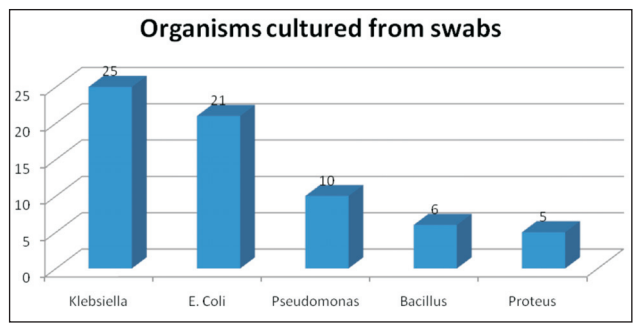
FINDINGS



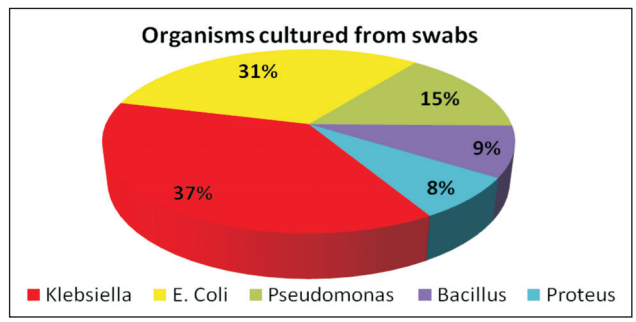
Bar chart 1: Distribution of number of swabs collected among the staff in icu.



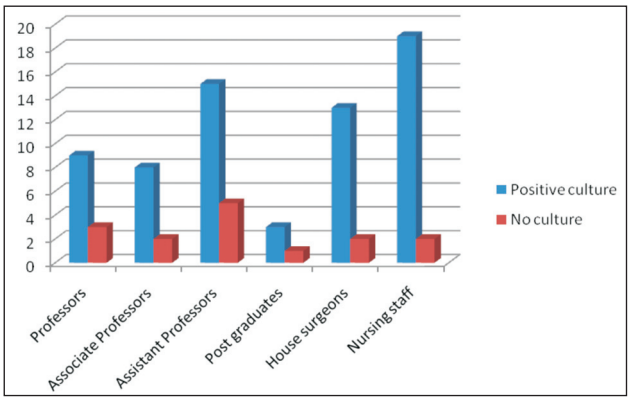
Pie chart 1: pie chart showing the result of microbiological culture of the swabs collected from icu staff mobile phones.



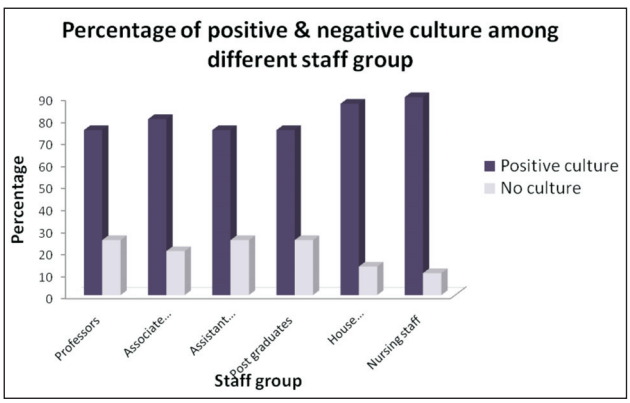
Bar chart 2: showing the organisms cultured from the swabs collected from the icu staff mobile phones



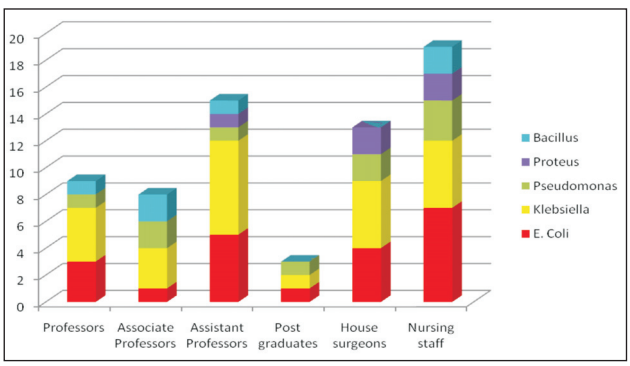
Pie chart 2:showing the percentage of growth of different organisms from the swabs collected from the mobile phones of icu staff.



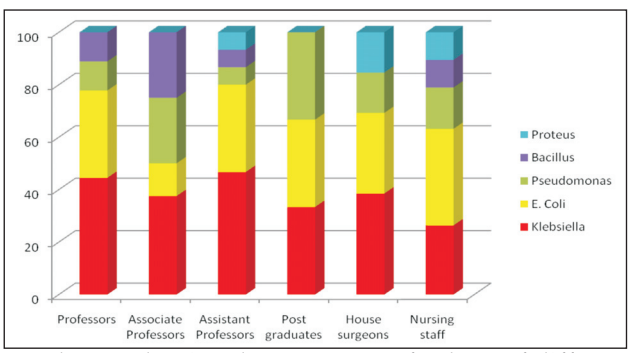
Bar chart 3: showing the number of positive and negative culture of the swabs among the different staff groups in icu.



Bar chart 4: showing the percentage of positive and negative culture of the swabs among the different staff groups in icu.



Bar chart 5: showing the number of culture of different organisms of the swabs among the different staff groups in icu.



Bar chart 6: showing the percentage of culture of different organisms of the swabs among the different staff groups in icu.

CONCLUSION

In this study, the use of mobile phones by HCWs working in ICUs not only demonstrated a high contamination rate with bacteria but also more importantly contamination with nosocomial pathogens. The transmission of nosocomial pathogens by electronic devices such as personal digital assistants, handheld computers were previously reported and some of them were epidemiologically important drug-resistant pathogens[6,7].Butz et al.[8] stated that immobile phones might carry pathogens as well; Stationary phones in a day care facility were contaminated with rotavirus. Singh et al.[9]reported that 47% of immobile phones were contaminated with pathogenic microbes. Neely et al.[10]also identified nosocomial. These results suggested that contaminated objects could serve as reservoirs of bacteria and other microorganisms where could be easily transmitted from the mobile phones to the HCWs.

During every phone call the mobile phones come into close contact with strongly contaminated human body areas with hands to hands and hands to other areas like mouth, nose and ears. It is obvious that mobile phones are much more problematic when compared to immobile devices. Mobile phones may facilitate transmission of bacterial isolates from patient to another patient in different wards or hospitals. The results of this study confirmed what was reported by Borer et al.[11]and Brady et al[12]. that mobile phones were contaminated with nosocomial pathogens. Goldblatt[14] concluded that hands and instruments used by healthcare workers may serve as vectors for the nosocomial transmission of microorganisms. Findings in his study show that cellular telephones are commonly used by hospital personnel, even during patient contact. One-fifth of the cellular telephones were found to harbor pathogenic microorganisms. Fukada[16] concluded that mobile phones were used widely by staff and were considered by most participants as a more efficient means of communications. However, microbial contaminations a risk associated with the infrequent cleaning of phones. Hospital should devlope polices to address the hygiene of mobile phones.

According to these results, it is needed to work at various levels to minimize the risk of mobile phones as vectors for pathogen transmission. The training of healthcare workers about strict infection control procedure, hand hygiene, environmental disinfection and standards to control pathogen transmission.

This study highlights mobile phones as a potential threat in infection control practices and could exaggerate rate of healthcare - associated infections. Mobile phones were found to carry these bacteria because count of these bacteria increases in high temperature and our phones are ideal breeding sites for these microbes as they are kept warm and snug in our pockets and handbags. Also, there are no guidelines for the care, cleaning and restriction of mobile phones in our health care settings. Hence, in a country like ours, mobile phones of HCWs play an important role in transmission of infection to patients, which can increase the burden of heath care.

In conclusion, it can be said that hand hygiene is greatly overlooked and under-emphasized in health care settings. Simple measures such as increasing hand hygiene and regular decontamination of mobile phones with alcohol disinfectant wipes may reduce the risk of cross-contamination caused by these devices.

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Conflict of Interest: None

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A Study of Endometrial Etiological Spectrum in Causation of Infertility in Gulberga, Karnataka

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ABSTRACT

Background: Infertility is world wide problem and is defined as inability of couple to achieve conception after one year of unprotected coitus. The purpose of investigation in infertile couple is to assess chance of achieving pregnancy and to identify treatable factors.

Aims:1)To determine causes of primary and secondary infertility by endometrium patterns.2)To assess importance of luteal phase deficiency in infertility.3)To determine endometrial glycogen content and its possible correlation with infertility.4)To determine incidence of tubercular endometritis as an etiological factor.

Settings and design: It is 5 year prospective study . Females complaining of primary or secondary infertility were included.

Materials and Method: During our 5 years study (July 2004 to June 2009), we received 230 endometrial currettings (178 cases-primary infertility and 52-secondary infertility) in Pathology Department, at M.R.Medical College, Gulbarga. Routine histopathological processing and staining was done with hematoxylin & eosin. Periodic acid Schiff stain was done for 50 cases of infertility and 25 cases of proved fertility (control).

Results and Conclusion: Histopathologically, endometrium showed secretory phase- 149, proliferative (anovulatory cycles)-53, tubercular endometritis-7 and endometrial hyperplasia-15.Luteal phase defect (LPD) was observed in 39 cases with glycogen deficiency (43.8%).Thus, anovulatory endometrium, LPD and endometrial hyperplasia formed major etiology, whereas endometriosis and tuberculosis formed minor group. Glycogen deficiency was seen mainly in LPD. Thus, endometrial biopsy is an important investigation in developing countries where expensive, immunological and hormonal assays are not easily available or affordable.

Keywords: *Endometrium, Infertility, Anovulatory, Luteal Phase Defect, Tuberculosis*

INTRODUCTION

The ability to reproduce and perpetuate the species is one of the most remarkable features of living system. Fertility in our culture stands for reproductivity and continuity. Infertility affects approximately 10-15% of couples in reproductive age group. In India, there are estimated 10.2 million infertile couples.[1] In some communities, infertility is attributed to witchcraft and punishment from god (on the part of woman only).Shaw defined infertility as an apparent failure of couple to conceive. Primary infertility is inability to conceive after at least one year of unprotected coitus. Secondary infertility is inability to conceive after having achieved previous conception.[2] The factors responsible for increase in number of infertility are postponement of marriage, delayed childbearing age, increase use of contraception, liberalized abortion and unfavorable economic conditions.[2]

Female infertility may occur due to disturbances involving any part of genital system or central nervous

system that controls ovaries hormonally. Of these, intrinsic and functional abnormalities of endometrium contribute significantly.[3]The purpose of investigating infertile couple is to assess their chance of achieving pregnancy and to identify factors amenable to treatment. Among the investigations of female infertility, endometrial study is safe, reproducible and provides histological evidence of endometrial changes. Endometrial biopsy serves as a bioassay measuring hormones at tissue level and gives information regarding infections and nutritious condition of endometrium.[5] The premenstrual endometrial biopsy plays important diagnostic role in infertility. Endometrial biopsy with routine haematoxylin and eosin staining is an important investigation because it can be practiced in developing countries like India easily.[6]

Materials and method: Total of 5 years of prospective study (June 2004 to June 2009) was done at Department of Pathology, M.R.Medical College, Gulbarga.The female patients who failed to conceive after 1 year of unprotected coitus following marriage were investigated as primary infertility cases. Those who failed to conceive after having achieved a previous conception were investigated as cases of secondary infertility.

Inclusion Criteria

Patients with complaints of infertility (primary/ secondary).

Exclusion Criteria

1. Patients with complaints of infertility within one year of marriage.
2. Endometrial curettage done for other gynecological complaints (e.g. investigation of DUB, malignancy) is excluded.

The premenstrual endometrial curettage received in Pathology Department was routinely fixed, processed and 5-6 m sections were cut followed by:

1. Haematoxylin and eosin stain for morphology of endometrium and dating of endometrium.
2. Ziehl-Neelsen (ZN) stain for acid fast bacilli in all suspected cases.
3. Periodic Acid Schiff (PAS) stain for detecting the amount of glycogen in endometrium.

Findings: The present study included total of 230 cases of infertility. Out of which, 178 (77.4%) cases were of primary infertility and 52 (22.%) cases of secondary infertility. Majority belonged to primary infertility.

Age incidence: The youngest patient was 17 years and eldest was 35 years in primary infertility category with mean age of 23.2 years. In primary infertility, maximum cases-106 (59.6%) belonged to 21-25years age group. In secondary infertility, maximum cases belonged to 26-30 years i.e.37(71.1%) cases.

Duration of infertility: It was observed that duration of infertility varied from 1to14 years. In primary infertility group, maximum patients i.e.90(50.6%) came within 2-3 years after marriage. In secondary infertility group, majority i.e. 20(38.4%) came within 4-5 years after the previous history of delivery or abortion.

Menstrual problems: Table-1 Distribution of cases according to menstrual pattern

Menstrual	Primary Infertility		Secondary Infertility	
Pattern	No of cases	Percentage	No of cases	Percentage
Normal	115	64.6	32	61.6
Irregular	32	18	14	27
Menorrhagia	18	10	2	3.8
Oligomenorrhea	4	2.3	2	3.8
Secondary amenorrhea	5	2.8	0	0
Polymenorrhea	4	2.3	2	3.8
Total	178	100	52	100

Irregular cycles was major complaint in 32 cases (i.e. 18%) of primary infertility and 14 cases (i.e. 27%) of secondary infertility.

Histopathology: Table 2. Morphological patterns of endometrium

Menstrual	Primary Infertility		Secondary Infertility	
Type of endometrium	**No of cases**	**Percentage**	**No of cases**	**Percentage**
Secretary phase	120	67.5	29	55.7
Proliferative phase (Anovulatory)	43	24.1	10	19.3
Tubercular endometritis	7	3.9	0	0
Cystoglandular hyperplasia	4	2.2	7	13.4
Adenomatous Hyperplasia	1	0.6	3	5.8
Arias-Stella reaction	1	0.6	0	0
Chronic endometritis	2	1.7	3	5.8
Total	178	100	52	100

In both types of infertility, histology of endometrium revealed secretory phase in majority of cases-primary infertility 120 cases(67.5%) and secondary infertility 29 cases(55.7%).Proliferative endometrium was seen in 43 cases(24.1%) of primary and 10 cases (19.35%) of secondary infertility. The presence of secretory endometrium in premenstrual period indicates that the cycle is ovulatory. In the present study, the histologically dominant was late secretory phase.

Luteal phase defect: Luteal phase (secretory phase) is the period of time between ovulation and onset of menstruation. Dating of endometrium was done for diagnosis of luteal phase defect as per Noyes (1950) criteria[6] and the diagnosis of was made as directed by Jones (1976).[5] According to him, luteal phase defect is defined as lag by two or more days in the histological development of the endometrium.

Table 3. Luteal phase defect

Morphology	Number of cases	Percentage
of endometrium		
Coinciding with LMP	110	73.8
Lagging by 3 days	8	5.4
Lagging by 4 days	11	7.4
Lagging by 5 days	9	6.0
Lagging by 6 days	4	2.7
Lagging by 7 days	3	2.0
Lagging by>7 days	4	2.7
Total	149	100

The above table illustrates the luteal phase defect with lag of 3-7 days or more than 7 days in 39 cases (26.2%).

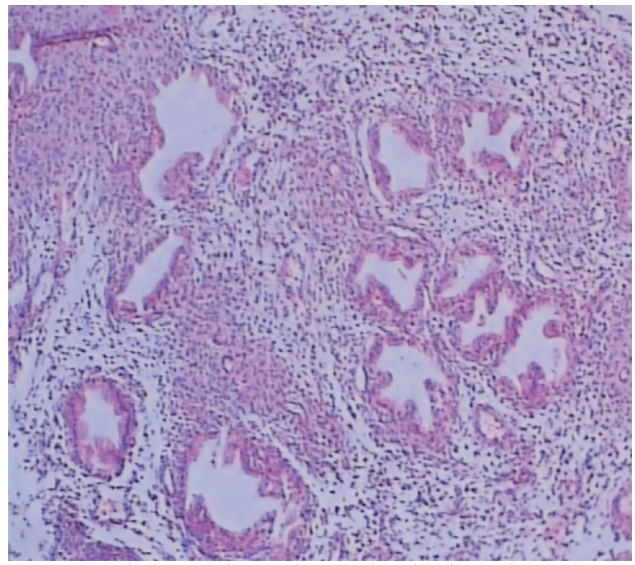

Fig. 1. Luteal phase defect with irregular glands and edematous stroma (H & E, 10 X)

Dallenbach & Hellwag (1984)[7] and Haines & Taylor (1995)[8] divided deficient secretory phase into 2 types.

1. Deficient secretory phase with co-ordinated apparent delay.
2. Deficient secretory phase with dissociated delay

Table 4. Types of luteal phase deficiency

Secretory type	Number of cases	Percentage
Adequate secretory phase	110	73.8
Deficient secretory phase		
a. Apparent delay	25	16.8
b. Dissociated delay	14	9.4
Total	149	100

25(16.8%) cases showed deficient secretory phase with co-ordinated apparent delay and 10(9.4%) cases showed deficient secretory phase with dissociated delay.

Proliferative endometrium (Anovulatory)

Dallenbach-Hellweg (1980) divided anovulatory cycles into two histological patterns.[7]

1. Deficient proliferation
2. Irregular proliferation

In our study, totally 53 cases showed proliferative phase i.e. anovulation - 43(24.1%) cases of primary infertility and 10(19.3%) cases of secondary infertility.

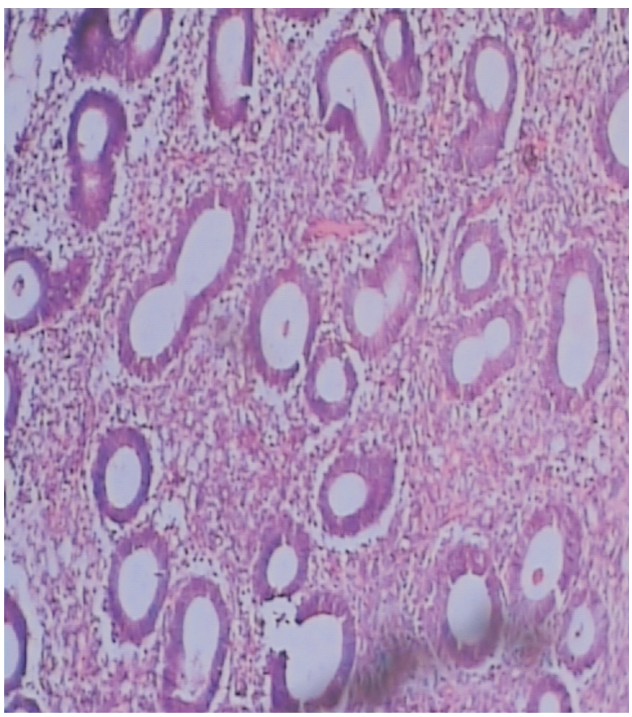

Fig. 2. Early proliferative phase with small glands (H & E, 10 X)

Tubercular endometritis

In present study, there were 7 cases (3.9%) of tuberculous endometritis. Out of total 7 cases, 5 cases presented with history of secondary amenorrhea. Zeihl- Neelsen's stain for acid fast bacilli were negative in all the cases of tubercular endometritis.

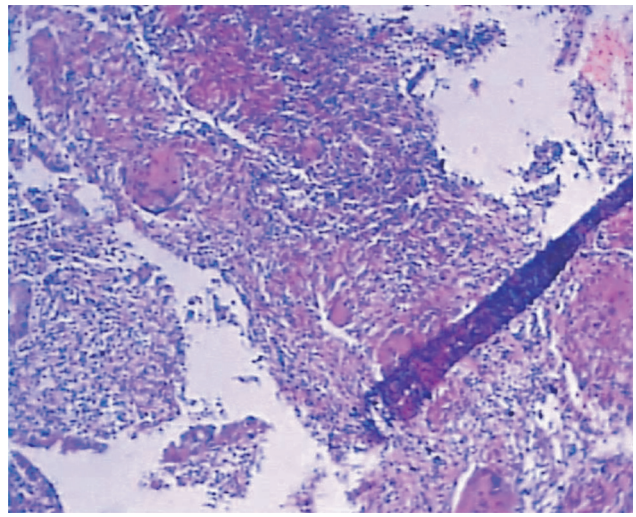

Fig. 3. Granuloma and caseating necrosis (H & E, 10 X)

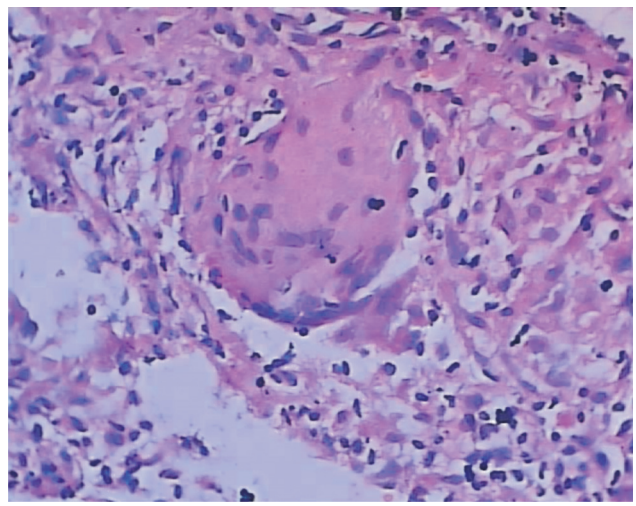

Fig. 4. Granuloma showing Langhan's gaint cell (H & E stain, 40 X)

Glycogen content of endometrium: Glycogen content was studied in 50 cases of infertility and 20 cases of proved fertility which formed control for this study. The study includes 38 cases of primary infertility and 12 cases of secondary infertility. Out of 50 cases, 10 showed proliferative phases, 20 showed luteal phase defect and remaining 20 exhibited normal secretary phase. Endometrial hyperplasia, tubercular endometritis and CGH were excluded from glycogen study.

Grading of glycogen content was expressed by Arzac and Blanchet (1948)

1) **Mild (+) :** Small amount of glycogen in early and mid proliferative phase, distribution is perinuclear and particles are small

2) **Moderate (++):** In early secretory phase glycogen particles are initially infranculear and later supranucelear.Minimum PAS +ve material around blood vessels.

3) **Heavy (+++):** In late secretory phase large amount of glycogen in lumen of glands.

4) **Intense (++++):** Predecideual cells and stroma also show large masses of glycogen. [9]

PAS stain was done in all the cases and graded by the above criteria.

Table 5. Overall Grading of Glycogen content in 50 cases

	Proliferative phase (10)		Normal Secretory phase (20)		Luteal phase defect (20)	
	Primary	Secondary	Primary	Secondary	Primary	Secondary
Mild(+)	1	2	_	_	6	3
Moderate(++)	_	_	2	_	8	3
Heavy(+++)	_	_	3	2	_	_
Intense(++++)	_	_	11	2	_	_

Above findings show that glycogen deficiency is mainly secondary to luteal phase defect.

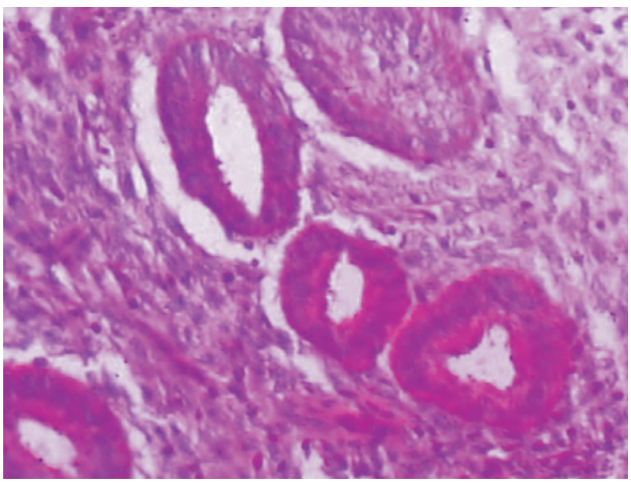

Fig. 5. Mild grade showing glycogen in epithelial cells (PAS stain, 40 X)

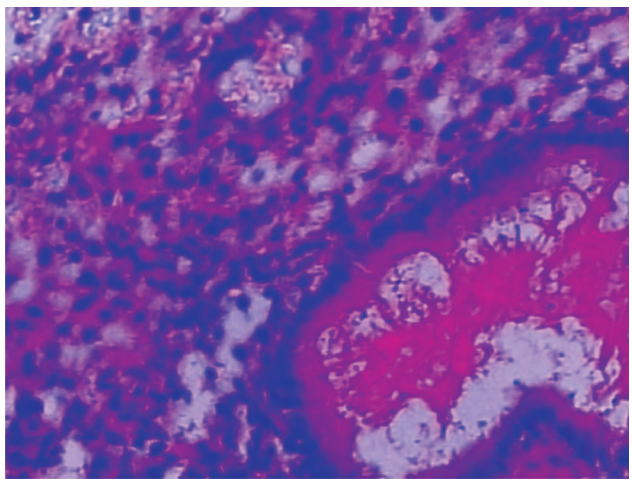

Fig. 7. Heavy grade showing glycogen in the lumen of the glands (PAS stain, 40 X)

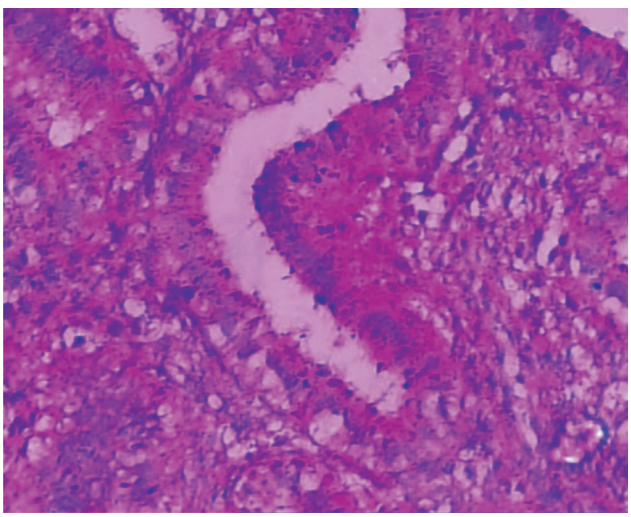

Fig. 6. Moderate grade showing glycogen in stroma (PAS stain, 40 X)

The magnitude of problem of infertility varies geographically and many couples hesitate approaching medical profession because of superstition and myths. Females attending infertility clinics outnumber males because of general belief that females are always at fault. Human endometrium is important in nidation of young fertilized ovum.[4] The endometrial biopsy is an essential step in the investigation of infertile women. Edward Wallach, Ramesh Kumar, Sohmay & Victor Ruiz concluded that endometrial study is safe, reproducible and adequate means of providing histologic evidence of endometrial development.[11,12]

Incidence of primary infertility varies from 36.2% to 65. 7% and secondary infertility varies from

13.8% to 34.3% by various authors. The findings in the present study are comparable with findings of Bhinde.A.G(1987) and M.P.Zawar (2003).[13,14] The age group 21 to 35 years is considered as the most fertile period of women's life. In our study, majority of primary infertility cases i.e. 106 (59.6%) belong to 22-25 years and that of secondary infertility 37(71.7%) belong to the age group of 26- 30 years. Thus correlating with that of Girish C. J. [15]

Menstrual pattern: The cause of infertility may be reflected in the women's menstrual rhythm. The menstrual cycle may vary in length. Infrequent and irregular menstruation is associated with infrequent or total absence of ovulation with a relative reduction in chance of fertilization. In present study menstrual pattern correlate with the result of Bhinde.A.G.(1987).[13] The abnormal menstrual pattern included polymenorrhea , menorrhagia, irregular menses, oligomenorrhea and secondary amenorrhea.

Histopathology of endometrium: We observed maximum number of endometrial biopsies in secretory phase i.e. primary infertility (55.2%) and secondary infertility (42.31%). In the premenstrual period secretory endometrium is indicative of ovulation and thus it rules out anovulation. The present study secretory phase is correlated with that of Neil Shastrabdhe and M.P.Zawar.[16,14]

Proliferative endometrium :Anovulatory cycles are due to functional disturbance in hypothalamus, pituitary, ovarian or endometrium. Its incidence in present study is 23 % which correlates with that of Tyagi et al(1977) and Gupta et al (1980).[17,18.]

Luteal phase defect : Luteal phase is the period of time between ovulation and onset of menses. In spite of normal ovulation, there is deficient progesterone secretion from corpus luteum which leads to luteal phase defect.

Table 6. Comparison of Luteal phase defect

Author	Year	Percentage
Gupta et al [18]	1980	8.1
Wentz A.C [19]	1980	19
Michel Soules [20]	1987	16
Shastabudhe[16]	2001	25.4
M.P Zawar[14]	2003	20
Present study	2008	26.2

Luteal phase defect may be the cause of infertility in ovulatory cycles. Neil Shastrabdhe (2001) in his study of 114 cases of infertility found luteal phase defect in 25.4% of cases.[16]

Tubercular endometritis

Tubercular endometritis is one of the important cause of infertility and dysfunctional uterine bleeding in tropical countries. In tuberculosis infertility is due to functionally altered endometrium or tubercular salphingitis[25.] The tuberculosis infection, suppresses the sensitivity of the endometrium to ovarian hormones which leads to deficient secretory phase with defective secretion of glycogen. [26] According to Rajiv Mishra(1996) with the endometrium being the most common site of involvement i.e. 86.42% of cases out of 162 cases of genital tuberculosis. In our study the incidence of tubercular endometritis is 3.9% which is comparable with Vishnu Gopal (1969).[17]Menorrhagia with endometrial hyperplasia can also prevent pregnancy. In this study endometrial hyperplasia includes cystoglandular hyperplasia and adenomatous hyperplasia with incidence being 6.5% which correlated with Gupta et al (1980) and Girish .C.J.(2006).[14,17]

Glycogen content : For the proper implantation and development of the fertilized ovum in uterus it is necessary that adequate amount of glycogen, in particular to be present in glandular secretion of the endometrium.Andrews and Latour concluded that glycogen in endometrium follows a definite physiologic pattern in normal menstrual cycles. Hughes (1967) confirmed the above result and stated that largest amount o glycogen occurs around the 17th and 20th day of menstrual cycle.[27] Sharma (1982) reported that abnormal glycogen content of endometrium is due to abnormality in neurohumoral-endometrium axis, as it is ovarian steroid dependent. The etiology of glycopenic endometrium is relative refractoriness of glands to hormones.[28]

Table 8. Comparison table

Author	Year	Incidence of glycogen deficiency
V.Shetty[23]	1959	44.6
V.B Kalra[24]	1984	39
M.P Zawar[14]	2003	30
Girish C.J[15]	2006	40
Present study	2008	43.8

In the present study, glycogen deficiency was seen in 44.8% of patients which correlated with study by V.Shetty (1959) and Girish .C.J.(2006). [23, 15]

CONCLUSION

Infertility is an emotionally devastating clinical problem for couples who wish to have children. In the present study, anovulatory endometrium and luteal phase defect formed the major etiological group. The endometritis, tuberculosis and endometrial hyperplasia formed the minor group .We observed glycogen deficiency mainly in luteal phase defect, thus concluding that glycogen deficiency is secondary to histopathological immaturity of endometrium. Thus, endometrial biopsy with routine H&E staining is an important investigation because it can be practiced in developing countries like India where complex expensive immunological and hormonal assays are not easily available or affordable.

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Conflict of Interest: Nil

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A Hospital Based Cross Sectional Study to assess Knowledge Regarding Lymphatic Filariasis & Mass Drug Administration

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ABSTRACT

Background: Lymphatic filariasis is a major tropical disease resulting in grossly swollen limbs and genitalia. Mass drug administration (MDA) is an effective tool for elimination of lymphatic filariasis.

Aims & Objectives: To assess the knowledge of lymphatic filariasis and MDA among the guardians/ attendants accompanying the paediatric patients in a private medical college.

Materials & method: Respondents were interviewed with a pre tested questionnaire from 1st July 2009 to 30th August 2009. A total of 276 guardians were selected by convenient sampling method.

Results: 270(98%) respondents had heard of filariasis , only 39(14%) knew the mode of transmission. Drugs during MDA were received by 204(73%) of respondents and consumed by 99(48%) of recipient. Only 120(43%) of respondents knew that lymphatic filariasis can be controlled by MDA.

Conclusion: knowledge regarding lymphatic filariasis and role of MDA in its elimination is poor in this study.

Keywords: *Lymphatic Filariasis, Mass Drug Administration, Knowledge*

INTRODUCTION

Lymphatic Filariasis(LF) is a major public health problem in India. Orissa is one of the important foci of bancroftian and to a lesser extent brugian filariasis. With less than 4 per cent of the population of the country, the State contributes over 10 percent cases of filariasis[1]. The coastal belt of Orissa is known to be endemic for lymphatic filariasis.

LF is associated with grossly swollen limbs and genitals. It has been ranked as the second leading cause of disability worldwide[2]. The International Task Force has identified the disease as an eradicable or potentially eradicable disease for Disease Eradication[3]. Environmental control being a long term measure, the most practical and feasible method of controlling LF is to rapidly reduce the microfilaria load in the community by annual mass drug administration (MDA) of a single dose of antifilarial drugs, i.e. of diethylcarbamazine (DEC) or ivermectin with or without albendazole. Five to ten rounds of treatment with 75%–80% compliance could possibly eliminate the disease by reducing transmission to a very low level[3].

MDA has been in operation in 36 out of 83 endemic countries. It was introduced in 13 endemic districts of India in1997 (two districts of Orissa were included)[4]Bhubaneswar Municipal Corporation was included in 2004.

Coverage and consumption (compliance) are the two crucial factors in the success of Mass Drug Administration (MDA) program. In spite of massive

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efforts, the program demonstrated sub-optimal coverage and consumption in urban areas than rural[1]. People's knowledge regarding the disease, it's transmission, role of MDA in disease elimination, all these factors influence the compliance of MDA[4]. So it was decided to conduct a study to assess these parameters.

AIMS AND OBJECTIVES:

i) To assess the knowledge regarding lymphatic filariasis and MDA

ii) To assess the compliance of MDA

iii) To know the reasons of non compliance

MATERIAL AND METHOD

A hospital based study among attendants accompanying patients of pediatrics department of Hi-tech Medical College and Hospital, Bhubaneswar was conducted to assess their Knowledge, attitude & perception regarding LF & MDA.

After getting permission from the authority & obtaining consent, data was collected from adult attendants accompanying pediatrics patients (Except attendants of patients who were seriously ill).

Guardians accompanying first five pediatric patients during morning OPD hours and first six indoor admissions were included in this study using convenient sampling method .Fortyeight data collection days were utilized during two month time period**.** Data from OPD were collected on two OPD days per week , similarly the same from IPD were collected on four IPD days per week. In case more than one guardian accompanied any patient ,only one guardian selected by lottery method was included in the study . A total of 276 guardians were selected by convenient sampling method.

Data was collected by a single interviewer to avoid inter observer bias and two months post MDA time period was selected to avoid memory recall bias. An average of 5 –10 minutes was spent per person. Data was collected by interview in local language based on a pre-tested semi structured questionnaire from 1st July to 31st Aug 2009. i.e. two months post MDA period (MDA was distributed on 22nd & 23rd of June 2009).

Questions were focused on

Knowledge regarding clinical manifestation of lymphatic filariasis

Knowledge regarding role of mosquitoes in disease transmission

Knowledge and compliance of MDA

Reasons for Non-compliance

RESULT

270(98%) respondents had heard of filariasis and 24(8.4 %) believed that drug can be used to treat the disease. In this context, persons were not referring to a specific drug; rather, they believed a drug existed that could cure these conditions. Filariasis was ranked second to acquired immunodeficiency syndrome as perceived health problems where no satisfactory treatment was believed to be available whereas treatment for other conditions such as malaria, intestinal worms, anemia, and diarrhea was easily obtained. 255(92 %) and 21(7%) recognize elephantiasis and hydrocele as sequelae of lymphatic filariasis respectively, where as only 3(1%) were aware of febrile attacks of adenolymphangitis.

Table 1 Distribution of respondents as per knowledge regarding the disease

Knowledge	Present		Absent	
	Number	Percentage	Number	Percentage
Knowledge regarding lymphatic filariasis	270	98	6	2
Knowledge regarding mode of spread	39	14	237	86
Knowledge regarding clinical manifestations	261	95	15	5
Knowledge regarding availability of drugs	24	8.4	252	91.6

Drugs during MDA were received by 204 (73 %) no. of respondents and were consumed by 99 (48 %)of recipient. Prior knowledge regarding date of distribution was absent in 219(80%).Only 120(43%) knew that taking medicine during MDA could eliminate LF though 150 (54%) were aware of the programme. Message of MDA was carried to the community on the day of drug distribution by the drug distributors in 126 (84%) where as news paper and TV were the source of information in 27(18 %) and 18(12%) respectively.

Out of those who received drugs only 30 (14%) swallowed them in front of the distributor & 69(34%) swallowed it later on, where as 105(52 %) did not consume them. On asking the reason for non-consumption, it was observed that 51 (48%) felt the drug to be unnecessary, as they themselves did not suffer from filariasis. The other reasons were fear of

side effect spread by false rumor 48(45%), lack of knowledge regarding the program 9 (6%),adverse effect of drug in previous round 3 (2%). Majority of respondents who consumed the drug later wanted to have it after intake of some food whereas some of them waited for consultation with other community members before having it. None of the respondent who consumed drugs reported any side effect. Primary reasons given for failing to receive medicine were absenteeism during drug distribution period 48 (66%) & non-coverage of the area by distributor 24 (34%).

DISCUSSION

The findings in the present study reflect poor basic knowledge regarding LF, though 270(98%) of respondents have heard of filariasis. Only 39(14%) have knowledge regarding role of mosquito in disease transmission . Similar observation has been reported by Eberhard ML et al[5] in which fewer than 50% of residents had heard of filariasis and only 6% of those surveyed knew that it was transmitted by mosquitoes and 15% believed that a drug could be used to treat elephantiasis. However, better results were found in a study by Yahathugoda et al [6] in which over 70.0% knew that transmission was through mosquito bites. Another study by Rath k et al[7] in costal orissa shows that 1/3rd were aware of role of mosquito in disease transmission & 50% thought it could be cured by taking medicine .

Although hydrocele is a much common manifestation of LF than elephantiasis, 255 (92%) respondents in our study knew elephantiasis to be a consequence of LF where as only 21(7%) were aware of hydrocele similar to findings of Babu et al[8]. Knowledge regarding symptoms of acute manifestation like adenolymphangitis was almost absent.

Drugs during MDA were received by 204(73%) & were consumed only by 99 (48% of those who received drugs) in our study. Another study by Babu BV and SK Kar [4] in Khurda dist in 2002 reported 35.15% drug compliance. BV Babu reported fear of side effect to be a major reason for non-consumption where as in our study majority of non-consumer felt the drug to be unnecessary. The compliance is still far away from the desired level in both the studies.

Only 120(43%) respondents in our study knew that LF could be eliminated by MDA whereas 150(54%) were aware of the programme. In a study in coastal districts of Orissa by Rath K et al [7] 55% knew that LF could be eradicated by taking medicine.

CONCLUSION

Even after five rounds of MDA basic knowledge regarding LF is poor & a relatively low proportion of people are aware of the fact that taking medicine can eliminate it. Drug compliance was also very low (48%). Lack of awareness regarding the disease (aetiopathogenesis) and role of MDA in its elimination is one of the major reasons for poor compliance of drug during MDA.

As there are plans to undertake further rounds of MDA in Orissa, knowledge of the beneficiaries has to be strengthened, perception & attitude has to be addressed to achieve positive behavioral change which will eventually lead to higher compliance of MDA. Intensive IEC(Information, education & communication) must be done in order to improve community knowledge regarding lymphatic filariasis and role of MDA in its elimination, for the success of the programme. Information from such post MDA survey can be useful in developing area specific-health education programme for subsequent MDA .

Limitation

As it is a hospital based study with a small sample size, this study can be considered as a pilot study.

Community based studies covering wider geographical area need be done to have better idea regarding functional status of the ongoing programme.

Source of Support: Nil

Conflict of Interest: none

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Study of Newborn Care Practices in Urban Slums of Bangalore, India

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ABSTRACT

Background: Despite significant reduction in under five mortality, neonatal mortality continues to be high in India. Among various reasons, newborn care practices are major contributors for such high rates.

Objectives: a. To study the newborn care practices b. To study the factors influencing newborn care practices.

Materials & Method: A community based, cross-sectional study was conducted in the slums of urban field practice area of Dr B R Ambedkar Medical College, Bangalore.

Results: Totally 220 mothers were interviewed at their home within 15 days of the delivery, the results of the study showed that 92% were institutional deliveries remaining 8% were home deliveries. Many harmful practices were commonly noticed in home deliveries. Delayed initiation of breast feeding, discarding colostrum and giving prelacteal feeds were seen in both hospital and home deliveries. This study emphasizes on urgent need to re-orient health care providers, to educate mothers on clean delivery practices and early neonatal care.

Keywords: *Home Deliveries, Newborn Care, Breast Feeding, Slums*

INTRODUCTION

India is one of the earliest among the developing countries to recognize the importance of maternal and child health services. Still, health of the mother and child constitutes one of the most serious health problems affecting the community[1]. Child survival initiatives have significantly reduced under-five mortality in recent decades. As the burden of post neonatal deaths declines, neonatal deaths comprise an increasing share[2]. Death during the neonatal period (first twenty eight days of life) accounts for almost two thirds of all deaths in the first year of life and 40% of deaths before the age of five. Out of 130 million infants born worldwide every year, four million infants die in the first month of life, out of which India alone contributes around one million deaths[3]. WHO has recommended a set of essential newborn care practices to reduce neonatal mortality and morbidity[4, 5, 6]. Guidelines for essential newborn care include cleanliness, thermal protection, cleaning the airway, early and exclusive breastfeeding, eye care, appropriate immunization etc [7,8].

A neglected but important component of neonatal health is the condition of newborn care in the urban slums. The urban slums contribute significantly to the overall neonatal mortality rate. There is no access to basic infrastructure or public services for urban slum dwellers. There is insufficient investment in Health for this segment and hence a serious public health problem and challenge is being faced[9].

An appropriate and basic newborn care practices by mother, her family members and also by health care providers can play a major role in preventing neonatal deaths. With this background the present study was proposed to assess the various newborn care practices

which would help in initiating local need based interventions for dealing with the problem.

MATERIALS & METHOD

A community based, cross-sectional study was conducted from December 2007 to November 2008. The study area was slums in the urban field practice area of Dr B R Ambedkar Medical College, Bangalore. There were 10 slums in the area which had 12 anganawadi centers and the population of the study area was 65000. Sample size estimation was done after doing a pilot study to estimate the prevalence rate of giving prelacteal feeds which was found to be 34%. By taking this prevalence and permissible error of 20%, sample size was computed as 194, a total of 220 mothers participated in the study. A purposive sampling technique was adopted. Each anganawadi centre was visited once in every 15 days, information regarding the deliveries was collected and houses were visited to interview the mothers who were willing to participate in the study. An informed consent was taken, a pretested, semi structured questionnaire was used to collect the data. The study variables included socio demographic profile of mothers and questions pertaining to delivery practices, care of the newborn like cleaning the babies, eye care, cord care, rooming in, immunization and breast feeding practices.

RESULTS

The mean age of the mothers was 23.4 years. Of the 220 mothers, most of them 134(61%) were Hindus. Educational status showed that 35(16%) were illiterates, only 11(5%) were graduates. 206(94%) of the respondents were homemakers, majority 145(66%) belong to lower socio economic status. Nuclear families were found to be common 110(50%). 136(62%) were less than 19 years when got married, 64(29%) were Primis.

ANC Care

It was interesting to know that all the mothers had registered their pregnancy. The mean number of antenatal visits was 6.7. Majority 194(88%) of the mothers had two doses of TT. Though every mother had received IFA tablets, only 152(69%) had admitted that they have taken at least 100 tablets.

Delivery Practices

The study showed that 202(92%) were institutional deliveries. All the home deliveries were conducted by untrained personnel.

Table 1: Relationship between newborn care practices and place of delivery.

		Institutional Delivery (n=202)	Home Delivery (n=18)	Z test p-value
		No. (%)	No. (%)	
1.	**Clearing the air passage**			
	Finger	00 (0.0)	16 (88.9)	0.0000
	Mucous extractor	14 (6.9)	0 (0.0)	0.4392
	Don't know	188(93.1)	2 (11.1)	0.0000
2.	**Cleaning the body**			
	Immediate bath	00 (0.0)	18 (100.0)	0.0000
	Don't know	158 (78.2)	0 (0.0)	0.0001
	Dry cloth	44 (21.8)	0 (0.0)	0.1179
3.	**Rooming in**			
	Absent	10 (5.0)	0 (0.0)	0.5752
	present	192 (95.0)	18 (100)	
4.	**Immunization**			
	Not yet immunized	54 (26.7)	10 (55.6)	0.0746
	Appropriately immunized	148 (73.3)	8 (44.4)	0.7823

It was evident from Table No.1 that finger was used for Clearing the air passage in 16(89%) of home deliveries. Most of the mothers were not aware how the eyes were cleaned.

Immediate bath was given to all 100% home delivered babies to clean the babies. Rooming in was practiced in all the 18(100%) home deliveries. In 10(5%) of institutional deliveries it could not be done for few days because the babies were in neonatal ICU.

There were no statistically significant differences found among both the groups in relation to immunization status.

Table 2: Relationship between cord care given and place of delivery.

Instrument used to cut the cord	Institutional Delivery (n=202)	Home Delivery (n=18)	Z test p-value
	No. (%)	No. (%)	
Don't know	202 (100)	0 (0.0)	0.0001
Unsterile instrument	00 (0.0)	10 (55.6)	0.0000
Sterile instruments	00 (0.0)	08 (44.4)	0.000001
Cord tie used			
Sterile thread/clamp	202 (100)	00 (0.0)	0.0000
Unsterile thread	00 (0.0)	18 (100)	0.00000

Table no. 2 shows that 10(56%) of home delivered mothers said that unsterile knife/scissors were used to cut the cord (p<0.001). A sterile thread or clamp was used to tie the cord in all 202(100%) of the institutional deliveries. And in all home deliveries thread available at home which is considered to be unsterile was used. It is interesting to note that none of them had applied any substances on the cord stump.

Table 3: Relationship between feeding practices and place of delivery.

First feed after birth	Institutional delivery	Home Delivery	Z testp-value
	No. (%)	No.	
Breast milk	154 (76.2)	08 (44.4)	0.0323
Honey	40 (19.8)	02 (11.2)	0.551
Sugar water	08 (4.0)	08 (44.4)	0.0005
Initiation of breast feeding			
< 1hour	112 (55.4)	0 (0.0)	0.0006
1-4 hour	44 (21.8)	04 (22.2)	0.9999
4-8 hour	36 (17.8)	14 (77.8)	0.0001
≥ 8 hour	10 (5.0)	0 (0.0)	0.5756
Colostrum fed			
No	14 (06.9)	2 (11.1)	0.87
Yes	188 (93.1)	16 (88.9)	0.87

As seen in Table No. 3, 144(76%) of mothers in institutional deliveries and only 8(44%) of home delivered mothers had given breast milk as first feed which was statistically significant (p=0.0323).

Proportion of mothers Initiating breast-feeding within 1hour of birth in institutional deliveries was 112(55%) but none of the mothers in home deliveries did so (p=0.0006).There were no significant differences found in feeding and discarding colostrum among institutional and home deliveries (p>0.05).

Table 4: Relationship between religion and first feed after birth.

Religion	First feed after birth			TOTAL
	breast milk	honey	sugar water	
Hindu	122(91%)	0(0%)	12(9%)	134(100%)
Muslim	40(46.5%)	42(48.8%)	4(4.7%)	86(100%)
Total	162(73.6%)	42(19.1%)	16(7.3%)	220(100%)

Probability: 0.0001, Chi-squared-80.88, df-2

Table No. 4 reveals that most of Hindus 122(91%) had given breast milk as the first feed. The most important finding was majority of Muslims 42(49%) and 4(5%) had given honey and sugar water as prelacteal feeds respectively, and the findings were highly significant (p=0.0001).

DISCUSSION

In this cross sectional study, majority of the mothers were Hindus and most of them had studied up to school and higher secondary school. A study conducted by Manju Rahi *et al*[10] shows the similar findings.

Most of the mothers in the study population were homemakers. Similar findings were observed in a study by K Madhu[11]. Majority 145(66%) belong to lower socio economic status. The respondents in the study were classified into lower, middle and high class based on their socioeconomic status. Standard of living

index (SLI) was used to classify, as it can be used for both rural and urban population. It takes in to account 11 different heads scores. SLI is ascertained by adding the scores. Study results of Sonia Puri[12] showed that in urban area 69% were of upper social class where as in slums 72.6% were of lower class.

Nuclear families were found to be common, this could be because of usual trends in the urban slums wherein individual families migrate to urban areas in search of job and reside temporarily in slums. Results of studies by Khan et al[13] and Sonia Puri[12] reported similar findings. Majority of the mothers 136(62%) were less than 19 years when got married. Studies by Sohely Yasmin[14] and Sonia Puri[12] revealed similar findings & mean age at marriage for urban mothers was 13.8 years.

The study showed that 202(92%) were institutional deliveries against the national average of 41% according NFHS III[15]. This could be because of various State Government and Central Government MCH programmes and schemes which have the main objectives of encouraging institutional deliveries and reducing IMR.

All 18(100%) home deliveries were unplanned and unintentional, most of them took place in the night, hence all were conducted by untrained personnel, and this reflects the unavailability of trained birth attendants for emergency services.

Most of the mothers in the home deliveries reported that finger was used to clear the air passage, which may lead to introduction of infection and injury which was also reported by Manju Rahi *et al*[10]. Immediate bath was given to all home delivered babies, which sometimes can lead to hypothermia. In a Randomized Controlled Trial in Uganda it was reported that giving bath to newborns immediately after birth was associated with increased prevalence of hypothermia[16]. Rooming in was practiced in all the home deliveries but could not be done in all the institutional deliveries because some babies were kept in NICU for few days. There was no statistically significant difference found among both the groups in relation to immunization status.

Almost half 10(56%) of home delivered mothers admitted that unsterile knife or scissors were used to cut the cord. In all home deliveries thread available at home which is considered to be unsterile was used to tie the cord. Similar findings were reported in a survey by Mohammad Hussain Khan *et al*[17] showed that 20% of the home delivered new born babies had their cords cut with unhygienic tools including old blades, knives etc. Antenatal mothers and their families should be educated regarding clean delivery practices, the consequences of using unsterile instruments, threads, and neonatal tetanus.

Around 48(24%) reported giving honey and sugar water as the first feed because of religious beliefs, where as only 8(44%) of home delivered mothers have given breast milk as first feed. In a study in Vietnam, 47.5% had given breast milk as first feed[18]. The practice of giving prelacteal feeds is still widely prevalent in India[19,20]. Such practices of giving prelacteal feeds may affect the establishment of lactation and may also lead to introduction of enteric infections. Although in the present study, colostrum was fed more commonly compared to other studies[19,21]. Proportion of mothers initiating breast feeding within one hour of birth in institutional deliveries was around 112(55%)and 00(00%) in home deliveries, the explanation given for late initiation were NICU admission, baby given to the mother late after LSCS, lactation failure, ill health, fatigue of the mother all needs to be addressed through proper education and counseling[10].Baby should be breast fed preferably during the first hour of birth as the baby is most active during this period and sucks more vigorously. Lactation can be established successfully if the breast feeding is initiated in time[10].

It was satisfactory to know that most of the mothers had not discarded colostrum. Similar findings were observed in studies by Mohammad Hussain Khan *et al*[17] and in a study by K Madhu[11]. The most important finding was when the relationship between practice of giving first feed and religion was studied, it was noted that majority of Muslims 46(54%) had given honey and sugar water as first feed, most common reasons given were religious beliefs.

The present study highlights the importance of improving breast feeding practices both in the institutions and in the community.

As stated above, there were hazardous new born care practices in home deliveries especially with respect to the early new born care and breast feeding practices, which calls for urgent training of all health care personnel regarding maintaining aseptic precautions with the use of clean delivery kits. There should be breast feeding intervention programmes through mothercraft classes for the mothers during

antenatal and post natal checkups. All the maternity centers should be encouraged to be baby friendly.

Proper newborn care can quickly lead to dramatic decline in neonatal mortality. Newborn health should be integrated with maternal and child health and these programmes should strengthen and expanded in order to improve both child and maternal survival.

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Investigation of Causes of Death among Landless Insured Persons in Rural Area of Mahabubnagar District A.P.

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ABSTRACT

Background: The Society for Elimination of rural poverty (SERP) was established by the Govt. of Andhra Pradesh (GOAP) as a sensitive support structure to facilitate poverty reduction through social mobilization and improvement of livelihoods of rural poor in A.P. The District Rural Development Agency (DRDA)- Indira kranthi patham (IKP) insurance scheme for rural landless people enable every poor family in rural Andhra Pradesh to come out of poverty and stay out of poverty. The investigation of causes of death is very important for planning of preventive measures. Verbal autopsy is the one of the best scientific method to investigate the causes of death.DRDA- IKP insurance scheme for rural landless people resister the deaths and its possible cause with help of grass root level worker (BIMA MITRA).

Research Question: What are the causes of death among rural landless insured people of mahabubnagar disst.AP.?

Objective of Study: To investigate and verify the causes of deaths among rural landless insured Persons under DRDA-IKP scheme.

Study Design: Obvrtvational study

Setting and Participants: Community based ,rural area, close relatives of 300 insured people under DRDA-IKP scheme.

Methodology: The DRDA-IKP Mahabubnagar district entrusted the SVS Medical College, Department of Community Medicine, to investigate and verify the causes of deaths of insured landless members during the years 2012 to 2013. Out of the 64 mandals 30 were selected on the basis of 30 cluster sampling technique. Effective sample size turned out to be 300 (275 deaths under AABY and 25 deaths under ABH). Verbal autopsy tool was designed in the form of a Pre-designed, pre tested questionnaire. A responsible adult person preferably 1st degree relative in the household of the diseased was interviewed to answer the questionnaire. Collected data were analyzed in descriptive statistical method.

Results: Out of total 300 insured persons74% were male and 26% were female.The highest numbers of deaths 21% were reported in the age group 50-54 , & Lowest 1% were in the group 15-19 yrs.Around 37% insured persons died below the age of 40years which shows high mortality in much younger age grouup and 90.33% deaths occurred in the economically productive age groups between 31 to 59 years.Around 174 persons (58%) used to consume alcohol , 147(49%) of them were smokers and 45 (15%) were addicted to tobacco chewing .the major causes of deaths were infectious & parasitic diseases(23.66%) and circulatory diseases (23.66%),followed by external causes like accidents (14.66%),diseases of digestive system(10%) and neoplasm (7%),respiratory diseases (6.33%) etc.

Keywords: *Cause of death, SERP, DRDA-IKP, insured rural landless, verbal autopsy,Bima Mitra*

INTRODUCTION

During September 2000, representatives of 189 countries met at Millennium Submit in New York, to adopt the United Nations Millennium Declaration .The goals in area of development and poverty eradication are now widely referred to as "Millennium Development Goals".The first goal of MDG is – "Eradicate extreme poverty and hunger"[1].In the continuation of similar target the vision of SERP is to enable every poor family in rural Andhra Pradesh to come out of poverty and stay out of poverty. AABY (Aam adami bima yojna) and ABH(Abhaya Hastham) are the group insurance schemes for the benefit of rural landless agricultural laborers through life insurance Corporation of India[2].

Death is the most certain fact of life. Death can be defined as permanent cessation of all biological vital functions that sustain a living organism. Phenomena which commonly bring about death include biological aging, predation, malnutrition, disease, suicide, murder and accidents or trauma resulting in terminal injury. India is facing epidemiological transition as a consequence of economic and social changes at global level. The pattern of mortality is a key indicator of the health status of community. However in india up-to-date, precise, and reliable statistics are few, particularly in rural areas.Verbal autopsy is a research method that helps determine probable causes of death in cases where there was no medical record or formal medical attention given.

The chief Executive Officer, SERP has informed Govt, that they are implementing community run Insurance covering 1.00 crore individuals consisting of 70.00 lakhs house holds under various Insurance Schemes for the poor and also informed that on average 70,000 deaths are registered per annum and requested to find out cause of death so that Govt. can get detailed insight into various major killer diseases and can put in place preventive measures.[2]

In the rural areas medical certification of cause of death is usually not feasible since many deaths occur without any prior medical attendance. Thus the country depends on a system of lay reporting of cause of death using what is called a verbal autopsy methodology. Prasanta Mahapatra (2000)[3]

METHODOLOGY

Present study was carried out in the department of Community Medicine SVSMC, Mahabubnagar in July-August 2013. The DRDA-IKP Mahabubnagar district entrusted the SVS Medical College, Department of Community Medicine, to investigate and verify the causes of deaths of insured landless members during the years 2012 to 2013. Permission and ethical clearance were taken prior to study. The necessary information regarding the person insured under AABY and ABH schemes in the district and the number of these insured who died during the year April 2012- March 2013 were obtained from the DRDA project office. In the 64 Mandals of Mahabubnagar district total 170617 persons were insured under AABY of whom 2449 died during the year, and under AHY 159607 persons were insured & 251 died.

Sample size: As per the terms of reference we are required to survey minimum 10% of the total deaths that occurred among the insured persons under AABY & ABH.

Mahabubnagar district is divided into 64 mandals. The mandal and village wise lists of insured persons was prepared with the help of the nodal agency. Out of the 64 mandals 30 were selected on the basis of 30 cluster sampling technic. Total 300 insured people (275 deaths under AABY and 25 deaths under ABH) were taken as study sample.

Cluster Sampling technique was done in 2 stages

Stage 1: 30 clusters ie. Mandals from the district are selected randomly.

Stage 2: The villages in the 30 selected mandals were listed and 4 villages in each mandal were randomly selected by lots. The cases in these villages were also selected by random sampling technique using lots.

In all 300 cases a responsible adult person preferably 1st. degree relative in the household of the diseased was interviewed to answer the questionnaire Wife/husband/father/mother/son).Additional information was obtained from the bima mitra (grass root level worker for DRDA), neighbors /village heads/members of self help groups of the village for confirming the data. The team (one faculty & one assistant doctor) visited household of the insured for interviewing. causes of death were classified according to International Classification of Diseases (ICD 10)[4] produced by WHO and accepted for national and international use.

Collected data were analyzed in descriptive statistical method.

RESULTS

In Mahabubnagar district total 330224 persons registered under DRDA-IKP (AABY &ABH schemes) during April2012 to March 2013.out of this 2700 isured persons died.

Table 1. Study Sample of Insured persons in each insurance scheme

Scheme	No. of insured	%
AABY	273	91%
AHY	27	9%
Total	300	100%

As per the above table-1 out of total 300 insured persons 91% were from AABY and 9% were from AHY insurance scheme

Table 2. Age wise Distribution of insured persons

S. No.	Age wise distribution	No.	%
1	15-19	03	1.00%
2	20-24	08	2.66%
3	25-29	18	6.00%
4	30-34	38	12.66%
5	35-39	44	14.66%
6	40-44	57	19.00%
7	45-49	62	20.66%
8	50-54	63	21.00%
9	55-59	07	2.33%
Total		300	100%

As per the above table-2 out of total 300 insured persons highest numbers of deaths 21% were reported in the age group 50-54 , & Lowest 1% were in the group 15-19 yrs.around 37% insured persons died below the age of 40years which shows high mortality in much younger age grouup and 90.33% deaths occurred in the economically productive age groups between 31 to 59 years.

In our study 74% were male and 26% were female. In the sample of 300 who died 129 (43%) belonged to BC, 127 (42.33) belonged to SC 35 (11.66%) belonged to ST and 9 (3%) belonged to OC. So majority 85.33% belonged to SC&BC.

Out of the 300 who died 174 persons (58%) used to consume alcohol and 147(49%) of them were smokers and 45 (15%) were addicted to tobacco chewing.

Table 3. Causes of Death (according to ICD-10)

S. No	Cause of Death	Total
1	**NEOPLASMS (C00-D48)**	
a	Digestive System	07
b	Ca Breast	02
c	Cervical Cancer	05
d	Oral-Orophaynx	03
e	Leukemia	01
f	Others	01
g	Lung	02
	Sub total	**21 (7%)**
2	**DIGESTIVE SYSTEM (K00-K93)**	
a	Diseases of liver	18
b	Alcoholism	02
c	Appendicitis	02
d	APD	08
	Sub total	**30 (10%)**
3	**GENITO URINARY(N00-N99)**	
	Sub total	17 (5.66%)
4	**NERVOUS (G00-G99)**	
	Sub total	12 (4%)
5	**CIRCULATORY(100-199)**	
a	Ischemic Heart Disease	38
b	Cerebro Vascular Disease	21
c	Other –CRHD,DCM,CCF	11
d	Shock, Bleeding ect.	01
	Sub total	**71 (23.66%)**
6	**RESPIRATORY(J00-J99)**	
a	COPD	15
b	Pneumonia	03
c	Pneumoconiosis	01
	Sub total	**19 (6.33%)**
7	**ENDOCRINE (E00-E90)**	
a	DKA	01
	Sub total	**01 (0.33%)**
8	**EXTERNAL CAUSE(V01-Y98)**	
a	Poisoning	01
b	Suicide	01
c	Burn	01
d	Fall	05
e	Snake Bite	04
f	RTA	22
g	Electrical Shock	02
h	Heat Stroke	08
	Sub total	**44 (14.66%)**
9	**UNIDENTIFIED (R00-R99)**	03
	Sub total	**03 (1%)**

Table 3. Causes of Death (according to ICD-10) (Contd.)

S. No	Cause of Death	Total
10	**MENTAL & BEHAVIORAL DISORDERS(F00-F99)**	
	DEPRESSION	11
	Sub total	11(3.66%)
11	**INFECTIONS & PARASITIC DISEASES (A00-B99)**	
a	Respiratory Infection	
b	Tuberculosis	26
c	Intestinal infection	
d	Typhoid	01
e	Diarrhoeal	08
f	HIV/AIDS	04
g	MALARIA/DHF/ect.	18
h	PUO/HYPERPYREXIA	03
i	SEPTICEMIA	11
	Sub total	71 (23.66%)
	Grand Total	300 (100%)

As per table 3. Major causes of death were

1. Infections & Parasitic Diseases (A00-B99) 23.66%- which includes Respiratory Infection– Tuberculosis Intestinal Infection – Typhoid, Diarrhea, HIV/AIDS, Malaria/DHF, PUO/ Hyperpyrexia, Septicemia
2. CIRCULATORY(100-199)- 23.66%which includes Ischemic Heart Disease, Cerebro Vascular Disease, Other–CRHD,DCM,CCF , Shock, Bleeding etc.
3. EXTERNAL CAUSE (V01-Y98) -14.66% which includes Poisoning , Suicide, Burn , Snake Bite, Fall , RTA, Electrical Shock, Heat Stroke etc
4. DIGESTIVE SYSTEM (K00-K93)- 10.00% which includes Diseases of liver, Alcoholics, Appendicitis, APD. etc.
5. NEOPLASMS (C00-D48)- 7.00% which includes Digestive System, Ca Breast, Cervical Cancer, Oral-Orophaynx, Leukemia, Lung,& Others.
6. RESPIRATORY(J00-J99-)6.33% which includes COPD ,Pneumonia, Pneumoconiosis etc.
7. GENITO URINARY(N00-N99)-5.66% which includes CRF,ARF,Renal stones etc.
8. Mental & Behavioral Disorders (F00-F99) 3.66% which includes Depression,Schrezophenia etc.
9. UNIDENTIFIED (R00-R99) -1.00% Out of 300 persons 78% of the insured died at home, 15% died in the hospital and 7% died on the way to the hospital/medical help.

Graph 1. Graphical presentation of causes of deaths

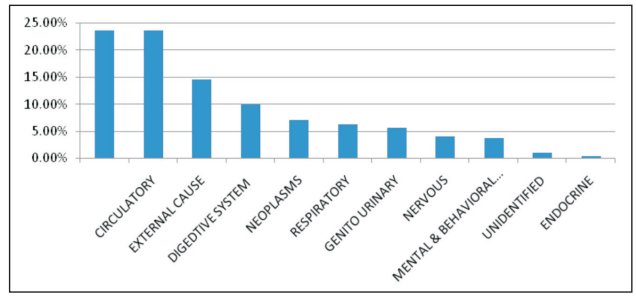

Table 4. Analysis Of Death Rates

(As per SRS & ASDR estimates 2009 for rural India)[5]

Age group	Population as perSRS 2009	ASDR as per SRS 2009	Expected deaths
15-19	7580	1.4	11
20-24	6937	2.0	14
25-29	6762	2.1	14
30-34	5626	2.7	15
35-39	5653	3.4	19
40-44	4354	4.0	17
45-49	3805	5.9	22
50-54	3065	8.9	27
55-59	2109	12.0	25
Total	45891		164

Source- Sample Registration System, Registrar General of India 2005-2009

As per the table-4, Population as per SRS 2009=**45891**

Expected deaths=164

The Expected deaths $= \frac{164 \times 330224}{45891} = 1180$

SMR= $\frac{\text{Observed deaths}}{\text{Expected deaths}} \times 100$

Standard Mortality Ratio= $\frac{2700 \times 100}{1180} = 228\%$

The mortality risk of the population covered under DRDA- IKP, Mahabubnagar district is 228% which is 128% more than the Indian Population.

This is not a satisfactory Mortality Experience

DISCUSSION

Cause-of-death data derived from verbal autopsy (VA) are increasingly used for health planning, priority

setting, monitoring and evaluation in countries with incomplete or no vital registration systems. In some regions of the world it is the only method available to obtain estimates on the distribution of causes of death. Soleman (2006)[6].

Verbal autopsy is a research method that helps determine probable causes of death in cases where there was no medical record or formal medical attention given. It was also suggested that for verbal autopsies to be comparable, they need to be based on similar interviews and the cause of death needs to be arrived at in the same way in all cases. ICMR (2009)[7]

In a similar study done by Anil Kumar Bathula et al[8], 91% of the deceased members are in the economically productive age groups between 31 to 60 years these results are very similar with our study(90.33%). Around 80% of the interviewed persons were closely related to the deceased . In their verbal autopsy showed predominance of Lifestyle diseases (52%) followed by infectious diseases (35%) and accidental deaths (12%).These results are relatively similar to present study.

As it is ovious from the findings of present study that he mortality risk of the population under DRDA-IKP, Mahabubnagar is 228% which is 128% more than the Indian Population. Out of 300 persons 78% of the insured died at home, 15% died in the hospital and 7% died on the way to the hospital/medical help.similar kind of results were found in Anil Kumar Bathula[8] et al study also.

On other hand in a similar kind of study done in Andhra Pradesh, by Joshi R at al (2006)[9] diseases of the circulatory system were the leading causes of mortality (32%). Infectious and parasitic diseases (12%) came third. Which are quite similar to present study.Non-communicable and chronic diseases seem to now be the leading causes of death even in rural India

In present study out of 300 persons 78% of the insured died at home, 15% died in the hospital and 7% died on the way to the hospital/medical help that shows that around 85% insured persons did not receive the health services during the last period of life.

The reasons for this high mortality experience in Mahabubnagar Dist. Could be

1) This is the most backward and poor district in the AP state
2) The people are ignorant and illiterate.
3) Availability of health services is not adequate.
4) Transportation is very poor specially in rural & tribal areas.
5) Knowledge, attitude and practices- of the people are poor
6) Affordability is poor.
7) Risk factors like alcoholism ,smoking is very common.

Preventive and control measures can be done to reduce these deaths by workable partnership with accessible and qualified NGOs / institutions for identifying low cost diagnostic and health care system and better intersectorial coordination.

CONCLUSIONS

Community based Social insurance is very beneficial and important for the development in rural areas. There is a need for cost effective ,feasible and friendly healthcare systems which are accountable for the health of rural poor people. Present study shows that out of total 300 insured persons the highest numbers of deaths 21% were reported in the age group 50-54, & Lowest 1% were in the group 15-19 yrs. Around 37% insured persons died below the age of 40years which shows high mortality in much younger age grouup. 174 persons (58%) used to consume alcohol and 147(49%) of them were smokers and 45 (15%) were addicted to tobacco chewing which are life style related risk factors .the major causes of deaths were infectious& parasitic diseases(23.66%) and circulatory diseases (23.66%), followed by external causes like accidents (14.66%), diseases of digestive system(10%) and neoplasm (7%),respiratory diseases (6.33%) etc. Poor access to and poor utilization of Govt. health services and hospitals due to lack awareness or ignorace of insured persons or even rest of the general population is leading to undiagnosed chronic illness and various risk factors .Preventive and control measures can be done to reduce these deaths by workable partnership with accessible and qualified NGOs / institutions for identifying low cost diagnostic and health care systems better intersectorial coordination.

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Conflict of Interest: In the present study the presence of a conflict of interest is independent from the execution of impropriety. In the present research study primary interest which refers to the principal goals of the profession or activity, such as the protection of subjects, the health of participants, the integrity of research, and the duties of public office were maintained without any failure. There was no hazards for environment or human or animal life in this study. This Secondary interest like any financial gain or any wish to do favors for family and friends or colleagues was not done by this study. This study was conducted mainly for research, learning & professional advancement.

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Correlation Study of Duration of Type 2 Diabetes with Severity of Neuropathy

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ABSTRACT

Background: Duration of diabetes mellitus is an important risk factor for all diabetes-related microvascular complications such as neuropathy, retinopathy, and nephropathy. Up to 7.5% of patients with non-insulin-dependent diabetes mellitus (NIDDM) have clinical neuropathy at the time of diagnosis and this rate increases to 50% among patients who have had diabetes for 25 years.

Objective: The present population study was done to assess the correlation of severity of diabetic neuropathy (mild, moderate, and severe) in type 2 diabetes mellitus with that of the duration of disease

Materials and Method: A population-based sample of 60 persons with type-2 diabetes (identified as per the WHO criteria) underwent Vibration perception threshold (VPT) measurements for diabetic neuropathy grading. Severity of neuropathy was graded into three groups based on VPT score as mild (20-24.99 V), moderate (25-38.99 V), and severe (≥39 V). Chi square test was done to analyze the correlation between duration of the disease and the severity of neuropathy.

Results: There was a positive correlation between the duration of DM & severity of neuropathy, the correlation coefficient was 0.414 and this was statistically significant ($p<0.001$).

Conclusions: The results suggested highly significant correlation between severity of diabetic neuropathy in type 2 diabetes mellitus with that of the duration of disease, making this group vulnerable for complications such as foot ulceration or lower limb amputation. Preventive strategies and patient education still remain key factors in reducing complication rates and mortality.

Keywords: *Type-2 Diabetes Mellitus, Neuropathy*

INTRODUCTION

Diabetic neuropathies are a heterogeneous group of disorders that include a wide range of abnormalities. They can be focal or diffuse, proximal or distal, affecting both peripheral and autonomic nervous systems, causing morbidity with significant impact on the quality of life of the person with diabetes, and can result in early death. Distal symmetric polyneuropathy, the most common form of diabetic neuropathy, usually involves small and large nerve fibers. Small-nerve-fiber neuropathy often presents with pain but without objective signs or electrophysiologic evidence of nerve damage, and is recognized as a component of the impaired glucose tolerance and metabolic syndromes. The greatest risk resulting from small-fiber neuropathy is foot ulceration and subsequent gangrene and amputation. Large-nerve-fiber neuropathies produce numbness, ataxia and uncoordination, impairing activities of daily living and causing falls and fractures. A careful history and detailed physical examination are essential for the diagnosis. Symptomatic therapy has become available and newer and better treatment modalities, based on etiologic factors, are being explored with potential for significant impact on morbidity and mortality. Preventive strategies and

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patient education still remain key factors in reducing complication rates and mortality.[1]

Diabetic neuropathy is an important microvascular complication of diabetes mellitus. It is a major contributor to foot ulceration and lower limb amputation in persons with diabetes. [2]As the population of diabetes is increasing worldwide, the prevalence of diabetes-related microvascular complications is also on the rise. Duration of diabetes mellitus is an important risk factor for all diabetes-related microvascular complications such as neuropathy, retinopathy, and nephropathy. Up to 7.5% of patients with non-insulin-dependent diabetes mellitus (NIDDM) have clinical neuropathy at the time of diagnosis and this rate increases to 50% among patients who have had diabetes for 25 years. [3]Various screening modalities for diabetic neuropathy include recording of symptoms or signs, nerve conduction studies, quantitative sensory testing, and autonomic testing.[4] Quantitative assessment of vibration perception threshold (VPT) is a widely applied tool in the screening for, and staging of diabetic sensory neuropathy, particularly in epidemiological studies. [5,6] Values of VPT of more than 25 V are associated with a 6-10-fold risk of developing a foot ulcer.[6] These findings suggest the role of "severity" of diabetic neuropathy in the etiology of its complications.

AIMS AND OBJECTIVES

The present population study was done to assess the correlation of severity of diabetic neuropathy (mild, moderate, and severe) in type 2 diabetes mellitus with that of the duration of disease

MATERIALS AND METHOD

Study subjects were recruited from Victoria hospital, BMCRI, Bangalore. 60 persons identified with type-2 diabetes as per the WHO criteria [7] (both known and newly diagnosed) were analyzed for the study and they underwent diabetic neuropathy assessment. Informed consent was obtained from the subjects as per the Helsinki declaration.

Diabetic neuropathy assessment

Diabetic neuropathy assessment was done by measuring VPT using sensitometer. The VPT was measured by a single observer by placing biothesiometer probe perpendicular to the distal plantar surface of the great toe of both legs. The VPT was measured at a voltage level when patient felt the first vibration sensation. The mean VPT measure of three readings of both legs was considered for the analysis. The severity of neuropathy was graded into 3 levels: mild neuropathy (VPT score, 20-24.99 V), moderate neuropathy (VPT score, 25-38.99 V), and severe neuropathy (VPT score, >39 V). [8]

OBSERVATION & RESULTS

Table 1. Showing a positive correlation between the duration of DM & severity of neuropathy, the correlation coefficient was 0.414 and this was statistically significant (p<0.001).

			Duration of DM	Severity of neuropathy
Spearman's rho	Duration of DM	Correlation Coefficient	1.000	.414**
		Sig. (1-tailed)	-	.000
		N	60	60
	Severity of neuropathy	Correlation Coefficient	.414**	1.000
		Sig. (1-tailed)	.000	.
		N	60	60

**. Correlation is significant at the 0.01 level (1-tailed).

Table 2. Showing significant association (at 95% CI) between DM>5yrs and onset of Neuropathy. (p=0.05)

			Severity Cat0		Total
			No	Neuropathy present	
DMDur2cat5	Less than 5yrs	Count	15	12	27
		% within DMDur2cat5	55.6%	44.4%	100.0%
	More than 5yrs	Count	9	24	33
		% within DMDur2cat5	27.3%	72.7%	100.0%
Total		Count	24	36	60
		% within DMDur2cat5	40.0%	60.0%	100.0%

The OR for which is 3.333. The odds of a person having DM for >5yrs of developing neuropathy is 3.33 times that of a person having DM for ≤5yrs

Table 3. Showing significant association (at 95% CI) between DM>5yrs and development of mod/severe Neuropathy. (p=0.001)

			Severity Cat0		Total
			Absent, mild	Mod & severe	
DMDur2cat5	Less than 5yrs	Count	25	2	27
		% within DMDur2cat5	92.6%	7.4%	100.0%
	More than 5yrs	Count	17	16	33
		% within DMDur2cat5	51.5%	48.5%	100.0%
Total		Count	42	18	60
		% within DMDur2cat5	70.0%	30.0%	100.0%

The OR for which is 11.765. The odds of a person having DM for >5yrs of developing mod/severe neuropathy is 11.765 times that of a person having DM for ≤5yrs

Table 4. Showing significant association (at 95% CI) between DM>10yrs and development of mod/severe Neuropathy. (p=0.046)

			Severity Cat0		Total
			No, mild	Mod & severe	
DMDur2cat10	Less or equal 10yrs	Count	32	9	41
		% within DMDur2cat10	78.0%	22.0%	100.0%
	More 10yrs	Count	10	9	19
		% within DMDur2cat10	52.6%	47.4%	100.0%
Total		Count	42	18	60
		% within DMDur2cat10	70.0%	30.0%	100.0%

The OR for which is 3.2. The odds of a person having DM for >10yrs of developing mod/severe neuropathy is 3.2 times that of a person having DM for ≤10yrs

Table 5. Showing significant association (at 95% CI) between DM>20yrs and development of severe Neuropathy. (p=0.031)10yrs and development of mod/severe Neuropathy. (p=0.046)

			Severity Cat2		Total
			No, Mild & Mod	Severe	
DMDur2cat20	Less equal 20	Count	49	5	54
		% within DMDur2cat20	90.7%	9.3%	100.0%
	More 20	Count	3	3	6
		% within DMDur2cat20	50.0%	50.0%	100.0%
Total		Count	52	8	60
		% within DMDur2cat20	86.7%	13.3%	100.0%

The OR for which is 9.8. The odds of a person having DM for >20yrs of developing mod/severe neuropathy is 9.8 times that of a person having DM for ≤20yrs

DISCUSSION

Diabetic peripheral neuropathy (DPN), a common and troublesome complication in patients with type 2 diabetes mellitus (T2DM), contributes to a higher risk of diabetic foot ulcer and lower limb amputation. These situations can negatively impact the quality of life of affected individuals. Despite its high prevalence and clinical importance, most diabetes mellitus patients not only do not recognize the presence of diabetic neuropathy, but also do not report their symptoms to physicians or other health care providers. Therefore, DPN is usually under diagnosed and undertreated. For early detection and appropriate intervention for DPN, a careful history, physical with neurologic examination and prompt treatment are needed in T2DM patients.

Pathogenesis and Mechanism of DPN

Hyperglycemia not only activates the sorbitol accumulation with a subsequent increase in cellular osmolarity, but it also shunts to the hexose pathway, producing oxidative stress and the formation of advanced glycation end products [9]. Damage to peripheral nerves results in hyperexcitability in the

primary afferent nociceptors. This damage leads to hyper excitability in central neurons and the generation of spontaneous impulses within the axons as well as the dorsal root ganglion of these peripheral nerves [10,11]. This mechanism is suggestive of an abnormality contributing to the pain in DPN.

- In a landmark study, over 4400 patient with diabetes were serially evaluated over 25 years. [12-14] Neuropathy was defined as decreased sensation in the feet and depressed or absent ankle reflexes. The onset of neuropathy correlated positively with the duration of diabetes and, by 25 years, 50 percent of patients had neuropathy. Results of our study also revealed a significant association between DM of >5yrs, >10yrs, >20yrs and development of Neuropathy.

- In a cross-sectional multicenter study of 6487 diabetic patients in the United Kingdom, the overall prevalence of diabetic neuropathy was 28.5 percent. [15] There was a correlation with disease duration such that the prevalence reached 44 percent in patients between 70 and 79 years of age. In our study, there was significant association (at 95% CI) between DM >20yrs and development of severe Neuropathy. (p=0.031)

- In the UKPDS trial, 3867 newly diagnosed patients with type 2 diabetes were randomly assigned to either intensive therapy (sulfonylurea or insulin) or conventional therapy (diet control). [16] After ten years, absent ankle reflexes, as a sign of diabetic neuropathy, were noted in 35 and 37 percent, respectively. There was significant association (at 95% CI) between DM >10yrs and development of mod/severe Neuropathy. (p=0.046) in our study.

CONCLUSION

The dramatic increase in the prevalence of T2DM with its acute or chronic complications are a major health concern in India and worldwide. Screening of high risk individuals, early detection, and proper management of DPN in patients with T2DM is urgently needed. Careful foot examination, active application of outpatient screening tools including the assessment of pedal pulses, and an organized diabetic foot-care program are needed. Despite the improvement in treatment modalities for chronic pain in recent years, patients with DPN continue to be inadequately treated. Therefore, active pharmacologic treatment should be considered to relieve neuropathic pain and improve the quality of life in patients with T2DM.

LIMITATIONS

1. The study would have yielded better results with larger sample size.
2. Retrospective and prospective assessment of glycemic control and other co-morbid conditions would have given a significant insight (statistically) about DPN.

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Conflict of Interest: Nil

Source of Funding: Nil

Ethical Clearance: Not applicable

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Prevalence of Tobacco use among Adolescents in an Urban Slum Area of Bhubaneswar, Odisha

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ABSTRACT

Background: Use of tobacco is the second major cause of death in the world. Each year, tobacco products kill some 5 million people worldwide and this number is increasing. In India, approximately 5500 children and adolescents start using tobacco products daily, some as young as 10 years old. Objectives: To estimate the prevalence of tobacco use in urban field practice area of IMS and SUM Hospital and to identify the factors contributing towards it.

Materials and Method: It was a community based cross sectional study conducted during June - August 2010 in the field practice area of IMS & SUM Hospital, Bhubaneswar. The sample size calculated was 300. Starting at random every 2nd household was visited and all the members 10 - 19 were included in the study. They were interviewed by predesigned and pretested questionnaire. Data on age, sex, tobacco use by them, tobacco use by other family members, knowledge regarding harmful effects etc. were collected. Statistical analysis comprised calculating proportions of tobacco users and cross-tabulation with the chi-square test.

Results: The overall prevalence of tobacco use was 28.7%. Curiosity and peer pressure were the main reasons behind using tobacco. Tobacco use by parents or siblings had a significant influence on adolescents using tobacco. 65.1% of adolescent tobacco users were burrowing or stealing money for their tobacco use. 25.3% of adolescents had no knowledge regarding harmful effects of tobacco.

Conclusion: Tobacco use by family members influences adolescents, as they develop inclination towards tobacco use.

Keywords: *Adolescents, Tobacco Use, Tobacco Use By Family Members*

INTRODUCTION

Use of tobacco is the second major cause of death in the world.[1] Each year, tobacco products kill some 5 million people worldwide and this number is increasing. WHO estimates that, unless current smoking patterns reversed, tobacco will be responsible for 10 million deaths per year, by the decade 2020 – 2030, with 70% of them occurring in developing countries.[2]

The World Health Organization has defined 'adolescents' as persons in the 10-19 years age group.[3] Adolescence is the critical period where the initiation of tobacco use takes place. In the National Family Health Survey-2 (NFHS-2), the prevalence of consumption of tobacco and smoking was reported to be 4.1 and 1.8 percent respectively among adolescent age group.[4] According to the Global Youth Tobacco Survey (GYTS) (2000-2004) including students from grades 8-10 in India 17.5% were current users of tobacco in any form, 14.6% were using smokeless tobacco and 8.3% were current smokers.[5] In India, approximately 5500 children and adolescents start

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using tobacco products daily, some as young as 10 years old.[6]

Till date no prevalence studies in urban slums of Bhubaneswar has been undertaken. Slum is the vulnerable area in which tobacco use is increasing. So an attempt was made with the objectives of finding out the prevalence of tobacco use in the urban field practice area of Institute of Medical Sciences and SUM Hospital, Bhubaneswar and to identify the factors contributing towards tobacco use.

MATERIALS AND METHOD

It was a community based cross sectional study conducted during June - August 2010 in an urban slum area of Bhubaneswar near Baramunda Bus stand, which is the field practice area of Department of Community Medicine. The prevalence of tobacco use was found to be 25% from a pilot study. The sample size was calculated to be 300 by taking the prevalence to be 25% at 95% confidence interval and 5% allowable error. As per anganwadi registers and survey registers of Urban Health & Training Centre, total no. of slum households present near Baramunda are 628. Total population as per registers is 2978 and population of adolescents is 672. On verification of registers, it was found that average of 1 - 2 adolescents were residing in each family. So the no. of families to be visited were 300 (300/1). 300 households from 628 households were selected with interval of 2 (628/300). Starting at random every 2nd household was visited and all the members of 10 – 19 years were included in the study in the selected family. Locked houses were excluded and the next household was selected for the study. Absentees were covered by revisiting the house. The data were collected till the sample size was reached.

The study subjects were interviewed by predesigned and pretested questionnaire. Data in respect of age, sex, tobacco use by them, tobacco use by other family members, knowledge regarding harmful effects of tobacco etc. were collected.

The information collected was analyzed in the dept. of Community Medicine by using SPSS software. Statistical analysis comprised calculating proportions of tobacco users and cross-tabulation with the chi-square test.

RESULTS

Out of 300 adolescents, 69.3% were male. Proportion of adolescents in different age groups of 10-13, 14-16 and 17-19 years were 34.7%, 29.3% and 36% respectively. 64.7% adolescents were having secondary level of education followed by 19.3% of primary level. A majority 53.3% were students followed by 24% unskilled workers.

The overall prevalence of tobacco use in the slum area was found to be 28.7% (86 out of 300 adolescents), while the prevalence of tobacco chewing was 83.7% and both chewing and smoking was 16.3%.

Table 1: Forms of tobacco use by Adolescents

Forms of tobacco use (n=86)	Percentage
Chewing	83.7
Chewing + Smoking	16.3
No. of packets (10 g.) of chewable tobacco per day (n = 86)	
< 5 packets	55.8
> 5 packets	44.2

It was observed that 44.2% (38) of adolescent tobacco users were chewing more than 5 packets (10 g. each) of smokeless tobacco per day. The no. of cigarettes used varied from 1 – 18 per day.

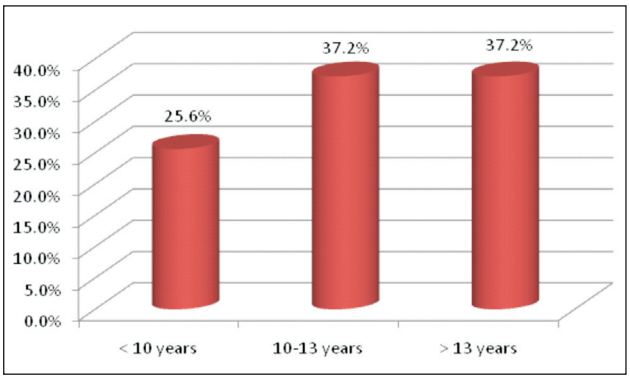

Fig. 1. Initiation of Tobacco use by adolescents

62.8% of adolescents initiated tobacco before adolescence (before 10 years - 25.6%) and early adolescence period (10 to 13 years - 37.2%).

Table 2: Reasons for Tobacco use of Adolescents

Reasons (n = 86)	Percentage
Curiosity	69.8
Peer pressure	48.8
Relaxation	23.3
Taste	13.9
Others	25.6

Curiosity (69.8%) and peer pressure (48.8%) were the main reasons behind starting and continuing tobacco use [Table 2]. 65.1% of adolescent tobacco users were burrowing or stealing money for their tobacco use.

Table 3: Factors associated with Tobacco use by adolescents

Factors	Total No. of adolescents	Tobacco use No. (%ge)	Remarks
Age			
10 – 13 years	104	16 (15.4)	X^2= 42.19
14 – 16 years	88	22 (25)	d.f. = 3
17 – 19 years	108	60 (55.5)	P< 0.001
Sex			
Male	208	72 (34.6)	X^2=11.72, d.f.=1
Female	92	14 (15.2)	P < 0.001
Education			
Illiterate& primary	74	20 (27.02)	X^2=0.128, d.f.=1
Above primary	226	66 (29.2)	P >0.05
Occupation			
Unemployed	62	18 (29)	X^2= 17.534
Students	160	32(20)	d.f.=3
Working group (S+U)	78	36 (46.1)	P< 0.001
Knowledge about hazards			
With some knowledge	224	70 (31.2)	X^2= 2.887, d.f.=1
Without any knowledge	76	16 (21)	P>0.05

The prevalence of tobacco use was 55.5% among adolescents of 17-19 years and this was significantly higher (P<0.001) than other two groups. Tobacco use was significantly higher in male adolescents (34.6%) than female adolescents (15.2%) (P<0.001). Tobacco use was equally distributed both in illiterate & primary (27.02%) and above primary (29.2%) educated adolescents and not significantly different (P>0.05). Tobacco use was 46.1% in working group i.e. both skilled and unskilled workers which was significantly higher than students (20%) and unemployed adolescents (29%). It was found that 25.3% of adolescents were not having knowledge about the harmful effects of tobacco use and this knowledge was not significantly associated with their tobacco use (P>0.05).

Table 4: Tobacco use and Family members, peer pressure

Family members using tobacco	Total	Adolescents using tobacco
No member using	78	10 (12.8%)
Any family member using	222	76 (34.2%)

X^2= 12.93, d.f. =1, P < 0.001

Tobacco use by other family members (parents or siblings) was found to have significant influence on adolescents to use tobacco (X^2= 12.93, d.f. =1, P < 0.001)

DISCUSSION

The overall prevalence of tobacco use among adolescents in urban slum area was found to be 28.7%. Sharma et al. (2010) in their study among adolescent students found the prevalence of tobacco use to be 20.9%.[7] This behavior is found to be higher in adolescents of slum area which may be attributed to lack of recreation facilities, work culture, lack of access to health education and over all compromised living condition.

The proportion of tobacco chewing was 83.7% and both chewing and smoking was 16.3% and the no. of cigarettes varied from 1 – 18 per day. In a study by Arora M et al (2010), they reported that chewing tobacco being the most popular among adolescents.[8] 62.8% of adolescents initiated tobacco before adolescence i.e. before 10 years (25.6%) and early adolescence period i.e. 10 - 13 years (37.2%). In the same study, the participants reported that they started using tobacco at a very early age as early as 6 years and used tobacco regularly.[8] Ansari et al (2010) reported that about 23.64% power loom workers initiated tobacco use at 10 years of age or earlier.[9]

Curiosity (69.8%) and peer pressure (48.8%) were the main reasons behind starting and continuing tobacco use. The life style in slums and discontinuation from studies may be playing a role in the tobacco use among adolescents. In a study by Shah et al (2005), the most common reason for starting tobacco consumption was for the sake of adventure (34.2%) followed by tension (25.4%), peer pressure (15.8).[10]

It was found that 65.1% of adolescent tobacco users were burrowing or stealing money for their tobacco use which is a serious problem and needs to be explored further.

The prevalence of tobacco use was 55.5% among adolescents of 17-19 years and this was significantly higher (P<0.005) than other two age groups. In the study by Sharma et al, they found higher prevalence among students aged 16-19 than those in the age group of 14 – 15 years.[7] In the present study tobacco use is significantly higher in male adolescents (P<0.02) which is similar to the study by Sharma et al where prevalence

is 23.8% in male adolescent students 14.9% in female students (P=0.016).[7]

Tobacco use was equally distributed both in illiterate & primary (27.02%) and above primary (29.2%) educated adolescents and not significantly different (P>0.05). But in the study by Ansari et al among power loom workers, they reported that tobacco consumption was more prevalent in those with less education and found an extremely negative association between education and tobacco consumption (Chi = 50.301, P < 0.0001).[9] Our finding on education and tobacco use might be due to the fact that we have included the adolescents only.

Tobacco use was 46.1% in working group i.e. both skilled and unskilled workers which was significantly more than students (20%) and unemployed adolescents (29%). Working at teen age and getting money may contribute towards tobacco use by working adolescents.

It was found that 74.7% of adolescents were having some knowledge about the harmful effect of tobacco use and 25.3% of adolescents had no knowledge about it and this knowledge was not significantly associated with their tobacco use (P>0.05). In a study by Singh et al (2007) among school children of 10-18 years, they reported that about eighty percent of school children knew that tobacco consumption is injurious to health.[11]

Tobacco use by other family members (parents or siblings) was found to have significant influence on adolescents to use tobacco (P < 0.001). These findings are similar to observation by WHO that adolescents whose parents or siblings smoke are most likely use tobacco.[12] Kumari R et al (2008) also reported similar results that tobacco use is considerably higher among male medical students belonging to families where tobacco use was prevalent (p< 0.001).[13]

Conclusion:

Tobacco use by family members is likely to influence adolescents, as they develop inclination and liking towards such behavior. Curiosity and peer pressure were the main reasons behind using tobacco so simple stray knowledge about harmful effects of tobacco was not enough to bring about any change in behavior. Strong motivation with informatory knowledge is likely to change such behavior. Behavior Change Communication activities among adolescents and their family members should be carried out in the slum area as well as in the schools.

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Conflicts of Interest: Nil

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A Study of Antenatal Care Practices among Mothers in Rural Gautam Budh Nagar, Uttar Pradesh

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ABSTRACT

Introduction: Care during Antenatal period is very important for the positive outcome of pregnancy. This study was conducted to study the antenatal practices in a rural population; role of various health functionaries in promoting healthy antenatal practices and factors affecting it.

Methodology: The present study is a descriptive, community based field study done in Bisrakh block of district Gautam Budh Nagar. The study was conducted in all the villages of two randomly selected sub-center areas each from two randomly selected PHCs of Bisrakh Block.

Observations: 40% of pregnant women visited 3 or more times for antenatal care (ANC), 12 % took 100 iron folic acid (IFA) tablets and 81% took Tetanus Toxoid (TT).Education of pregnant women was an important factor significantly associated with higher consumption of IFA tablets and higher number of visits for ANC.

Conclusions: Major proportion of pregnant women do not avail the facilities provided by the Government. Education of pregnant women has a very strong bearing on their health care seeking behavior.

Keywords: *Antenatal Care, Practices, Rural, ANC Practices*

INTRODUCTION

Antenatal care is the care of the women during pregnancy. The primary aim of antenatal care is to achieve at the end of a pregnancy a healthy mother and a healthy baby[1]. In India, especially in rural areas antenatal care practices are far from the norms suggested by the various Maternal and child care programs. This study was conducted to study the antenatal practices in a rural population; role of various health functionaries in promoting healthy antenatal practices and factors affecting it. In India over two-thirds of deliveries occur at home[17,] reflecting both the traditional notion that child bearing is not an event worthy of medical attention[2].

METHODOLOGY

The present study is a descriptive, community based field study undertaken to study the Antenatal Care Practices among mothers in a Rural setting. The study was carried out in mothers who delivered during study period in the study area. The study was conducted in District Gautam Buddha Nagar of Uttar Pradesh. Bisrakh block of this district was selected to represent the rural area of UP because of feasibility and convenience. Study was completed in one year including the development of study tools, collection of data, analysis and presentation of findings. From the list of one block PHC and five additional PHCs, two PHCs were selected randomly. From each PHC, two sub-centers were selected randomly. All the villages under each of the four randomly selected sub centers were included for study. Mothers, who delivered live or stillborn, within last two months in all these villages. Data was analyzed using Epi. Info. Version 6.04.

OBSERVATIONS

Table 1. Distribution of ANC Practices by mothers

Characteristics		n=172	
		No.	%
No. of ANC Visits	None	59	34.3
	1-2	43	25.0
	3+	70	40.7
1st Trimester registration		42	24.4
IFA tabs consumed	None	63	36.6
	<100	88	51.2
	IFA tabs consumed	21	12.2
Consultation for ANC	Doctor	67	39.0
	LHV/ANM	31	18.0
	TBA (trained)	5	2.9
	TBA (untrained)	4	2.3
	Local practitioner	6	3.5
	No consultation	59	34.3
Examination done	Weight	83	48.3
	Edema	92	53.5
	BP	82	47.7
	Per abdomen examination	90	52.3
	FHS	81	47.1
	Hemoglobin	64	37.2
	Urine examination	63	36.6
	Ultrasonography	54	31.0
TT injections	None	13	7.6
	One dose	19	11.0
	Two doses/ Booster	140	81.4

The table-1 shows that 40.7% of the mothers had 3 or more ANC check-up done while 34.3% had no ANC check-up done.

The first trimester registration was done in only 24.4% of mothers. The study shows that only 12.2 % mothers had consumed hundred tablets of iron and folic acid (IFA) and 36.6% of mothers did not take any IFA tablets.

In 39% of mothers doctor was consulted for ANC and ANM/LHV were consulted in 18% cases while TBAs and local practitioners were consulted in 5.2% and 3.5% respectively. All the examination mentioned in the table 6 were done in 25.6% of mothers and no examination was done in 34.3% but, it was found that, 8 mothers got USG done although they had not received any ANC checkup and two of them admitted that it was for prenatal determination of sex of the baby.

81.4 % had received both the doses/booster dose while 11% got only one dose of T.T. injection and 7.6% did not receive any injection of Tetanus Toxoid (TT).

Table 2. Dietary practices during antenatal period

Characteristics		n=172	
		No.	%
Registered with ICDS	Yes	107	62.2
	No	65	37.8
Consumed supplementary food from ICDS	Yes	51	29.7
	Sometimes	18	10.5
	No	103	59.9
*Type of food added in diet	Milk	54	31.4
	Vegetable and fruits	43	25.0
	Increased the quantity of food taken routinely	25	14.5
	No change done	103	59.9

*Multiple response questions, aggregate of percentage may be more then 100

The table 2 shows that 62.2% of the mothers were registered with ICDS but only 29.7 % consumed supplementary nutrition received from anganwaris. On interviewing about supplementations of food added in diet during pregnancy, milk was added by 31.4% mothers followed by vegetables and fruits by 25% and 14.5% of mothers just increased the quantity of food rather then any specific supplement. There was no change in diet amongst 59.9% of mother while one of the mothers also took mother's horlicks on advice of doctor.

97.7% of the mothers took rest in the afternoon of which 29.7% did heavy work. Only 2.3% did heavy work without taking afternoon rest.

Table 3. High risk Identification

Characteristics		**n=172**	
		No.	**%**
Symptoms of high risk factors present amongst mothers	Anemia	87	52.6
	PIH	9	5.2
	Infection	5	2.9
	Decrease/ loss of FM	10	5.8
	Bleeding P/V	2	1.2
	Leaking P/V	16	9.3
	Other medical problems	6	3.7
In problem consulted	Trained TBA	75	43.6
	Untrained TBA	17	9.9
	Doctor	39	22.7
	Local practitioner	9	5.2
	Relative	2	1.2
	Did not face any problem	30	17.4

Anemia was suggestive in 52.6% of mothers according to symptoms told by mothers.

There were nine mothers with symptoms of PIH. Three of them just took rest and two went to hospital where one of them was induced. Four mothers did not do anything and continued with routine activity

On interview it was found that ten mothers had history of loss of fetal movement of which six went to hospital, two consulted doctors in private clinics and two remained at home. Out of these ten mothers, two had stillbirth of which one was home delivery and one was induced and delivery was conducted at private nursing home.

Study shows that 16.1% mothers were suggestive to be high risk on history, and 19.3% were labeled high risk after examination but 5.8% were still not identified in spite of being high risk.

At the time of problem more the 50% mothers consulted the TBAs, mainly trained one (43.6%) followed by doctors in 22.7 % of cases and local practitioners in 5.2%. The action was taken according to advice of person being consulted.

Table 4. Effect of Education on number of ANC visit.

Education of mother		**No of ANC visits**			**Total**
		1-2 times	**≥3 times examined**	**not**	
Illiterate	no	31	19	35	85
	%	36.5	22.4	41.2	100
Primary	no	6	19	14	39
	%	15.4	48.72	35.9	100
10th	no	5	25	9	39
	%	12.8	64.1	23.1	100
Graduate/Diploma	no	1	7	1	9
	%	11.1	77.8	11.1	100
Total	no	43	70	59	172
	%	25	40.7	34.3	100

(Chi square 28 P value < .001)

Above table shows that, with increase in level of education, no of ANC visit were increased. Among illiterates,

41.2% of mother did not receive ANC check up. The percentage of mothers with no ANC decreased as education level increased to graduation level to 11.1%

Table 5. Effect of Education on person consulted for ANC

Education of mothers		Consultation for ANC by						Total
		Doctor	LHV/ANM	TBA (trained)	TBA (untrained)	Local practitioner	No Examination	
Illeterate	**no**	17	23	4	3	4	34	85
	%	20	27.1	4.7	3.5	4.7	40	100
Primary	**no**	17	5	0	2	0	15	39
	%	43.5	12.8	0	5.1	0	38.5	100
10th	**no**	24	3	1	0	2	9	39
	%	61.5	7.7	2.6	0	5.1	23.1	100
Graduate/Diploma	**no**	9	0	0	0	0	0	9
	%	100	0	0	0	0	0	100
Total	**no**	67	31	5	5	6	58	172
	%	38.9	18.02	2.9	2.9	3.5	33.7	100

Above table shows that with increasing level of education percentage of mothers consultation to doctors also increased. With education up to primary had higher percentage of mothers who had no ANC examination done.

Table 6. Effect of Education on number of IFA taken and diet

Education of mothers		No of Iron and folic acid tab taken				change in diet		Total
		No FS-FA tab taken	0-50 tab of FS-FA	50-100 tab of FS-FA	>100 Tab of FS-FA	Yes	No	
Illiterate	Count	43	20	15	7	26	59	85
	% of Total	25	11.6	8.7	4.1	15.1	34.3	49.4
Primary	Count	13	5	17	4	15	24	39
	% of Total	7.6	3	9.9	2.3	8.7	14.0	22.7
10th	Count	7	7	17	8	17	22	39
	% of Total	4.1	4.1	9.9	4.7	9.9	12.8	22.7
Graduate/Diploma	Count	0	1	6	2	7	2	9
	% of Total	0	0.6	3.5	1.2	4.1	1.2	5.2
Total	Count	63	33	55	21	65	107	172
	% of Total	36.6	19.2	32.0	12.2	37.8	62.2	100.0

Above table shows that with increase in education of mother there was increase in the intake of IFA taken, and also showed the change in diet made during pregnancy.

DISCUSSION

Pregnancy was considered to be a normal phenomenon by most of the women and so more then one- third did not consult any one for ANC. In 50% of the families, home delivery was the choice. In spite of being advised institutional delivery, by AWW, ASHA and ANM, they preferred consulting TBAs because of having faith, their easy availability and home visits made by them not only for delivery but later also to give bath to the newborn for first few days. The study showed that only 9.9% of mothers received full antenatal care (RCH2, which includes at least three antenatal visits, At least one injection of tetanus toxoid and hundred tablets of iron and folic acid) while it is lower then 12.8% by DLHS 2 but much higher then NFHS data for UP[17]. More then three ANC visit were made by 40.7% same as DLHS2 but NFHS 2 showed very low figure of 10.6% of national level. Mothers had no ANC done in more then one third of cases and first trimester registration was 24 %, which is lower then DLHS-2 (33.3%). In-spite of mothers with more then three visit of ANC were 40.7%, the consumption of hundred tablet of iron and folic acid was only 12.2% same as shown in DLHS 2). Present study as well as DLHS 2 showed poor compliance of ANC mother for iron and folic tablet intake. In spite of 62% of women being registered with ICDS Anganwadis, nutritional

supplement was received by around one–third of mothers. Knowing that health status of rural area is not very good and rate of anemia is 55% in pregnant rural women[17] (a major cause of low birth weight), it is unfortunate that the Anemia Prophylaxis Program has not picked up even in four decades. There is evidently a gap between the health care provider and the community, that even simple thing like iron and folic acid tablet intake and nutritional supplements, which are of utmost importance to mothers, do not attract to these services. The cause mainly lies in the insensitiveness of health worker towards the need of the mother. It is known that focus of RCH is on skilled attendance at birth and the emphasis is on institutional delivery, it was observed that two third deliveries occurred at home by TBA although, consultation of doctor for ANC was 39%, which is much higher then NFHS-2 figure of 16.1%, institutional deliveries were 33.3%[17]. This was because most of the mothers, during labour, first consulted traditional birth attendant and place of delivery was decided according to their advice, which was mostly in favor of home delivery. This shows that even during ANC visit to doctor/ANM/ LHV in 57%, they were not able to convince mother for institutional delivery. It was also found that none of the delivery in the study area was conducted by ANM/LHV. The reason for this was that most of them lived in distant areas and it was difficult for them to either wait or to go for field delivery at odd hours. At both the PHC no staff was residential leading to seeking advice of TBA by Mother in labour. Other reasons for home delivery were lack of decision making authority in mothers and some being scared of hospital. About two third thought that hospital delivery is required only in case of problem. There was lack in identification of high risk mothers which further increased home deliveries adding on to the first delay. Results also show that out of 40% of mothers having problem, only 13.6% consulted doctor at hospital or private clinic while 16.4 % remained at home others consulted tradition birth attendant or local practitioner, showing the ignorance towards the risk factors.

CONCLUSIONS

Pregnant women in rural areas are not visiting Government health center for antenatal care. Compliance regarding IFA tablet intake and utilization of supplementary nutrition provided by Anganwadi centers is very poor even in rural areas. Major proportion of pregnant women do not avail the facilities provided by the Government. Education of pregnant women has a very strong bearing on their health care seeking behavior.

Conflict of Interest: None

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A Study of Needle Sticks Injuries in a Medical College Hospital in Northern District of Karnataka

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ABSTRACT

Background: Healthcare workers (HCW) are prone for accidental Needle Stick Injuries. Inspite of health education and interventions for prevention, needle stick injuries are still common.

Methodology: We reviewed the surveillance data of NSI over a period of 2 years (March 2009 - Feb 2011) to identify the health groups affected, types of needles used, mechanisms of NSI, pattern of post-exposure prophylaxis and the complications.

Results: 118 HCW reported the injuries. Among them were 42 (35%) nurses, 22 (19%) nursing interns/ students, Laboratory technicians 21 (18%), Cleaning staff 14 (12%), Medical interns 12 (10%) and Doctors 07 (06%).

The devices mainly responsible for Needle Stick Injuries were hollow bore needles (n=90, 78%), solid 16 (17%) and others 4 (5%). Almost all injuries were caused during blood collection procedure and de-capping or re-capping of the needles.

Post exposure prophylaxis for HCW's who reported injuries was provided. Subsequent follow up for Human immunodeficiency virus, Hepatitis B virus, Hepatitis C virus was negative except for one health care worker who was positive for Hepatitis B Surface Antigen(HBsAg).

Conclusion: Proper education and appropriate waste disposal of the sharps are necessary to prevent Needle stick Injuries.

Keywords: *Needle Stick Injuries, Healthcare Workers, Universal Precautions*

INTRODUCTION

Healthcare workers (HCWs) who use needles for various diagnostic and therapeutic procedures are at an increased risk of needlestick injuries (NSIs). More than twenty diseases have been perceived to be transmitted to HCWs by NSI, [1] resulting in the increased risk of having blood-borne infections such as hepatitis B virus (HBV), hepatitis C virus (HCV) and human immunodeficiency virus (HIV), with HBV being the most common blood-borne pathogen that poses an occupational risk to HCWs. [2] [3]

The US Centers for Disease Control and Prevention estimates that 800,000 exposure incidents occur annually[4]. EPI net data of 2003 reports a rate of approximately 27 needlestick injuries per 100 beds in teaching hospitals.[5]

There are few reports available from various hospitals from India[6],[7],[8],[9]. Hence the study was undertaken to know the epidemiology and risk of NSI's in a Medical college hospital, which the staff & interns of varying levels have experienced.

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MATERIALS & METHOD

The study subjects were healthcare workers (HCW) of a 500 bed Medical College Hospital that serves as the teaching hospital for medical, Nursing& Physiotherapy colleges. Data collection was done by a retrospective review of NSI's that occurred in the hospital between March 2009 and February 2011.

The hospital has a standard protocol for managing the NSI since 2007. As soon as a health worker sustains a NSI, he/she is to induce bleeding from the wound & wash with soap & water and report to the hospital superintendent immediately.

The hospital superintendent makes arrangement to collect information regarding the index patient / source.

Other details like time of incident, place, description, time of reporting, type of first aid given and whether universal precautions were followed by the HCW were noted.

After taking consent of both the index patient and HCW, blood testing is done to the know the status of Hepatitis B, Hepatitis C and HIV.

If status of patient and healthcare worker is unknown and immune status cannot be obtained within 48 hours, then Hepatitis B Immune Globulin and first dose of Hepatitis B Vaccine is given.

If the healthcare worker is HBV immune then no further Hepatitis B Vaccine is required, but if HBV infection susceptible, then HCW is treated with immunoglobulin and vaccine. Booster is given, if indicated.

In case of a NSI from a HBsAg positive patient, the anti-HBs titre of HCW is checked and if <10 mIU/ml, a full course of vaccination is given and if between 10 and 100 mIU/ml, a booster dose is given and if more than 100mIU/m,l the HCW is reassured. Cases of NSIs while managing HIV-positive patient are started an antiretroviral therapy (Azidothymidine 600mg/day, lamivudine 300mg/day and indinavir 800mg/8hr) for 4 weeks.

The healthcare workers are followed up at 6 weeks, 3 months & 6 months for HIV by Enzyme Linked Immunosorbent Assay (ELISA). In case of a NSI from a Hepatitis C positive patient, Combination therapy using pegylated interferon and ribavirin is given.

RESULT

During the study period from March 2009 to February 2011, 118 HCW sustained NSIs. They comprised of 42 nurses, 22 student nurses / interns, 21 Laboratory technicians, 14 cleaning staff, 12 medical interns & seven doctors . Nursing staff & student nurses were major portion of staff sustaining NSI's. The next significant groups were laboratory technicians & cleaning staff.

Among the 42 nursing staff who sustained NSI's, 26 were those who had less than one year of work experience. The majority of the devices responsible for the NSI's were hollow bore needles in 90 cases (n=110, 78%), with solid needles in 16 (17%) & others 4(5%) accounting for the remainder. The activities accounting for NSI's were mostly during procedures. (n=84,64%).The most common procedures responsible were blood collection & intravenous cannulation followed by checking blood sugar levels, administration of injections, surgical procedures & others.

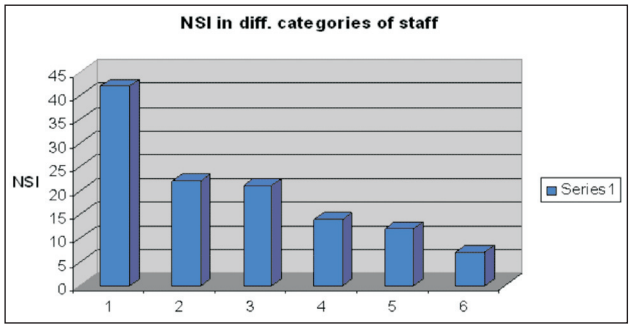
A large proportion of NSI occurred because of incorrect handling of equipment such as recapping and improper disposal of the sharp instruments, overflowing containers and passing of the devices. Most NSI's occurred in the wards (n=66, 56%) followed by casualty & OPD's (n=14, 12%), Operating rooms (n=12, 10%), ICU's (n=9, 08%) and other sites (n=17, 14%) formed the remainder.

Of the Health care workers who sustained NSI's, 80(67%) were adequately immunized for Hepatitis B. Majority of those not immunized were cleaning staff & Nursing students.

Another important association that was noted, between incidence of NSI's & shift/time of work, 76 (64%) of NSI's occurred during early morning & OPD hours.

Known sources accounted for 95 (81%) & unknown sources 23 (19%) of the injuries. Of the 118 healthcare workers who sustained NSI, 114 followed up at 1, 3 & 6 months. One HCW turned up positive for HBsAg for whom adequate treatment was given with antiviral drug lamivudine.

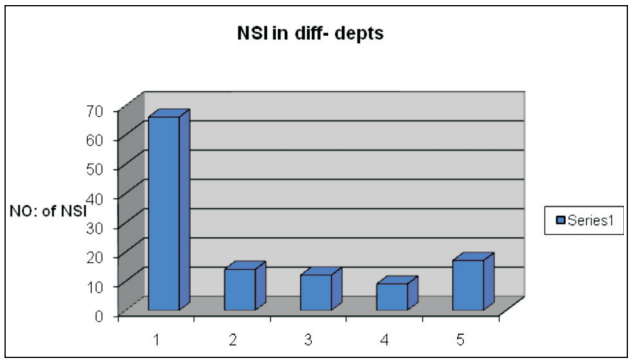
Bar diagram no.1: NSI in different categories of staff.



1-nurses, 2- nursing interns, 3-lab techs, 4-cleaning staff,

5-medical interns, 6-doctors

Bar diagram no.2: NSI in different departments.



1-wards, 2-casualty & OPDs, 3-OTs, 4-ICUs, 5-other

DISCUSSION

In our study, majority of the HCW's who had NSI's were nursing staff & Laboratory technicians, followed by cleaning staff, interns & doctors. A study by Fisman et al.[12] also showed that nurses report the most frequent exposures to NSI. Several other studies had also shown high occurrence of NSI among nurses.[13],[14],[15],[16] Nursing staff & nursing students accounted for a large proportion of the injuries and this can be a reflection of their inexperience, a finding also supported by the fact that almost half the NSI's involved staff with less than 1 year of work experience.

Our findings point to the need for greater & continuing education in the use of universal precautions or standard procedures in all the categories of medical and nursing staff. Ever year approximately 3 million HCW's experience percutaneous exposure to bloodborne viruses (BBV's) that results in as estimated 66,000 Hepatitis B, 16000 Hepatitis C & 200-5000 HIV infections annually.[17] Our study showed 78% of NSIs to be associated with hollow bore needles which is almost the same as shown by Askarian et al (72.2%,)[18] and Nee et al[19] (62.2%).

The NSIs that occurred while blood sugar monitoring and intravenous cannulation can be prevented using safety devices such as special cannulae & lancet pens for sugar estimation. Six months follow up of cases of NSI showed only one case of seroconversion for Hepatitis B. The low prevalence of Hepatitis in this geographical area may be the reason low risk of NSI related hepatitis.

Table No. 1: Needle stick injuries from various hospitals in India [6,7,8,9]

Hospital	Period	NSI
Hinduja hospital, Mumbai	1998– 2003	380
CMC, Vellore	1993 – 1999	347
LTM hospital, Mumbai	2000 – 2001	34
CMC, Vellore	2006 – 2007	296

Because of the unavailability of clear data on NSI's in India, which may be due to underreporting, it is not possible to estimate an annual incidence. Anyhow through proper education ((both among HCW's & patients) & other strategies like adopting universal precautions majority of the NSI's can be avoided.

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A Study on Mental Health Status among Pregnant Women and the Social Factors Influencing

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ABSTRACT

Context: Pregnancy is often considered as the golden period in woman's life. There are physical as well as mental stress faced by them during that period, while apparent physical problems are often addressed but the challenges related to mental health often go undiagnosed.

As a matter of fact, in India nearly 10-41% of women suffer from depression during gestation which causes significant morbidity for mother as well as the child.

Objectives:

1) To assess the mental health status among pregnant women.

2) To study the influence of social factors on their mental health.

Settings and Design: Study Design: Cross-sectional, Descriptive study.

Duration of study: 6 months (Jan 2011 to June 2011)

Participants: 300 pregnant women attending antenatal clinic of Chigateri General and Bapuji Hospital, Davangere.

Method and Material: Goldberg's 6 item general health questionnaires were used as a screening tool for the presence of mental illness. Hamilton's rating scales were used for the confirmation of anxiety and depression. A standard pre tested questionnaire was used to assess the social factors.

Statistical analysis used: Univariate analysis, Multiple logistic regression

Results: 300 pregnant women participated in the study. 150(50%) women were in the age group of 22 to 26 years. 204 (68%) women were mentally ill. Out of these 204 women 120(59%) were suffering from depression, 40(20%) were having anxiety and 44(21%) were having anxiety with depression.

Bad obstetric history, type of family, associated illness, domestic violence and addiction of alcohol in husband were the common social factors responsible for the mental illness.

Conclusions: There is a need for more comprehensive antenatal program focusing on mental wellbeing.

Keywords: *Mental Health Status, Hamilton Scale, Depression, Anxiety, Domestic Violence*

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INTRODUCTION

Pregnancy is often considered as the golden period in woman's life. There are physical as well as mental challenges faced by them during that period, while apparent physical problems are often addressed but the challenges related to mental health often go undiagnosed.[1]

Mental health problems such as depression and anxiety are very common during pregnancy and after childbirth in all parts of the world. Nearly 20% of women suffer from mental health disorders during gestation which causes significant morbidity for mother as well as child worldwide.[2] About one in ten in developed countries, and one in three to one in five women in developing countries, have a significant mental health problem during pregnancy. As a matter of fact, in India prevalence of depression ranges from 10% to 41%.[3]

Social determinants like illiteracy, low income, domestic violence and associated diseases increase their susceptibility to develop mental health problems specially in developing country.[4] Pregnant mothers with mental health problems are much more disabled and less likely to care adequately for their own needs. These women are less likely to seek and receive antenatal or postnatal care or adhere to prescribed health regimens. So they have increased risk of obstetric complications and preterm labour. Mental illness have been associated with poor prenatal care, inadequate nutrition, impulsive behavior, increased incidence of postpartum depression, preterm birth and low Apgar score. Certain symptoms of depression including appetite change, lowered energy, sleep disturbance are considered normal in pregnancy and their psychological significance is therefore underestimated.[4]

Mental health problems among pregnant women are often undiagnosed. Depression during pregnancy is the most common predictor of depression in post natal period. Untreated depression during pregnancy has a number of adverse outcomes not only for the mother but also for her unborn child.[5]

MATERIALS AND METHOD

Study design: A cross sectional hospital based study.

Duration of the study: 6 months (Jan 2011 to June 2011)**.**

Participants: 300 pregnant women attending the antenatal clinic of two teaching hospitals.

Statistical tests: Univariate analysis and Multivariate analysis by using multiple logistic regressions.

METHODOLOGY

This study was conducted in Chigateri General Hospital and Bapuji Hospital, Davangere attached to J J M Medical College. Pregnant women coming to seek antenatal care to antenatal clinic in these hospitals were interviewed. After taking consent from them, participants were screened for Mental health by using Goldberg's 6 item General Health Questionnaire. Those who answered 'YES' for at least one question were considered as mentally ill and assessed the severity of mental illness by using Hamilton 'D' scale for depression and Hamilton 'A' scale for anxiety. A standard pre-tested questionnaire was used to assess the socio-demographic information. In a period of 6 months, 760 pregnant women were screened and out of them 300 women were eligible for the Hamilton rating scale for confirmation of depression and anxiety.

Inclusion Criteria

1. Pregnant mothers reporting to the antenatal clinic for routine checkup.
2. All pregnant women who were willing to participate in the study.
3. Those who were not on treatment for mental illness.

Exclusion Criteria

1. Those who were not willing to participate in the study.
2. Those who were on treatment for mental illness.

RESULTS

Among 300 pregnant women 73(24.3%) were in age group of 18 to 22 years, 150 (50%) were in the age group of 22 to 26 years, 47(15.7%) were in age group of 26 to 30 years and 30(10%) were more than 30 years. 240(80%) women were from rural area. 235(78.3%) were housewife and 65 (21.7) were farm workers. Husbands of 72(24%) pregnant women were unemployed and husbands of 228(76%) pregnant women were farm worker and coolie. 127 (42.3%)

women were primigravida and 173(57.7%) were multigravida.

Out of 300 pregnant women 204 (68%) were having mental morbidity and 96 (32%) were normal. Among those with mental morbidity, 120 (59%) were having depression, 40 (20%) were having anxiety and 44 (21%) were having both anxiety with depression.

Mean duration of married life was 4.2+1.33 years. Only 24 (8%) pregnant women were illiterate, while 276 (92%) were educated up to primary and secondary school. 120(40%) women were from joint, 108(36%) from three generation and 72(24%) from nuclear family. According to Modified B.G. Prasad classification, 20.3% were from class II, 69.7% were from class III and 10% were from class IV and none were from class I and class V. [Table 1]

After applying multivariate analysis by using multiple logistic regression, pregnant women who were not having associated diseases and not suffering from domestic violence, were not likely to develop the mental illness.

Other factors like working status and supportive nature of husband have shown to be a significant protective factor for mental ill health. Considering the socioeconomic classification, class II and III are protective factor for mental ill health which is highly significant. [Table 4].

Table 1: Distribution of socio-demographic, economic characteristics of pregnant women.

Characteristics	Response	Total N (%)
Respondents age(years)	18 to 22	73(24.3)
	22 to 26	150(50)
	26 to 30	47(15.7)
	>30	30(10)
Locality	Rural	240(80)
	Urban	60(20)

Table 1: Distribution of socio-demographic, economic characteristics of pregnant women (Contd.)

Characteristics	Response	Total N (%)
Education	Illiterate	24(8)
	Literate	276(92)
Occupation of participants	Housewife	235 (78.3)
	Farm worker	65 (21.7)
Occupation of husband	unemployed	72 (24)
	Farm worker and coolie	228 (76)
Type of Family	Joint	120(40)
	Three generation	108(36)
	Nuclear	72(24)
Socioeconomic status	Class II	61(20.3)
	Class III	209(69.7)
	Class IV	30(10)
Gravid	Primigravida	127(42.3)
	Multigravida	173(57.7)
Domestic violence	Yes	162(54)
	No	138(46)
Support of husband	Yes	222(74)
	No	78(26)
Addiction of alcohol in husband	Yes	120(40)
	No	180(60)
Bad obstetric history	Yes	121(40.3)
	No	179(59.6)
Associated diseases	Yes	83(27.7)
	No	217(72.3)

Table 2: Distribution of mental illness (severity) among pregnant women

Type	Number	Percentage
None	96	32
Mild depression	67	22.3
Moderate depression	44	14.7
Severe depression	09	3
Anxiety	40	13.3
Anxiety with depression	44	14.7
Total	300	100

Table 3: Univariate analysis for Socio- demographic, economic, selected health measures, type of family and domestic violence with mental morbidity.

Characters	Response Number	Total morbidity N (%)	Mental p- value	X^2,
Type of family	Joint	120	83 (69)	3.23, 0.19
	Three generation	108	78(72.2)	
	Nuclear	72	43 (59.7)	
Occupation of Husband	unemployed	78	55(76.5)	3.06, 0.8
	Farm worker & coolie	222	149(65.4)	
Domestic violence	Yes	162	128 (79)	19.62, 0.000
	No	138	76(55.1)	

Table 3: Univariate analysis for Socio- demographic, economic, selected health measures, type of family and domestic violence with mental morbidity (Contd.)

Characters	Response Number	Total morbidity N (%)	Mental p- value	X^2,
Support of husband	Yes	222	140 (63.1)	9.564, 0.001
	No	78	64(82.1)	
Addiction of alcohol in husband	Yes	120	94 (78.3)	9.81, 0.001
	No	180	110 (61.1)	
Strenuous work load at home	Yes	216	157(72)	7.78,0.05
	No	84	47(56)	
Socio-economic	Class II	61	49 (80.3)	6.481, 0.03
status	Class III	209	133 (63.6)	
	Class IV	30	22 (73.3)	
Associated diseases	Yes	83	72(86.7)	18.53, 0.000
	No	217	132 (60.8)	
Bad obstetric history	Yes	121	81(66.9)	0.10, 0.74
	No	279	123(68.7)	

Table 4: Multiple logistic regression applied to selected variables.

Characteristics		Odds ratio	Degree of freedom	P value	95% CI for odds ratio. (lower and upper bound)
Associated diseases	Absent (83)	3.74	1	0.001	1.76-7.94
	Present (217)	1	-	-	-
Domestic violence	No (132)	2.69	1	0.002	1.42-5.1
	Yes (162)	1	-	-	-
Addiction of alcohol in husband	No (120)	1.97	1	0.015	0.23-0.86
	Yes (180)	1	-	-	-
Support of husband	No(78)	0.45	1	0.016	0.23- 0.86
	Yes(222)	1	-	-	-
Workload at home	No(216)	2.095	1	0.006	1.24-3.54
	Yes (84)	1	-	-	-

DISCUSSION AND CONCLUSION

In this study, we found high prevalence of mental morbidity like depression, anxiety and both anxiety with depression among pregnant women similar to the study conducted in Hawaii in 2006 among 44 pregnant women between age group of 18 to 35 years of which 5% were having depression and 13% were having anxiety.[5] Another study done in rural area of Tamil Nadu in 2002 among 991 pregnant women, by using Clinical Interview Schedule(CIS-R) showed that 16% women were suffering from depression.[6] Study done in China in 2001 by Dominic et al among 959 pregnant women showed 13.5% of them to be suffering from depression.[7]

Prevalence of mental illness was 39.5%[8] and 15.2% [9] in the studies conducted at Tanzania and was found to be very low when compared to the present study. Prevalence of depression and anxiety by using EPDS was 18% and 29% respectively which was found significantly associated with domestic violence, poor partner relationship in a study done in Bangladesh.[10]

Study done in Pakistan in 2009 also showed that unemployment status of husband and physical violence were strongly associated with the depression among pregnant women.[11]

Partner violence was associated with depression during pregnancy[12] which was similar with the results of our study.

This study concludes high prevalence of mental morbidity in terms of depression, anxiety and both among pregnant women. The finding of this study highlights the potential significance of identifying and addressing the unmet needs of low- income rural women during pregnancy. These data show that a substantial number of pregnant women screened in

obstetrics settings have significant symptoms of depression, and most of them are not being monitored effectively during this vulnerable time.

This information may be used to justify and streamline systematic screening for depression in clinical encounters with pregnant women as a first step in determining which women may require further treatment for their symptoms of mental illness. Presence of mental morbidity in gravid women has been associated with adverse maternal and infant outcomes; hence further study of the impact of psychiatric treatment is essential.

The finding in this study demonstrates the significance of screening for mental health issue in pregnant women and the need for intervention and prevention.

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An Epidemiological Study of Hypertension among white Collar Job People of an Urban Area of Western India

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ABSTRACT

Aim: To study epidemiology of hypertension among bank employees of Surat city

Objective:

1) To study magnitude of the problem of hypertension among bank employees.

2) To study determinants of hypertension among bank employees.

Materials and Method: It was a cross sectional study carried out from August, 2004 to September, 2005 among 1493 bank employees (1177 males and 316 females) of Surat city limits, an urban area of South Gujarat. The survey had two principal components: the administration of a questionnaire and clinical examination. Hypertension was defined on the basis of 7th report of Joint National Committee. Chi-square test was applied wherever necessary. Data was analyzed using window excel & epi_6.

Results: Overall prevalence of hypertension was found to be 30.4 %(455/1493). Among 455(30.4%) hypertensive, only 197(43%) were aware about their hypertensive status and among them 139(70.5%) were on regular treatment. Among the employees who were on regular treatment 71(51%) were having controlled hypertension. As age increased, prevalence of hypertension also increased in both sexes significantly (P<0.001). Prevalence of hypertension was significantly higher among male employees 382(32.5%) as compared to female employees 73(23.1%), (P<0.01); among employees who were adding salt in their cooked food on table was 34.8% (P<0.001); among menopausal female it was 40.7% (22) than non menopausal female 19.4% (51); among female taking oral contraceptive pills it was 28.2% (11) than who were not taking 22.3% (62); among employees having family history of hypertension it was 40.9% (254) (P<0.001). Employees who perceived their health towards better side, prevalence of hypertension was significantly lower among them (P<0.05). Eight percent (8.4 %) employees among hypertensive and 1.8% employees among normotensive had diabetes mellitus.

Keywords: *Hypertension, Bank Employees, White Collar Job, Urban*

INTRODUCTION

Hypertension is a modern day's epidemic and it is becoming a public health emergency worldwide, especially in the developing countries. It has been observed that cardiovascular diseases are increasing in developing countries[1,2] and it has been estimated that CVD will be the major cause of morbidity and mortality in these countries by the year 2020.[3]

The problem which lies with the hypertension is that it can not be cured completely. And its management requires life long medication with some life-style modifications. The only way to curb the problem of hypertension is by its prevention. Decreased physical activities coupled with increased mental tension are important contributors of hypertension. They are commonly seen amongst employees of the profession where working is mostly

sedentary. Therefore, higher prevalence of hypertension is reported from employees of such profession. Bank employees fit in this picture and that's why present study was carried out among bank employees.

MATERIAL AND METHOD

A cross sectional study was carried out from August, 2004 to September, 2005 among 1493 bank employees (1177 males and 316 females) of Government, Private and Co-operative banks of Surat city limits, an urban area of South Gujarat. Total 8 banks were selected from different sectors which were having near about 123 branches with 1632 employees. The survey had two principal components: the administration of a pre-tested semi structured questionnaire and clinical examination. Three readings of blood pressure were taken with the help of mercurial type sphygmomanometer at the interval of 5 minutes, and average of these three readings was considered as a final reading. Hypertension was defined on the basis of 7th report of Joint National Committee of Hypertension.[4] They defined Hypertension as person having Systolic blood pressure ≥140 mmHg or Diastolic blood pressure ≥100 mmHg. Screening test for diabetes mellitus was done with 'urine reagent stripes'. Chi-square test was applied wherever necessary. Data was analyzed using window excel & epi 6.

RESULTS

Out of total 1632 employees 1493 (91.4%) employees were available at the time of survey as 128 were on casual leave, 9 refused to be included in the study as they had gone through complete medical check up in near past and 2 were on sick leave.

Overall prevalence of hypertension was found to be 30.4 %(455/1493). Out of remaining 1038 (69.6%), half of them were prehypertensive, 516(34.5%). So almost two third of the employees were either suffering from or at risk of hypertension. Among 455(30.4%) hypertensive, only 197(43%) were aware about their hypertensive status and among them 139(70.5%) were on regular treatment and out of these 139 employees, 71(51%) were having controlled hypertension. More than half (56.7%) of the employees among (455) hypertensive, were asymptomatic, who were detected first time at the time of this study. Awareness for getting treatment of hypertension increases with the increase in age [Table-1].

Table 1: Distribution of employees according to their age group and awareness about treatment of hypertension.

Age Group (years)	Self History of Hypertension	Taking Treatment of Hypertension	Awareness About Treatment (%)
20-29	4	1	25.0
30-39	18	10	55.6
40-49	87	68	78.2
³50	88	78	88.6
Total	197	157	79.7

As age increased, prevalence of hypertension also increased in both sexes significantly (P<0.001). Prevalence of hypertension increases 3.43 fold between 20-29 and 30-39 years age; 2.09 fold between 30-39 and 40-49 years age; and 1.27 fold between 40-49 and >50 years age (P<0.01). Prevalence of hypertension was lower in female employees than male employees up to 49 years of age; thereafter crossing over occurred in ≥50 years of age group where it was higher in female employees than male employees. Prevalence of hypertension was significantly higher among male employees 382(32.5%) as compared to female employees 73(23.1%), (P<0.01).

Among 382 (32.4%) hypertensive male who were eligible for treatment, 41 (36.9%) were on treatment, and among 73 (23.1%) hypertensive female who were eligible for treatment, 16 (21.9%) female were on treatment for hypertension.

Prevalence of hypertension was significantly higher 34.8% among employees who were adding salt in their cooked food on table (P<0.001); among menopausal female 40.7% (22) than non menopausal female 19.4% (51); among female taking oral contraceptive pills 28.2% (11) than who were not taking 22.3% (62). Employees who perceived their health towards better side, prevalence of hypertension was significantly lower among them (P<0.05) [Table-2].

Table 2: Prevalence of hypertension by various characteristics

Characteristic	Normal		Prehyper Tension		Hypertensive	
SALT ADDED ON TABLE	n	%	n	%	n	%
Yes (n=158)	55	34.8	43	27.2	60	37.9
No (n=1335)	467	34.9	473	35.4	395	29.5

Table 2: Prevalence of hypertension by various characteristics (Contd.)

Characteristic	Normal		Prehyper Tension		Hypertensive	
SALT ADDED ON TABLE	**n**	**%**	**n**	**%**	**n**	**%**
MENOPAUSE						
Yes (n=54)	12	22.2	20	37.0	22	40.7
No(n=262)	133	50.7	78	29.7	51	19.4
OC PILL						
Yes (n=39)	15	38.4	13	33.3	11	28.2
No (n=223)	118	52.9	65	29.1	40	17.9
GRADE OF HEALTH						
0-1 (n=70)	17	24.2	28	40.0	25	35.7
2-3 (n=266)	94	35.3	74	27.8	98	36.8
4-5 (n=877)	315	35.9	305	34.7	257	29.3
6-7 (n=280)	96	34.2	109	38.9	75	26.7

Employees were asked whether they had any symptoms or complications associated with hypertension. Here 17.2% employees among hypertensive and 16.3% employees among normotensive complained of headache. As well as 7.9% employees among hypertensive and 3.3% employees among normotensive complained of chest pain. And 1.5% employees among hypertensive and 0.2% employees among normotensive had suffered from heart attack. Eight percent (8.4%) employees among hypertensive and 1.8% employees among normotensive had diabetes mellitus.

Prevalence of hypertension was 40.9% (254) among employees having familial history of hypertension (P<0.001). Prevalence of hypertension was highest among employees having family history of hypertension to both parents 58.46% or siblings 58.32%. Employees had >3 times higher risk of hypertension when there was family history of hypertension either in parents or siblings. (Odds ratio = 3.65 if both parents and Odds ratio = 3.3 if siblings) [Table-3]

Table 3: Prevalence of hypertension by family history of Hypertension

Family History of Hypertension	Normal		Prehyper Tension		Hypertensive	
MOTHER	**n**	**%**	**n**	**%**	**n**	**%**
Yes (n=244)	73	29.9	96	39.3	75	30.7
No (n=1249)	449	35.9	420	33.6	380	30.4
FATHER						
Yes (n=212)	58	27.4	72	34.0	82	38.7
No (n=1281)	464	36.2	444	34.7	373	29.1
BOTH PARENTS						
Yes (n=130)	19	14.6	35	26.9	76	58.5
No (n=1363)	503	36.9	481	35.3	379	27.8
SIBLINGS						
Yes (n=36)	7	19.4	8	22.2	21	58.3
No (n=1457)	515	35.3	508	34.9	434	29.8
ANY FAMILYMEMBER						
Yes (n=621)	157	25.3	210	33.8	254	40.9
No (n=872)	365	41.9	306	35.1	201	23.1

History of Diabetes Mellitus was elicited as well as all Urine sugar testing was carried out for all of the employees with the help of urine strips. Among 1493 employees 137 (9.1%) tested positive. Among 71(4.7%) known diabetic, 46 (64.7%) were still glycosuric; and out of remaining 1422 employees who were not knowing their status for diabetes, 91(6.4%) were detected glycosuric by this screening test during the study. If known specificity of the test is applied to newly detected glycosuric individuals (91), at least 82

cases will be really diabetic. So that overall prevalence of diabetes would be 10.24% (71 known cases of diabetes mellitus + 82 probably diabetic detected by the test = 153) [Table-4].

Table 4: Distribution of employees according to history of diabetes and glycosuria

Self Historyofdiabetes	Urine Sugar Test						Total	
	Positive		Negative		Refused			
	n	%	n	%	n	%	n	%
YES	46	64.7	25	35.2	0	0.0	71	4.7
NO	91	6.4	1324	93.1	7	0.4	1422	95.2
TOTAL	137	9.1	1349	90.3	7	0.4	1493	100.0

DISCUSSION

Present study shows that prevalence of hypertension was *30.4 %(455).* In an epidemiological study conducted by Solanki et al in Surat city in 1986, prevalence of hypertension was 13.5% in middle and high income group, which is lower than the present study, which indicates the rising trend of hypertension in Surat city in last two decades.[5] More than half of the employees were detected as hypertensive for the first time by this study which indicates that 6 out of 10 hypertensive were asymptomatic or ignorant about their hypertensive status. This situation may be worst if the employees of prehyperternsive phase also be considered. This emphasizes the need for screening of hypertensive among high risk group. In a study conducted by Manu G Z et al (2003)[6] in Thiruvanthapuram city, Kerala, awareness of hypertensive status among hypertensive was 39% and study conducted by Bharucha et al (2003)[7] among Parsi community of Bombay, 47% male and 56% female were aware of their hypertensive status. Though the participants of the present study belonged to elite, literate, high income group, their knowledge about their blood pressure profile was poor. This indicates higher impending threat of serious consequences of uncontrolled hypertension in the study group and a need for information, education, communication and behavior change for prevention of hypertension and its consequences.

In present study significant positive association was found between age and prevalence of hypertension. In a study done by Desai and P.Kumar et al (1994) amongst 985 employees at KRIBHCO, Hazira, in Surat, they also reported increase in prevalence of hypertension with increasing age.[8]

Overall prevalence of hypertension was found significantly higher in men than women. In a recent study done by Mion jr D et al (2004) among 810 employees of a University General Hospital in Brazil, it was found that overall prevalence of hypertension was higher (32%) in men than women (22%).[9]

It was noted that individuals in habit of addition of extra salt in diet stand double the risk of hypertension than others (Odds ratio =2.17). S.K.Sadhukhan et al (2005) studied 1201 adults from a village of singur blok in hoogly district of west Bengal. He found that additional salt intake with diet had significant role in Systolic Blood Pressure and Diastolic Blood Pressure variations among study subjects ($p<0.001$).[10]

A menopause-related increase in blood pressure has been attributed to a variety of factors, including estrogen withdrawal, overproduction of pituitary hormones, weight gain, or a combination of these and other yet undefined neurohumoral influences.[11] This explains higher hypertension prevalence rate among female than male in more than 50 years age group in present study. This is further supported by the observation that the risk of hypertension was more than double in menopausal women than non-menopausal women (Odds ratio =2.34). Staessen et al also reported that, even after adjustment for age and BMI, postmenopausal women are more than twice as likely to have hypertension as premenopausal women.[12]

Many women taking oral contraceptives experience a small but detectable increase in blood pressure; a small percentage experiences the onset of frank hypertension. This is true even with modern preparations that contain only 30 µg estrogen. Oral contraceptives occasionally may precipitate accelerated or malignant hypertension. Contraceptive-induced hypertension has been attributed to the progesterone content of the pill.[4] In present study 39 female were on oral contraceptive pills and hypertension prevalence rate was significantly higher amongst them. They had 1.8 times higher risk of hypertension than non users. The Nurses' Health

Study found that current users of oral contraceptives had a significantly increased risk of hypertension compared with those who had never used oral contraceptives.[13]

Familial aggregation results due to common genes and/or common environment shared by family members. This fact reflects strongly in case of hypertension as seen in present study. Study indicated that employees with history of known case of hypertension in one or more family members had double risk of hypertension than those without any known case in the family. This observation is useful in assessing the risk of hypertension on the basis of presence of case of hypertension in the family and to design preventive intervention. Study done by S.S. Reddy et al (2005) among 1000 adults in urban slum area of Tirupati town in Andhrapradesh also reported higher prevalence of hypertension (23.3%) in individuals with family history of hypertension.[14]

Among individuals who gave history of diabetes mellitus, only 45 (63.38%) were on treatment for diabetes which showed that they were ignorant about their diabetic status. Ignorance about diabetic status and incomplete treatment of diabetes mellitus pose risk for hypertension. Prevalence of hypertension was 53.5% (38) among diabetics (71) and 29.3% (417) among nondiabetics (1422). Study done by S.S. Reddy et al (2005), among 1000 adults in urban slum area of Tirupati town in Andhrapradesh also reported higher prevalence of hypertension (33.3%) in individuals with diabetes mellitus.[14]

Conclusion and Recommendations

Universal screening of hypertension among adults helps in identifying asymptomatic cases and thereby minimizing damage to vital organs and reducing mortality. Secondly, it can help in early detection of prehypertensive cases, so that non-therapeutic interventions can be implemented early whereby progression of hypertension can be slowed down.

This study may help in identifying the common profile of hypertensive or persons at risk among bank employee, which may further help in identifying the risk group and planning the group specific IEC interventions.

Recommendations

- White collar job employees should be screened for hypertension at workplace.
- Awareness should be created for hypertension & its consequences.
- Group relaxation exercise at workplace can be advocated.
- Special stress management programme can be organized for employees.

Conflict of Interest: Nil

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Study of Seroprevalence of Malaria in Central Part of Karnataka

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ABSTRACT

Malaria is one of the oldest recorded diseases. It is a protozoal disease caused by infection with parasites of genus Plasmodium and transmitted to humans by bite of infected female Anopheline mosquito. This study was conducted to known the seroprevalence of malaria in and around Davangere. The study group consisted of 2185 blood samples collected from patients attending Chigateri general hospital and Bapuji hospital, attached to J.J.M Medical college, which were tested for presence of Malaria antigen (lactate dehydrogenase, p LDH) by Malarigen Kit.

Out of 2185 samples tested, 34 cases (1.55%) were positive for malaria. Out of them 19(55.88%) were positive for Plasmodium vivax and 15(44.11%) for Plasmodium falciparum. The highest numbers of cases were seen in the age group of 1-10 years and in males. Seasonal distribution of cases showed maximum number of positive cases in july.

Keywords: *Seroprevalence, Malaria, Plasmodium, Vivax, Plasmodium, Falciparum*

INTRODUCTION

Malaria is known since antiquity. The name malaria is of Mediterranean origin and refers to the ancient belief that fever is caused by air made foul by heat and humidity characteristic of marshy areas (Latin malaria for marsh) [1].Malaria is a protozoal disease caused by infection with parasites of genus Plasmodium and transmitted to human by bite of certain species of infected female Anopheline mosquito [2]. Four species of Plasmodium cause malarial infections in humans namely P.falciparum, P.vivax, P.ovale, P.malariae [3].It is most important of all the tropical diseases in terms of morbidity and mortality.More than 300-500 million individuals throughout the world are infected with malaria and 1.5-2.7 million people a year, most of whom are children, are being killed by the disease [4].

Malaria affects significant number of children. Because of immature immune system, malaria is more severe in children than adults. Children who survive from severe episodes of malaria may suffer from anaemia, neurological damage with long term consequences [5]. It continues to be one of the major health problems in the developing world. The increasing incidence of falciparum malaria,the need to identify and treat the additional infective carriers and to reduce the chances of transmission has given an impetus for the development of simple and rapid methods for diagnosis of falciparum malaria [6]. Even though blood smear examination remains the gold standard for diagnosis, it requires expertise. The development of rapid diagnostic tests (RDT) has substantially improved the possibilities for the diagnosis of malaria.These tests are easy to use, reliable and inexpensive [7, 8].Malaria is endemic in India. The National Vector Borne Diseases Control Programme (NVBDCP) reported about 1.80 million cases with 940 deaths in India and 83181 cases with 26 deaths in Karnataka in the year 2005. About 70% of infections are reported to be due to P.vivax, 25-30% due to P.falciparum and 4.8% due to mixed infection [1].

MATERIALS AND METHOD

The study was conducted in the department of microbiology, J.J. M Medical college, Davangere from 2008-2010.All clinically suspected cases of malaria attending Chigateri general hospital and Bapuji hospital, attached to college were included for the study. With aseptic precaution, 2ml of venous blood

was collected in a sterile bottle and test was performed using Malarigen kit (rapid test for P.falciparum / P.vivax) for detection of malaria antigen as per the manufacturers instructions.

RESULTS

Out of 2185 samples tested, 34 (1.55%) were positive for malaria. Among them 19(55.88%) were positive for P. vivax and 15(44.11%) for P. falciparum.

Table1: Age-wise distribution of cases

Age	Samples tested	positive
Less than 1	250	-
1-10	1293	25(1.9 %)
11-20	380	7(1.8%)
21-30	192	1(0.5%)
31-40	-	-
Above 40	70	1(1.4%)

More numbers of positive cases were seen in age group of 1-10.

Table 2: Sex-wise distribution of cases

Sex	Samples tested	Positive
Male	1227	20(1.6%)
Female	958	14(1.4%)
Total	2185	34(1.5%)

More numbers of cases were seen in male rather than female

Male to Female ratio was 5:3.5

Table 3: Seasonal distribution of cases of malaria

	2009		2010	
Month	Samples Tested	Positive	Samples Tested	Positive
Jan	49	01	54	01
Feb	33	02	51	-
March	42	02	89	01
April	26	-	55	01
May	51	-	41	02
June	63	02	83	02
July	132	05	148	04
Aug	147	-	144	02
Sep	127	01	159	-
Oct	152	02	129	03
Nov	91	01	127	01
Dec	95	01	97	-

More numbers of cases were seen from the month of July to November. Maximum numbers of positive cases were seen in the month of July.

DISSCUSSION

The incidence of malaria is estimated to be 300-500 million cases each year and mostly caused by P.falciparum. In India there is consistently declining trend in annual malaria incidence since 1997. About 1.5-2 million cases have been reported annually in India, with majority of P. vivax cases.In the present study the incidence of malaria was 1.55% which is very low when compared to other studies. Jamshed Iqbal et al [9],Misra MN et al [10] reported 31.6% and 26% respectively. Previous study in our place by kavitha et al [11] reported the incidence of 10%, but this study also included blood smear examination. We might have missed some cases due absence of blood examination.Malaria affects all age group. In our study predominant group affected was 1-10 years which is in agreement with other studies conducted by Mohammad Iqbal Yasinzia etal [12], Kavitha et al [11].The incidence was more common in males when compared to females with 1.6%.This can be explained with the fact males are more commonly affected due to their outdoor activities.In our study more number of cases were seen in july which is in agreement with other studies by Mohammed Iqbal Yasinzia et al [12], Kavitha et al [11]. This shows the association of malaria with rainfall. Rain in general provides opportunities for breeding of mosquito and it also increases atmospheric humidity, which is necessary for survival of mosquitos.To conclude, Karnataka with declining incidence and API less than 1 per 1000 population can plan about the elimination of malaria from the state.

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A Study of Morbidity Profile among the Geriatric Age Group in Urban Population of Eluru

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ABSTRACT

Background: Old age should be regarded as a normal, inevitable biological phenomenon. The study of the physical, psychological changes which are incident to old age is called gerontology. The Care of the aged is called clinical gerontology or geriatrics. Ageing is a natural process, in the words of Senica; "Old age is an incurable disease", but more recently Sir Games Sterling Ross commented: "You do not heal old age. You protect it; you promote it; you extend it".

Objectives: 1.To knows the demographic variables in relation to geriatric age 2. To find the morbidity pattern among the geriatric population.

Methodology: The present community based cross sectional study was conducted at urban field practice area of Alluri Sita Rama Raju Institute of Medical Sciences, Eluru with the help of Community Medicine staff during the period from July 2010 to October 2010. A total of 118 geriatric age group population were interviewed with prestructured questionnaire and using systematic random sampling method of every 2nd house was selected. Data was analysed with SPSS 17.0 version and necessary statistical tests were applied.

Results: Out of 118 geriatric population, about 80.5% were in the age group of 60-69 years, 14.4% were in the age group of 70-79 yrs and lastly 5.1% were above 80 yrs of age. Of which, 33% were males and 67% were females. About 82.2% were having multiple geriatric health problems (more than one health problem). Predominant morbidity was observed in the study population was osteoarthritis, which accounts 66%, 47.3% were hypertensives in the study population. There was significant association was found between the high Body Mass Index and Hypertension ($P<0.01$).

Conclusions: Based on the results obtained in this study, most common geriatric morbidity was osteoarthritis and more among females. Hence, in this age geriatric counseling centres and geriatric homes must be established with government support which will bring some quality of life among geriatric population.

Keywords: *Age, Sex, Geriatric Health problems, Hypertension, Body Mass Index*

INTRODUCTION

Old age is traditionally considered to be synonymous with deteriorating physical and mental health. There are well-recognized health problems which accompany old age. Currently, there are 580 million people in the world who are aged 60 years or older; around 355 million live in developing countries. By 2020, this number will reach more than 1,000 million worldwide, over 700 million of them in developing countries. Many studies have been conducted in different parts of the world which have accorded statistical credence to our age-old presumptions, yet till date no field-based study has been done in this part of the world to specifically determine the morbidity profile of our geriatric population.

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The United Nations has identified the top three socioeconomic issues, the world is facing in the 21st century namely- global warming, global terrorism and global ageing. Broadly speaking, the ageing of a population has been defined as "an increase in the proportion of the aged vis-à-vis a decrease in the proportion of the young." Old age in India begins at 60 years of age. Average life expectancy has increased dramatically in the 20th century as mentioned below. Physicians have been interested in the problems of ageing from the earliest times. The elderly have their own mortality indices and special problems of disease, disability and need for support. This study was carried out to explore morbidity conditions of elderly people in slums.

MATERIAL & METHOD

The present community based cross sectional study was conducted at urban field practice area of Alluri Sita Rama Raju Institute of Medical Sciences, Eluru with the help of Community Medicine staff during the period from July 2010 to October 2010. A total of 118 geriatric age group population were interviewed with prestructured questionnaire and using systematic random sampling method of every 2nd house was selected[13]. Data was analysed with SPSS 17.0 version and necessary statistical tests were applied.

A team comprising of epidemiologist, medical officers, health educators, ophthalmic technician, was oriented in survey techniques at Research and Survey Section oriented at Department of Community Medicine for about 3 days for successful data collection. The team visited the selected number of houses and collected information in a pre-designed and pre-tested format. Part I of the format comprising of oral questionnaire was using interview technique. Part II of the format, comprised of medical history and symptoms, was filled by male or female doctor. A general and systemic examination was also performed in every case. Screening for hearing impairment was done by using tuning fork and hearing test, and vision was tested by Snellen's Chart. The investigations were conducted at the same time. The data was entered in the computer and statistical analysis was done using SPSS 17.0 software. The study was done over a period of six months from July 2010 to December 2010.

RESULTS

Table I: Age & Sex wise distribution of geriatric population

	Male	Female	Total
60-69 yrs	25 (26.3%)	70 (73.7%)	95 (80.5%)
70- 79 yrs	12 (70.5%)	5 (29.5%)	17 (14.4%)
80 yrs & above	2 (33.3%)	4 (66.7%)	6 (5%)
Total	39 (33%)	79 (67%)	118 (100%)

X^2- 11.9, 2df, P<0.002

Table 1 depicts that among the geriatric population about 80.5% people were in the age group of 60-69 years, 14,4% were in the age group of 70-79 years and lastly only 5% were above 80 years of age group and increasing age significantly associated with female sex.

Table II: Health problems in the study population

	Visual	Neuro	Sleep disturb	Multiple	Total
60-69	4 (4.2%)	4 (4.2%)	10 (10.5%)	77 (81.0%)	95 (80.5%)
70-79	2 (11.8%)	1 (5.8%)	0	14 (82.4%)	17 (14.4%)
80 and above	0	0	0	6 (100.0%)	6 (5.1%)
Total	6 (5.1%)	5 (4.2%)	10 (8.4%)	97 (82.2%)	118

Table 2 reveals that about 82.2% of the geriatric people were having multiple health problems (more than 1 Health problem), 8.4% people were having sleep disturbances, 5.1% people were having pure visual problems alone and lastly 4.2% people were having neurological problems.

Table III: Distribution of disease in relation to multiple health problems

Health problem/Disease	Percentage
Osteo Arthritis	66.0%
CVS including HTN	47.3%
Visual impairment/ Complaint	41.8%
DM	14%
Neurological	13.2%
Respiratory	9.6%
Hearing loss	6.1%
Sleep Disturbances	5.9%
Skin problem	3.9%

Table 3 depicts that 66% of the people were presenting osteoarthritis, 47.3% were having CVS including Hypertension problems, and 41.8% were having visual impairment and lastly only 3.9% were having skin problems. (Each person was having more than one problem in the same patient.)

Table IV: Smoking in relation to the health problem

Smoking	Visual	Neurological	Sleep disturbances	Multiple	Total
Yes	1 (3.8%)	5 (19.2%)	0	20 (77%)	26 (22%)
No	5 (5.4%)	0	10 (10.9%)	77 (83.6%)	92 (78%)
Total	6 (5.1%)	5 (4.2%)	10 (8.4%)	97 (82.2%)	118

Table 4 highlights that 22% of the geriatric population was having smoking habit. Of which, 77% were having multiple health problems and 19.2% were having neurological problems. About 78% were non smokers, of which, 83.6% were having multiple health problems and almost no neurological problem was noticed in non smoker geriatric population.

Table V: Alcohol in relation to health problems

Alcohol	Visual	Neurological	Sleep disturbances	Multiple	Total
Yes	1 (4%)	4 (16%)	0	20 (80%)	25 (21.2%)
No	5 (5.4%)	1 (1.1%)	10 (10.8%)	77 (82.8%)	93 (78.8%)
Total	6 (5.1%)	5 (4.2%)	10 (8.4%)	97 (82.2%)	118

Table 5 reveals that 21.2% were having alcohol consumption habit and 78.8% were having not consuming alcohol. Among the alcoholics, 16% were reported neurological complications, among non alcoholics, only 1.1% were reported neurological complications.

Table VI: Hypertension in relation to health problems

BP	Visual	Neurological	Sleep disturb	Multiple	Total
Normal	3 (9.3%)	2 (6.2%)	7 (21.8%)	20 (62.5%)	32 (27.2%)
Pre HTN	3 (10%)	3 (10%)	3 (10%)	21 (70%)	30 (25.5%)
HTN	0	0	0	56 (100%)	56 (47.3%)
Total	6 (5.1%)	5 (4.2%)	10 (8.4%)	97 (82.2%)	118

X^2- 23.39, 2df, P-0.001

Table 6 highlights that about 47.3% were having hypertension problem, 25.5% were in the pre hypertension and lastly 27.2% were normal tension individuals. There was significant association was found between the multiple health problems and the hypertension (P<0.001).

Table VII: Body Mass Index (BMI) in relation to health problems

BMI	Visual	Neurological	Sleep disturb	Multiple	Total
<18.5	1 (9.0%)	1 (9.0%)	0	9 (82%)	11 (9.3%)
18.5-25	4 (8.3%)	4 (8.3%)	4 (8.3%)	36 (75.1%)	48 (40.7%)
25-30	1 (1.8%)	0	6 (11.3%)	46 (86.8%)	53 (45%)
>30	0	0	0	6 (100%)	6 (5%)
Total	6 (5.1%)	5 (4.2%)	10 (8.4%)	97 (82.2%)	118

Table 7 depicts that about 50% of the geriatric people were in the BMI range of 18.5 to 25 and 50% were having more than 25 BMI. Those were showing high BMI having more multiple health problems.

DISCUSSION

The present community based cross sectional study was conducted at urban field practice area of Alluri Sita Rama Raju Institute of Medical Sciences, Eluru during the period from July 2010 to October 2010. The present study recorded a high prevalence of multiple health problems (82.2%) among the geriatric population. A study carried out in Southern part of India reported a similar prevalence of 82.9% in the age group of 60 years and above. Experts suggest using the 65 year cut off for facilitating global comparisons[3].

The presenting symptoms of the elderly are important since patients report to health care providers with these ailments. Thus, health workers and general physicians should be aware of the underlying diseases giving rise to these symptoms. The presenting symptoms of the same disease may vary in elderly in comparison to younger population. Most common symptoms, in order of their magnitude, 66% were presented with pain/swelling of joints, 47.3% were CVS including HTN, Visual impairment/ Complaint was 41.8%, 14% were having Diabetes Mellitus, 13.2% were presented with Neurological and skin problems accounts 3.9%. A high prevalence of arthritis/joint pain in the current study, particularly among females, was also reported in other studies conducted in India.[1,4]. It does not come as a surprise, considering the hard, untiring life faced by women who never retire from household work unless totally disabled. Diabetes mellitus ranged from 16% to 52% in the geriatric population as against 7% in the general population, which might as well reflect the increasing lifestyle diseases in the community. Presenting symptoms did not exactly match the morbidity profile because many presenting symptoms are not necessarily system specific. Many of the diseases were detected on examination and investigations and the patient did not have any specific symptom.

More than 47.3% of the elderly were suffering from hypertension as per the WHO guidelines[2,3]. The present study considered a person to be hypertensive with level of blood pressure higher than 140/90 mm of mercury as per the WHO criteria.[9] the presence of hypertension among the elderly in urban areas was about twice that in rural areas. It could be because of sedentary and modern life style and stress in urban areas. Ironically, most of the hypertension among the study population was only detected in the survey.

In the present study, about 41.8% were having visual impairment/ complaint which will bring the alarming situation to act to bring the problem under control. The prevalence of blindness in India is 14.9 per thousand population and 80% of this blindness is due to cataract alone[10,11]. In the process of caring and nurturing of other members of the family, women in India generally tend to neglect or overlook their own wellbeing. A higher morbidity among elderly calls for strengthening of geriatric health care services in tune with the commonly existing problems in different age groups. Preventive, curative and rehabilitative programmes for the elderly are required for the control and management of later part of the life.[12]

CONCLUSIONS

About 82.2% were having multiple geriatric health problems. Predominant morbidity was observed in the study population with Osteoarthritis - 66% and Hypertension - 47.3% Significant association was found between high BMI and hypertension (P<0.01). Based on the results obtained in this study, most common geriatric morbidity was Osteoarthritis and more among females. Geriatric counseling centers and Geriatric homes must be established which will bring some quality of life among Geriatric population.

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Study of Knowledge and Practice Regarding Menstruation among Adolescent Girls in Rural Field Practice Area Bijapur

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ABSTRACT

Adolescence is a crucial period in woman's life. Menstruation is an important index of physical maturity, which in turn influences the health of offspring. The adolescent girls of today are the mothers of tomorrow in whose hands lie the future of her family, community and the nation.

Objectives: To study knowledge and practices regarding menstruation among adolescent girls.

Method: Community based cross-sectional study was done in rural field practice area of Shivangi, Department of Community Medicine, B.L.D.E.A.'s Sri B.M.Patil Medical College, Bijapur.

The study subjects include all adolescent girls who have attained menarche. Data were collected by questionnaire methods and analyzed.

Results: 35.9% have knowledge about menstruation prior to attainment of menarche. This lack of knowledge leads negative reaction to menarche.

Keywords: *Adolescent, Menstruation*

INTRODUCTION

The term adolescence comes from Latin word meaning" to grow to maturity"[1].WHO has defined adolescence as a period between 10-19 years[2].This is the period of transition form childhood to adulthood which are formative years when maximum amount of physical, psychological and behavioural changes take place[3]

Healthy development of adolescents depends on several complex factors viz socio-economic circumstances, the environment in which they live and grow the quality of relationship with their families, communities, peer groups and the opportunities for education and employment [2].

For girls, adolescence is a period of extreme stress and strain. Menarche and menstruation is bound to elicit tremendous psychological response in them. In conservative society like ours, where these matters are hardly discussed freely, there bound to be some practices, customs and misbelieves which are detrimental during adolescent period.

Bijapur being a backward district, studies on the health of adolescents are rare. Because of the scarcity of information regarding the problems of adolescent girls, particularly in rural area, the present study is undertaken to provide information about the knowledge and practice regarding menstruation among adolescent girls.

OBJECTIVE OF THE STUDY

To study the knowledge and practices regarding menstruation among adolescent girls.

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MATERIALS AND METHOD

The present study was a community based descriptive cross-sectional study undertaken to find out knowledge and practices regarding menstruation. The present study was carried out in a rural area Shivangi, which is a rural field practice area of Department of Community Medicine, B.L.D.E.A's Shri B. M. Patil Medical College, Bijapur. .As per national data, the adolescent population is about 22.5% and the population of boys and girls almost equal[4]. The population of shivangi being 7750 according 2001 census, the adolescent population accounts for 1743,in that the adolescent girl population was 871.The number of adolescent girls who have attained menarche was 470.In present study 440 adolescent girls were studied, remaining 30 girls could not be contacted during visits. The study was conducted during a period of one year from November 2005 to October 2006 and collected data twice in week .House to house visit was done. All adolescent girls who have attained menarche, their parents and community leaders were explained in detail about the purpose and methodology of the study. Only after taking consent, they were interviewed, examined and investigated. A pre-tested, pre-designed questionnaire was used to record information

SELECTION OF STUDY SUBJECTS

Adolescent girls who have attained menarche were included in this study. Adolescent girls who did not give consent to the study and who are not mentally sound were excluded from the study.

RESULTS

The distribution of total 440 adolescent school girls according to age showed that maximum number of girls 106 (24.1%) were of the age 14 years followed by 98 (22.3%) of 15 years and lowest numbers of girls were of 12 years of age.i.e.4 (0.9%).

Majority 313 (71.1%) were from lower socio economic class where as only 55(12.5 %) from upper socio economic class

Out of 440 adolescent girls, only 158 (35.9%) had knowledge about menstruation and 282 (64.1%) didn't have knowledge regarding menstruation before attainment of menarche. Out of 158, 120(75.7%) girls opined that normal age at menarche is between 13 to 14 years and majority 68 (43.00%) adolescent girls gained information from mother. Only 10 (6.3%) girls gained information from neighbors.

436 (99.1%) adolescent girls had negative reactions to menarche like scared, shy, sad and sin. In the present study majority (52.7%) girls were scared at onset of menstruation. This may be because they had no knowledge about menstruation prior to menarche.

Among 440 adolescent girls, 294 (66.8 %) girls want to abstain from their activities during menstruation and taboos practiced during menstruation were 406 (92.3%) adolescent girls avoiding holy places, 40 (9%) were isolated and only 4 (0.9%) were not practicing any taboo.

In this study out of 440 girls, 430 (97.7%) used old cloth, 08 (1.8%) are used pad and only 02 (0.5%) used both. Majority of the adolescent girls i.e., 368 (83.6%) were reusing the cloth.43 (9.8 %) of girls were disposing with general waste and 29(6.6 %) resorted to indiscriminate disposal.

Table 1. Distribution of adolescent girls according to their knowledge about menstruation before attainment of menarche (n=440)

Knowledge	Number	Percentage
Yes	158	35.9
No	282	64.1
Opined Normal Age at menarche: (n=158)		
11	06	04
12	23	14.6
13	74	46.7
14	46	29.0
15	09	5.7

Table 2 Distribution of adolescent girls according to main source of information about menstruation (n=158)

Source	Number	Percentage
Mother	68	43.00
Friends	39	24.7
Sister	24	15.3
Relatives	17	10.7
Neighbors	10	6.3
Reaction to first period: (n=440)		
Scared	232	52.7
Shy	140	31.8
Sad	56	12.7
Sin	08	1.8
Happy	04	0.9

Table 3. Distribution of adolescent girls who wants to abstain from activities during menstruation

Abstain from activities	Number	Percentage
Yes	294	66.8
No	146	33.2
Taboo's practiced *		
Avoiding holy places	406	92.3
Not touching other people	108	24.5
No entry in kitchen	42	9.5
Isolated	40	9.0
No taboos practiced	04	0.9

*Multiple answers

Table 4. Distribution of adolescent girls according to material used during menstruation (n=440)

Material Used	Number	Percentage
Pads	08	1.8
Old cloth	430	97.7
Both	02	0.5
Mode of disposal		
Wash & reuse of cloth	368	83.6
Disposal with general waste	43	9.8
Indiscriminate disposal	29	6.6

DISCUSSION

A vast array of beliefs and emotions are involved with menstruation, especially menarche and adolescent menstruation. In recent years education about menstruation to girls is gaining importance in western countries. In India, especially in rural areas the mention of topic of menstruation causes embarrassment and very few parents enlighten their children about the normal function of reproductive organs. This is evident that in our study that only 35.8% of girls had knowledge about menstruation before attainment of menarche. Similar studies conducted by Rama Rao A, 33.4% of girls had the awareness about menarche[5] and Patnagar in his study revealed that 28% girls had prior knowledge regarding menstruation.[6]

Mother was the main source of information in the study group (43%). This suggested that it would be worthwhile to educate mothers on these aspects especially in the case of non school going girls because most of the girls' mothers were illiterate. Similar study by Padma Patnagar et al 47% of adolescent girls received information from mothers. Reactions at first menstruation, maximum number of girls (42.7%) were scared because they had no knowledge about menstruation prior to menarche. Rama Rao A had highlightned the fact that the girls with no previous knowledge about menstruation felt more scared at menarche. [5]

Myths and superstitions were high even among the educated girls. 66.8% girls want to abstain their activities during menstruation and 33.2% girls did not want to abstain from their activities. The original idea of these taboos might have been to give the girl some rest by isolating her. Desai P et al found that 80% of adolescent girls practiced some or other type of taboo[7]

Use of sanitary napkin was less among rural girls it may be the cost factor but they are using old used cloth piece 97.7% and is more important that it should be clean. 83.6% of girls wash and reuse the clothes during menstruation. Srinivas D.K found that 84% girls used cloth and only 4% used commercially available pads, 3% used cotton and 9% girls did not use anything[8]

CONCLUSION

Lack of prior knowledge about menstruation is due to the taboos attached to reproductive health. For awareness and knowledge about menstruation, most of the adolescent girls were dependent upon their mothers, other

family members and peers who themselves were poorly informed. They had no other way of getting scientific information. Separate awareness generating strategies would be required for rural adolescent girls and their mothers to help development of a healthy scientific attitude towards this developmental phenomenon and its management in life.

LIMITATIONS

In this study the knowledge and practices of adolescent girls who have attained menarche have been evaluated. This may not be generalized to whole adolescent girl population as knowledge regarding menstruation in adolescent girls of premenarcheal age not taken.

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Adherence to AntiRetroViral (ARV) Therapy in North Telangana of Andhra Pradesh, South India

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ABSTRACT

Context: With the advent of antiretroviral therapy (ART), dramatic decrease in mortality among HIV infected people has been reported. Unfortunately, non-adherence remains a formidable barrier in the management of HIV, at least 95% adherence to medication is required for sustained response.[1]

Aims: To determine the adherence to antiretroviral drugs among patients on ART.

Method and Material: A hospital based cross-sectional study was performed at ART Center, Dist. Hospital from July to December 2010 by selecting all HIV patients on ART for more than six months duration.

Results: Total 467 patients were reported to ART were selected for study. The mean age was 37.59 (SD=12.24) years, and 79% of participants aged between 21 and 40 years. 55.24% (n = 258) of participants were male and 44.76% (n = 209) female. Less than one percent (0.43%) of patients missed their medications in the last week, 1.72% in the last month, 2.78% in the last six months, and 3.21% since commencing treatment, in a setting of a mean time on ART of 19.85 months.

Conclusions: The level of adherence to ART was found to be very high. It indicates that ART center is working efficiently.

Keywords: *Adherence, ART, HIV, south India*

INTRODUCTION

Globally, the HIV epidemic continues to remain a serious public health problem with an estimated 33.3 million (31.4–35.3 million) people currently living with HIV. While 0.8% of the adult population is infected with HIV, Region-wise differentials exist. In recent times, globally a stable trend in HIV prevalence is being noted.[2] An estimated 3.5 million people were living with HIV/AIDS in the South-East Asia Region in 2009. Women account for 37% of the total number of people living with HIV. Annually, there are an estimated 220 000 new HIV infections and 230 000 AIDS deaths. The number of new infections every year is showing a downward trend in four of the five high HIV burden countries (namely India, Myanmar, Nepal and Thailand).

Currently, 577 000 people with advanced HIV infection are receiving antiretroviral treatment. But these numbers represent only 32% of those in need of treatment as per latest WHO criteria. Of those started on treatment, 65–92% are alive and on treatment 12 months after start of therapy.[2] The total estimated need for antiretroviral therapy in the Region based on CD4 counts 350 cells/mm3 and 200 cells/mm3 is 1.8 million and 1.2 million, respectively. Nearly 90% of the need for antiretroviral therapy is in just two countries-India and Thailand.[2]

HIV infection is not the end of life. People can lead a healthy life for a long time with appropriate medical care. Anti-retroviral therapy (ART) effectively suppresses replication, if taken at the right time. In order to make treatment more accessible ART centres are located in medical colleges, district hospitals and non-profit charitable institutions providing care, support and treatment services to PLHA. [3]

In India antiretroviral therapy was started under NACP-III. According to National AIDS Control Organization, in Aug.2010, there were 285 ART centres, adult HIV patients on ART were 336465, paediatric

cases on ART were 21343 totaling 357808. In Andhra Pradesh, there were 38 ART centers with 73491 adult and 3944 paediatric patient on ART, totaling 77435.[4] The aims of this study were to evaluate the adherence to ART among HIV patients attending Out Patient clinics at ART center, Dist. hospital.

MATERIALS AND METHOD

Study Settings: HIV antibody positive patients attending out-patient clinics, ART center, Dist. Hospital were studied.

Enrolment and eligibility: All HIV seropositive patients on ART for more than six months were included in the study. Both researchers and translators were required to be present for patient participation in the study to achieve complete patient understanding and avoid any misinterpretations. All patients presenting to clinics, while researchers and translators were present, were eligible for inclusion in the study and therefore approached to participate. No incentives were offered to patients approached for inclusion to limit any bias.

Study Period: The study was performed from July to Dec. 2010.

Diagnostic setting: The HIV testing and ART prescription was done by using NACO guidelines.

Study Design and Study Method: A cross-sectional self-administered anonymous questionnaire survey was administered to HIV antibody positive patients on ART attending the ART Center, Dist. Hospital. Patients themselves completed a paper format questionnaire, which was explained in detail prior to completion. Informed consent was obtained, and the number of patients refusing recorded.

Questionnaires elicited patient demographics, treatment regimens and side effects as well as subjective medication adherence. Medication adherence was recorded as taking all medications as prescribed by the prescribing physician (All medications at correct time on correct day). Last week, last month, last six month and lifetime adherence was recorded.

Statistical analysis: Data was analysed using statistical software form www.OpenEpi.com by applying various statistical test viz; Chi-square tests, Student's *t* tests, significance testing, and 95% Confidence Interval formulation were carried out where appropriate.

FINDINGS

The response rate was 95.93% (472/492 agreeing to be involved). Of the responding 472 patients seven (1.48%) refused to answer questions about individual and/or family income. These patients were then omitted from statistical analysis on the effect of income on medication adherence.

The mean age was 37.59 (SD=12.24) years, with males being older 35.25(SD=11.98) years versus female 32.9 (SD=12.24) years, and 79% of participants aged between 21 and 40 years. 55.24% (n = 258) of participants were male and 44.76% (n = 209) female. Total 65.95 percent subjects were literate and 78.37 percent had income less than five thousand. There was a predominance of patients from urban locations compared to rural locations (2470 (51.39%) versus 22 (48.61%). Majority of subjects (62.53%) living with more than three family members. Total 282 (60.38%) subjects had history of family member suffering from HIV and 161 (34.47%) gave information regarding death of family member due to HIV. The current mean CD4 count for 333 participants was 279.5(SD=224.47) cells/cmm and previous mean CD4 count for 312 participants was 256.62(SD=224.38). (Table no.1)

Table No. 1 Patient Demographics relative to adherence of medication regimens

Demographics	Adherent N0. %	Non-Adherent N0. %	OR (95% CI)	P Value
Age				0.02748*
<20	05 (1.11)	0		
21 – 30	159 (35.18)	04 (26.66)	-	
31 – 40	195 (43.14)	11 (73.34)		
>40	93 (20.57)	0		
Mean Age = 37.59 (SD= 12.24, Range= 18 - 68) years				
Gender				
Male	250 (55.3)	08 (53.33)	1.083	0.9105
Female	202 (44.7)	07 (46.67)	(0.39-3.04)	

Table No. 1 Patient Demographics relative to adherence of medication regimens (Contd.)

Demographics	Adherent N0. %	Non-Adherent N0. %	OR (95% CI)	P Value
Male Mean Age= 35.25 (SD= 11.98, Range= 18 - 68) years				
Female Mean Age= 32.90 (SD= 12.24, Range= 20 - 60) years 0.03785**				
Education				
Illiterate	157 (34.73)	02 (13.33)	3.46	0.1489
School	261 (57.74)	11 (73.34)	(0.77-15.52)	
College	34 (7.53)	02 (13.33)		
Income				
5000 or less	353 (78.09)	13 (73.34)	0.55	0.6714*
>5000	99 (21.91)	02 (13.33)	(0.12-2.47)	
Commen Occupation				
Farmer	254 (56.19)	07 (46.67)	-	-
labourer	53 (11.72)	04 (26.66)		
House wife	34 (7.53)	02 (26.66)		
Office work	25 (5.53)	0		
Type of Family				
Separated	13 (2.88)	0	4.62	0.0049
Nuclear	352 (77.87)	07 (46.67)	(1.63-13.10)	
Joint	87 (19.25)	08 (53.33)		
Locality				
Urban	230 (50.88)	10 (66.67)	0.52	0.3469
Rural	222 (49.12)	05 (33.33)	(0.17-1.54)	
No. of Family Members				
03 or less	173 (38.28)	02 (26.66)	4.03	0.04962
>03	279 (61.72)	13 (73.34)	(0.89-18.07)	
Family member HIV +ve				
Yes	171 (37.83)	11 (73.34)	0.54	0.439
No	281 (62.17)	04 (26.66)	(0.17-1.74)	
Family member died with HIV				
Yes	156 (34.52)	05 (33.33)	1.05	0.856
No	296 (65.48)	10 (66.67)	(0.35-3.13)	
Side effects due to ART				
Yes	139 (30.75)	04 (26.66)	1.22	0.9863*
No	313 (69.25)	11 (73.34)	(0.38-3.90)	
Current CD4 counts	284.45	104.11	-	0.0053**
Mean (SD) cells/mm^3	-192.18	-82.92		
Previous CD4 counts	211.76	129	-	0.0157**
Mean (SD) cells/mm^3	-154.78	-93.08		

*Fisher Exact Test

**Unpaired t test

Table No. 2 Patient Medication adherence

Missed Medications in Lifetime*	Yes	No
	n value (%)	n value (%)
Ever Missed medications since starting ART$	15 (3.21)	452 (96.79)
Missed medications$ in the last 6 months	13 (2.78)	454 (97.22)
Missed medications$ in the last month	08 (1.72)	459 (98.28)
Missed medications$ in the last week	2 (0.43)	465 (99.57)

Table No. 2 Patient Medication adherence (Contd.)

Missed Medications in Lifetime*	Yes	No
	n value (%)	n value (%)
Time since Diagnosis (years)		
<1	02 (0.83)	239 (99.17)
1–4	06 (3.37)	172 (96.63)
5+	07 (14.58)	41 (85.42)
Time since starting ART (years)		
<1	01 (0.39)	257 (99.61)
1–4	08 (4.85)	157 (95.15)
5+	06 (13.64)	38 (86.36)
Any Side Effects		
None	11 (3.39)	313 (96.61)
GI symptoms	04 (4.12)	93 (95.88)
CNS	0	02 (100)
Rash/Skin discolouration	0	42 ()100
Metabolic reasons (non-lipid)	0	0
Lipid Problems?	0	02 (100)

* Lifetime Adherence means taking all medications as prescribed since starting treatment.
$ Missed medications means not taking a prescribed medication on any day as prescribed by the physician.
@ GI symptoms = Gastrointestinal tract symptoms which include diarrhoea, nausea and vomiting.
^ Metabolic reasons include diabetes mellitus

Less than one percent (0.43%) of patients missed their medications in the last week, 1.72% in the last month, 2.78% in the last six months, and 3.21% since commencing treatment, in a setting of a mean time on ART of 19.85 months. Medication adherence was recorded as taking all medications everyday as prescribed. The mean duration since diagnosis of HIV was 34.79 months, majority of participants 241(51.6%) had less than one year duration since diagnosis and also 258(55.24) had less than one year period on ART. Total 143(30.62%) participants experienced side effects due to ART. The common side effects were GI symptom sand rash/skin discoloration.

DISCUSSION

Overall 100% medication adherence was found to be 96.79% (n = 452). This was more than expected as other studies conducted in developing countries have shown a "regular" medication adherence from 25% to 90% [5,6,7,8,9,10,11,12,13] No study from India has shown such a higher level of adherence to ART. In African countries like Uganda[14] only had shown adherence level of 99.5% where as in Nigeria[15] it was only 25%. Of the 3.21% who had missed a medication, approximately 50% had missed a medication in the last month. and 40% had missed because they had run out of medications. Missed medications means not taking a prescribed medication on any day as prescribed by the physician. During data collection for this study only those with 100% medication adherence were considered as adherent whereas in other studies the level of medication adherence is calculated and a level above 95% is taken to be adherent i.e. missing one medication in twenty is acceptable.

Older patients between 21 – 40 years showed a significantly high tendency towards better medication adherence (P = 0.02748). This may be related to older patients' familiarity with medication usage and their increasing awareness of HIV as a disease that requires optimal adherence [16]. It was those aged less than 20 years in this study that showed the poorest levels of medication adherence. Many other studies have also identified young age as a risk factor for poor medication adherence especially in those under 35 years [13,17].

Gender was not associated significantly with medication adherence, in our study, as is supported in a previous review article of 18 descriptive studies [18]. Surprisingly neither living in a rural compared with an urban area (X^2=0.8847,df=1,P=0.3469) nor literacy was not significantly associated with lower medication adherence (X^2=2.085,df=1,P=0.1489). This has also been shown by Cheng et al in a 2006 publication [19]. Verbal instructions to patients who are illiterate seem equally as effective as written instructions which are given to all patients.

One may assume that those of a higher social status and income were more adherent to their ART. This was not seen here, where we report a patient's individual income (P = 0.6714). In this study the ARV drugs were supplied free of charge and this is the only factor responsible for high adherence. A study undertaken in Chennai, India found that almost all the participants discussed the cost of ART as a barrier. [20]

The number of family members, family member being HIV infected and history of family member dying due to HIV was not significantly associated with adherence to medication.

Being on ART for for greater than five years (13.64%) was associated with the largest number of missed medications, in this study. This finding is supported by Andreo C. who found that duration of treatment greater than two years was associated with increased non-adherence to ART [21]. Those who experience side-effects from their medications are known to be 'risk patients' for non-adherence to ART [22], but in this study it was not significantly associated. However, the severity of the side effects also seemed to be a factor. Those experiencing milder side effects such as skin rash or skin discolouration were more adherent to ART than those experiencing more severe side effects such as metabolic effects.

The current and previous mean CD4 counts were significantly lower among adherent and non-adherent participants (P=0.0053 and P=0.01574). The adherence to ART had significantly increased CD4 counts over a period of time. In Nigeria it was reported that adherent individuals have been shown to have reduced viral loads, high CD4 counts, live longer and have better quality of life.[9]

CONCLUSION

The level of 100% adherence to ART is high. Greater medication adherence was also seen in those who were older, male gender, from larger families and joint families and high CD4 counts.

There was no trend in 100% medication adherence when comparing educational status, with family member suffering and died of HIV and length of time since diagnosis. There was, however, a trend of non-adherence in those who were on ART for longer (especially those >05 years experience).

This study shows that many patients in India are getting ART free at ART centers but many have to travel long distances for it. CD4+ analysis is easily available but viral loads are not as freely available

Further larger study into medication adherence among Indian HIV patients is required, especially looking at the impact of income and medication adherence. Future studies should also look at adherence on shorter time scales, for adherence among Indian HIV patients, rather than lifetime adherence as in this study.

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A Study to Assess the Morbidity Pattern among School Going Children of Gulbarga City

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ABSTRACT

Health of a child is a growing concern all over with rapid economic growth and social changes both in developed and developing parts of the world. School children form an important vulnerable segment of population and constitute about 20% of total population of India. Majority of the health problems affecting school children are preventable by promotion of hygienic practices.

Objective: To assess the morbidity pattern among school children and to assess the status of personal hygiene among school children.

Study design: Cross sectional study.

Material Method: The study was carried out in higher primary schools of Gulbarga city.

Results: Out of 935 school children under study 51.23% were boys and 48.77% were girls. 663 children were suffering from various ailments. 22.35% children had specific deficiency diseases 166 children suffered from common illnesses. ARI was the most common illness and Helminthic infestation was observed in 15% children 91.44% school children had good personal hygiene.

Keywords: *Ailments, Helminthic infestations, Respiratory Infections and Personal Hygiene*

INTRODUCTION

Health of a child is a growing concern all over with rapid economic growth and social changes both in developed and developing parts of the world.

Health has been considered as one of the major goals of education and social development amongst the children. But little has been done in the direction of achieving the objective of optimal health. Children as a cohesive group occupies an environment that gives for systematic planning, implementation, and evaluation to develop desirable results for a positive health.

Every child should be taught early in his life, that , to preserve his own life and his own health and the lives and health of other's is one of his most important and constantly abiding duties. Compulsion should be made to the children to make a sanitary examination of themselves and associates and thus elicit a practical application of the lessons of sanitary science in the everyday duties of life. The responsibility of this lies in the hands of parents, teachers, health administrators and the community.

Morbidity and mortality rates of children in India are among the highest in the world. (1) More emphasis is required on health education to prevent health problems rather than providing curative and clinical base for the detection and treatment of health problems. A systematically planned and implemented health education programme with a built in system of feedback for programme modification is essential to achieve the goals more objectively. This will help to reduce the increasing burden on existing curative services, which even when expanded may not be able to keep pace with the rapidly increasing population. Constant observation and screening for defects and

deviation from normal health among school students by teachers for early detection and treatment of diseases and disabilities can reduce the demand on medicare facilities, lower the need for rehabilitation and enable students to make optimum use of educational opportunities in improving scholastic performance.

School health service is an important programme, which provides a comprehensive care of the health and wellbeing of children throughout school years. School health services play an important role in the development of every child. At the beginning of 20th century school health services in India began.(2)A multi disciplinary approach is required for the improvement in the health status of children, particularly school going children. Health agencies and health services should be brought together as closely as possible.

School health is the community health, the Nation's health and Nation's wealth. Health care which begins at home should be continued in school. Today's children are Tomorrow's citizens and healthy citizens are the Nation's pride.

Keeping the above fact in mind and growing realization of importance of the health of a school child, this study is undertaken amongst the schools of the Gulbarga city.

OBJECTIVES

To assess the morbidity pattern among school children

To find out the burden of specific deficiency disorders and

To know the status of personal hygiene in school children

MATERIAL AND METHOD

The study type: Cross sectional study

The study group: **The study group**: After considering 30% prevalence of one or the other diseases in the school going children (3)

Sample size=4pq/L²=933H"935.

Among the 37 government higher primary schools in the Gulbarga city and the total No. of children were 4431.By systematic random sampling technique every 5th school was taken as the sample interval, to meet the sample size all the children in the selected school were included in the study (4).

Research method: Interrogation and clinical examination of school children

Table 1: Distribution of school children according to age and sex.

Age (years)	Boys		Girls		Total	
	No.	%	No.	%	No.	%
10	57	6.09	103	11.02	160	17.11
11	129	13.80	140	14.97	269	28.77
12	174	18.61	169	18.07	343	36.68
13 and above	119	12.73	44	4.71	163	17.43
Total	479	51.23	456	48.77	935	100

Table 2: Distribution of school children according to their socioeconomic status.

Socioeconomic status.	Distribution of children	
	No.	%
I(26-29)	02	0.22
II(16-25)	372	39.76
III(11-15)	327	34.97
IV(5-10)	225	24.06
V(<5)	09	0.96
Total	935	100

Table 3: Distribution of school children according to the caste.

Caste	Boys		Girls		Total	
	No.	%	No.	%	No.	%
Muslims	50	10.44	26	5.70	76	8.13
Christians	0	0	02	0.44	02	0.21
SC/ST	128	26.72	109	23.90	237	25.35
OBC	82	17.12	55	12.06	137	14.65
Others	219	45.72	264	57.89	483	51.66
Total	479	100	456	100	935	100

Table 4: Distribution of school children according to sex &diseases

Sex	Common illness	Systemic diseases	Chronic diseases	Deficiency diseases	Helminthic infestation	Dental caries	Refractive errors	Total
Boys	80(12.07)	03(0.45)	06(0.90)	115(17.35)	84(12.67)	55(8.30)	08(1.21)	351(52.94)
Girls	86(12.97)	00(0.00)	04(0.60)	94(14.18)	67(10.11)	48(7.24)	13(1.96)	312(47.06)
Total	166(25.04)	03(0.45)	10(1.51)	209(31.52)	151(22.78)	103(15.54)	21(3.17)	663(100.00)

Table 5: Distribution of school children according to sex & Common illness

Sex	Fever	ARI	Loose motion	headache	Pain abdomen	Minor injury	Total
Boys	13(7.83)	49(29.52)	02(1.20)	04(2.41)	07(4.22)	05(3.01)	80(48.19)
Girls	22(13.25)	44(26.51)	02(1.20)	09(5.42)	09(5.42)	00(0.00)	86(51.81)
Total	35(21.08)	93(56.03)	04(2.40)	13(7.83)	16(9.64)	05(3.01)	166(100.00)

Table 6: Distribution of children according to sex and their personal hygiene.

Sex	Good	Fair	Poor	Total
Boys	430(45.99)	46(4.92)	03(0.32)	479(51.23)
Girls	425(45.45)	29(3.10)	02(0.21)	456(48.77)
Total	855(91.44)	75(8.02)	05(0.53)	935(100.00)

DISCUSSION

Out 935 of children under study 479(51.23%) were boys and 456(48.77%) were girls. Girl population was more compared boys in 10 and 11 years but has decreased after the age groups of 12 and above.

Majority of the children belonged to socioeconomic class II and III i.e. 372(39.79%) and 327(34.97%) respectively. 225(24.06%) belonged to class IV, 09(0.96%) were of class V and 02 were of class I.

Out of 935 children majority were Hindus 857(91.65%), 483(51.65%) were from upper caste and 237(25.35%), 137(14.65%) belonged to SC/ST and OBC respectively. The number of Muslim children were 76(8.13%) and Christians 02(0.22%).

351(52.94%) boys and 312(47.06%) girls were suffering from various ailments. It was observed that many children were having more than one ailment.

Specific deficiency disorders were observed more in boys 115(17.34%) than in girls 94(14.18%). D N Shah et al [5] observed vitamin A deficiency in 9.5 % children and vitamin B deficiency in 8 % children.

Helminthic infestations were observed in 84(12.67%) boys and 67(10.11%) girls. Prabakar et al[1] observed a prevalence of worm infestation to be 20-40% among school children.

80(12.07%) boys and 86(12.97%) girls suffered from common illnesses. 55(8.30%) boys and 48(7.24%) girls had dental caries while 8(1.21%) boys and 13(1.96%) girls showed refractive errors. 15- 35 % of school children were found to be suffering from caries tooth in an Andhra Pradesh school health project.[6]

Chronic diseases were observed in 6(0.90%) boys and 4(0.60%) girls. systemic diseases were seen only in 3(0.43%) boys.

166 children were suffering from common illnesses, out of which 80(48.19%) were boys and 86(51.81%) were girls. Among the common illnesses, most of the children were suffering from ARI 93(56.03%), followed by fever 35(21.08%), pain abdomen 16(9.64%),

headache 13(7.84%), minor injury 05(3.01%) and loose motion 4(2.40%). According to study done by R C Goel et al[7], prevalence of ARI was observed in nearly 6.1% children comparing to our study which comes to about 9.94%.

Among 855(91.44%) children having good personal hygiene 430 were boys and 425 were girls. Sharad G Tenglikar et al. [8] observed poor personal hygiene among 26.5% boys and 18% girls.

CONCLUSION

The present study reveals that the girls population decreased after 12 years of age may be due to attainment of menarche and neglect to wards girl child. Majority of children were from middle class families. The morbidity pattern indicates a high prevalence of common and preventable illnesses thus provides an ideal milieu for intervention strategies.

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Epidemiological Study of Dermatophytosis in and around Davanagere

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ABSTRACT

Dermatophytosis constitute a group of superficial fungal infection of keratinized tissue that is skin, hair and nail. These fungi are among the commonest infectious agents, and no geographic areas are without "ringworm". About 200 clinically diagnosed cases were included for the study. A detailed history was noted regarding age, sex, socioeconomic status, duration of illness and duration of treatment. Highest incidence was seen in the age group of 21-30 years, with 44 cases (22%). There was a male preponderance with 141 cases (70.5%). Dermatophytosis was common in low socioeconomic status 156 cases (78%).

Keywords: *Dermatophytosis, Tinea,Ringworm*

INTRODUCTION

Dermatophytosis constitute a group of superficial fungal infection of keratinized tissue, that is, skin, hair and nail. These fungi are among the commonest infectious agents, and no geographic areas are without "ringworm". The dermatophytes produce infections with mild to severe symptoms depending on immunological response of host.(1) The word dermatophytes literally means "Skin plant" derived from the words Dermatos-skin and Phytes-plant.(2) Dermatophytosis form 16 to 75% of all mycological infections.(3) Dermatophytes are also known as ring worm fungi. The name ring worm has been in use at least from 16th century and was coined to describe circular lesions produced by dermatophytes on the skin or scalp. (4) It is more prevalent in tropical and subtropical countries including India, where heat and moisture play an important role in promoting the growth of these fungi. (3) Even though many workers have worked and reported the incidence of dermatophytosis from different parts of our country, very little work has been done on this subject in this part of our state.

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MATERIALS AND METHOD

About 200 clinically diagnosed cases of dermatophytosis were included for the study .A detailed clinical history of the patient were recorded with regard to age, sex, socioeconomic status, duration of illness and duration of treatment. Depending on the type of infection, specimen from the lesions of skin, hair and nail were collected. The specimen were subjected for microscopy and fungal culture.

RESULTS

A total number of 200 cases were distributed between the age-range of 5-76 years. Highest incidence was seen in the age group of 21-30 years with 44 cases

(22%) followed by 41-50 years with 43 cases (21.5%). Least incidence was seen in 71-80 years with 2 cases(1%) followed by 61-70 years with 5 cases (2.5%) as shown in the table 1

Table 1: Age wise distribution of Dermatophytosis

Age(years)	No of cases	Percentage
1-10	15	7.5
11-20	36	18.0
21-30	44	22.0
31-40	40	20.0
41-50	43	21.5
51-60	15	7.5
61-70	5	2.5
71-80	2	1.0
Total	200	100.0

Sex Incidence: Out of 200 cases of tinea infection, males were commonly affected with 141 cases (70.5%) than females with 59 cases (29.5%). The male to female ratio was 2.4:1, as shown in table 2.

Table 2: Sex wise distribution of cases of Dermatophytosis

	Males	Females	Total	M:F Ratio
No of cases	141	59	200	2.4:1
Percentage	70.5%	29.5%	100%	

Categorical Distribution of Cases By Socioeconomic Status

Categorical distribution of cases revealed that the highest incidence of dermatophytosis was seen in low socioeconomic status than high socioeconomic status as shown in table 3.

Table 3: Shows distribution of cases by socioeconomic status

Socioeconomic status	No of Cases	Percentage
Low	156	78.0
Middle	43	21.5
High	1	0.5
Total	200	100.0

DISCUSSION

In this study, the maximum number of patients were seen in third decade, in the age group of 21-30yrs with males out numbering the females. Similar findings have been reported by Sen SS et al[5], Peerapur et al[6], Sumana V et al[7]. The highest incidence in young male adults may be due to increased physical activity and increased sweating. Highest prevalence in low socioeconomic status has been reported by Ranganathan S et al[8]and Mohanty JC et al[9]. This high incidence may be due to poor hygienic living condition that is common practices of sharing clothes and bathing towels of other ringworm patients without washing them properly and also due to poor nutritional value and large familysize .

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Study of Some Socio-Demographic Aspects of Defaulters in Animal Bite Cases at SBH Govt. Medical College, Dhule

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ABSTRACT

Research question: What are the Socio-demographic aspects of defaulters in animal bite cases?

Objectives:

1. To study the defaulter rate in animal bite cases?
2. To study the defaulters as per age, sexwise, residential status, socio-economic status.

Study Setting: Immunoprophylaxis clinic (IPC) at Govt. Medical College Dhule.

Study design: Hospital based prospective type of study.

Study participants: 3604 study subjects were participating during study period from January 2008-December 2008.

Statistical analysis: Chi-square test, proportion.

Results: A total of 3604 patient were attended the ARV clinic for treatment of animal bite. The overall defaulter rate was 36.40%, 26.29%of the defaulters were Males, While 10.19% were female. The defaulter rate in case of full treatment advised case is more (46.48%) as compare to advised case. The high rate of defaulter was seen in age group 15-19 years i.e. 24.70%. Out of 3604 studies subject 2188(60.72%) were in class II bite. Most of the study subject belongs to class-V socioeconomic status (50%). 65% defaulters were in class V socioeconomic status. Maximum number of study subjects were of class-II bite i.e. 2188(60.71%) followed by class-III bite i.e. 1112(30.85%). There were 304 (8.44%) study subjects in class-I bite.

Keywords: *Defaulters, Not Defaulter's Socioeconomic Status, Class of Bite*

INTRODUCTION

Rabies is an enzootic and epizootic disease worldwide. More than 2.5 billion people are at risk of exposure to rabies in over 100 countries reporting the disease. Rabies mortality ranks 10th among the all-infectious diseases worldwide.[1] World Health Organization figure showing that three out of every five person dying of rabies are Indian and 90% of them are poor and from low-income group.[2]

4-6 millions people are bitten by dog annually with only 2 millions of those affected actually seeking medication. Some 85 percentage people have no idea about what they should do when a dog bite occurs.[3]

Primary vector for rabies transmission in India is the dog, contributing to 96% of the total immunized cases.[4] Survey conducted in 41 medical colleges has

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shown that the admission rate of cases of hydrophobia as one out of 2,000 total admissions. It is just impossible to visualize the physical and psychological trauma inflicted on a person bitten by rabid animal.[5]

Maharashtra has the highest incidence of rabies in country.[6] Health education in an important component of anti rabies prophylaxis. Inadequate health education is responsible for high defaulting. Unfortunately in most of the anti rabies clinic there is very little provision and aptitude of health education.

MATERIAL AND METHOD

The Study was carried out in the Govt. Medical College & Hospital Dhule (Maharashtra). All the patients coming for treatment of animal bites to the anti rabies Immunization Clinic were included in the study. The study period was from Jan to December 2008. The schedule recommended by WHO was followed for Immunization. All the patients were interviewed personally and the information was recorded in a pretested proforma. The classification of exposure was done into 3 categories i.e. class-I, Class-II and Class-III. They are also enquired regarding exposure, income, education, occupation, adverse effect etc. The study subjects were classified as defaulters and not defaulters based a completion of the treatment on time as per the prescribed schedule.

FINDINGS

Table I. Sex wise distribution of study subjects

Sr. No	Sex	Defaulters	Not defaulters	Total
1	Male	944(26.29)	1592(44.17)	2536(70.36)
2	Female	368(10.11)	700(19.43)	1068(29.64)
	Total	1312(36.40)	2292(63.60)	3604(100)

(Figures in parentheses indicate percentage)

$X^2 1=2.48$, $P>0.5$

The above table shows the distribution of defaulters according sex, 26.29% of defaulters were males while 10.11% were female. Out of 3604 study subjects 70.36% were male and 29.64% female.

Table II. Distribution of study subject according to place of residence

Sr. No	Residential place	Defaulters	Not defaulters	Total
1	Rural	1080(29.96)	1864(51.73)	2944(81.69)
2	Urban	232(6.44)	428(11.87)	660(18.31)
	Total	1312(63.60)	2292(36.40)	3604(100)

(Figures in parentheses indicate percentage)

$X^2 1=0.54$, $P>0.5$

Above table shows that 81.69% were belonging to rural area while 18.31% were from urban areas. Out of 1312 defaulters, 1080(82.31%) were rural while 232 (17.69%) urban. High rate of defaulter were found in rural area. There was no association between the place of residence and outcome of treatment.

Table III. Distribution of study subject as per socioeconomic status

Sr. No	Socioeconomic Status	Defaulters	No defaulters	Total
1	Class-I	5(0.12)	35(0.99)	40(1.11)
2	Class-II	17(0.47)	99(2.75)	116(3.22)
3	Class-III	149(4.14)	514(14.26)	663(18.40)
4	Class-IV	289(8.02)	694(19.25)	983(27.27)
5	Class-V	825(23.65)	950(26.35)	1802(50.00)
	Total	1312(36.40)	2292(63.60)	3604(100)

(Figures in parentheses indicate percentage)

X24=201.1, P<0.001

Table 3 shows the distribution of study subject as per socioeconomic status. Most of study subject belongs to class-V socioeconomic status (50%) followed by class-IV (27.27) socioeconomic status. 23.65% defaulters were in class V socioeconomic status.

Table IV. Distribution of study subject as per type of course

Sr. No	Type of course	Defaulters	Not defaulters	Total
1	Advice case	792(21.97)	1693(46.97)	2485(68.94)
2	Full course	520(14.43)	599(16.63)	1119(31.06)
Total	1312(36.40)	2292(63.40)	2292(63.60)	3604(100)

(Figures in parentheses indicate percentage)

$X^2 1=71.02$, $P < 0.001$

The above table shows the distribution of defaulter according to type of course advised. It interprets that the defaulter rate in case of full course advised is more (46.48%) as compare to advised case (31.88%) So there was association between type of course and defaulter.

Table V. Distribution of study subject as per class of bite

Sr. No	Type of course	Defaulters	Not defaulters	Total
1	Class-I	63(1.74)	241(6.68)	304(8.42)
2	Class-II	828(22.98)	1360(37.74)	2188(60.72)
3	Class-III	421(11.68)	691(19.18)	1112(30.86)
	Total	1312(36.40)	2292(63.60)	3604(100)

(Figures in parentheses indicate percentage)

$X^2 2=35.18$, $P < 0.001$

Above table shows the defaulter according to class of bite. Out of 3604 studied subject 2188(60.72%) in class II bite, while 1112(30.86%) in class III type of bite. Highest number of defaulters in class II type of bite i.e. 22.89% followed by class III category i.e. 11.68%. As duration of treatment increases defaulter rate increases.

CONCLUSION

A total of 3604 patients were attended the ARV clinic for treatment of animal bite. The over all defaulter rates was 36.40%. 26.29% of the defaulters were Males, While 10.19% were female. Trivedi C.R.[7] revealed that nearly 2/3rd of dog bite cases (67.4%) were failed to complete schedule of immunization. Baride J. P. et al[8] observed that regularity in attendance at the center was 74.16% among cases from rural area and 65.7% among cases from urban area. The study findings are similar to Baride J.P at al (1983). Tambe M. and Nagaonkar[9] A study shows the overall defaulter rate was 39.77% The defaulter rate was higher among those taking only advised treatment of 3 injections. Our study findings are similar to this finding. Tambe M. and Nagaonkar A. reported that majority of cases were belonging to class V i.e. 69.09% followed by class IV (22.50%) class-III (7.05%), class-II (0.09%) and class –I (0.45%) socio-economic status. Health education is important for patient to understand the importance of future prevention of disease and importance of completion treatment. Complete treatment of a case of animal bite is must because incomplete treatment does not offer full protection from the disease. The long and cumbersome schedule of ARV is another reason for high defaulters.

RECOMMENDATION

1. It is necessary to carry out health education campaign for general public regarding effect of animal bite, proper wound care and regularity of treatment.
2. Mother's health education about consequences of animal bite and protection of children especially under fives in important during mother health education.

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Privatization of Health Care in India: Emerging Issues and Concerns

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ABSTRACT

This research paper attempts to collate literature from various sources, in an attempt to answer four pertinent questions related to private health care in India. Firstly, emerging relationship between private health care and market, secondly how the private health care sector is delivering health in terms of its quality; thirdly what is the structure and pattern of health care from the provider's perspective? Finally, the paper tries to highlight some of the dehumanizing issues/aspects in private health care which are relevant for the consumers of health care.

Markets in the health care are also governed by the purchasing power of the individuals in society. They are not democratic institutions and it results into the marginalization of the marginal. It is evident that the private health sectors attracts and treat persons who can pay more hence it is selective. Quality of health care in private sector is a myth as in private sector job insecurity and poor working conditions bound to affect the quality of care provided to the patients. Private health care professionals are essentially for the sale and use of goods produced by the health care industry. User charges, usage of high tech diagnostic tools, irrational diagnosis, and technology for money has become a culture of practice for the doctors. Professionals in healthcare defend unfair and trade practices which sometimes leads to the unethical practices under the garb of professional independence.

Keywords: *Private healthcare, Providers of healthcare, Consumers of healthcare, Market principles*

INTRODUCTION

Sociology of Inequalities in health refers in relation to economic, social and cultural structures and relationships within the wider society on people's health chances as well as the actions and attitudes of individuals. The present research paper attempts to understand the delivery of health care in private sector. This research paper attempts to collate literature from various sources, in an attempt to answer four pertinent questions related to private health care in India. Firstly, emerging relationship between private health care and market, secondly how the private health care sector has is delivery delivering health in terms of its quality; thirdly what is the structure and pattern of health care from the provider's perspective? Finally, the paper tries to highlight some of the dehumanizing issues/ aspects in private health care which are relevant for the consumers of health care.

Process of Privatization of Health Care Services

The private sector has been expanding since the past three decades in India. Earlier during the fifties and sixties, the presence of private sector institutions was small but over the years this sector has grown and diversified to include commercial-based institutions like nursing home and corporate hospitals. With the increasing penetration of high-tech investigating equipment, investing in medical care has become a profitable proposition and has been an important reason for fuelling the growth of private institutions. The private sector has been largely involved in the provision of curative services while the public sector has provided both preventive and curative services. Stagnation of public expenditures during the seventies and eighties has created space for the growth of private sector. An added reason has been the profitability of private enterprises which resulted in their proliferation.

Issues in Health Care

National Council of Applied Economic Research (NCAER)[1] conducted a National Survey in 1990 which found that 54.75 per cent people in urban areas utilize private health facilities and in rural area it is 55.46 per cent. The average household expenditure on health is Rs. 142.60 per illness episode in urban areas and Rs. 151.81 in rural areas. State policy towards the private sector has to be addressed within a systemic perspective covering not just providers of health care services but also other related components in the health care system. Within this perspective it is essential to delineate the structure of private health care sector and its delivery of health to the people. Following are the issues of concern.

- Privatization and Market
- Privatization and Quality of Health Care
- Health Care Provider and Pattern of Practice
- Dehumanizing aspects and Consumer Concern in Health Care

Privatization and Market

Markets are the new buzz word. They are to be left free to operate. This means freedom to capital, labour laws that have evolved long periods of time to check the extreme forms of exploitation by capital are now being diluted. Consumer sovereignty means that the consumer knows her/his interest best so whatever she/he wishes to consume should be made available in the market. There should be no interface with this from any quarter. 'Efficiency' is defined as the achieving of the wished of the consumers. This may be iniquitous in the extreme with one person having all and the others having nothing. But as long as this is consistent with the initial endowments, it is 'efficient' and in that sense the notion of market 'efficiency' is status quoits.

Since 'more is better' consuming less is not desirable as it lowers the individual's welfare. Restraint is then meaningless. The notion of 'consumer sovereignty' means that the focus is on self as opposed to the collective. So both these market principles weaken the idea of community and of working towards a common goal. The idea of the notion based on a shared common goal itself weakens. Markets do not decide which goods are socially good or bad. They have no social value. Judgment about the nature of goods is made and imposed by society from outside the markets. For instance, markets do not decide that smoking is bad or that cigarette advertising should not be allowed. Society decides that children should not be targeted by advertising or that sex and violence should not be beamed at them. Penetration of the markets into the social realm is undermining social values.

There could be only two reason for the increasing pressure or privatization, the first could be the failure to support public sector personnel to perform their duties in the skeleton comprehensive programmes inevitably created a very "big market" for the private sector. This is an increasing burden on the poor who are at the receiving end in this scheme of things.

Privatization and Quality of Health Care

Much of the debate on privatization of health care has been based on the assumption that the private sector provides a better quality of services than the public sector. Efforts are on to restructure public institutions on market principles to promote efficiency. This assumption does not stand up to empirical scrutiny because of the difference in stated goals. Patient load and the clinical practice of spending time with each patient by private doctor will have a significant bearing on the quality and cost of health care.

In a study to understand health seeking behaviour of semi-urban population, it was observed that 62 per cent of the households preferred private health care facility. The reasons for avoiding government facility are: services were free of cost included long waiting time, facility located at distance, inadequate facilities, unclean premises, harsh behaviour of the staff and low faith in government doctors. Interestingly, quality of medical care is not considered to be the criterion for selection of public or private sector facilities (Patel and Trivedi et al 2010)[2]. In another study conducted in the city of Mumbai (Dilip and Duggal: 2004)[3] reasons for the preference of private sector facility included proximity, quality of care and convenient timing. Affordability was a leading factor for selection of public healthcare facility. Pinto and Udwdia (2010)[4] cited reasons like poor quality with a general lack of trust in government services, lack of attention offered to patients, long waits, poor hygiene, suspected quality of drugs and lack of privacy, for non preference of public sector hospital. Similarly another study (Chirumle and Gupta: 1997)[5] reiterated the role of affordability, quality of medical care and availability of medical services, as critical in selection of public or

private healthcare institutions, across five different states in India.

Most private doctors work in their chambers in either morning or evening, and some practice at multiple locations. The timing pattern of private practice, primary addresses the convenience and needs of clients. Fifty per cent of providers have a maximum patient load of 26 or more, and about 45 per cent of doctors spend less than 15 minutes on each patient are. Private Doctors are spending less time on clinical diagnosis, and depend more on referrals and diagnostic tests. This will have significant cost and quality implications (Bhat: 1999)[6]. The quality of care of any service organization highly depends on the providers skills (qualification), working conditions, attitude and wages of staff, and other social factor which is related to providers. Hospitals are labour intensive organizations which are not only merely dependent on medical expertise but require the co-ordination of different level of staff to provide quality patient care. It is not enough to have well qualified specialist alone, it is equally important to have well trained paramedical and supportive staff for ensuring good quality patient care.

Studies on private nursing homes in Bombay (Nandraj:1994)[7], Delhi (Nanda and Baru:1993)[8] and Hyderabad (Baru:1998)[9] have shown that paramedical and supportive staff often work for very low wages and are not qualified for the work that they do. Hence there is a great deal of turnover of staff at these levels and they work under abysmal a condition which is bound to have a direct impact on patient care. The job insecurity and poor working conditions in the private sector is bound to affect the quality of care provided to patients.

Health Care Provider and Pattern of Practice

The doctor is undoubtedly a professional and this status is due to his or her acquired knowledge and special skill and the position, he or she occupies in society. Therefore, the society's dependency on doctors and that realization create a gap for mechanical practice or a culture of practice driven by hiding information. In the private practice desire to earn more money is undoubtedly a significant reason for irrational practice, rising cost of health care, commercialization of health, over medicalization, unethical practice, increasing usage of technology etc. The health care as a commodity is sold by the health care provider in the market. In our country the private sector almost exclusively works on user charges. Intensive use of high-tech equipment, irrational diagnosis, diagnosis for money, and technology for earning has become a culture of practice. ICSSR/ICMR Committee (1981)[10], expressed serious concern about 50,000 drugs and formulations available in our country are hazardous, useless, unnecessary and irrational. Such products not only harm the interests of the consumers and inculcate irrational medical practice, but are also causing waste of resource and increasing cost of medical care.

The role of increasing usage of various technologies and specifically the new hi-tech instruments in medical care is well documented. Nearly 80 per cent of private health practice is based on the nexus commission and cuts between the GP and the consultant (Muralidheran: 1994:29)[11]. The most dominant provider payment system in India is fee-for-service. Bhat (1999)[12] finds that 70 per cent of providers charge on a fee-for-service basis and 30 per cent charge on a case basis in which the total charges depend upon the specific services and procedures. 47 per cent doctors use cost as the basis for charging fee and about one third follow what others are using and use market-based data to determine their fee structure. The providers indicate that medical associations have users little influence on deciding the fees charged by providers.

An anti-cancer drug is not only being widely and wrongly used by doctors to treat infertility in women, but it is also being tested illegally on unaware patients. Letrozole, the drug has no proven use in curing infertility any where in the world. At least a dozen doctors were involved in the unlawful and potentially hazardous trials in Nagpur, Jodhpur, Kolkata, Hyderabad, Kottayam and Ammritsar. No one bothered to take the necessary permission for the tests from the Drugs Controller General of India, a necessary requirement for any clinical trial (Patranobis: 2003)[13].

Some scholars have written that the public sector's malfunctioning is providing scope for the expansion of the private sector. It is also necessary to assess how the private sector oriented policies of the state and the actual existence of an unnecessarily large big private sector with its dominant value system have contributed to the malfunctioning of the public sector. Yesudian (1994)[14], through an opinion based study, observes that malpractice and medical negligence seem to be rampant in the private sector. Bhat (1999)[15] finds that over-prescription of drugs is ranked as the first major prevalent medical practice by respondents. This is followed by fee-splitting practices and inadequate

measures for disposal of waste followed by over-prescription of diagnosis.

Dehumanizing Aspects and Consumer Concerns in Health Care

Decades of unregulated growth in the health care market have led to a situations, wherein a vocal and powerful section of health care professionals are shamelessly and assertively declaring that the medical profession is acceptable only to itself and not to society. They defend unfair market and trade practices under the garb of professional independence. They have interpreted the new economic policy as being one which promotes market forces without enforcing any regulations and allows private practice to practice without obligations to ethics or patients/users. On the one hand they demand the status of an industry for financial support include the granting of status of infrastructure, providing a level field for health care, giving nursing home the status on medical equipment, and on the other hand, they want to retain the privileges of a welfare institution. This is the outcome of a Delhi Government Report. This committee must not only take stock of the performance of the private sector and its adherence to conditional-ties but also define the role of the state in monitoring these hospitals like any other industries. Health care enterprises must also adhere to rules and regulations regarding employment conditions, and minimum wages for all levels of staff certain minimum procedures regarding pricing, billing, maintenance of medical records, financial and medical audit which become requirements for ensuring transparency and accountability to the consumer and state.

In this era of consumerism, free market economy and information explosion, how can one empower the consumer to utilize health care services more effectively without endangering doctor-patient relationship which is based on trust? The consumer rights, consumer responsibility gains an equal importance. An irresponsible use of the rights may lead to a distorted an expensive health care delivery as seen in the US today. The current Indian scenario despite great technological advances and specialization in medicine, health care still depended greatly on trust, care and compassion. Unfortunately, in the blind present of scientific knowledge, the human side of doctor-patient relationship is often forgotten. The doctors should find time to listen to their patients and allay their anxieties. This would humanize medicine. The piece meal and de-humanised health care that is available today causes a lot of consumer dissatisfaction and is largely responsible for the litigations in consumer protection councils.

CONCLUSION

The adoption of a new market economy due to liberalization has resulted in different interpretations of the role of state and its relations to social welfare services and market institutions. Against this backdrop, this paper studies the private health care services and challenges brought about by the rapid marketization and the quality of health services delivered to the masses, structure and pattern of health service from providers' perspective and resultant dehumanizing issues. On the surface, data indicate improvement in the proliferation of private health services and increasement in investment of health care. However, a closer look reveals that marketization has resulted in the cost escalation of health services which has deterred the accessibility to the poor sections of society and quality of health care has also become a myth. The analysis suggests that there are increasing inequalities in the access to and quality of healthcare services as a result of the rapid and fundamental changes within the health sector.

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A Study of Prevalance of Morbities in Door to Door Waste Collecting Workers of Surat City, Gujarat

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ABSTRACT

Objective: In present work attempt has been made to study the prevalence of morbidities among door to door waste collecting workers.

Study Area: Surat city workers working at Pal, Umarpada, Bhatar, Anjana, Vastadevdi and Pandesara transfer station were selected for study purpose.

Method: A cross sectional study was carried out for 292 workers of Surat city who are involved in daily door to door waste collecting activity implemented under MSW 2000 rule. 93 workers who are working in office (not coming in touch of waste) were selected as non exposed group. Workers age, sex, social economic condition, habits and other relevant information for health survey were obtained separately. Respiratory symptoms data were collected using ATS- DLD standard questionnaires. Data were also collected for acute irritative symptoms, musculoskeletal symptoms and gastrointestinal symptoms.

Result and Conclusion: The data were analyzed with reference to symptoms, habits. For comparison odds ratio was calculated. Results indicate that door to door waste collecting workers are having potential risk for the development of chronic respiratory symptoms (cough, phlegm, wheezing and chronic bronchitis). They are also having higher risk for musculoskeletal symptoms (low back pain, elbow/wrist pain) and injuries caused by sharp objects.

Keywords: *Door to Door Waste Collecting Workers, Musculoskeletal Symptoms, and Respiratory Symptoms*

INTRODUCTION

Collection of household waste is hard and dangerous work. The workers play an important role in maintaining health and hygiene of city [3]. The job condition exposes them to a variety of risk factors such as dust, bio aerosols, volatile organic matter and mechanical stress, which make them susceptible to certain occupation diseases [5].

Waste management means the generation, collection, processing, transport, and disposal of solid waste is important for both environmental reasons and public health. The different options available for the management and treatment of waste are minimisation, recycling, composting, energy recovery and disposal. The various methods of waste management release a number of substances, most in small quantities and at extremely low levels. However, more concerns remain about potential health effects associated with the main waste management technologies and there are many uncertainties involved in the assessment of health effects [6].

In India approximately 0.2 – 0.5 Kg of solid waste per day is generated from cities. Approximately 37 million tonns of waste produces annually by 3000 million people. In, India traditionally waste collecting activity is considered as poor people occupation. Workers problems are further more complex by Socio-economic factor such as poverty, lack of education, poor housing condition and non availability of proper diet. Over and above health problems of these workers are becoming very complex due to their habits like tobacochewing, smoking and drinking[7,9].

Very few studies are available for correlation of diseases with various bio-aerosols concentration and occupational conditions for solid waste management activity [1].

Several publications suggested an increased prevalence of respiratory and gastrointestinal symptoms among waste collectors. Gastrointenstinal symptoms such as diarrhea and nausea are well known problems among occupational groups exposed to high concentrations air borne gram negative bacteria [2].Handling and collection of waste may cause micro organisms and dust to become aerosolized, waste collectors are at risk of being exposed to bio-aerosols generated from the waste [4].

In India very few health studies are available for waste collectors. Respiratory and general health impairments of Rag pickers of Delhi showed very high prevalence of various health problems [7]. Morbidity pattern of street sweepers of Nagpur region also showed very high prevalence of disease [9]. Keeping in view that no study has been carried out for western part of India, the cross-sectional study was designed to study the various health effects among door to door waste collecting community in Surat city. Surat city is the second cleanest city in India. MSW 2000 Rule is implemented and city is having door to door waste collection facility for collecting solid waste from house to house.

METHOD

Study Population

The workers from Pal, Umarpada, Bhatar, Anjana, Vastadevdi and Pandesara transfer station of Surat city were selected for study. These workers were engaged in day to day garbage collection activity from residential units. As the women workers were very less in numbers only male workers had been included in the study.. The workers were working for 8-10 hour/ day and 6-7 days in week. They were collecting waste from communities of different location and transferring it to transfer station for preliminary storage of waste. Generally, there is no proper segregation practise which gives rise to often odour problem at work site. It was reported that the many times solid waste workers were not using any protective device like goggles, gum shoes, mask.

The door to door waste collecting vehicle consists of 3 to 4 persons operating one vehicle. The most widely used vehicle for waste collection is small 3-wheeler tempo, which is having closed body for storage of waste. The whole team of 3 to 4 workers are responsible for driving the vehicle, loading and unloading operations at transfer station and emptying the contents of container at transfer station or disposal site.

In present study two occupational groups on the basis of their specific work task was considered. Group 1 (exposure group) included the workers who are working in the collection of mixed domestic waste from door to door collection activity. Group 2 included accountants, timekeepers, peons, personnel and other office workers. In this study, group 1 was used as the exposed workers who are working at transfer station of city, who are coming in contact with waste daily. Group 2 is consider as non-exposed as they are not coming in touch of waste. In the study total 292 workers were selected in exposed group and 93 staff members were selected for non-exposed group.

DATA COLLECTION

The workers were contacted during morning shift 8 Am to 2 PM at Pal, Umarpada, Bhatar, Anjana, Vastadevdi and Pandesara transfer station. Personal data such as age, gender, education level, smoking and drinking habits data were collected separately. Occupational related data like duration of current work environment, and working hours per week were also collected. Respiratory symptoms like cough, phlegm, chest tightness, cold, and wheeze were collected through ATS-DLD questionnaire.

A modified version of the American Thoracic Society Questionnaire (adult version) was administered to collect the data.

The health questionnaire inquired about chronic respiratory symptoms such as coughing, phlegm production, wheezing, shortness of breath and chronic bronchitis. Following definitions were used.

(1) Chronic cough: Coughing part of the day or the entire day for at least 3 months a year,

(2) Phlegm production : Phlegm production during a part of the day or for the entire day for at least 3 month a year,

(3) Wheezing: A condition causing a wheezy or whistling sound on inspiration at least occasionally,

(4) Chronic bronchitis: A cough and /or phlegm on most days for 3 months or more a year; and

(5) Dyspnea: Having to stop for breath when walking at one's own pace on level ground.

A second set of questions focused on acute symptoms including irritation of the eyes, secreting, dryness, or congestion of the nose, and irritation or dryness of the throat occurring within the previous month. Questions were also posed on nausea and diarrhea during the last 1-month period prior to the date on which the questionnaire was completed. The questions about musculoskeletal complaints were worked as follows:

(1) Do you suffer regularly from low back, elbow or wrist complaints during the past month (yes/no)?

(2) Finally, participants were asked to recall the frequency of injuries (bumped into or hit by sharp objects, stepped on or any other contact with a sharp object, or prick from needles) in the past 12 months.

(3) Cases were defined as those study subjects who reported having injuries ≥ 3 times in the past 12 months. Although no validation analysis was conducted, information from the workers was considered to be of good quality and reliable source of information.

STATISTICS

Data from the completed questionnaires were collected and analysed with the Microsoft Excel. Prevalence for each of the respiratory symptoms, gastrointestinal symptoms, acute irritative symptoms, musculoskeletal symptoms, and injuries were calculated for the exposure and control groups. Odds ratios and 95% confidence intervals (95% CIs) were calculated. All analyses were adjusted for age (<40 or ≥ 40 years), smoking status (current smoker /non smoker) and duration of employment (<8 or ≥ 8 years). Values of p less than 0.05 were considered statistically significant.

RESULT

The demographic characteristics of the exposed and non-exposed populations are shown in Table 1. The two groups were comparable with respect to duration of employment, but the non-exposed group had a significantly higher proportions of males, younger workers (<40years), more highly educated workers, and non smokers (70.97 vs 17.12).

Data on the prevalence of reported symptoms are presented in Table2. Symptoms in general were more prevalent among the waste collectors, in particular, a high prevalence of symptoms like coughing, phlegm, chronic bronchitis, low back pain, elbow and wrist pain, and injuries caused by sharp objects. The adjusted odds ratios resulting from outcomes are presented in Table 2. All respiratory symptoms prevalence, except dyspnea, were significantly higher in the exposed group. The odds ratios ranged from 1.14 to 1.84 for respiratory symptoms. No significant differences were found in the prevalence of gastrointestinal symptoms. All other symptoms occurred more frequently in the exposed group than in the non- exposed workers. The exposed workers were having high prevalence for low back pain (OR = 3.77, 95 % CI= 2.0-7.09), elbow and wrist pain (OR = 2.95, 95% CI= 1.69-5.34), and injuries caused by sharp objects (OR = 2.21, 95% CI= 1.04-4.67).

DISCUSSION

The study is the comprehensive investigation of adverse health effects among door to door waste collecting workers which include respiratory, gastrointestinal, acute irritative and musculoskeletal symptoms and injuries caused by sharp objects. Result indicated that door to door waste collection job increases the risk of development of chronic respiratory symptoms (Cough, phlegm, wheezing, chronic bronchitis), musculoskeletal symptoms (low back pain and elbow/wrist pain), and injuries caused by sharp objects. No validation analysis was conducted, information from the workers was considered to be of good quality and reliable source of information. All respiratory symptoms prevalence, except dyspnea, was significantly higher in the exposed group. The odds ratios ranged from 1.14 to 1.84 for respiratory symptoms.

In this study, however, we did not find any excess of gastrointestinal symptoms among the exposed as well as non- exposed workers. A possible explanation may be that the concentration of bacteria in the waste is not high enough to induce gastrointestinal problems.

Studies have shown an increased prevalence of acute eye, nose, and throat symptoms among workers. The result indicates that the hazards of acute mucosa irritation (eye, nose, throat) from working as a door to door waste collector were quite small compared with non exposed group. No significant differences were found in the prevalence of gastrointestinal symptoms. All other symptoms occurred more frequently in the exposed group than in the non- exposed workers.

The exposed workers were having high prevalence for low back pain (OR = 3.77, 95 % CI= 2.0-7.09), elbow and wrist pain (OR = 2.95, 95% CI= 1.69-5.34), and injuries caused by sharp objects (OR = 2.21, 95% CI= 1.04-4.67).

In the exposed group the workers having age (≥ 40 years), current smoker and the workers having duration of employment (≥ 8 years) were having high prevalence of respiratory symptoms . No significant change for gastrointestinal symptoms, acute irritative symptoms and musculoskeletal symptoms were found for having age (≥ 40 years), current smoker and the workers having duration of employment (≥ 8 years).

Table 1: Demographic and Socio Economic Characteristics of Exposed and Control Workers

Perticular	Exposed(n=292)	Non-exposed(n=93)
Age		
<40 Years	195 (66.7)	74 (79.57)
≥ 40 Years	97 (33.21)	19 (20.43)
Education ≥ High school (%)	69 (23.63)	81 (87.09)
Duration of Employment		
< 8 years	122 (42.12)	35 (37.63)
≥ 8 years (%)	169 (57.88)	58 (62.37)
Current smoker (%)	242 (82.88)	27 (29.02)
Non smoker (%)	50 (17.12)	66 (70.97)

Table 2 .Prevalence and Odds Ratios (OR) for Selected Health Outcomes among Household Waste Collectors and Control Workers.

Symptoms	Exposed Group	Non-exposed Group	Crude OR	Adjusted Odds ratio			(95 % CI)
				OR1	OR2	OR3	
Respiratory symptoms							
Cough	152	43	1.26	1.43	1.98	1.19	(0.79-2.02)
Phlegm	129	28	1.84	1.29	1.74	1.13	(1.11-3.03)
Wheezing	73	21	1.14	0.89	1.27	1.14	(0.66-1.99)
Dyspnea	64	17	1.25	0.98	1.29	0.97	(0.69-2.27)
Chronic bronchitis	35	09	1.27	0.43	1.19	0.98	(0.58-2.75)
Gastrointestinal Symptoms							
Diarrhea	106	43	0.66	0.67	0.97	0.73	(0.41-1.06)
Nausea	75	27	0.84	0.73	0.98	0.64	(0.50-1.42)
Acute irritative symptoms							
Eyes	53	22	0.72	0.71	0.83	0.43	(0.41-1.26)
Throat	36	18	0.59	0.49	0.90	0.57	(0.31-1.00)
Nose*	47	32	0.37	0.69	0.98	0.63	(0.22-0.62)
Musculoskeletal symptoms							
Low back pain*	111	33	3.77	0.79	0.60	0.42	(2.0-7.09)
Elbow/wrist pain*	126	19	2.95	0.62	0.43	0.59	(1.69-5.14)
Injuries caused by sharp objects (%)	56	09	2.21	0.49	0.67	0.53	(1.04-4.67)

Note.

*NS: Statically not significance.

OR1,OR2 and OR3 are Odds ratio adjusted for age (<40 or ≥ 40 years), smoking status (current smoker / non smoker) and duration of employment (<8 or ≥ 8 years).

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Renal Complications in Malaria

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ABSTRACT

Background: The clinical manifestation of malaria has changed with more patients presenting with systemic manifestations. Malarial acute renal failure (MARF) is an emerging problem associated with high morbidity and mortality, but can be diagnosed and treated during the early stages.

Objectives: To (1) describe the biochemical renal parameters among malaria patients and (2) study the association between biochemical renal parameters and plasmodium species.

Method: 50 adult in-patients, who were diagnosed to be affected by malaria and utilizing the health facilities of a teaching medical college hospital in Bangalore and those who consented and satisfied the inclusion criteria, were included in the study. Detailed history, general physical and systemic examination and necessary pathological, biochemical renal laboratory parameters and radiological investigations were done.

Results: Among the 50 patients, 37 (74%) were males and 13 (26%) were females. Thirty seven (74%) patients were infected with P. falciparum, nine (18%) were infected with P. vivax and four (8%) had mixed infections. Twenty three (46%) patients had increased blood creatinine of more than 3mg/dL and urine output of less than 400 ml/day were classified as suffering from malaria acute renal failure (MARF) and among those with MARF 17 (73.91%) had P. falciparum infection, two (8.69%) had P. vivax infection and four (17.39%) had mixed infection.

Conclusion: People infected with P. falciparum or mixed infections are at an increased risk of developing acute renal failure when compared to people infected with P. vivax. Alteration in blood urea, serum albumin and serum electrolytes are other early features suggestive of MARF.

Keywords: *Malaria, Plasmodium Species, Acute Renal Failure*

INTRODUCTION

Malaria is a vector-borne infectious disease, widespread in tropical and subtropical regions. Malaria is not only a cause for poverty but is also associated with poverty and a major deterrent to countries' economic development.[1]

Malaria affects more commonly the poor nations and people of the low-socioeconomic status. It is among the top 10 killer diseases in the world and most deaths occur among children.[1,2] Brazil, India and Sri Lanka contribute a major proportion of the disease incidence and prevalence following Africa.[3,4]

The pathology and pathophysiology trends of clinical manifestations of malaria in the recent years have changed with more and more patients presenting with systemic manifestations – cerebral malaria, jaundice and renal failure.[2]

In tropical countries, malarial acute renal failure (MARF) is an emerging problem coupled with high morbidity and mortality especially if the disease is not diagnosed and treated during the early stages.[5] In this study malaria infected patients, with increased blood creatinine more than 3mg/dL and urine output of less than 400 ml/day, were considered to be suffering from malaria acute renal failure.[6] It has been and will continues as the leading causes of ARF in South East Asia, Vietnam, India and Africa.[2,5-8] Studies done in India have noted an increase in the prevalence of MARF from 6.66% in 1995 to 27% in 1999.[5,6,8-11] Along

with P. falciparum, P. vivax malaria can lead to acute renal failure.[6,9,12] MARF in association with P. falciparum and P. vivax malaria is 80.9% and 11.7% of cases respectively.[5] Reported incidence of ARF in malaria worldwide has been 0.57% to 60%[12] and in various parts of India it varies between 13% to 17.8%.[12,13]

The patho-physiological cause for acute renal failure in malaria could be due to the direct effect of the parasite on the erythrocyte or non-specific effect of the infection.[11] The merozoites change in the erythrocytes membrane making it more adherent to the endothelial walls thus interfering with organs microcirculation. In the kidneys, this interference with microcirculation leads to ischemia in peritubular vessels leading to ischemic acute tubular necrosis.[11,14] The changes in the blood volume,[15,16] intravascular haemolysis,[11,13] increased catecholamine activity,[11] disseminated intravascular coagulation like syndrome[11] and severe jaundice are the other important changes which leads to tubular damage and MARF. Recent studies have incriminated TNF-á, reactive oxygen radicals and inducible nitric oxide in the pathogenesis of this hemodynamic alterations.[17]

In adults with MARF, renal biopsy exhibited glomerular lesions and in children it revealed mesangial cell proliferation with polymorphonuclear infiltration and hyperplasia of endothelial cells.[13] Renal damage associated with malaria is reversible if patients are diagnosed and treated completely within 2 – 6 weeks of the infection.[13]

OBJECTIVES

The objectives of the study are

1. To describe the biochemical renal parameters among patients with malaria.
2. To study the association between the biochemical renal parameters and plasmodium species.

MATERIALS AND METHOD

Source of Data: The primary data was collected after obtaining the consent from patients admitted in a teaching medical college hospital in Bangalore. Data collection included relevant history, clinical and laboratory information.

Method of Data Collection

Sample Size: 50 consecutive adult in-patients, who consented to be a part of the study and fulfilled the inclusion criteria were selected.

Inclusion Criteria: All the in-patients admitted to medicine wards aged above 18 years, who are found to be malaria positive either by peripheral blood smear or by quantitative buffy coat (in smear negative patients).

Exclusion Criteria: Patients with preexisting renal pathology which could act as confounding factors like, patients with diabetic nephropathy, chronic renal failure, acute glomerulonephritis and urinary tract infection.

Study Design: Descriptive cross sectional study.

Method of Analysis: The data collected was analysed for descriptive statistics like frequency, distribution and associations using standard statistical packages (epi info and SPSS).

Standard hospital treatment protocols were followed in treating these patients. Blood transfusion, ventilator support and dialysis were performed when indicated. The patients were followed up till their stay in the hospital.

RESULTS

The age of the study sample varied from 18 years to 70 years with a mean age of 30.94 + 13.25 years. Majority of the study population 34 (68%) were in the young economically productive age group of 18 – 35 years, 23 (46%) were in the age group 18 – 25 years and 11 (22%) were in the age group of 26 – 35 years.

Table 1, describes the distribution of the study population in relation to gender and plasmodium species. Among the 50 patients in the study, 37 (74%) had P. falciparum infection, nine (18%) were infected with P. Vivax and four (8%) had mixed infection. Males 37 (74%) were infected more compared to females 13 (26%).

Table 1. Distribution of study sample of malaria patients

Malaria parasite species Gender	P. falciparum	P. vivax infection	Mixed	Total
Males	29 (58%)	5 (10%)	3 (6%)	37 (74%)
Females	8 (16%)	4 (8%)	1 (2%)	13 (26%)
Total	37 (74%)	9 (18%)	4 (8%)	50 (100%)

The haemoglobin values ranged from 4.4 gm% to 16.7 gm% with the mean haemoglobin value being 9.29

+ 2.93 gm%. Anaemia (haemoglobin less than 11 gm%) was observed among 25 (50%) patients infected with P. Falciparum, five (10%) patients infected with P. vivax and one (2%) patient infected with mixed infection.

Total of 23 (46%) patients had increased blood urea level as described in Table 2. Seventeen (34%) patients infected with P. falciparum, 2 (4%) infected with P. vivax and 4 (8%) with mixed infection had increased blood urea levels.

Table 2. Blood urea and serum creatinine among malaria patients

P. falcifarum	P. vivax			Mixed infection		
	Normal	Increased	Normal	Increased	Normal	Increased
Blood Urea	20 (40%)	17 (34%)	7 (14%)	2 (4%)	0	4 (8%)
Serum Creatinine	19 (38%)	18 (36%)	8 (16%)	1 (2%)	0	4 (8%)

As shown in Table 2, 23 (46%) patients had increased serum creatinine level of more than 3mg/dL, among them 18 (36%) were infected with P. falciparum, one (2%) with P. vivax and four (8%) with mixed infection.

The 24 hour urine out-put of the patients suffering from malaria was measured and it is as shown in Table 3.

Table 3. Urine out-put among malaria patients

Urine output Plasmodium species	Normal	Decrease	Total
P. falciparum	19 (38%)	18 (36%)	37 (74%)
P. vivax	8 (16%)	1 (2%)	9 (18%)
Mixed infection	0 (0%)	4 (8%)	4 (8%)
Total	27 (54%)	23 (46%)	50 (100%)

Totally 23 (46%) patients had decreased urine out-put of less than 400 ml/day. Eighteen (36%) infected with P. falciparum, one infected with P. Vivax and all four (8%) patients with mixed infection had decreased urine output.

Table 4, describes data of the study patients with abnormal serum electrolytes and urine routine values. Among the patients with abnormal serum sodium, five (10%) were infected with P. falciparum and one (2%) was infected with P. vivax. Among the four (8%) with abnormal serum potassium levels, three (6%) were infected with P. falciparum and one (2%) had mixed infection. The abnormal serum chloride levels were observed among three (6%) and one (2%) patient was infected with P. falciparum and P. vivax respectively. Among 22 (44%) patients with abnormal urine albumin, 15 (30%) were infected with P. falciparum, three (6%) were infected with P. vivax and four (8%) had mixed infection.

Table 4. Abnormal findings related to serum electrolytes and urine routine examination.

	Serum Sodium	Serum Potassium	Serum Chloride	Urine Albumin	Urine Microscopy	Urine specific Gravity
P. falciparum	5 (10%)	3 (6%)	3 (6%)	15 (30%)	6 (12%)	3 (6%)
P. vivax	1 (2%)	0	1 (2%)	3 (6%)	1 (2%)	1 (2%)
Mixed infection	0	1 (2%)	0	4 (8%)	2 (4%)	2 (4%)
Total	6 (12%)	4 (8%)	4 (8%)	22 (44%)	9 (18%)	6 (12%)

Nine (18%) of the study patients had haematuria on urine microscopic examination, among them, six (12%) were infected with P. falciparum, one (2%) with P. vivax and two (4%) had mixed infection. Among the six patients with abnormal urine specific gravity, three (6%) were infected with P. falciparum, one (2%) with P. vivax and two (4%) had mixed infection. None of the patients had deranged urine sugar levels or had abnormal urine culture and sensitivity report.

In the present study, of the 50 (100%) patients diagnosed to be suffering from malaria, 23 (46%) of the patients had increased blood creatinine levels of more than 3mg/dL and urine output of less than 400 ml/day, who were considered to be suffering from malaria acute renal failure, as defined by Mishra KS el. al.[6]

Among the 23 (46%) patients with malaria acute renal failure, the details were as follows: There were 17 (73.91%) males and six (26.08%) females. Thirteen (56.52%) were in the age group of 18 – 30 years, four (17.39%) were 31 – 45 years and six (26.08%) were above 45 years. Eighteen (78.26%) had P. falciparum

infection, one (4.34%) had P. vivax and four (17.39%) had mixed infection. Nineteen (82.60%) were positive for urine albumin. Fourteen (60.86%) had normal urine microscopy findings and nine (39.13%) had abnormal urine microscopy - haematuria.

In our study, patients infected with P. falciparum or with mixed infections were significantly at higher risk of developing malaria acute renal failure, Fisher exact (2 tailed) p = 0.028 compared to those infected with P. vivax.

Other Findings

Cardiomegaly was observed among 2 (4%) study subjects on chest x – ray. The ultrasound abdomen in 44 (88%) study patients showed hepatosplenomegaly or hepatomegaly or splenomegaly. Five (10%) patients required haemodialysis, similarly 5 (10%) needed blood transfusion, because of severe anaemia and one (2%) patient needed ventilator support during the acute phase of illness.

Outcome of the patients

Forty seven (94%) of our study patients recovered from illness and three (6%) expired due to systemic complications – cerebral malaria along with ARF.

DISCUSSIONS

Demographic Details: In this study more males were infected compared to females which is similar to study in Rohtak, India of the 60, 34 (56.66%) were males and 26 (43.34%) were females.[17] In India, more males are infected with malaria when compared to females because of the socio–cultural factors like occupation, clothing and sleeping habits.[18]

The number of males and females affected with ARF among those with malaria, most common age groups and the mean age in this study is similar to the findings by Mehta KS.[12] This age group is the socio-economically active and involved in economically productive activities.

Plasmodium Species: The number of patients infected with plasmodium species in this study is comparable to the study by Nand N.[17] In a other study the prevalence of P. falciparum infection was found among 36.6%, P. vivax infection among 54.5% and mixed infection among 8.9%.[12] Mishra SK reported the occurrence of MARF in patients with P. falciparum as less than 1%.[6] The reason for the difference in incidence could be due to difference in the type of hospitals.

The prevalence of plasmodium infection among patients with MARF are comparable to the study done by Prakash J in Varanasi, India who described the species causing ARF as P. falciparum 81%, P. vivax 12% and negative blood film as 8%.[5] Barsoum in his study found patients with malaria renal failure, P. falciparum is the causative species in the majority of cases and P. vivax being occasionally incriminated.[19]

Urine out-put: Wilairatana P reported oliguria in 93 (83%) of the patients compared to 23 (46%) patients in this study.[20] This difference is because, in the latter's study oliguria was among those patients with MARF.

Haemoglobin Percentage: The mean haemoglobin value is similar to study by Nand N, the mean haemoglobin levels were 7.4 + 2.8 gm%.[17] The decrease in haemoglobin during malaria is most common, due to the parasite invading red blood cells followed by destruction of the red blood cells.[19]

Blood Urea Levels: The raised blood urea levels in this study was higher than that found by Nand N 19 (31.66%).[17]

Serum Sodium: Hyponatremia among MARF patients, in the present study is lesser compared to a study by Barsoum, who described that hyponatremia is a typical biochemical finding in MARF.[19]

Serum Potassium: In the present study, four (17.39%) of the 23 patients with MARF had hyperkalemia. Hyperkalemia can be fatal and is attributed to hemolysis, rhabdomyolysis and acidosis, particularly in the presence of impaired renal function.[19]

Urine Albumin: Prevalence of albuminuria among patients with MARF in this study is comparable to the study results of Barsoum SR[19] and Nand N[17].

Urine Microscopy: Wilairatana P, reported 54 (48.2%) had haematuria and 45 (40.2%) had granular cast on urine microscopy which is higher than this study findings.[20] This difference is because, in their study haematuria and granular cast was among those patients with MARF and in this study it's among the study population.

Dialysis: Five (10%) of the study sample needed dialysis which is similar to findings of Nand N, where five patients needed dialysis.[17] The need for dialysis was mostly due to decrease in the glomerular filtration rate. Wilairatana P, also reported the need for dialysis in 90% of the study population, this higher need was

because the study was done among patients on dialysis.[20]

Outcome of Patients: In the present study, three (6%) patients expired due to systemic complications. In a study by Prakash J[13], 19 (20.21%) of the patients died and study by Mishra KS[6] the mortality was 45% and more common among adults than children.

CONCLUSION

Acute renal failure is on the rise among patients suffering from malaria. Patients with P. falciparum or mixed infections were at an increased risk of developing acute renal failure when compared to people infected with P. vivax infection. Alteration in blood urea, serum creatinine, serum albumin and serum electrolytes are early features among patients at higher risk of developing MARF. Early diagnosis and prompt treatment with antimalarial drugs and early recognition of renal complications can reduce the mortality associated with MARF. Moderate renal impairment is transient and reversible with good hydration and antimalarial treatment. Haemodialysis, blood transfusion and ventilator support could also be necessary in management of patients with MARF.

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Presentation and Outcome of Dengue Epidemic in South India

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ABSTRACT

Background: There was a huge epidemic of Dengue Fever (DF) during 2009 in South India.. Thousands of cases of dengue reported to various hospitals during this epidemic. This study was undertaken to evaluate various types of presentations of DF in the region.

Objective: To study the clinical presentation and outcome of DF in South India.

Method: A retrospective record based study was performed on 500 records of DF cases in a tertiary care hospital in a rural setting. The case records were selected by simple random sampling from Oct. to Dec. 2009.

Results: Out of 500 cases majority were males 315(63%) and in the age group of 16 - 30 years. Most common form of infection was DF in 333(66.6%), DF with thrombocytopenia 153(30.6%), Dengue Hemorrhagic Fever (DHF) in nine (1.8%) and Dengue Shock Syndrome in eight (1.6%) cases. The serological test was done among 399(64.8%) patients and 324 (81.20%) were sero-positive. Most common bleeding manifestations were malena, haematuria and gingival bleeding.

Total 463(92.6%) got cured, two males (0.4%) had fatal out come and others were referred to other centers.

Conclusion: The Dengue epidemic was of mild form with common presentations and very few deaths.

Keywords: *Dengue Fever, Retrospective Study, Outcome)*

INTRODUCTION

Dengue fever is a disease caused by a group of viruses that are transmitted by mosquitoes. It is an acute illness of sudden onset that usually follows a benign course with headache, fever, exhaustion, severe joint and muscle pain, swollen glands (lymphadenopathy) and rash.

The origins of the word *dengue* are not clear, but one theory is that it is derived from the Swahili phrase "Ka-dinga pepo", which describes the disease as being caused by an evil spirit. The Swahili word "dinga" may possibly have its origin in the Spanish word "dengue" meaning fastidious or careful, which would describe the gait of a person suffering the bone pain of dengue fever.[1]

The WHO says some 2.5 billion people, two fifths of the world's population, are now at risk from dengue and estimates that there may be 50 million cases of dengue infection worldwide every year. The disease is now endemic in more than 100 countries.[2]

The mortality, or death rate, with DHF is significant. It ranges from 6%-30%. Most deaths occur in children. Infants under a year of age are especially at risk of dying from DHF.

Therefore, an attempt was made through this study, to find out the common clinical presentation and their outcome at tertiary care hospital in south India during the period of epidemic. Such type of studies will be helpful in diagnosing Dengue Fever cases clinically.

MATERIAL& METHOD

The Karimnagar district is located in northern part of Telangana of Andhra Pradesh state. There was an epidemic of DF in the state and there were thousands of cases of DF in the region. Our institute is a rural private medical college acted as epicenter of Platelet transfusion for DF cases. This is the only institute in the region providing this service. There were more than 1563 cases of all age groups of DF admitted from Oct. – Dec. 2009 in this institute. A hospital based retrospective study was performed to study the clinical profile and outcome of hospitalized DF cases during this period. A simple random sampling was performed to select the 500 cases of all age groups. The permission of Head of institution and superintendent of hospital and clearance from Institutional Ethics Committee is obtained.

The data was collected on pre-designed proforma from case records of DF cases during the study period. The data included information regarding demography; clinical, laboratory and outcome in the form of cured or died. The serological test was performed for IgG/ IgM antibody by kits from J. Mitra Co. Himachal Pradesh. The classifications of cases into DF, DHF without shock and DHF with shock were done clinically. The data was analyzed using OpenEpi: Open Source Epidemiologic Statistics for Public Health, version 2.3. www.OpenEpi.com[3] updated 2009, 20th May and accessed on August 26, 2010 by applying percentage, Chi-Square test.

FINDINGS

Of the 500 study subjects 315(63%) were males and 185(37%) were females. Majority of females are in age group 16-30 years i.e. 54(10.8%) and majority of males are in same age group i.e. 127(25.4%).

The major presenting symptom among all study subjects was fever (100%). The next common complaint was body pains found among 121 patients (24.2%) of which 71(14.2%) were males and 50(10%) were females. Vomiting was found next to body pains among 104 patients (20.8%) of which 71(14.2%) were males and 33(6.61%) were females. Fever with chills & rigors was found among 97 patients (19.4%) of which 63(12.6%) were males and 34(6.8%) were females. Fever with chills was found among 86 patients (17.2%) of which 58(11.6%) were males and 28(5.6%) were females. Headache was found among 91 patients (18.2%) of which 61(12.2%) were males and 30(6%) were females. Pain abdomen was found among 37 patients (7.4%) i.e. 21males (4.2%) and 16 females (3.2%). Loose motions was found among 37 patients (7.4%) i.e. 26 males (5.2%) and 11 females (2.2%). General weakness was found among 18 patients (3.6%) i.e. 12 males (2.4%) and 6 females (1.2%). Joint pains was found among 12 patients (2.4%) i.e. 8 males (1.6%) and 4 females (0.8%). (Tab. No.1)

Table No. 1 Distribution of study subjects according to Presenting Symptoms

Symptoms	Male		Female		Total	
	No.	%	No.	%	No.	%
Fever	315	63%	185	37%	500	63.40%
Body pains	71	14.20%	50	10.00%	121	24.20%
Vomiting	71	14.20%	33	6.60%	104	20.80%
Fever with chills & rigors	63	12.60%	34	6.80%	97	19.40%
Headache	61	12.20%	30	6.00%	91	18.20%
Fever with chills	58	11.60%	28	5.60%	86	17.20%
Pain abdomen	21	4.20%	16	3.20%	37	7.40%
Loose Motions	26	5.20%	11	2.20%	37	7.40%
Gen. Weakness	12	2.40%	6	1.20%	18	3.60%
Joint pains	8	1.60%	4	0.80%	12	2.50%

The common bleeding manifestations found among 106(21.2%) members of 500 study subjects. Maximum number of patients manifested with melena i.e. 65(13%). The other manifestations were hematuria (3%), gingival bleeding (2.4%) rash (2.2%) and epistaxis (0.6%). In the study two cases of bleeding per vaginum and one case of bleeding per rectum were found. (Tab. No.2)

Table No. 2 Distribution of study subjects according to bleeding manifestations

Bleeding manifestations	Male		Female		Total	
	No.	%	No.	%	No.	%
Epistaxis	2	1.88	1	0.94	03	(02.82)
Melena	38	35.84	27	25.47	65	(61.32)
Haematuria	6	5.66	9	8.49	15	(14.15)
Gingival bleeding	3	2.82	9	8.49	12	(11.32)
Rash	7	6.6	4	3.77	11	(10.37)
Bleeding per rectum	2	1.88	0	0	02	(1.8)
Bleeding per Vaginum	0	0	1	0.94	01	(0.94)

*percentage calculated from 500.

The serological test was done among 399(64.8%) patients and 324(81.2%) were sero-positive. Of which 210(42%) were males and 114(22.8%) were females. It was found negative in 75(15%) patients, of which 45(9%) were males and 30(6%) females. The sero-negative and those in whom the test was not done were diagnosed as dengue cases by clinical findings.

On the basis of clinical examination, Dengue infection was diagnosed as DF among 333 (66.6%) patients of which 214(42.8%) were males and 119(23.8%) were females. Dengue hemorrhagic fever was diagnosed among nine (1.8%) patients of which eight (1.6%) were males and one (0.2%) were females. Dengue shock syndrome was diagnosed among five (1%) patients of which three (0.6%) were males and two (0.4%) were females. Dengue fever with thrombocytopenia was found among 153(30.6%) patients of which 90(18%) were males and 63(12.6%) were females. (Fig. No.1).

Majority of patients stayed for 1-5 days i.e. 383(76.6%) of which 245(49%) were males and 138(27.6%) were females. Very few patients stayed for a duration of >10 days i.e.6 (1.2%) females. (Tab. No.3)

Out of 500 study subjects, 463(92.6%) got cured with symptomatic and supportive treatment of which 286(47.2%) were males and 177(35.4) were females. Two males (0.4%) had fatal out come. Total 13(2.6%) patients were referred to higher centers of which 12(2.4%) were males and one (0.2%) were females.22(4.4%) patients left the hospital against medical advice(LAMA) of which 15(3%) were males and seven (1.4%) were females. (Tab. No.3)

Table No. 3 Distribution of study subjects according to hospitalization and outcome

Duration of Hospitalization	Male		Female		Total	
	No.	%	No.	%	No.	%
1 to 5	245	49%	138	27.60%	383	76.60%
6 to 10	70	14%	41	8.27%	111	22.20%
>10	0	0	6	1.20%	6	1.20%
Total	315	63%	185	37%	500	100%
Outcome						
Cured	286	47.2	177	35.4	463	92.6
Died	2	0.4	0	0	2	0.4
Referred	12	2.4	1	0.2	13	2.6
LAMA	15	3	7	1.4	22	4.40%

*percentage calculated from 500.

Outcome - X^2 =3.986.518, df=3, P=0.08894.

DISCUSSION

Out 0f 500 study subjects majority were males, and male to female ratio was 1.8:1.Most of the patients were in the age group of 16-30 years. So in this epidemic mostly people from reproductive age were affected. of the total cases 84 (16.8%) belonged to paediatric age group. On the contrary Basu M[4] in Kolkata found that majority of cases (80.8%) were in paediatric age group. Gupta E[5] has quoted the male to female ratio in his study as 2.1:1,he also said that largest number of cases

are in the age group of 21-30 years. Majority of cases were males as they were involved in working in rice paddy (major crop in south India) fields.

During the period of our study the common complaints found were fever among 500 (100%), body pains 121(24.2%), vomiting 104(20.8%), headache 91(18.2%), pain abdomen 37(7.4%) , loose motions 37(7.4%), generalized weakness 18(3.6%), joint pains 12(2.4%) and retro-orbital pain in one case (0.2%).Similar findings were also found in the study done by Khan A[6]. A study done by Samuel PP[7] stated all patients had fever 100%, headache 83.3%, retro-orbital pain6.7%, myalgia 70%. No hemorrhagic manifestations were recorded in this study. In the study of Srivastava VK[8] done at Delhi stated that classical symptoms of dengue fever, head ache, aesthesia and myalgia occurred in all the patients.

Out of the 500 study subjects bleeding manifestations 106(21.2%) like malena65(13%), gingival bleeding 12(2.4%), haematuria 15(3%), rash 11(2.2%), epistaxis (0.6%) were found . Tripathi BK[9] presented haematemesis 28.28%, epistaxis 26.78% and melena 14.28% as the bleeding manifestations in Delhi. Basu M[4] found spontaneous bleeding in 10 cases (19%) during the first seven days they were petechial spots (100%), bleeding GIT (60%), and epistaxis 20% and haematuria (10%). The reasons for bleeding manifestations would be delayed reporting to hospital and severe form of infection.

Of the 500 study subjects serological test was done in 399(79.8%) out of them 324(64.8%) were positive. MadanLal[10] has stated the sero-prevalence of dengue IgM and IgG as 65% and 95% respectively. According to the study of Gupta E[5] the samples positive for dengue IgM antibodies were 52.3%. Whenever a case of dengue is suspected, we should not rely on serological test. Prompt and adequate treatment should be administered to all DF cases.

During the period of epidemic, commonly patients with DF are classified into various syndromes. In our study most of the patients were classified as classical DF 333 (66.6%), DF with thrombocytopenia 153 (30.6%), DHF 9(1.8%) and DSS 5(1%). No statistically significant difference was found among males and females [x^2=3.98, df=3, P=0.2636]. Basu M[4] had classified the dengue cases in his study as undifferentiated DF 28.8%, DF 66.6%, DHF 13.5% and DSS 17.3%.

The majority of cases i.e. 383(76.6%) were hospitalizedfor 1-5 days. The duration of hospitalization was more among males than females. In Kolkata[4] the mean duration of illness before the appearance of shock was 4.3 days.

In our study 463(92.6%) cases were cured. The difference in cure rate among males and females was not statistically significant [x^2=3.373, df=1,P=0.06629, OR=0.4457, CI = O.1993-0.9968]. In the study of Khan A[6] in Makkah, Saudia Arabia 100% cure rate was found.

In our study mortality occurred among 2 cases (0.4%).13 cases (2.6%) were referred to higher centers while 22cases (4.4%) have left the hospital against medical advice. Statistically no significant difference was found for the cure rate among males and females [x^2=6.518,df=3,P=0.08894]. Aggrawal A[11] has found mortality was 6% in his study done in Delhi. Kabilan L[12] stated that the mortality rate was low during study period due to timely diagnosis and early management.

CONCLUSIONS

1. It is concluded from above study that most common complaints appeared in our study subjects were similar to other epidemics . Clinical profile of study gives an important knowledge about the presenting symptoms of dengue patients. During an epidemic of dengue, it can be diagnosed based on clinical features and treated on time.

2. The study subjects also presented with bleeding manifestations which will be useful in assessing the patient's condition, response to treatment and in differentiating cases of dengue from DHF and DSS. Comparatively less number of subjects presented with bleeding manifestations.

3. The mortality rate was very low due to timely diagnosis and implementation of symptomatic and supportive treatment. Critical cases have been treated by platelet transfusion.

Conflict of Interest : Nil

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Is Higher Cadre a Risk Factor for Hypertension among Bank Employees?

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ABSTRACT

Research question: Is higher cadre or professional stress among bank employees, a risk factor for hypertension?

Objectives:

1. To determine the association of higher cadre & other covariates among bank employees, with hypertension.
2. To assess the level of awareness among the subjects.

Study design: A cross-sectional study.

Participants: Bank employees (106) in non-nationalized banks of Gulbarga City in Karnataka.

Results: Prevalence of hypertension was 35.7% Higher prevalence was found with age > 50 yrs (55.2%), length of service > 20 yrs (56.5%), officer cadre (64.8%), BMI > 25 (47.4%), family history of hypertension (44.2%) and high socio-economic status (42.7%).

Logistic regression analysis showed that prevalence of hypertension is significantly associated with cadre of employees (Officers more at risk.)

Among the hypertensives, 42.5% were aware of their hypertensive status, all were on treatment and 29.4% were under control.

Conclusion: The prevalence of hypertension was high among officer cadre, as seniority of bank employees brings in more and more stress and responsibilities on them. Inculcation and practice of the art of mental relaxation has to be promoted as a major intervention in the primary prevention of hypertension.

Keywords: *Hypertension, Cadre, BMI, Awareness Level, Knowledge*

INTRODUCTION

Non-communicable diseases (NCDs) contributed 60% of deaths and 43% of global burden of disease in the year 2002, and by 2020, are projected to account for 73% of deaths and 60% of disease burden[1].Affluence, progressive ageing of population, improving socio-economic conditions and changed life styles have caused an increase in non-communicable diseases. Together NCD's accounted for 42.7% of deaths in 2000 in India[2]. Cardiovascular mortality accounts for 20-50% of all deaths globally. A WHO expert committee on hypertension control, has pointed out that hypertension is the commonest cardiovascular disorder posing a major public health challenge to societies in socioeconomic and epidemiological

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transition[3].Hypertension is one of the most important modifiable risk factors for cardiovascular disease (CVD). It is very common in the general population and a risk factor for coronary artery disease, myocardial infarction, stroke, congestive heart failure, end-stage renal disease, and peripheral vascular disease. [4,5,6]

Organized service sectors like banks, provide a high profile lifestyle, but is associated with a lot of professional stress and lack of control over workload. Hence, they are at risk of developing various stress related disorders including hypertension.

So, here is an effort to determine the prevalence of hypertension and its selected determinants among non-nationalized bank employees of Gulbarga city.

METHODOLOGY

A cross sectional study was carried out among the non-nationalized bank employees in Gulbarga city, Karnataka. Sample size was calculated using the following formula:[7] (with absolute precision (d) as 10%, p as 0.50 and 95% confidence level):

$$n = \frac{Z^2(1-á/2)P(1-P)}{d^2}$$

The minimum sample size was worked out to be 96. List of all the officers, clerks and class IV workers was obtained and every 2nd person was taken for the study .We examined 106 employees which included 38 officers, 41 clerks and 27 class IV workers. Majority of study subjects were males (87%), graduated (70.6%) and belong to high SES (70.8%).

With prior intimation, these employees were contacted personally and interviewed using a pre-tested questionnaire, which included, identification data, education, designation, length of service, socio-economic status, past& family history of hypertension, physical activity, smoking and alcohol intake, and knowledge regarding hypertension.

BP was measured according to the international guidelines.[8,9,10] Two readings were taken, one before and the other, after the interview. Average of the readings was recorded.

Subjects were considered hypertensive if, (i) SBP was ³ 140 and /or DBP³ 90or (ii) Persons already on anti-hypertensives.[8]Height andWeight were recorded in standard clothing, without shoes, by using standard instruments.

Statistical Analysis

Chi- square test and multiple logistic regression analysis were done, using SPSS.

RESULTS

Among the 106 bank employees, 40 (37.7%) were hypertensive. Overweight/Obesity was found in 35.8% employees. Habit of smoking was found in 48.1% of employees and 39.6% were alcoholics. Among 93 men, 38(40.8%) and among 13 women, 2 (15.3%) were found to be hypertensive.

Table 1: Prevalence of hypertension among bank employees according to basic characteristics

Characteristics	Hypertensives (n=40)	Normotensives (n=66)	P value
Age	<0.02		
<30	2 (28.6%)	5 (71.4%)	
30-39	1 (5.3%)	18 (94.7%)	
40-49	21 (41.2%)	30 (58.8%)	
≥50	16 (55%)	13 (44.8%)	
Cadre			
Officers	25 (64.7%)	13 (34.3%)	<0.001
Clerks	10 (24.4%)	31 (75.6%)	
Others	5 (18.5%)	22 (18.5%)	
Length of Service (Yrs)			
≤ 20	14 (23.3%)	46 (76.7%)	<0.0001
> 20	26 (56.6%)	20 (43.5%)	
BMI (Kg/m2)			
Normal (£24.99)	22 (32.4%)	46 (67.6%)	>0.1
Over - weight (³25)	18 (47.40%)	20 (52.6%)	

Table1. shows that prevalence of hypertension was high in persons ³ 50 yrs (55.2%) as compared to lower age group, high among officers (65.7%) when compared to clerical (24.4%) and class IV workers (18.5%) and in those with length of service >20years(56.5%). These differenceswere found to be statistically significant.

The prevalence of over-weight/obese (BMI³25) was found to be 35.8% and the prevalence of hypertension among them was high (47.4%) though the difference was not significant statistically. Most employees in the study group belonged to Class I (70.8%) and the prevalence was found to be high among them (42.7%), but the difference was not significant statistically.

Table 2: Results of Multiple Logistic Regression analysis for hypertension

(Parameters significant at univariate analysis were considered)

	-2 Log likely hood reduced model	Chi – sq.	df	Significance
Intercept	54.6	0	0	
Age	96.9	42.3	30	0.06(NS)
Designation(cadre)	60.8	6.2	1	0.013 (S)
Service	55	0.4	1	0.53 (NS)
Education	54.8	0.22	1	0.53 (NS)

Table 2 shows that, with multiple logistic regression, higher cadre was found to be a potential risk factor, exerting a significant positive independent impact on the prevalence of hypertension among bank employees.

Table 3: Awareness of Hypertensive status among total hypertensives

Awareness status	Number	Percentage
Aware	17	42.5%
Not aware	23	57.5%
Total	40	100%

Table 3 shows that, among the 40 hypertensive, only 17 (42.5%) were aware of their hypertensive status and on treatment. Among them only 24.9% were under control.

Table 4: Knowledge regarding hypertension among all the subjects

Knowledge	Cause (%)	Complication (%)	Prev. measures (%)
Present	37 (34.9)	30 (28.3)	27 (25.5)
Absent	69 (65.1)	76 (71.7)	79 (74.5)
Total	106 (100)	106 (100)	106 (100)

Table 4 shows that, following the assessment of knowledge regarding hypertension, only 34.9% knew about the causes, 28.3% knew about the complications and 25.5% knew about the preventive measures.

DISCUSSION

The present study revealed the prevalence of hypertension to be 37.7%, which is high as compared with other studies. It was about 24% among industrial workers in Gujarat,[11] 22.5% among police personnel[12] in Nagpur. However, among the teagarden workers of Assam[13] it was found to be 60.8 %.

Increase of prevalence with age (55.2% in the age group > 50) is well documented, and this could be attributed to the accumulated effects of various risk factors. It was found to be 58%, in Jaipur urban study,[14] and 40% in Bombay executive study[15].

When adjusted for other risk factors, designation of the job proved to have a significant effect on the prevalence of hypertension (Table 2). Among the risk factors controlled, level of stress was an exception, as it was not studied. High prevalence among officer cadre as compared to clerical and class IV workers indicates that, bigger the responsibility and mental strain, higher is the risk of hypertension. Excess hours of work time which includes dealing with accounts, lack of relaxation, and work-hours during holidays make the work experience a stressful one.

Length of service was significantly associated with increased prevalence, which can be attributed to working in stressful environment over a period of time. The sedentary type of job the bank employees are involved in, also promotes a high prevalence of overweight/obesity 93.8%) among these employees.

The prevalence of hypertension was high in individuals with higher SES and positive family history. This although was not significant statistically. However, in our study no association was found with smoking, alcohol and physical activity.

Among the hypertensives, 42.5% were aware of their hypertensive status. All of them were on treatment and only 29.4% were under control. The knowledge regarding hypertension was also found to be low. This can be attributed to the lack of public education campaigns, inadequate physician-patient interaction, and the lack of aggressiveness on the part of the physicians to achieve the target blood pressure level.

CONCLUSION

Our study showed that the prevalence of hypertension was high among officer cadre. Seniority of bank employees brings in more and more stress and responsibilities on them.Long working hours, dealing with financials and lack of time for relaxation is being felt by the officers. Inculcation and practice of the art of mental relaxation has to be promoted as a major intervention in the primary prevention of hypertension.

Our study shows the awareness & control level among hypertensives as well as knowledge regarding causes, complications & preventive measures were low among the study subjects. There is need to increase the awareness and motivate patients to come for follow-up. Motivation improves when patients have positive experiences with and trust their clinicians. Empathy both builds trust and is a potent motivator.[16] There is need to develop an effective intervention strategy to modify certain lifestyle measures, which minimize if not eliminate the controllable risk factors of hypertension.

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Agenesis of Dorsal Wall of Sacral Canal- A Case Report

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ABSTRACT

On routine demonstration classes for undergraduate students it was observed in one of the Sacrum that its dorsal wall was totally absent. (A case of agenesis of dorsal wall of sacral Canal.)

Keywords: *Sacrum, Sacral Canal, Sacral Hiatus*

INTRODUCTION

The Sacral canal is formed by sacral vertebral foramina and is triangular on cross section. Anteriorly it is bounded by bodies of sacral vertebra. On the sides we have pedicles, posterolaterally laminae and exactly posteriorly spine. [1]

CONTENTS

The canal contains Cauda equina, filum terminale and spinal meninges. (Dura and Arachnoid end at middle of sacrum while filum terminale is continuation of piamater uptill coccyx.

Development /Ossification

Sacrum resembles typical vertebra in the ossification of its segments. Primary centers for the centrum and each half of neural arch appear between the 10th and 20th week of intrauterine life.. Additional primary centres for costal elements are present. Each costal element unites with its half of neural arch at 2nd & 5th year and the conjoined element so formed unites anteriorly with centrum and posteriorly with its opposite fellow at about 8th year. After puberty the fused neural arches and costal elements of adjacent vertebrae begins to coalesce from below upwards. At the same time individual epiphyseal centres develop for bodies, spinous tubercles and costal elements. [2]

The primary centre for neural arch appears near the root of transverse tubercles and then spreads anteriorly towards pedicles and posteriorly towards lamina and spine.

Materials & Method

During the routine course of Osteology discussion with undergraduate students it was observed in one of the sacrum that its dorsal wall of sacral canal was totally absent.

OBSERVATIONS

Fig. 1. Normal Sacral Canal

Fig. 2. Agenesis of Dorsal Sacral Canal

DISCUSSION

Study on the variation in anatomical features of sacral hiatus and dorsal wall of sacral canal is related with regards to its clinical application in caudal epidural anaesthesia. Standard textbooks (Peter L William et al, 2000) mentions the lower end of sacral canal is an arch shaped sacral hiatus.

Vinod kumar et al (1992) noted various shapes of sacral hiatus, most common inverted V and inverted U in 76.23% sacra, 7.43% were dumbbell shaped. [3]

Nagar S.K (2004) reported inverted U (41.5%) and inverted V (27%). In 13.3% its outline was like a dumbbell while in 14.1% it was irregular. Bifid hiatus was seen in 1.5% which has not been reported in earlier studies. [4]

There was complete agenesis of dorsal wall of sacral canal in 1.5% sacra reported by Nagar S.K (2004). Similarly Trotter et al (1944) [5] ,1.8% and Vinod kumar et al (1992) 1.49%.

Nagar S.K (2004) reported 0.7% sacra showed absence of hiatus due to bony over growth which is similar to that reported by Vinod kumar et al (1992) in 0.99% where as in a study by sekiguchi M et al (2004) [6] was absent in 3% cases.

CONCLUSION

The sacral hiatus has anatomical variations and understanding of these variations may improve the success of caudal epidural anaesthesia. In the present study absence of dorsal wall of sacral canal should be kept in mind specially during caudal epidural anaesthesia and cauda equine pressure symptoms.

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Applying the Complexity Concept to Medical Education-a Randomised Controlled Trial in Thailand

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ABSTRACT

Objective: To compare small group learning using a complexity concept approach compared with a competency-based approach in terms of students' satisfaction with the whole curriculum performance and cognitive competency gain. Under the complexity concepts, learning is considered a result of a recursive process that facilitates self-organisation. Recursion refers to the end of one event which gives rise to the next, unlike repetition where the next event is the same as the previous one. To facilitate such learning, teachers help students by designing curricula and learning experiences that are contextually rich, recursive (iterative variations with reflection) and relational. Relational learning means to be able to access knowledge efficiently and judiciously.

Materials and Method: One hundred and sixty students were randomly allocated into 9 small groups of 17-18. A complexity concept approach was applied to one group (intervention group) and a competency based approach which is the usual practice to 8 other groups (usual groups). Two major sets of outcomes were compared i.e., students' overall satisfaction with the curriculum and staff performance; and students' cognitive achievement according to competency-based approach. The curriculum and staff performance were assessed by students rating on 5-point Likert scale. The competency was measured by paper-based cognitive assessment of the basic knowledge of epidemiology, biostatistics and health systems. In addition, the operating cost of using a small group process was compared between the intervention group and usual groups.

Result: An outstanding rating of the curriculum performance was found in the intervention group with statistically significant differences in 3 out of 7 dimensions(68.7% vs 28.2%,81.3% vs 50.7% and 100% vs 72.1%) and similar competency scores were obtained as compared with the competency based groups(29.5(SD3.63) vs 30.5(SD4.22), p value =0.27) . The operating cost of the small group process was similar between the intervention group (351.4 USD) and the competency based groups (332.6 USD).

Conclusions: The complexity concept approach seems to positively influence changes in students' satisfaction with the curriculum and staff performance without compromising cognitive competency gain compared to the competency-based approach.

Keywords: *Thailand, Medical Education, Complexity Concept*

INTRODUCTION

One hundred years after Flexner's report[1], there is a realisation that health professional education has not kept abreast with emerging challenges of the health system, largely because of fragmented, outdated, and static curricula that produce ill-equipped graduates.It has also been realised that there is a need for approaches that embrace and recognise the dynamic nature of the interaction between health and the social determinants of disease in order to promote capability as a goal for the preparation of future health professionals who must address the evolving priority health needs of society[2].

Suggested reforms include instructional reforms (such as competency-driven, local responsiveness with global connectivity and strengthening educational resources, etcetera) and institutional reforms (such as joint education and health planning mechanisms, academic systems encompassing networks of hospitals and primary care units, global networks and a culture of critical inquiry etcetera)[3].

At the instructional level, the complexity concept might be considered compatible with the reform ideas which require capability(ability to adapt to change, generate new knowledge, and continue to improve performance) rather than just competency(knowing or being able to do in terms of knowledge, skills and attitude)[2].

Under the complexity concepts, learning is considered a result of a recursive process that facilitates self-organisation[3]. Recursion refers to the end of one event which gives rise to the next, unlike repetition where the next event is the same as the previous one[4]. To facilitate such learning, teachers help students by designing curricula and learning experiences that are contextually rich, recursive (iterative variations with reflection) and relational[5]. Relation learning means to be able to access knowledge efficiently and judiciously. In addition, it also includes the ability to form conceptual links between seemingly unrelated areas. The conventional authoritarian stance and fact dispensing role of the teachers are considered prohibitive of learning.

This paper focuses on testing the complexity concept in a medical school in Thailand by comparing students' satisfaction with the curriculum and students' cognitive competency using a randomised controlled trial.

Context and characteristics of the conventional curriculum

Undergraduate medical education in Thailand is undertaken in 19 medical schools (one is private) under the Ministry of Education and 6 regional hospitals under the Ministry of Public Health[6]. Seven of the 19 schools including the private one are situated in Bangkok and its vicinity. Six-year curricula of all the schools are approved by the Office of the Higher Education Commission, Ministry of Education[7]. The curricula could be characterized as block rotation structures which have been viewed as inhibiting students from active participation in patient care[8]. The Thai Medical Council provides 3-step standard certifying examinations of the graduates (step 1 evaluating basic science knowledge, step 2 evaluating clinical science knowledge and step 3 evaluating clinical skills)[9].

This report deals with a 5-week rotation in community medicine for 3rd year medical students in the Faculty of Medicine, Ramathibodi Hospital, Mahidol University in the 2011 academic year. Three additional rotations in community medicine integrated with family medicine, not included in this report, take place in the 4th year for 7 weeks, 5th year for 2 weeks and the 6th year for 4 weeks.

In general, the 5-week rotation aims to equip the students with knowledge in basic epidemiology; basic concepts of health systems and health promotion; understanding of the roles of physicians related to the concepts; and understanding in potentials of the community in health development. Learning experience consists of core lectures for the whole class, small group meetings, and sharing of lessons which have been learnt in larger groups into 4 and 5 small groups. Students were randomly assigned into 9 small groups of 17-18 students under the supervision of a faculty staff for each group (Table 1).

Learning experience was structured as follows: the first 2 weeks for core lectures and small group meetings then 1 week field visit and finally 2 weeks for cross group sharing of lessons learned based on the field visit, core lectures and small group meetings. Core lectures accounted for 32.5 % of official hours with topics related to the objectives for example, basic epidemiology and biostatistics, and principles of health care financing. Small group meetings consisted of design of sampling and questionnaires for cross-sectional community surveys; household visits for unstructured interviews; group specific lectures, observation of specific settings during field work for example, community hospitals, primary care units and manufacturing factories. It should be noted that flexibility in the design and conduct of small group activities was quite substantial. One of the small groups, as documented in a few students' logbooks, worked from 9 am – 3 am in a few sessions whereas the majority worked in official hours.

Apart from the variations in small group process, the academic background and work experiences of the staff also varied (Table 1). Nevertheless, almost all of the staff are in favor of competency based teaching and consider themselves as an authority. Holding these attitudes resulted in teacher led small group processes with content specific questions and answers.

Scoring of the cognitive knowledge was undertaken by each staff assigned to judge the answers in a random set of items using previously approved keywords specific to each item with the student identity blinded. Logbooks were used as formative and summative evaluation tools. For formative evaluation, each student was assigned to write personal records of learning activities (including content knowledge) and reflection (feelings and opinions) based on learning experiences in a notebook provided by the department.

MATERIALS AND METHOD

Study participants

This study enrolled 160 individual 3rd year medical students attending a 5-week rotation in Community Medicine, at the Faculty of Medicine, Ramathibodi Hospital, Thailand in the 2011 academic year. The

students were randomly assigned into 9 small groups of 17-18, then for the purpose of this study were regrouped into an intervention group and 8 usual groups. The randomisation was aimed to balance prerequisite knowledge of students among groups using a block randomisation technique[10].

Design of interventions

According to complexity concepts, the intervention group is considered an open system with information exchange and with bidirectional influencing relationships with its external environment. The role of the experimenter was to organise the students within a dynamic set of rich, recursive and relational learning contexts conducive to capability building. The learning context comprised of classroom sessions and field activities.

The field activities were jointly planned by the experimenter and a key partner (the 3rd author) who has been recognised as a champion in urban primary care development and understands the requirements of the curriculum. The field schedules mainly covered: 1) tracing patients with chronic illnesses at a selected health center to their homes, and in some cases to tertiary care hospitals as referred cases from the health center, 2) 4-day home stay with volunteer families in the catchment area of the health center, 3) participating in group discussions with health center staff and its director. These 3 core activities could be considered in keeping with the principles of patient-centredness learning under which the patient is seen in the context of a population as well as an individual, bringing evidence-based and narrative-based approaches into dialogues[11].

Taking all students in the intervention group as an integrated unit of analysis, its members interacted in a non-linear fashion involving short-loop feedback which gave rise to new ideas leading to a trial in terms of data collection and/or actions taken, then feedback into the interactive process which led to another set of new ideas, and so on and so forth.

Outcome evaluation

Two sets of outcomes were assessed i.e., cognitive competency achievement using paper-based examination of each student at the end of the 5 week course and students' satisfaction with curriculum and staff performance using a 5-point Likert's scale as described earlier.

Comparison of data between the intervention group and usual groups was undertaken using unpaired Student's t-test for the competency assessment and chi-square test for the student satisfaction at an alpha error cut-off-point of 0.05.

RESULTS

As has been shown in Table 1, the students in the intervention group and 8 usual groups were almost the same in background of prerequisite grade point average (GPA) and sex composition.

In addition, Table 1 has also shown the operating budget of each specific group (which varied from 302.1 to 414.6 USD) and the average for all usual groups (332.6 USD). The budget of the intervention was higher than the average for all usual groups, but it was smaller than those of usual groups numbers 3 and 4.

Table 1 Background of group specific students and attending staff Note : UG(usual group) ; BPM(Thai Certified Board of Preventive Medicine); BFM(Thai Certified Board of Family Medicine); BIM(Thai Certified Board of Internal Medicine)

	UG 1	UG 2	UG 3	UG 4	UG 5	UG 6	UG 7	UG 8	Intervention	all UG
Student background										
GPA										
Mean	3.17	3.17	3.17	3.18	3.17	3.17	3.17	3.17	3.13	3.17
Max	3.94	3.84	3.82	3.91	3.95	3.94	3.87	3.96	3.91	3.96
Min	2.33	2.51	2.51	2.39	2.25	2.33	2.40	1.98	2.33	1.98
Male	7	8	8	7	7	7	7	8	8	59
Female	11	10	10	11	10	11	10	10	10	83
Total	18	18	18	18	17	18	17	18	18	142
Attending staff background										
Graduate qualification	MD	MD	MD	MD	MD	BSc	MD	MD	MD	
Postgraduate qualification	BPM			Ph.D	BIM	MSc	BPM	BPM	BPM	
	BFM	BFM			BFM		BFM	M.R.H	M.Sc.	
							PhD			
Number of research publications	0	0	0	4	16	0	27	1	35	6
Years of teaching	23	15	19	16	32	31	17	3	27	19.5
Operating budget	325.95	325.95	414.6	381.9	302.1	302.1	304.1	304.1	351.4	332.6

Note : UG(usual group) ; BPM(Thai Certified Board of Preventive Medicine); BFM(Thai Certified Board of Family Medicine); BIM(Thai Certified Board of Internal Medicine)

Table 2 Percentage of students rating specific items and median score of cognitive paper-based examination by group status.

% of students rating specific items	UG 1	UG 2	UG 3	UG 4	UG 5	UG 6	UG 7	UG 8	Intervention group	All UG	P value*
Number of students	18	18	18	18	17	18	17	18	18	160	
Appropriateness of assessment methods	66.67	66.67	52.94	41.18	64.71	44.44	64.71	55.56	76.47	57.14	0.17
Appropriateness of epidemiology paper	66.67	33.33	50	23.53	58.82	50	52.94	55.56	70.59	48.92	0.13
Appropriateness of health system paper	35.29	27.78	12.5	27.78	40	17.65	35.29	29.41	68.75	28.15	0.007
Appropriateness of logbook	68.75	50	43.75	47.06	50	44.44	70.59	33.33	81.25	50.74	0.04
Curriculum of choice	66.67	77.78	55.56	70.59	76.47	77.78	58.82	94.12	100	72.14	0.05
Overall satisfaction with the curriculum	77.78	83.34	50	64.71	82.35	61.11	70.59	82.35	94.12	71.43	0.37
Attending staff of choice	88.89	100	16.67	72.22	41.18	83.33	88.24	72.22	94.12	70.42	0.11
Median score of paper exam	31.48	32.88	28.63	32.73	32.15	29.1	30.5	31.8	29.7	31.1	
Mean (SD) score of paper exam									29.52(3.63)	30.47(4.22)	0.27**

*Chi-sq ; intervention group vs all UG **Student t- test

Note: UG=usual group

At the end of the 5 week course, each student was asked to assess the curriculum in various dimensions. The results of the students' assessment has been shown in Table 2. Assessment of the students' competency according to the final paper-based examination has also been included in Table 2. Regarding the student satisfaction with the curriculum, the intervention group students rated it outstanding in all dimensions compared with usual groups with statistically significant differences in 3 out of 7 dimensions. Cognitive achievement between the intervention group students (mean, SD : 29.52,3.63) and the usual groups (mean, SD : 30.47,4.22) was similar with no statistically significant differences (p=0.27).

DISCUSSION

Given the flexibility of the small group process, it is a chance to do small experiments which could potentially demonstrate students' perceived outstanding performance as evident in this report. With similar student background and similar operating budget between the intervention group and usual groups (Table 1), the outstanding performance was likely the result of the intervention.

In addition, the operating budget of the intervention group was similar to the average of the usual groups(Table 1), so it could be argued that achieving the outstanding performance is feasible hence minimising a concern of generalizability.

Although the intention of the intervention was to enhance capability, the study did not attempt to systematically measure this outcome. It was assumed that exposing the students to real life experiences i.e., the field activities might enable them to adapt to, or co-evolve with new situations better hence supporting the transition from individual competence to personal capability. This assumption was based on arguments by Fraser SW[2] citing evidence from empirical research. In that article, Fraser argued that learning which builds capability takes place when individuals engage with an uncertain and unfamiliar context in a meaningful way.

To the intervention group students, the context of the health center and its catchment villages was obviously uncertain and unfamiliar. For instance, a student mentioned in her logbook " We (the student and the host) have not talked enough. I felt frustrated since I didn't know how to start a conversation". Designed group processes in a recursive and relational manner as described might facilitate students' engagement with uncertainty and unfamiliarity in a meaningful way. For example, during the field visit, a patient with type 2 diabetes was interviewed by the experimenter independently to a prior student interview to gain enough insight of their glycemic control status. It was found that the patient needed to take about 10 sugar candies daily while on glycemic control with daonil, metformin and insulin. Sharing the knowledge with the students resulted in another

home visit by the students out of curiosity to learn more details leading to their intention to prepare a letter to the attending physician asking him to reconsider this patient's treatment plan to avoid hypoglycemic attacks.

Tracing this diabetic patient's 15-year medical record (with her verbal consent) revealed the mean fasting blood sugar of 197.6 mg/dl with 95% confidence intervals between 184.6 and 210.7 mg/dl. Surprisingly, this knowledge of long term glycemic control status (including the need to take 10 sugar candies daily) of this patient was found to be unfamiliar to the attending physician. Discussion with the students of these findings (from the home visit and the medical record tracing) was part of the recursive process to indicate a need for relational learning concerning optimal glycemic control.

To a certain extent, the recursive process as described followed the longitudinal integrated clerkship (LIC) models flourishing and growing especially in US, Australian, and Canadian medical schools[12,13]. An LIC is characterised by being the central element of clinical education whereby medical students: (1) participate in the comprehensive care of patients over time, (2) participate in continuing learning relationships with these patients' clinicians, and (3) meet the majority of the year's core clinical competencies, across multiple disciplines simultaneously through these experiences[14].

Limitations of the study

Although this study made use of a randomized controlled trial, the quantitative outcome measures did not directly reflect the intended outcomes of the intervention i.e., capability building and relational learning. In addition, a single randomized controlled trial like our study could hardly support the generalisable effectiveness of the intervention. Further studies are needed to develop quantitative measures of the intended outcomes and to test the effectiveness of the intervention in different contexts.

CONCLUSIONS

The complexity of the medical education systems indicates that changes could hardly be imposed from outside the systems due to differences in context, organisation culture, and supportive mechanism. This report provided quantitative evidence indicating a possibility of applying the complexity concept into the Thai medical education systems by making use of a perceived opportunity within the systems i.e., the flexibility in conducting small group processes. Making use of the usual (competency-based) quantitative measures of learning achievements and students' satisfaction with the curriculum, this pilot intervention succeeded in demonstrating the outstanding students' satisfaction without compromising cognitive competency gain as compared to the competency-based approach given comparable student backgrounds and other inputs i.e., the core activities and operating budget.

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A Longitudinal Study of Utilization Pattern of Antenatal Care Services among Pregnant Women in Rural Area of Guntur District, A.P.

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ABSTRACT

Objectives: To study the profile of antenatal care received by pregnant women

Study Design: Longitudinal study.

Setting: Rural field practice area of Dept of Community Medicine

Participants: All women (n =110) from rural field practice area of Dept of Community Medicine who were pregnant at the start of the study

Statistical Analysis: Proportions

Results: Most of the pregnant women (93.27%) were registered for antenatal care, but only 26.36% of them were registered in the 1st trimester of pregnancy. As regard to TT immunization, 75% of the pregnant women had received 2 doses or 1 booster dose. Iron and Folic Acid supplementation was taken by 59.62% of the pregnant women. Nearly 45.19 % of pregnant women were provided with full antenatal care. The main antenatal care provider for pregnant women was doctor (70.19%).

Conclusion: The study showed early and wide spread use of antenatal care, but it also revealed that the antenatal visits occur late in the pregnancy.

Keywords: *Utilization, Antenatal Services, Pregnant Women*

INTRODUCTION

Pregnancy and childbirth are special events in women's lives, and, indeed, in the lives of their families. This can be a time of great hope and joyful anticipation ([1]).The primary aim of antenatal care is to achieve, at the end of pregnancy, a healthy mother and a healthy baby ([2]).The quality of care is more important than the quantity.

Pregnancy requires specialized care, generally agreed to be a preventive activity.

Where visits do occur, they appear to occur infrequently, late in the pregnancy and their content is unclear. Moreover, it appears that antenatal services are likely to be sought by women who experience difficulty or signals of a complicated delivery than other women ([3]).Poor utilization of services reflects cultural and socio-economic constraints as well as perceptions regarding accessibility of facilities and quality of care. Nearly 64.00% of women who did not utilize antenatal services consider it unnecessary, reflecting both the traditional notion that child bearing is not an event worthy of medical attention ([4]).

MATERIAL AND METHOD

This longitudinal study was conducted in Prathipadu village which is a rural field practice area of Dept of Community Medicine, Katuri Medical College and Hospital, Guntur (A.P.).The present study was conducted in the year 2009.All the women in the village who became pregnant in the study period were enrolled. Case identification was carried out with the help of anganwadi workers and the same was cross-checked with female health worker record to identify

any missed cases. A total of 110 pregnant women were enrolled in the study. During the initial visit, using a pre-designed and pre-tested Questionnaire, information was collected by interviewing the pregnant women on socio-demographic variables. Each pregnant woman was then followed- up by fortnightly home visit. The details about the antenatal care received were noted down in a pre-designed and pre-tested follow- up proforma.

RESULTS

In the present study, out of 110 pregnant women, 63(57.27%) were between 20-24 years of age, 31(28.18%) between 25-29 years, 4(3.64%) between 30-34 years and only 1(0.91%) was between 35-39 years. At the same time, it was observed that 11 (10.00%) women were teenage pregnancies aged between 15-19 years. Out of 110 pregnant women studied, 38 (34.55%) were primigravida, 33 (30.00%) 2nd gravida, 24 (21.82%) 3rd gravida, 08 (7.27%) 4th gravida and grandmultiparity was noted in 07 (6.36%) women. In our study, 54(49.09%) were housewives, 48(43.64%) were agricultural labourers, 08(7.27%) were service persons . Our study revealed that 71(64.55%) pregnant women were literates. It was noted that 39(35.45%) women were illiterates. As regards to socio-economic status, 3(2.72%) belonged to class I, 4(3.64%) to class II, 26(23.64%) to class III, 49(44.55%) to class IV and 28(25.45%) belonged to class V according to revised B.G.Prasad's classification.

Out of 110 pregnant women, only 29 (26.36%) women had done registration in first trimester and 69(62.73%) in 2nd trimester. Late registration in 3rd trimester was noted in 5(4.55%) pregnant women and inspite of having a goal of 100% antenatal registration 7 (6.36%) had not done registration. Further, when number of antenatal visits were analyzed, it was noted that 15(14.42%) pregnant women had made 1-2 visits while 82(78.85%) had made 3 or more visits, but still 7 (6.73%) had no visits even in later stages of pregnancy (Table 1).

Table1: Distribution of pregnant women according to number of antenatal visits

Number of visits	Number	%
Nil	7	6.73
1-2	15	14.42
3 and above	82	78.85
Total	104	100

4 lost for follow up and 2 ended in abortion at 3rd month, therefore 104 remained

The present study revealed that 72 (69.23%) pregnant women received two doses of TT, 6 (5.77%) received 1 dose as booster, 20(19.23%) received 3 doses of TT by private doctors and 6(5.77%) did not receive even a single dose of TT. In our 104 study population, 62 (59.62%) pregnant women took IFA tablets and 42 (40.38%) did not take (Table 2).

Table 2: Reasons for non-intake of Iron and Folic Acid tablets

Reasons for not taking IFA tablets	Number	%
No antenatal care	7	16.67
Diarrhoea	7	16.67
Vomiting	10	23.81
Gastritis	6	14.29
Cause body heat	2	4.76
Headache	1	2.38
Constipation	5	11.90
Fetus will grow big	2	4.76
Bitter test	2	4.76
Total	42	100

It is unfortunate to note that inspite of presence of all facilities, majority 82 (78.85 %) of pregnant women having taken more than three antenatal visits still only 47 (45.19%) pregnant women received all the three components of antenatal care and 57 (54.81%) did not take full antenatal care package (Table 3).

Table 3: Distribution of pregnant women according to provision of full antental care package

Full ANC package	Number	%
Received	47	45.19
Not received	57	54.81
Total	104	100

The present study showed that 73(70.19%) pregnant women received antenatal care from doctor, 24 (23.08%) by nursing staff of sub-centre and primary health centre and remaining 7(6.73%) did not receive antenatal care by any one.

DISCUSSION

The present study revealed that, 93.27% of pregnant women had done antenatal registration and only 6.73% women had not done it. Among the registered pregnant women majority 62.73% had done registration during 2nd trimester, 26.36% women in 1st trimester and 4.55% in the last trimester. In a study conducted in urban slum of Delhi, only 67.1% of pregnant women had done antenatal registration and 32.9% women did not do it. Among the registered, 55.0% had done registration during 2nd trimester,

11.7% in 1st trimester and 33.3% in the 3rd trimester([5]). The present study revealed that 75% had taken TT2 / booster, 19.23% had taken three doses of TT and 5. 77% of pregnant women had not taken a single dose of TT. In a study conducted in 90 districts of various states of India, 77.9% of pregnant women had received TT2 / booster and 13.6% had not taken a single dose of TT ([6]). In our study 59.62% of pregnant women consumed IFA table and 40.38% did not take. The main reasons for non-intake of IFA tablets were: no antenatal care (16.67%), diarrhoea (16.67%), vomiting (23.81%) and gastritis (14.29%). In a study conducted in villages surrounding Bangalore, 85.0% reported taking IFA tablets regularly and the main cause for non intake noted in that study was a belief that iron pills cause the child to be dark skinned([7]). In our study majority 70.19% had antenatal care by doctor, 23.08% by nursing staff of Sub Centre and Primary Health Centre and 6.73% women had no antenatal care by anyone. In a study conducted in villages around Hyderabad, 88.0% had antenatal care from doctor, 3.0% from ANM and 9.0% did not have antenatal care ([8]).

CONCLUSION

The study showed early and widespread use of antenatal care, but it also revealed that the antenatal visits occur late in the pregnancy. Few women did not take antenatal care, the main reason being that they believed that pregnancy being a natural phenomenon did not need any special care. The impression about antenatal care provider, from this study is that care from private sources is considered far superior to that from government services. The level of compliance with iron supplementation among the pregnant women was low. The causes for low compliance were side effects to iron tablets. The literacy of women has significant bearing on antenatal care of pregnant women. Thus, measures should be adopted for improving female literacy.

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A Review on Low Carbon Emission - The Global Consensus

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ABSTRACT

The world has seen leaps of development in the last century, the cost of which may be considered in the form of environmental degradation, increase in the level of Green house Gases (GHGs), deforestation and global warming. Carbon footprint, carbon offset carbon credits / permits, emissions trading and clean development mechanisms are some of the new terminologies that have been developed to evaluate the extent of part played by different nations in increasing global warming and the steps to mitigate it. International efforts such as Kyoto Protocol to the United Nations Framework Convention on Climate Change, UN-REDD (Reducing Emissions from Deforestation and forest Degradation) Programme, Copenhagen Accord (2009) and Cancun summit (2010) have been made to stabilize the global carbon emissions. The main hurdle in developing a global consensus is the disagreement between the developing and the developed nations with developed nations not ready to cut down on their carbon emissions.

Keywords: *Carbon Emissions, Carbon Footprint, Carbon Offset, Carbon Credits, Emissions Trading, Clean Development Mechanisms, Kyoto Protocol, Copenhagen Accord And Cancun Summit*

INTRODUCTION

The world has seen leaps of development in the last century. This development has come at a cost which may be considered in the form of environmental degradation, increase in the level of Green house Gases (GHGs), deforestation, decrease in the level of the under ground water, soil pollution, water pollution etc. The most critical effect of the development has been the global warming.

The present work looks into various terminologies and indicators that have been developed to evaluate the extent of part played by different nations in increasing global warming and the steps to mitigate it. Also, the article touches upon summits and their outcomes towards mitigation of climate change such as Copenhagen and Cancun summit.

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Initially, to evaluate the amount of GHG produced a term" carbon footprint" was coined. Carbon footprint is "the total set of GHG emissions caused by an organization, event, product or person". It is expressed in terms of the amount of carbon dioxide (CO_2), or its equivalent of other GHGs, emitted. An individual, nation, or organization's carbon footprint can be measured by undertaking a GHG emissions assessment. Once the size of a carbon footprint is known, a strategy can be devised to reduce it, e.g. by technological developments, better process and product management.[1]

The term used to evaluate the reduction in GHG is carbon offset. It is a reduction in emissions of carbon or greenhouse gases made in order to compensate for or to offset an emission made elsewhere. Carbon offsets are measured in metric tons of carbon dioxide-equivalent (CO_2e). One carbon offset represents the reduction of one metric ton of CO_2 or its equivalent in other greenhouse gases. Companies, governments, or other entities buy carbon offsets in order to comply with caps (limits) on the total amount of CO_2 they are allowed to emit. Also individuals, companies, or governments purchase carbon offsets to mitigate their own greenhouse gas emissions from transportation,

electricity use, and other sources. For example, an individual might purchase carbon offsets to compensate for the greenhouse gas emissions caused by personal air travel. Offsets are typically achieved through financial support of projects that reduce the emission of GHGs in the short- or long-term. The most common project type is renewable energy, such as wind farms, biomass energy, or hydroelectric dams. Carbon offsetting has gained appeal and momentum mainly among consumers in western countries who have become aware and concerned about the potentially negative environmental effects of energy-intensive lifestyles and economies.[2]

The UNFCCC (United Nations Framework Convention on Climate Change), an international environmental treaty with the goal of achieving "stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system." The Kyoto Protocol is a protocol to the UNFCCC aimed at fighting global warming. The Protocol was initially adopted on 11th December 1997 in Kyoto, Japan and entered into force on 16th February 2005. As of July 2010, 191 states have signed and ratified the protocol.

The protocol allows for several "flexible mechanisms", such as emissions trading and the clean development mechanism (CDM) to allow countries to meet their GHG emission limitations by purchasing GHG emission reductions credits from elsewhere, through financial exchanges, projects that reduce emissions in developing countries, or from countries with excess allowances.[3]

Under the Kyoto protocol the CDM allows a developed country with an emission-reduction or emission-limitation commitment to implement emission-reduction project in developing countries. Such projects can earn saleable certified emission reduction (CER) credits, each equivalent to one tonne of CO_2, which can be counted towards meeting Kyoto targets. It is the first global, environmental investment and credit scheme of its kind, providing a standardized emission offset instrument i.e. CER. A CDM project activity might involve, for example, a rural electrification project using solar panels or the installation of more energy-efficient boilers. The mechanism stimulates sustainable development and emission reductions, while giving industrialized countries some flexibility in how they meet their emission reduction or limitation targets.[4]

Carbon credits and carbon markets are a component of national and international attempts to mitigate the growth in concentrations of GHGs. Carbon credit is a generic term for any tradable certificate or permit representing the right to emit one tonne of CO_2 or CO_2e. [5]

Emissions trading (also known as cap and trade) is a market-based approach used to control pollution by providing economic incentives for achieving reductions in the emissions of pollutants.

A governmental body sets a limit or cap on the amount of a pollutant that can be emitted. The limit or cap is allocated or sold to firms in the form of emissions permits which represent the right to emit or discharge a specific volume of the specified pollutant. Firms are required to hold a number of permits (or carbon credits) equivalent to their emissions. The total number of permits cannot exceed the cap, limiting total emissions to that level. Firms that need to increase their emission permits must buy permits from those who require fewer permits. The transfer of permits is referred to as a trade. In effect, the buyer is paying a charge for polluting, while the seller is being rewarded for having reduced emissions. Thus, in theory, those who can reduce emissions most cheaply will do so, achieving the pollution reduction at the lowest cost to society.[6]

Renewable Energy Certificates (RECs), also known as Green tags, Renewable Energy Credits, Renewable Electricity Certificates, or Tradable Renewable Certificates (TRCs), are tradable, non-tangible energy commodities that represent proof that 1 megawatt-hour (MWh) of electricity was generated from an eligible renewable energy resource. Solar Renewable Energy Certificates (SRECs) are RECs that are specifically generated by solar energy.

These certificates can be sold and traded or bartered, and the owner of the REC can claim to have purchased renewable energy.[7]

The UN-REDD Programme is the United Nations Collaborative initiative on Reducing Emissions from Deforestation and forest Degradation (REDD) in developing countries. The Programme was launched in September 2008. The programme brings together technical teams from around the world to help develop analyses and guidelines on issues such as measurement, reporting and verification (MRV) of carbon emissions and flows, ensuring that forests

continue to provide multiple benefits for livelihoods and the environment, and supporting the engagement of indigenous peoples and civil society.[8]

Reducing Emissions from Deforestation and Forest Degradation (REDD) is an effort to create a financial value for the carbon stored in forests, offering incentives for developing countries to reduce emissions from forested lands and invest in low-carbon paths to sustainable development. "REDD+" goes beyond deforestation and forest degradation, and includes the role of conservation, sustainable management of forests and enhancement of forest carbon stocks.[9]

The Kyoto protocol also reaffirms the principle that developed countries have to finance and supply technology to other countries for climate-related studies and projects. The principle was agreed in UNFCCC.

Various views have been expressed on assessing the protocol .Gupta *et al.* (2007) assessed the literature on climate change policy. They found that no authoritative assessments of the UNFCCC or its Protocol asserted that these agreements had, or will, succeed in solving the climate problem. World Bank commented on how the Kyoto Protocol had only had a slight effect on curbing global emissions growth. The treaty was negotiated in 1997, but by 2005, energy-related emissions had grown 24%. World Bank (2010) also stated that the treaty had provided only limited financial support to developing countries to assist them in reducing their emissions and adapting to climate change.

Some environmentalists have supported the Kyoto Protocol because it is "the only game in town," (Aldy *et al*). In 2001, sixteen national science academies stated that ratification of the Protocol represented a "small but essential first step towards stabilising atmospheric concentrations of greenhouse gases." Some environmentalists and scientists have criticized the existing commitments for being too weak (Grubb).[3]

In 2009 the Copenhagen Accord, developed at the Copenhagen climate change conference, declared that deep cuts in global emissions were required to hold the increase in global temperatures below 2° C. Of the 140 countries associated with the accord, 85 pledged to reduce the emissions or constrain their growth by 2020.[10] The accord recognizes" the scientific case for keeping temperature rises to no more than 2 °C but does not contain commitments to emissions reductions to achieve that goal. The conference witnessed a row over whether to ditch the Kyoto protocol and its legal distinction between developed and developing countries. Developing nations saw this as an attempt by the rich world to wriggle out of its responsibility for climate change.[11]

The latest attempt towards fighting climate change is the 2010 United Nations Climate Change Conference held in Cancún, Mexico, from 29 November to 10 December 2010. The outcome of the summit was an agreement, not a binding treaty, which aims to limit global warming to less than 2 °C above pre-industrial levels and calls on rich countries to reduce their greenhouse gas emissions as pledged in the Copenhagen accord and for developing countries to plan to reduce their emissions. The agreement includes a "Green Climate" fund, proposed to be worth $100 billion a year by 2020, to assist poorer countries finance emission reductions and adaptation. There was no agreement on how to extend the Kyoto Protocol, or how the $100 billion a year for the Green Climate Fund will be raised, or whether developing countries should have binding emissions reductions or whether rich countries would have to reduce emissions first.[12]

The main hurdle in developing a global consensus is the disagreement between the developing and the developed nations with developed nations not ready to cut down on their carbon emissions. The time is ripe now to walk the talk and save the environment with inclusive & sustainable development mechanisms and reach an agreement between the two worlds and save the mother earth for future generations.

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Study of Fasting Plasma Glucose Level in Relation with Waist Circumference & Waist to Hip Ratio in the Women Aged between 45-49 Yrs

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ABSTRACT

Background: The association between type 2 Diabetes Mellitus and Obesity is very close. Obesity is common in women aged between 45-49 yrs . Prevalence of Impaired Fasting Glucose also seems to be higher in women than men in the Indian population. The study was undertaken to find the correlation of Fasting Plasma Glucose (FBG) level with Waist Circumference (WC) & Waist to Hip Ratio (WHR)

Objectives: To study fasting Plasma glucose levels in relation with Waist Circumference (WC) and Waist to Hip Ratio (WHR) to find which type of obesity Central , General or both are important for development of type 2 D.M.

Material and Method: Fasting Plasma glucose levels were estimated in 100 asymptomatic middle aged women with no family history of type 2 D.M. Waist circumference & hip circumference were estimated in the same subjects. Correlation of FBG levels with WC & WHR was found by using correlation coefficient.

Result: In the entire subject population (n=100), a statistically significant correlation between FBG levels with WC was noted. However, no statistically significant correlation of FBG with WHR was noted

Conclusion: In a nutshell WC may be good risk predictor for type 2 D.M. than WHR, specially in the women aged between 45-49 yrs.

Keywords: *Fasting Plasma Glucose, Waist Circumference, Waist to Hip Ratio*

INTRODUCTION

India is undergoing a rapid epidemiological transition with increased urbanization and socio-economic development which has resulted in a dramatic change in lifestyle, consisting of physical inactivity, diet rich in fat, sugar and salt coupled with a high level of mental stress. This has led to increased incidence of lifestyle diseases like hypertension, type 2 Diabetes Mellitus dyslipidemia, obesity and ischemic heart diseases.[1]

Diabetes mellitus (D.M) comprises of a group of common metabolic disorders & is characterized by a state of chronic hyperglycemia due to defective production of insulin or increased resistance of body to its action.[2]

The incidence of Diabetes Mellitus increases with age. So, American Diabetes Association (ADA) recommends screening of all individuals more than 45 yrs, every 3 years as early detection of the disease which may help to improve its outcome.[3] Expert Committee of American Diabetes Association[4] continues to recommend the Fasting Plasma Glucose as the preferred diagnostic tool because it is more convenient, less expensive and still more reliable.

Obesity may be considered as dynamic process of accumulating and 'filling' of fat cells , resulting in an additional tax on essential organs such as the heart, liver, and kidneys. This process of 'supporting and carting' of weight for many years apparently takes its toll on the vascular system and when the crude relative risks of obesity for each disease condition are

calculated, diabetes mellitus is found to be the highest.[5]

The connection between obesity and Type 2 D.M is so strong that attempting to treat diabetes properly without managing any coexisting obesity is almost futile. The association between these conditions is so close that many experts consider obesity and type 2 D.M to be different ends of the same spectrum therefore together called as 'diabesity'. [6] For this reason obesity can be viewed as a prediabetic condition.

In India, 41 million people are diabetic (Type 2 D.M.) and by 2025, the number is expected to be 68 million. As on today every fifth diabetic person in the world is Indian , therefore India is called diabetic capital of the world. It is also projected that out of 41 million, 20 millions are obese .[7]

Obesity is more common among women than men especially in the age group of 45 – 49 years.[8] Prevalence of IFG also seems to be higher in women than men in the Indian population.[9]

Obesity can be general or central (abdominal),both play a role in development of type 2 D.M . Many epidemiologic studies have shown BMI measures general obesity while WC & WHR measures the central obesity.[10]

Only a few studies have investigated the joint association of WC and WHR with diabetes risk · hence in this study ,we have tried to ascertain whether WC or WHR can be used as a risk predictor for type 2 D.M in the middle aged women.

MATERIALS AND METHOD

The study was a cross sectional study. It was conducted in Private dispensaries & Department of Physiology & Biochemistry .Bharati Vidyapeeth University Medical College Pune 43. We first catch the subject visiting at private dispensaries for acute symptoms without any chronic disease then follow up was taken with their consent & we asked them to convey about the project to their relative and friends of the said age group and take the information with address and visited them for further procedure .The study Period is Feb.2008- Jan 2010. The research protocol was approved by local ethical committee and informed consent obtained from each subject prior to inclusion in the study.

100 subjects were recruited in the study on the basis of inclusion and exclusion criteria. Volunteers suffering from any chronic aliment, volunteers with family history of Diabetes Mellitus and having Diabetes Mellitus, history of taking any kind of long term medication were excluded from the study. The purpose of the study was explained to all the volunteers and a written consent was obtained. Detailed medical history & thorough physical examination was performed on all volunteers.Fasting Plasma Glucose levels were estimated in 100 asymptomatic middle aged women .

The anthropometric measurements of the women were carried out using anthropometric instruments. Measurements of waist and hip circumference were taken directly on the body

with an accuracy of 0.5 cm. The waist circumference was taken at the midpoint between the iliac crest and the lower border of the ribs after a normal expiration; Hip circumference was measured (cms) at the widest girth of the hip.[11] All measurements were taken on light clothing twice with a toleranc e limit of 1 cm for circumferences. A third measurement was taken if the difference of the two measurements was greater than the tolerance limit. The average of the two closest measurements were used in the current analysis. Based on the measurements made WHR was calculated.

Participants were asked to take regular meal before 10 PM on the previous night to ensure the 8-10 hrs fasting period The fasting blood sample of 2 ml was drawn with appropriate aseptic precautions early morning between 7 – 8 am after a minimum of 8-10 hrs fasting. For transportation blood sample is collected in a fluoride bulb . Plasma was separated by centrifugation and fasting plasma glucose was estimated by Glucose Oxidase Peroxidase (GOD/ POD) method using Han's 0392 filter Colorimeter for estimation of Plasma glucose levels in Biochemistry Laboratory of Dept.Of Biochemistry, Bharati Vidyapeeth medical college Pune.

The results were analyzed statistically by using SPSS software version 10 for correlation coefficient.

FINDINGS / OBSERVATIONS AND RESULTS

Table 1. Distribution of subjects between Pre & Postmenopausal status.

Menopausal status	No of women volunteers
Premenopausal	62
Postmenopausal	38

Table shows that number of women were more (62) than postmenopausal women(38) in our study.

Table 2: Distribution of subjects with respect to BMI, & WC with their mean Fasting Plasma Glucose (FBG)level.

Parameters	Values	No of subjects	Mean FBG in mg /dl
WC in cms	<80	34	79.55 ± 9.83
	≥80	66	89.54 ±10.84
WHR	<0.8	64	82.13 ±9.83
	≥0.8	36	86.54 ±10.84

Table shows that mean FBG levels were higher with the group having WC ≥80cms & WHR ≥0.8.

Table 3: Correlation of FBG with WHR & WC

	Co-relation between	'r' value	P Value
Graph A	FBG &WHR levels	0.13	>0.05
Graph B	FBG &WC levels	0.23	< 0.05 *

* statistically significant

Table shows statistically significant correlation between FBG with WC. However, no statistically significant correlation of FBG with WHR was noted .

CONCLUSION/DISCUSSION

In the present study, there were 100 women volunteers are present .Waist circumference & Waist to Hip Ratio (WHR) were estimated in all the volunteers.

We found that mean FBG levels were higher with the groups having WC ≥ 80 cm , & WHR ≥ 0.8. There is statistically significant correlation between FBG with WC however, no statistically significant correlation of FBG with WHR was noted. We also noted that number of premenopausal women were more (62) than postmenopausal women(38) in our study .So, in a nutshell, we have found that WC correlates with FBG but not WHR . Similar finding was observed by many scientists.[12,13,14]

Correlation between type 2 D.M & obesity was done by many researchers by using different parameters of obesity .[15,16] According to the Diabetes Epidemiology Collaborative Analysis of Diagnostic Criteria in Asia (DECODA) Study Group, [17] the prevalence of Impaired Fasting Glucose(IFG) seemed to be higher in women than men in obese Indian population. Therefore obesity and previously identified IFG both are considered as independent risk factors for development of type 2 D.M.

Obesity is a morbid phenotype of excess body fat resulting from an excess energy balance in the form of fat accumulation. BMI indicates general obesity, WC indicates general as well as central obesity [18,19,20,21] . It is certain that obesity is an important risk factor in the etiology of type 2 DM [3] & hypertention[22]. & central obesity also plays a key role in its development .Insulin resistance is a characteristic feature of type 2 D.M.. Fat depots are viewed as endocrine tissues that secrete various chemicals collectively known as adipokines i.e.leptin, resistin, tumor necrotic factor á, adiponectin, ghrelin, angiotensinogen , plasminogen activator inhibitor & many others. Most of these chemicals are responsible to develop Insulin resistance. [23,24]

Some observations suggest that fat produces chemical signals that act on muscles and liver to increase insulin resistance.[25,26] Experimental evi-dence supports the above observations; when glucose transporters are selectively knocked out in adipose tissue of animals, glucose transport in muscle in vitro is normal but when those animals are tested in vivo, there is an associated decrease in glucose transport in muscle. This is probably due to release of chemical signals from the adipose tissue which act on the glucose transporters in the muscle. This means that fat depots are not inert lumps but are actually endocrine tissues that se-crete various chemicals which modulate insulin secretion and insulin action which may contribute to insulin resistance.

Obesity, both general and abdominal play an important role in the development of type 2 D.M. in men and women. Although WC and WHR were almost equally good predictors of diabetes in men, WC alone is a good predictor in women; especially in premenopausal women. [14] Central obesity is commonly associated with menopause WHR mainly measures the central obesity. Eric T.Poehlman et al, [27] M.J.Toth et al,[28] G.Panotopoulos et al.[29] tried to render an explaination for weight gain after menopause . They reported that natural menopause was associated with reduced energy expenditure, during rest as well as during physical activity and this was responsible for obesity. Estrogen deficiency resulted in accelerated loss of fat-free mass with increased central adiposity leading to obesity [30,31] In our study; number of premenopausal women are more (62) than postmenopausal women (38). This may be the important reason for non-significant correlation of FBG (Fasting Plasma glucose) with WHR. Thus our findings suggest that WHR is a

poorer predictor than WC. A study by Z Wang [32] revealed that change in waist was a better correlate of the change in visceral adipose tissue than the change in the waist to hip ratio. Waist to hip ratio is a measure of relative accumulation of abdominal fat, while WC is a measure of absolute abdominal fat as well as total body weight.[18-21] Two circumference measures are required for Waist to Hip ratio calculation. Both measurements are subjected to measurement errors.

To conclude we can say that in our study WC was associated with fasting plasma glucose for screening of type 2 D.M. & appeared to be a better predictor for type 2 D.M than WHR in premenopausal women aged between 45-49 yrs .However it is only a preliminary study and further the study will be continued in a large number of women to draw any meaningful conclusion.

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Study of Effect of Smoking on Auditory Acuity

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ABSTRACT

Background: The relationship between smoking and hearing loss has been debated. Smoking appears to have an effect on auditory acuity and the proposed mechanisms are the direct oxidative damage on cochlea caused by toxic substances inhaled with the cigarette smoke or to the acceleration of the atherosclerotic process in the cochlear artery.

Objectives: To record the auditory thresholds of age matched male smokers and non-smokers of age group 20-40 yrs, using pure tone audiometer and compare the auditory thresholds between the groups.

Method: Age matched male 100 smokers and 100 non-smokers were subjected to pure tone audiometric assessment. The smoking history in terms of pack-years was also noted. The data was statistically analyzed.

Results: Smokers group were significantly hearing impaired than the non-smokers group. The hearing impairment was noted at all frequencies tested. Higher frequencies were more affected than the lower frequencies. The auditory thresholds of smokers had significant positive correlation with smoking history, indicating that auditory thresholds rise as the number of pack-years increase.

Conclusion: Smoking causes hearing impairment. The higher frequencies are more affected. The auditory thresholds rise as the number of pack-years increase.

Keywords: *Smoking, Hearing Loss, Pure Tone Audiogram, Auditory Thresholds, Sensorineural Hearing Loss*

INTRODUCTION

Smoking is an addiction that has been accepted by the community despite its harmful effects. It is extensively practiced from time immemorial. As per World Health Statistics-2006 42.3% of males and 8.3% of females of age group e"15yr are smokers in India (2003).[1] According to a nationwide survey, 184 million used tobacco, of which 112 million smoked tobacco. It kills 8 lakh people every year according to Indian Council of Medical Research (ICMR) which amounts to 2200 people dying every day from tobacco related diseases.[2]

Though smoking is well known as a risk factor for various diseases, little is known about its association with hearing loss. Evidence on relation of smoking to hearing loss have been found from health screening programmes,[3, 4] occupational programs of hearing conservation[5, 6] and a few population based surveys.[7,8] In general, these have suggested that smokers have a greater risk of hearing loss than non-smokers.

While hearing loss is common among the elderly, the young also suffer from hearing impairment, which according to the impaired spectrum of frequencies, is not induced by noise. The medical literature describes the relationship between hearing loss and smoking. The causes probably arise from a combination of genetic and environmental factors. An experimental study has concluded that cigarette smoking results in structural modification of cochlea and tuba acoustica, i.e. degenerative lesions and vascular lesions.[9]

The present study is aimed to examine the association between smoking and hearing loss in a sample population from South India which is genetically different than subjects of other studies that

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are available. The hypothesis being tested is that "there is effect of smoking on auditory thresholds in South Indian population".

AIMS AND OBJECTIVES

To record, compare and evaluate the auditory thresholds in smokers and non-smokers of 20-40yr age group, residing in residential areas, using pure tone audiometer

MATERIALS AND METHOD

The data was randomly collected from age matched smoking and non-smoking male population from residential areas of Bangalore belonging to age group of 20-40 yr. The age matched study and control groups were selected based on inclusion and exclusion criteria. Each group consist 100 subjects.

The most prevalent cause of chronic hearing loss presbyacusis, affects one-third of individuals over the age of 65yr. Since its prevalence progressively increases with age the study group was restricted to the age of 20-40yr.

The subjects selected had good health as evaluated by general physical and systemic examination, and had given written consent.

Diabetic or hypertensive patients, alcoholics, residents of noisy areas, occupational exposure to noise and vibration, mobile phone users for more than 3 yr, subjects with history of recent ear, nose and throat infection, ear surgeries, head injury or consuming ototoxic drugs in the past 3 months were excluded.

Subjects were given a prepared questionnaire to answer that reveals Socio- Demographic data, hearing ability and regarding inclusion/exclusion criteria. Detailed ear, nose and throat examination was carried out to rule out sub-clinical infection or other pathology. Random blood sugar test was done using a glucometer (to exclude undetected diabetic patients). Considering the predetermined inclusion and exclusion criteria, study subjects were selected and designated into case and control groups. An assessment of auditory acuity using a pure tone audiometer [ARPHI 500 MK 1] was done.

The parameter of auditory acuity studied was the hearing threshold for air conduction and bone conduction at different frequencies. Using the pure tone audiometer, audiograms were recorded separately for both ears of the selected subjects in a sound proof room in Sri Venkateshwara ENT Institute, Victoria Hospital premises, Bangalore. The audiogram chart thus obtained depicted the auditory acuity of the particular ear.

Smoking history of each subject of the test group was expressed in terms of pack-years. Pack-years of smoking was defined as the number of packs (one pack is equal to 20 cigarettes) smoked per day multiplied by the duration of smoking (in years). Hearing thresholds for air conduction and bone conduction at different frequencies of the test group was recorded. The method of recording was based on American Society for Speech and Hearing Association [ASHA] 2005 Guidelines for manual pure-tone threshold audiometry (PTA) [10]. The recordings were entered in a master chart.

Similarly, hearing thresholds for air conduction and bone conduction at different frequencies of the control group was also recorded and entered in a separate master chart.

RESULTS AND ANALYSIS

The study was a case-control study design. Out of 250 subjects examined, 100 were selected as controls, i.e. non-smokers and 100 subjects were selected as cases, i.e. smokers, satisfying all the inclusion criteria. Rest 50 subjects did not match the inclusion criteria. The parameters studied are the hearing thresholds of the study group and the trend of hearing thresholds with respect to smoking history expressed in pack-years. The data was subjected to appropriate statistical treatment[11].

Table 1: Age distribution of subjects studied

Age in years	Non-smoking		Smoking	
	No	%	No	%
20-24	34	34.0	32	32.0
25-29	30	30.0	28	28.0
30-34	14	14.0	22	22.0
35-39	18	18.0	18	18.0
40-44	4	4.0	0	0.0
Total	100	100.0	100	100.0
Mean ± SD	28.46±5.85		28.12±5.28	

The study groups were age matched with p value of 0.666.

Table 2: Comparison of AC thresholds in decibels between smoking and non-smoking subjects in right and left ears separately

Frequency (kHz)	Right ear					Left ear				
	Non-Smoking		Smoking		P value	Non-Smoking		Smoking		P value
	Mean	SD	Mean	SD		Mean	SD	Mean	SD	
0.25	13.8	4.33	17	5.86	<0.001**	14.1	4.57	18	5.12	<0.001**
0.5	14.9	3.96	18.7	6.18	<0.001**	14.4	4.68	18.6	5.69	<0.001**
1	11.3	3.3	15.3	7.21	<0.001**	11.5	4.29	16.9	7.51	<0.001**
2	10	4.82	16.5	7.74	<0.001**	9.8	4.92	17.6	8.12	<0.001**
4	12	5.32	20.2	10.59	<0.001**	11.5	5.25	20.4	9.74	<0.001**
6	12.1	5.69	21.2	10.9	<0.001**	12.7	5.52	22.8	11.02	<0.001**
8	10.5	6.3	16	9.43	<0.001**	12	6.51	16.93	8.98	<0.001**

Air conduction

There is highly significant difference in mean hearing thresholds between the study groups at all frequencies. The difference is more in higher frequencies, i.e. 2, 4, 6 and 8 kHz.

Table 3: Correlation of AC thresholds (right ear) of Smokers with pack years

Frequency (kHz)	Pack years				P value
	Up to 1 years	1-2 years	2-5 years	>5 years	
0.25	12.77±4.54	18.25±5.56	19.503.59	20.00±6.07	<0.001**
0.50	14.17±5.41	21.25±5.94	21.50±3.28	21.005.53	<0.001**
1	11.67±4.47	17.50±7.66	15.50±4.83	19.004.67	<0.001**
2	11.11±4.94	19.17±7.17	19.005.03	20.50±9.58	<0.001**
4	13.89±5.98	20.83±9.52	27.5014.18	23.50±7.96	<0.001**
6	13.87±5.75	21.67±7.32	27.5014.01	27.50±10.57	<0.001**
8	11.11±3.98	16.67±9.85	18.0010.31	22.00±11.05	<0.001**

Table 4: Correlation of AC thresholds (left ear) of Smokers with pack years

Frequency (kHz)	Pack years				P value
	Up to 1 years	1-2 years	2-5 years	>5 years	
0.25	15.56±4.44	19.17±4.58	20.00±3.97	19.00±6.41	0.003**
0.50	14.44±5.58	20.00±3.61	21.00±3.08	22.005.71	<0.001**
1	12.22±4.54	20.83±5.84	16.50±5.15	21.0010.46	<0.001**
2	10.55±4.10	21.67±6.37	21.505.15	21.50±9.47	<0.001**
4	12.50±5.41	23.75±8.11	27.008.65	24.00±9.68	<0.001**
6	13.61±6.05	26.25±7.55	29.5010.12	28.50±11.71	<0.001**
8	11.11±6.88	20.14±6.50	19.008.52	21.50±10.28	<0.001*

Tables 3 & 4 show statistically highly significant correlation between smoking history and AC thresholds at all frequencies. Mean thresholds of smokers with pack-years 1-2, 2-5 and >5 are significantly higher than the smokers with pack-years <1 at all frequencies indicating that higher the number of pack-years greater the hearing impairment. Higher frequencies are more affected.

Table 5: Pearson correlation of pack years with AC thresholds of smokers

Frequency (kHz)	Right ear		Left ear	
	r value	p value	r value	p value
0.25	0.237	0.017*	0.279	0.005**
0.50	0.177	0.078+	0.467	<0.001**
1	0.200	0.047*	0.315	0.001**
2	0.277	0.055+	0.376	<0.001**
4	0.272	0.006**	0.319	0.001**
6	0.360	<0.001**	0.313	0.001**
8	0.297	0.003**	0.287	0.004**

Table 5 shows small positive correlation at 0.25, 0.5 and 8 kHz and moderate positive correlation at 1, 2, 4 and 6 kHz. p value highly significant at all frequencies.

Bone conduction

Table 6: Comparison of BC thresholds in decibels between smoking and non-smoking subjects in right and left ears separately

Frequency (kHz)	Right ear					Left ear				
	Non-Smoking		Smoking		P value	Non-Smoking		Smoking		P value
	Mean	SD	Mean	SD		Mean	SD	Mean	SD	
0.25	7.1	3.64	10.6	4.89	<0.001**	7.1	3.35	10.3	4.97	<0.001**
0.5	7.4	3.37	9.8	5.41	<0.001**	7.6	3.37	9.2	4.86	0.007**
1	6.6	4.08	10.3	6.47	<0.001**	6.8	4.35	10.8	6.54	<0.001**
2	5.3	3.82	10.3	7.35	<0.001**	6	4.26	10.4	7.17	<0.001**
4	6.4	4.39	12	7.78	<0.001**	6.8	4.58	12.5	8.24	<0.001**

There is highly significant difference in mean hearing thresholds between the groups at all frequencies (i.e. 0.25, 1, 2 and 4 kHz). The difference is more in 2 and 4 kHz.

Table 7: Correlation of BC thresholds (Right ear) in smoking subjects with pack-years

Frequency (kHz)	Pack years				P value
	Up to 1 years	1-2 years	2-5 years	>5 years	
0.25	8.61±4.41	12.92±3.87	11.50±5.16	10.50±5.36	0.006**
0.50	8.05±4.52	12.08±5.69	9.50±5.36	10.50±5.83	0.035*
1	6.11±3.60	13.33±6.37	11.00±5.98	13.507.27	<0.001**
2	5.55±4.74	14.16±5.83	12.50±5.74	12.009.78	<0.001**
4	5.56±5.03	15.00±6.59	16.006.80	16.00±6.81	<0.001**

Table 8: Correlation of BC thresholds (Left ear) in smoking subjects with pack-years

Frequency (kHz)	Pack years				P value
	Up to 1 years	1-2 years	2-5 years	>5 years	
0.25	8.61±4.41	12.50±3.90	12.00±5.71	9.00±5.03	0.004**
0.50	7.78±4.22	10.00±4.17	9.50±5.83	10.565.36	0.154
1	6.67±4.47	12.92±6.41	10.50±4.26	16.007.18	<0.001**
2	5.56±4.44	13.75±5.94	12.00±6.16	13.508.90	<0.001**
4	5.56±4.75	16.25±7.83	16.506.51	16.50±7.28	<0.001**

Tables 7 & 8 depict statistically highly significant correlation between smoking history and BC thresholds at 0.25, 1, 2 and 4 kHz, and moderately significant correlation at 0.5 kHz. Mean thresholds of smokers with pack-years 1-2, 2-5 and >5 are significantly higher than the mean thresholds of smokers with pack-years less <1 at all frequencies indicating higher the number of pack-years greater the hearing impairment. Higher frequencies are more affected.

Table 9: Pearson correlation of pack years with BC thresholds of smokers

Frequency (kHz)	Right ear		Left ear	
	r value	p value	r value	p value
0.25	0.005	0.958	0.033	0.746
0.50	0.100	0.321	0.185	0.065+
1	0.233	0.020*	0.484	<0.001**
2	0.167	0.096+	0.235	0.019*
4	0.362	<0.001**	0.345	<0.001**

There is small positive correlation at 0.5, 1 and 2 kHz and moderate positive correlation at 4 kHz. p value is significant at 1, 2 and 4 kHz.

DISCUSSION

This study was an attempt to study the role of cigarette smoking in hearing loss. Eliminating all confounding factors, the age matched male subjects were selected, the age group being 20-40 yrs to avoid age related physiological alteration in auditory acuity i.e. presbyacusis.[12]

Analyses indicate that smokers have higher air and bone conduction thresholds and smoking affects hearing thresholds. The results are matching with that of studies done by Sharabi.Y et al[13], Ferruci et al[14], Samuel Zelman[15]

Hearing thresholds of smokers group were higher in smokers with pack-years >1. Pearson correlation between smoking history and hearing thresholds of smokers was positive suggesting that hearing thresholds raise as the number of pack-years increase. The results are matching with that of study done by Nakanishi et al[16].

The results of this study do not match the results of Pyykko et al[17] and Nondahl.D.M et al[18].

Despite the controversy regarding association of smoking with hearing loss the possible etiological role for rise in hearing thresholds has been suggested.

The cochlear artery is a terminal branch of the internal auditory artery that in turn arises directly from the basilar artery formed by junction of the vertebral arteries which is subjected to marked atherosclerosis in the neck. It is fixed in the bony cochlea. It is an end artery that terminates in the high frequency region of inner ear.

The possible etiological role for rise in hearing thresholds is the oxidative damage caused by toxic substances inhaled with the cigarette smoke[10] or the acceleration of the arteriosclerotic process[19]. Cigarette smoking has been implicated as a direct ototoxin (i.e. a nicotine effect) or as an inducer of ischemia through production of carboxy-hemoglobin, vasospasm, raising blood viscosity, or promoter of arteriosclerosis.[6, 15, 20, 21]

Recently, animal studies have identified nicotinic-like receptors in the hair cells, which suggests that smoking may have direct ototoxic effects on hair cell function through its potential effect on the neurotransmission of auditory stimuli.[22, 23]

The results of this study need to be confirmed by objective tests such as evoked response audiometry and otoacoustic emissions. Further studies are required to know the mechanism of hearing loss in smokers.

CONCLUSION

The analysis of comparison of auditory acuity of male smokers and non-smokers revealed that

1) Smokers group have raised air conduction thresholds at all frequencies i.e. 0.25, 0.5, 1, 2, 4, 6 and 8 kHz.

2) The air conduction thresholds of higher frequencies i.e. 2, 4, 6, and 8 kHz are more affected than the lower frequencies i.e. 0.25, 0.5 and 1 kHz in smokers.

3) Smoking also raises bone conduction thresholds. Significant rise noted in 1, 2 and 4 kHz.

4) There exists a significant positive correlation between smoking history expressed in pack-years and auditory thresholds in smokers group.

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Hypertension in Young Adults - An Urban and Rural Comparative Study

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ABSTRACT

Research question: What is the prevalence of hypertension among young adults (20-39yr age group) of urban and rural area? Are they aware of their hypertensive status?

Objectives:

1. To know the prevalence of hypertension in the young adults.
2. To know the awareness status of hypertension.

Study design: A cross-sectional study.

Participants: 991 adults of 20-39 yrs in Hebbal village (479) and an Urban ward (512) of Gulbarga city.

Results: The prevalence was 8.79% in urban and 7.30% in rural adults. It increased with age in both the populations. About 31.11% of hypertensives were aware of their hypertensive status in urban area, whereas the awareness status was zero among rural hypertensives. Among aware hypertensives in urban area, 50% were on treatment & 57% of them were under control. Family history was present in 68.89% of urban and 20.69% of rural cases. BMI ≥25kg/m2 was higher in urban hypertensives (75.56%) than their rural counterpart (31.43%).

Conclusion: There is need to increase awareness regarding hypertension among young adults.

Keywords: *Hypertension, Urban & Rural, Young Adults, Awareness Status*

INTRODUCTION

Hypertension (HTN) is one of the major risk factor for cardiovascular mortality, which accounts for 20-50% of all deaths.[1] Pooling of epidemiological studies shows that, in India, HTN is present in 25% of Urban and 10% of Rural subjects. [2]

Hypertension as it was thought to be seen in advanced age group, is being seen in younger age also. Changing lifestyle, decreased physical activity, unhealthy habits and stress of modern life has made it possible.

Though hypertension is easy to detect by simple measurement, majority are unaware of their disease status, more so, in young adults. There was a felt need for the community based study among young adults. With the view of determining the prevalence, geographic difference and the various risk factors of hypertension, the study was undertaken in an urban and rural area of Gulbarga district, Karnataka.

METHODOLOGY

A cross-sectional study was done in an urban and rural area of Gulbarga district, Karnataka. The minimum sample size was worked out to be 113 in each urban and rural area respectively, as per the

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following formula.[3] (with absolute precision (d) as 5%, p as 0.08 and 95% confidence level)

$$n = \frac{Z^2(1-\alpha/2)P(1-P)}{d^2}$$

To increase the precision of our study, we included all 991 young adults in the age group 20-39 yrs, which comprised of 479 subjects in Hebbal village and 512 in urban ward of Gulbarga city.

Diagnostic criteria

Based on JNC VII [4] criteria a person was considered hypertensive if;

1. SBP ≥140 and/or DBP ≥90 mmHg.
2. Persons already on anti-hypertensive treatment.

Inclusion criteria:

All persons aged 20-39 years.

Exclusion criteria

Persons less than 20years and greater than or equal to 40years, severely morbid subjects hospitalized at the time of study and persons not available at the time of study

Collection of data

All the subjects were personally contacted in their house, examined and interviewed using the pre-tested proforma. Persons in the age group 20-39 years were screened by taking two BP readings at an interval of 3mins. Average of the two readings was considered. Those found to have hypertension were examined in detail and further history was recorded.

Awareness status

A subject was said to be "awar≥ of hypertension status if he/she reported a prior diagnosis of hypertension (or elevated BP) made by a healthcare provider.[5]

Statistical Analysis

Odds ratio and Chi- square tests were done using SPSS.

RESULTS

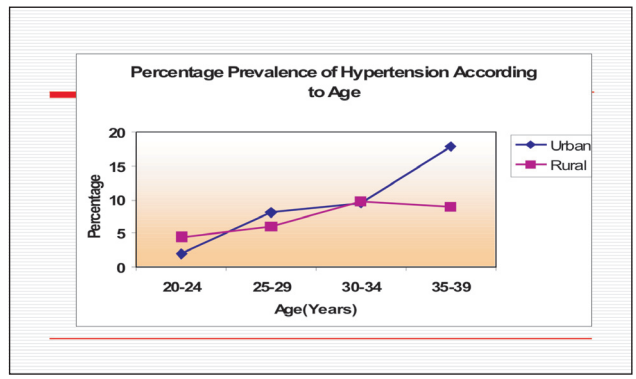
Table 1:Prevalence of Hypertension in Urban & Rural study population

Hypertensive status	URBAN	RURAL	TOTAL
	Number (%)	Number (%)	Total (%)
Normotensive	476(91.21)	444(92.70)	911(91.92)
Hypertensive	45(8.79)	35(7.30)	80(8.07)
Total	512(100)	479(100)	991(100)

Odds ratio (urban) =1.22, χ^2=0.600, P=0.439

Above table shows the prevalence of hypertension to be 8.79% in urban and 7.30% in rural area. Though the prevalence of hypertension in urban population was 1.22 times more when compared with the rural population, the difference was not found to be statistically significant.

Chart 1



As observed from the chart 1, the prevalence of hypertension was found to steadily increase with age. A sharp increase in hypertension prevalence was observed in 35-39yr age group among urban subjects as compared to their rural counterparts and this difference was found to be statistically significant. In the age group 35-39yrs, urban hypertensives were 2.21 times more when compared to their rural counterpart.

Table 2: Prevalence of Hypertension according to Sex

Sex	URBAN			RURAL			P value	OR(Urban)
	Total	Hypertensives	% ofTotal	Total	Hypertensives	% of Total		
Male	206	17	8.25	190	23	12.10	0.204	0.65
Female	306	28	9.15	289	12	4.15	0.015*	2.32
Total	512	45	8.79	479	35	7.30	0.392	1.22

Sex adjusted OR

Table 2. Shows that, among females, urban hypertensives were 2.32 times more than their rural counterpart and this difference was found to be statistically significant.

Table 3: Family history of Hypertension among Hypertensives

Family history	URBAN(n=45)	RURAL(n=35)	Total(%)
	Number(%)	Number(%)	
Present	31(68.89)	06(20.69)	37(46.25)
Absent	14(31.11)	29(79.31)	43(53.75)
Total	45(100)	35(100)	80(100)

Odds ratio (urban) =8.48, P<0.001**

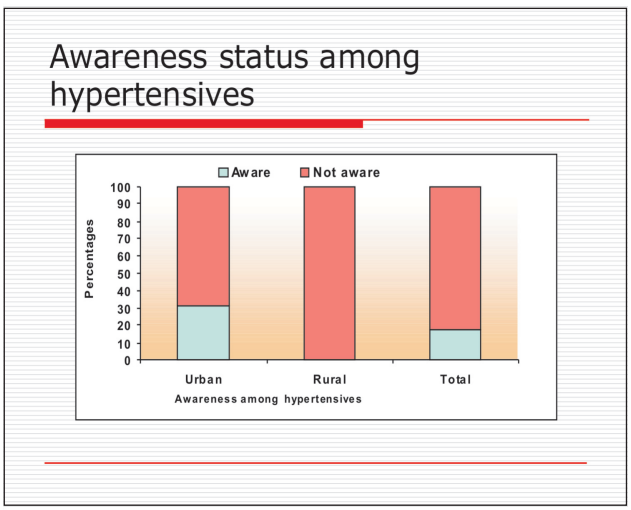
Above table shows that, family history of hypertension was 10.75 times more in urban hypertensives than in rural hypertensives and this difference was found to be statistically significant.

Table 4: Body mass index among Hypertensives

BMI(kg/m^2)	URBAN (n=45)		RURAL (n=35)	
	Number	Cumulative Percentage	Number	Cumulative Percentage
<18.5	01(2.22)	24.44	03(8.57)	68.57
18.5-24.99	10(22.22)		21(60.00)	
25-29.99	24(53.33)	75.56	05(14.28)	31.43
≥30	10(22.22)		06(17.14)	
Total	45(100)	100	35(100)	100

Above table shows that, overweight and obese persons (≥25 kg/m^2) were more (6.74 times) among urban hypertensives when compared to their rural counterpart. This difference was found to be statistically significant with P<0.001.

Chart 2



Above chart shows that among urban hypertensives, 31.11% were aware of their hypertensive status, whereas, the awareness level was nil among rural hypertensives. All the rural hypertensives were newly diagnosed at the time of study.

DISCUSSION

The present study was undertaken by selecting 479 subjects in Hebbal village and 512 subjects in Gulbarga city, to assess the prevalence of hypertension and its determinants. Urban – rural difference in hypertension prevalence and risk factor distribution, were also assessed during the course of the study.

Prevalence of hypertension

In our study the prevalence of hypertension was found to be 8.79% in urban and 7.30% in rural area, the difference of which was not found to be significant.

The urban results were comparable to the rates obtained in "The Bombay Executive Study"[6] where the prevalence was found to be 8.26% amongst under-40yrs age and "The Chennai Urban Population Study" [7] where the prevalence was found to be 8% in age below 40yrs.

Most of the studies among Indian rural population have reported a lower prevalence of hypertension than our study. Study done by Malhotra P[8] among rural population of North India shows the prevalence to be 4.5%. However study done by Baldwa VS[9] in Rajasthan on rural population of 21-60yr group showed similar prevalence(7.5%) as our study.

Life in rural areas is not necessarily peaceful or free from stress. Rural life is becoming more sedentary and similar to that in urban societies. This could be the reason for the findings of the present study wherein we have found that the hypertension prevalence in rural area is almost nearing to that of urban area.

Hypertension prevalence according to age

In the present study, in both urban and rural areas the prevalence of hypertension was found to increase steadily with age. A sharp increase in hypertension prevalence was observed in the 35-39yr age group among urban subjects. Several studies have consistently demonstrated a positive relation between age and blood pressure. The findings of our study compare well with other studies.

Study done in Delhi and adjoining rural areas of Haryana[10] showed the prevalence to be 4.1% (Males) and 2.84% (Females) in the age group 25-34 yrs which increased to 22.9% (Males) and 32.9% (Females) in the age group 55-64 yrs. The Jaipur urban study[11] reported a prevalence of 15.4% amongst <40 yrs age group, 34.7% between 40-49 yrs and 58% in the age group ≥50 yrs.

Hypertension prevalence with Sex

Our study shows that prevalence of hypertension in males and females was similar in urban area, whereas, males showed higher prevalence in rural area. Studies by Jajoo U.N[12] in Sewagram, Malhotra P[13] and Joseph A[14] in Trivandrum showed the prevalence in females to be higher than males. The prevalence in Males was found to be more than females in the studies done by Gupta R[15] in Rajasthan and Mohan V[7] in Chennai.

Among females, urban hypertensives were 2.32 times more than their rural counterpart and this difference was found to be statistically significant.

Family history of hypertension among hypertensives:

A family history of elevated BP is one of the strongest risk factors for the future development of hypertension in individuals. Epidemiological studies suggest that 20-60% of essential hypertension is inherited and the remaining is acquired or environmental.

It was observed from our study that 68.89% of urban hypertensives had a family history of hypertension and only 20.69% had a family history of hypertension in rural area.

A study done by CSI[16] showed a positive association between hypertension prevalence and family history. Similar observation was made in "The Bombay executive study".[6]

The urban-rural disparity could be explained by the fact that rural subjects had not been examined for their hypertensive status, or because they did not have a conception about family history.

Awareness status

In our study, among urban hypertensives we found that 31.11% were aware of their condition, whereas, among rural hypertensives, none of them were aware of their hypertensive status. Among aware hypertensives in urban area, 50% were on treatment & 57% of them were under control.

In a study by Deepa R[7] among Chennai urban population, it was found that 37.3% were aware of their hypertensive status, of them only 50% were on treatment, and of those on treatment only 40% had their blood pressure under control.

The rural awareness status in our study was nil, whereas, that reported in Jaipur rural study[17] was 7.8%.

In our study, the difference in urban-rural awareness levels could be due to the lack of health care knowledge and inappropriate resources towards provision of health education.

BMI with Hypertension:

In our study, it was found that 75.56% of urban hypertensives had a BMI of ≥25 kg/m^2 whereas its prevalence was only 31.43% among rural hypertensives. Urban hypertensives were found to be 6.74 times more overweight (≥25 kg/m^2) as compared to their rural counterpart.

The Jaipur urban (both sexes) [11] and rural studies (only males), [17] Haryana rural study[13], the Chennai urban population study[7] as well as Bombay executive study[6] have all shown a higher weight and BMI amongst hypertensive groups.

In the present study, a high prevalence of sedentary life-style was observed among the urban population which might have predisposed these subjects to developing a high BMI.

CONCLUSION

The prevalence of hypertension among young adults was almost similar in urban (8.79%) and rural subjects (7.30%). It warrants further studies among young adults who are a neglected lot as far as chronic disease like hypertension is considered. Significant urban predominance over their rural counterpart was found with respect to the age (35-39yrs) and sex (female). Among hypertensives, urban predominance over their rural counterpart for the following variables was found to be significant: Family history of hypertension (8.48 times), awareness status and body mass index - ≥25 kg/m^2(6.74 times).

In this jet world, nobody has the time to think about healthful living unless they lose it. Hypertension,

which can be compared to a sleeping snake, is not being bothered about unless it bites. It is a condition which can be controlled by healthy lifestyle or treated effectively if sought for in the early stage.

The key to early prevention of essential hypertension is to influence children and adolescents to develop healthy lifestyle and to have a check on their weight. To conclude, hypertension is a major problem among young adults, not only among urban population, but also among the rural lot, who are fast nearing urban prevalence. The primary health care program needs to address this issue in the rural area.

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A Study of Inappropriate Dosing of Antibacterial Agents in Consideration with Estimated G.F.R Values

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ABSTRACT

Background: Medication errors due to inappropriate doses are common in hospitalized patients especially in those patients where a dose adjustment is needed because of altered pharmacokinetics and pharmacodynamics.

Aims & Objective: The study was conducted to estimate the medication errors because of inappropriate dosing of antimicrobial agents in renal impairment patients.

Design & Setting: The present study was conducted for a period of three months in the medical wards of tertiary care centre in India. The age, sex, clinical diagnosis, duration of hospitalization, parenteral antibacterial agent information (name, dose, route of administration and frequency) and serum creatinine values of those patients admitted during the study period were recorded.

Material and Method: The prescriptions of only those patients who had renal impairment were checked for any errors because of inappropriate dosing of antimicrobial agents. The definition of "Renal impairment" for the purpose of drug dose adjustment and cautions was obtained from the British National Formulary. The MDRD formula was used in our study to obtain the values of estimated glomerular filtration rate (GFR), which is as follows- GFR = 186.3 x (S. Creatinine) -1.154 x (age in years) - 0.203 x 1.212 x 0.742 (if female).

Results: Three hundred and ninety patients were prescribed anti-microbial agents during the three month study period in the medical wards. 182 patients were prescribed a single antibiotic, while 122 patients were prescribed two anti-microbial agents. 70 patients were prescribed 3 anti-microbial agents, while 4 anti-microbial agents were prescribed to 16 patients. The median duration of hospitalization was 5 days. The most common type of infection for which an antibiotic was prescribed was respiratory infections 44.87 % (175), followed by urinary tract infections (UTI) (56, 14.3 %) and abdominal infections (34, 8.72 %). Out of 390 patients, 78 patients had renal impairment (34 had mild renal impairment, 28 had moderate, and 16 patients had severe renal impairment). These patients were prescribed 2137 unit doses of antimicrobial agents (1119 in mild; 753 in moderate; and 265 in severe renal impairment). Inappropriate dosing errors were found in 183 unit doses of AMA (8.56%). Out of this, 78 (42.62%) errors occurred in mild, 91 (49.73%) in moderate and 14 (7.65%) in severe renal impairment patients. In all 183 dosing errors appropriate doses were suggested to the doctor in charge. About 83.6 % (153) of the recommendations were accepted and 16.39% (30) recommendations were not accepted by the physicians.

Keywords: *Antimicrobial Agents, Dosing Errors, Inappropriate Dosing, Renal Impairment*

INTRODUCTION

The safety of a drug in an individual depends upon the processes by which a drug is absorbed into systemic circulation, distributed through tissues, metabolized and excreted. Kidney and liver diseases can modify the kinetics of drug excretion and biotransformation. Therefore, a normal functioning kidney and liver can maintain a normal response of the drug. Medication errors frequently occur in the treatment of patients with renal insufficiency and can

cause serious adverse events. The researchers have observed a high rate of adverse events and potential adverse events caused by drugs that are nephrotoxic or cleared by the kidney in patients whose serum creatinine level was high (over 132 µmol/l)[1]. The extent of loss of renal function could be estimated more accurately and better than the loss of liver function by calculating creatinine clearance which is a useful measure of glomerular filtration rate. It is calculated by various methods (Inulin clearance, 30-min creatinine clearance, 24-hr creatinine clearance, MDRD equation, Cockcroft-Gault equation), but no single method is ideal for all patients. Furthermore, much controversy exists as to which method is best for a particular patient group. In adults, the Cockcroft and Gault equation has become the defacto standard despite many documented problems. The Cockcroft & Gault equation produces consistent results in patients of average size and build, with stable renal function and a S.Cr less than 3 mg%[2]. The simplified 4-variable MDRD study formula represents the most accurate choice for patients with chronic kidney diseases[3], since Cockcroft-Gault equation is not a reliable method for patients with unstable renal function (an increase in creatinine of > or =1.0 mg/dl/day)[4]. Renal impairment in a patient could be divided into categories of mild, moderate and severe according to the creatinine clearance values[5]. Individualization of drug dosage in patients with renal failure may prevent excessive drug accumulation and thus potentially reduce adverse drug reaction and costs.

MATERIALS & METHOD

The present study was conducted from 1 January 2010 to 31 March 2010 in the medical wards of tertiary care centre. The patients admitted to the medical ward who were prescribed parenteral anti-microbial agents were included in the study. The age, sex, clinical diagnosis, duration of hospitalization, parenteral antibacterial agent information (name, dose, route of administration and frequency) and serum creatinine values if done were recorded.

The prescriptions of only those patients who had renal impairment were checked for doses adjustments of antimicrobial agents. The definition of "Renal impairment" for the purpose of drug dose adjustment and cautions was obtained from the British National Formulary, which categorizes renal impairment into mild, moderate or severe and the following ranges of Glomerular filtration rate (GFR) have been used to define these terms[5]:

- Mild 20 to 50ml/min
- Moderate 10 to 20ml/min
- Severe<10ml/min

The MDRD formula was used in our study to obtain the values of estimated glomerular filtration rate (GFR), which is as follows-

Simplified 4-variable MDRD study formula (MDRD formula)[3]

GFR = 186.3 x (S. Creatinine) -1.154 x (age in years) - 0.203 x 1.212 x 0.742 (if female).

It may represent the most accurate choice for patients with chronic kidney disease. Note that the units used are in milligrams per deciliter (mg/dl). To convert to international units (micromoles per liter) multiply the creatinine (in mg/dl) by 88.

The appropriate doses of parenteral antimicrobial agents in normal and in renal impairment were obtained from British National Formulary[5] and also from pharmaceutical product catalogue. In case of difference between the above two sources, the guidelines from BNF were accepted. During the study period doses of parenteral antimicrobial agents in the patients of renal impairment were monitored and total unit doses of AMAs were calculated based on their frequency and duration administration. If any inappropriate doses were found it was recorded and corrected after discussion with the physician concerned.

FINDINGS

Three hundred and ninety patients were prescribed anti-microbial agents during the three month study period in the medical wards. Out of the total of 390 patients, 204 were male. 182 patients were prescribed a single antibiotic, while 122 patients were prescribed two anti-microbial agents. 70 patients were prescribed 3 anti-microbial agents, while 4 anti-microbial agents were prescribed to 16 as shown in Table 1. The duration of hospitalization of the 390 patients was recorded. 223 were hospitalized for a time period ranging from 3 to 7 days. The median duration of hospitalization was 5 days. The most common type of infection for which an antibiotic was prescribed was respiratory infections 44.87 % (175), followed by urinary tract infections (UTI) (56, 14.3 %) and abdominal infections (34, 8.72 %).

Table 1. Percentage of Prescription with number of antibiotics.

No. of Antibiotics	No. of Patients (n)	% of Total Prescription
One	182	46.67
Two	122	31.28
Three	70	17.95
Four	16	4.10
Total	390	

During the study period, 78 patients of renal impairment who were prescribed 2137 unit doses of antimicrobial agents were monitored for appropriate doses were monitored for appropriate doses. Out of these 78 patients of renal impairment, 46 (%) were males and 32 (%) were females. The maximum number of patients 32 (72.7%) were between 40-60 years age. [Table 2]

Table 2: Age and sex distribution of the patients

Age Group in years	Sex		Total
	Male (%)	Female (%)	
20-40	**3**	**4**	**7 (8.9%)**
40-60	**24**	**18**	**42 (53.8%)**
60-80	**14**	**9**	**23 (29.5%)**
> 80	**5**	**1**	**6(7.7%)**
Total	**46**	**32**	**78**

Table 3: The total number of patients with renal impairment categorized according to the creatinine clearance values and the prescribed AMA.

Antimicrobial agents (AMA)	No. of renal impairment patients treated with AMAs	Patient categorized according to renalimpairment		
		Mild	Moderate	Severe
Amoxicillin-clavulanic acid	38	15	18	5
Ciprofloxacin	19	9	7	4
Levofloxacin	15	10	3	2
Gentamicin	46	33	8	5
Amikacin	5	3	2	0
Tobramycin	3	3	0	0
Ceftazidime	7	2	3	2
Cefoperazone	7	5	0	2
Ceftriaxone	10	2	7	3
Piperacillin-Tazobactum	18	8	10	0
Meropenem	12	2	9	1
Cefepime	8	4	3	1
Impenem-Cilastin	4	3	1	0
Aztreonam	3	1	2	0
Total	195	110	73	25

Out of 78 renal impairment patients, 34 patients had mild renal impairment, 28 had moderate, and 16 patients had severe renal impairment.

Gentamicin and amoxicillin-clavulanic acid were prescribed in most of the cases of renal impairment. There were 195 individual parenteral antibacterial agent prescriptions, of which 54 belonged to aminoglycosides, 46 to penicillins, 32 to cephalosporins, 34 to flouroquinolones, 16 to carbapenems, and 3 to aztreonam. One hundred and ten individual antibacterial prescriptions were written in mild renal impairment, seventy three in moderate and twenty five in severe renal impairment cases. A

total of 2137 unit doses of AMA were prescribed during the study period to 78 patients of renal impairment (1119 in mild; 753 in moderate; and 265 in severe renal impairment). Inappropriate dosing errors were found in 183 unit doses of AMA (8.56%). Out of this, 78 (42.62%) errors occurred in mild, 91 (49.73%) in moderate and 14 (7.65%) in severe renal impairment patients. In all 183 dosing errors appropriate doses were suggested to the doctor in charge. About 83.6 % (153) of the recommendations were accepted and 16.39% (30) recommendations were not accepted by the physicians.

DISCUSSION

Medication error as defined by the National Coordinating Council for Medication Error Reporting and Prevention (NCCMERP) is any preventable event that may cause or lead to inappropriate medication use or patient harm while the medication is in the control of the health care professional, patient, or consumer. It is estimated that the number of lives lost to mistakes that could have been avoided with medication error prevention techniques alone represents approximately 7,000 deaths annually, and medication errors occur in just about one out of every five doses given in hospitals[6]. Prescribing inappropriate doses to patient with organ failure like-kidney failure and liver failure could lead to a dose dependent adverse drug reactions due to excessive accumulation of the drug in the body, which is dangerous to the patient safety but could be prevented by certain precautionary measures or counter checking processes[7]. Adverse drug events (ADEs) rank fifth, after congestive heart failure, breast cancer, hypertension, and pneumonia, among the leading causes of preventable threats to the health of older Americans[8]. Renal failure patients have more chances of adverse drug events because of altered pharmacokinetics of excretion. Recommendations on dosage adjustments for renal impairment in sources that are considered reliable and are in common use were often worded in qualitative and undefined terms, ill suited for practical use. The variation between sources was remarkable, including drugs for which no adjustment was recommended in one source while another marked them as contraindicated in renal failure[9]. Here, we classified renal impairment patients on the basis of British National Formulary (BNF) explicit defining criteria of mild (GFR- 50-20 ml/min), moderate (20-10 ml/min) and severe (<10ml/min) category[5]. Inappropriate doses in any category of renal impairment was discussed with the concerned doctor and suggestions were made regarding the recommended dosing guidelines as per British National Formulary (BNF)[5] or the pharmaceutical catalogues for that particular brand names. In case of difference between the above two sources, the guidelines from BNF were accepted. Every time the error in doses were recorded and corrected according to the creatinine clearance by discussion with the physician concerned. A total of 2137 unit doses of AMA were prescribed during the study period to 78 patients of renal impairment (1119 in mild; 753 in moderate; and 265 in severe renal impairment). Inappropriate dosing errors were found in 183 unit doses of AMA (8.56%). Out of this, 78 (42.62%) errors occurred in mild, 91 (49.73%) in moderate and 14 (7.65%) in severe renal impairment patients. In all 183 dosing errors appropriate doses were suggested to the doctor in charge. About 83.6 % (153) of the recommendations were accepted and 16.39% (30) recommendations were not accepted by the physicians.The researchers observed a high rate of adverse events (10 incidents for every 100 hospital admissions) and potential adverse events (55 incidents for every 100 hospital admissions) caused by drugs that are nephrotoxic or cleared by the kidney in patients whose serum creatinine level was over 132 µmol/l[1].Analysis of TEM (drugs that are nephrotoxic, excreted, or metabolized) medications in a Palestinian study indicated that 73.58%(142) were found to be inappropriate and 26.42% (51) were found to be appropriate. The most common inappropriate medications were ranitidine, antibiotics, and digoxin[10].

This study does have certain limitations because of less number of patients and prescriptions. This might be one reason for lower numbers of errors (8.56%) in our study as compared to previous retrospective studies (error percentage- 34%)[4].

The other limitations, like not all drug-induced nephropathies are caused by dosing errors. Angiotensin-converting-enzyme inhibitors, angiotensin-receptor blockers and nonsteroidal anti-inflammatory drugs can interfere with renal hemodynamics and cause acute kidney injury particularly in elderly patients[11]. The â-lactam antibiotics and nonsteroidal anti-inflammatory drugs are most frequently associated with allergic interstitial nephritis which may develop independently of drug doses[12].

Despite numerous secondary sources of drug

dosing information, drug prescribing in renal impairment remains imprecise and relies on interpolation, extrapolation and estimation[13]. True individualization of dosing cannot come from a table of dosing recommendations, but awaits new technologies for predicting drug behavior in individual patients[14]. Doses adjustments in renal impairment should be based on the plasma concentration of drug in therapeutic range. Where ever, therapeutic drug monitoring is not available doses adjustments should be based on clearance values taking into account the lean body weight. In case dose recommendations are suggested to the prescribing doctors, the sources utilized for making this effort should be informed. The use of computerized systems, such as CPOE or alternative systems decreased the frequency of adverse events in studies of adults admitted to urban tertiary care teaching hospitals[15,16]. The use of such computerized systems can be particularly helpful for patients with renal dysfunction who are prescribed drugs with a small therapeutic index, since the incidence and severity of adverse events are probably highest for these drugs. In the past few years there has been a big push by patient safety groups to ensure accurate medication and syringe labeling considering that the medication errors most frequently occur at the prescribing and administration stages[17].

CONCLUSION

Medication errors most frequently occur at the prescribing and administration stages and in planning 'dose regimen' drug dosage adjustment is of paramount importance in all patients with organ failures. The process of individualization of appropriate doses in long term could be helpful in reducing the adverse drug reaction and cost of treatment and in improving the patient safety.

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A Study of Soft Tissue Tumors in Reference to Cytopathologic and Histopathologic Changes in Chidambaram of Cuddalore District, Tamil Nadu

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ABSTRACT

Background: Tumors of the supporting tissues of the body constitute a heterogeneous group in terms of clinical presentation, morphological features and clinical behavior. The biological spectrum of these lesions is so vast and diverse, that they continue to be an enigma to both clinicians & pathologists.

Method: The material for this study was obtained from 153 patients who presented with a mass to Rajah Muthiah Medical College Hospital and private laboratories in Chidambaram of Cuddalore district, Tamil Nadu, around July, 2000 to July, 2005.

Results & Conclusion: A total of 151 cases of Soft tissue tumors were studied of which:

90.73% were benign tumors, Benign tumors occurred more commonly in the 3rd to 4th decade while malignant tumors occurred in the 5th and 6th decade, Majority of the Soft tissue tumors occurred in the extremities (54.31%).

Keywords: *Tumors, Malignancy, Swellings*

INTRODUCTION

Histopathology is the technique of examination of tissues for presence or absence of changes in their structure due to disease processes. Because of its convincing physical evidence, it has proved to be one of the most effective tools in diagnosing tissue abnormalities and cancerous conditions. In recent years, with the advent of freezing microtomy, the team work of the surgeon and the histopathologists has greatly contributed to the progress of medical science.[1,2]

AIMS AND OBJECTIVES

The present study is undertaken to find out

1. The prevalence of the different categories of Soft tissue tumors in relation to age, sex and site.
2. To study their cytopathological and histopathological patterns.
3. To correlate the cytologic and histopathological findings wherever possible.

Review of Literature

The credit for initiating the study of pathologic changes of the cell and regarding histopathology and cytopathology as fundamental methods of investigation rightly belongs to the German pathologist Rudolph Virchow, who is considered as the pioneer of histopathology and the father of modern pathology.[1]

The origins of cytopathology date back more than a century. The First era of cytopathology dates back to the year 1925 when the procedure of Fine Needle Aspiration (FNA) biopsy of human tumors was introduced by Martin & Ellis at Memorial Hospital, U.S.A.[3]

The Second Era of cytopathology began in 1941, with an article titled "The Diagnostic Value of Vaginal

Smears in Carcinoma of Uterus" in the American Journal of Obstetrics and Gynecology by Dr. Papanicolaou and

Dr. Herbert F.Traut.[4] Dr.Papanicolaou is regarded as the "Father of Cytopathology" who first recognized the importance of wet fixation of cytologic specimen leading to the paper "New Cancer Diagnosis" in January, 1928. [5]

The Third Era of cytopathology was heralded by the appearance of two publications: The first issue "Acta cytologca" in 1957 and the publication of "Diagnostic cytology and its Histopathologic bases" by Leopold G. Koss and Grace R.Durfee in the year 1961.[6,7,8]

Fnac of Soft Tissue Tumors

Cytodiagnosis of soft tissue lesions is currently an accepted procedure particularly when combined with detailed history, clinical examination and radiological investigations. Increased accuracy rate obtained by FNAC makes it a preliminary procedure in the management protocol of soft tissue lesions.

MATERIALS AND METHOD

The material for this study was obtained from 154 patients who presented with a soft tissue mass to Rajah Muthiah Medical College Hospital and some private labs in Chidambaram around July, 2000 to July, 2005.

Patients who were diagnosed to have a Soft tissue tumor clinically were investigated to confirm the diagnosis by either Fine Needle Aspiration Cytology (FNAC) or biopsy. A detailed history and clinical findings were recorded as per the proforma.

In the present study, out of 154 patients, FNAC was performed on 93 patients while 61 patients underwent only biopsy procedure. Amongst the patients who were subjected to Fine Needle Aspiration (FNA), corresponding biopsy material was available in 51 patients.

After obtaining the informed consent of the patient FNA was done under strict aseptic environment.

Fine Needle Aspiration (FNA)

Aspiration procedure

The plunger of the syringe was retracted up to the 2 to 3ml marking on the syringe to create adequate vacuum, while the needle was guided in a straight line through the lesion. With the piston of the syringe in vacuum position, the needle was rapidly moved back and forth for 4 to 5 times in the same plane, merely to hold the tissue against the sharp cutting edge of the needle which scrapes or cuts softer tissue components along the track as the needle advances through the tissue.

For changing the direction of the needle, the needle under vacuum was withdrawn to the level of subcutaneous tissue and then redirected.

After the aspiration was completed, the pressure in the syringe was allowed to equalize before the needle was withdrawn. The material in the needle was expelled gently on the glass slide. With the flat surface of another glass slide, exerting a light pressure, a thin even spread was made which was air-dried and stained with Giemsa. The remaining material wherever available was treated with 10% formalin and subjected to cell block section study and this was considered at par with biopsy material.

Gesma Staining Procedure[9, 10, 11]

Giemsa stock solution

Giemsa powder	1gm
Glycerin	66ml
Methyl alcohol	66ml

Add Glycerin to Giemsa powder and place in oven at 60^{o}C for one hour. Then add methyl alcohol.

Working Solution

Stock solution of Giemsa	1.25ml
Methyl alcohol	1.50ml
Distilled water	50ml

Staining procedure

- On air dried FNAC smears, stock solution of Giemsa was poured so as to cover the entire smear and was let to stand for 2-3 minutes.
- Twice the amount of distilled water was added and blown with Pasteur pipette and allowed to stand for 6-8 minutes.
- Slides were washed with tap water.
- Slides were dried in air and mounted using cover glass and DPX.

RESULTS

Nuclei-blue

Collage and other tissue elements: pink to rose.

Histopathological Examination (HPE)

The surgical biopsy specimens that were submitted to the histopathology laboratory came mostly from the operation theatre in the form of small pieces of tissues (biopsies) or whole organs fixed I 10% formalin. Total or representative parts of the tumor not more than 4mm thick were kept in steel capsules and processed as per standard histopathological techniques and stained with Hematoxylin and Eosin (H&E).

H & E staining procedure [9, 12, 13]

Solutions

Haematoxylin (alum haematoxylin)	2.5g
Distilled water	500 ml
Absolute alcohol	25ml
Mercuric oxide	1.25g
Potassium alum	50g
Glacial acetic acid	20ml

Dissolve the haematoxylin in the absolute alcohol and add to the alum previously dissolve in warm water, in a two-litre flask. Rapidly bring the solution to the boil. While the stain is boiling, add the mercuric oxide and then plunge the flask into cold water. When the solution is cold, add the acetic acid. Staining time is 5 – 10 minutes.

Procedure.

1. Paraffin sections were placed in xylol for 2 minutes.
2. Transferred to absolute alcohol for 1 minute.
3. Section drained and placed in 90% alcohol for 1 minute.
4. Section transferred to haematoxylin for 10 – 40 minutes.
5. After drainage, slides were transferred to slide washing tray for bluing for 10 minutes.
6. Section was dipped in Acid Alcohol and agitated for few seconds for differentiation.
7. Section was transferred to Eosin 1 % for 2 – 4 minutes to counter stain.
8. Section was transferred to slide washing tray for 3 – 4 minutes to differentiate eosin.
9. Slide was transferred to absolute alcohol and agitated for 10 – 15 seconds.
10. Slide was transferred to absolute alcohol I and then to absolute alcohol II for 30 seconds.
11. Section was transferred to xylol I and then xylol II until completely clear.
12. Section was mounted with DPX. Results

Nuclei : Blue

Cytoplasm : Shades of pink

REFERENCE CITING

Vancouver system of listing and citing of references is used. Observations and Analysis. The present study included evaluation of 154 cases of soft tissue tumors. Of these, 3 cases on cytology were found to be that of organized hematoma following an injury and therefore excluded. Out of the remaining 151 cases, only biopsy procedure was performed on 61 patients. FNAC followed by corresponding biopsy was done on another 51 patients where an attempt to correlate the findings of both procedures were carried out.

Amongst the 151 cases of Soft tissue tumors analysed, 137 (90.73%) were benign and 14(9.27%) were malignant.

Table 1: Incidence of Benign and Malignant Soft tissue tumors

S. No.	Type	No. of cases	Percentage
1.	Benign	137	90.73
2.	Malignant	14	9.27
	Total	151	100

In the present study both benign and malignant tumors were more common in females with an M: F ratio of 1:1.16.

Table 2: Sex distribution of Benign and Malignant soft tissue Tumors

S. No.	Sex	Benign	Malignant	Total
1.	Male	65	5	70
2.	Female	72	9	81

In the present study, the age incidence varied from 10 years to 75 years. Among the benign tumors, the youngest patient was 10 years old and oldest was 66years. The benign tumors were more common in the 3rd & 4th decades whereas sarcomas occurred most commonly in the 5th and 6th decades.

Table 3: Age distribution of benign and malignant soft tissue Tumors:

Sl. No.	Age in Yrs	Number of cases			
		Benign	%	Malignant	%
1.	10-19	7	5.12	0	
2.	20-29	24	17.52	1	7.14
3.	30-39	35	25.55	2	14.29
4.	40-49	35	25.55	3	21.43
5.	50-59	21	15.32	4	28.57
6.	60-69	14	10.21	4	28.57
7.	70-79	1	0.73	0	-
	TOTAL	137	100	14	100

Majority of the Soft tissue tumors were found to occur in the extremities (54.31%) followed by chest wall (18.54%)

Table 4: Anatomical location of Soft tissue tumors

Site	Benign	Malignant	Total	%
Head & Neck	12	2	14	9.27
Upper limbs	33	1	34	22.52
Shoulder	13	__	13	8.61
Abdomen	14	__	14	9.27
Chest wall26	2	28	18.54	
Lower limbs	39	9	48	31.79
Total	137	14	151	100

Tumors of Neural tissue

Table 5: Number of Benign and Malignant Neural tumors

S.No.	Type	No. of cases	Percentage
1.	Benign	33	82.5
2.	Malignant	7	17.5
	TOTAL	40	100

Table 6: Sex and Age incidence of neural tumors

Sex	Age in years							
	10-19	20-29	30-39	40-49	50-59	60-69	70-79	Total
Male	1	1	2	7	3	4	-	18
Female	2	6	2	5	2	5	-	22
Total	3	7	4	12	5	9	-	40

Table 7: Showing Anatomical distribution of neural tumors

Site	No. of cases
Head & Neck	3
Upper limbs	10
Shoulder	5
Chest wall	1
Abdomen	3
Lower limbs	18
TOTAL	40

Tumours Of Fibrous Tissue

Table 8: Number of Benign & Malignant fibrous tissue tumors

S.No.	Type	No. of cases	Percentage
1.	Benign	9	90
2.	Malignant	1	10
	Total	10	100%

Table 9: Sex and Age incidence of fibrous tissue tumors

Sex	Age in years							
	10-19	20-29	30-39	40-49	50-59	60-69	70-79	Total
Male	-	1	0	3	1	0	1	6
Female	-	2	1	0	1	0	-	4
Total	-	3	1	3	2	0	1	10

Table 10: Showing Anatomical location of tumors of Fibrous tissue

Site	No. of Cases
Head & Neck	0
Upper limbs	3
Shoulder	0
Chest	2
Abdomen	2
Lower limb	3
Total	10

DISCUSSION

Soft tissue tumors are a group of neoplasm's arising from nonepithelial, extra skeletal connective tissue exclusive of the reticuloendothelial system, glia and supporting tissue of various parenchymal organs.[14,15,16] The biological spectrum of these lesions is so vast and diverse, that their diagnosis continues to be a challenge, both to the pathologist as well as the clinician.

SUMMARY AND CONCLUSION

A total of 151 cases of Soft tissue tumors were studied of which

1. 90.73% were benign tumors and 9.27% were malignant neoplasms.
2. Benign tumors occurred more commonly in the 3rd to 4th decade while malignant tumors occurred in the 5th and 6th decade.
3. Benign and Malignant tumors showed a female preponderance with a M:F ratio 1:1.16
4. Majority of the Soft tissue tumors occurred in the extremities (54.31%) followed by the chest wall (18.54%)

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Knowledge-Base Medical Decision Support System for Knee Pain Management

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ABSTRACT

In this paper an attempt has been made to develop a Knowledge-Base Medical Decision Support System for Knee Pain Management. The attention is focused on the Central Vision Exhibit Board, Medical Informatics Modules, Dialog Management and Central Decision Making Desk. The developed Medical Decision Support System will help the Health Care Professionals in making Medical Decisions by comparing the effectiveness of various alternate decisions devised with the objective of improving Quality of Life of Patients.

Keywords: *Knee Pain, Knowledge-Base, Decision Support System, Medical Informatics Modules*

INTRODUCTION

Musculoskeletal Disorders (MSD) are disorders of the muscles, nerves, tendons, ligaments, joints, cartilage, blood vessels, or spinal disc. These identify a large group of conditions that result from traumatizing the body in either a minute or major way over a period of time. These conditions are often focused on a joint and affect the muscle and bone. However other areas can be strained and their response to that trauma can be an injury. Knee pain is the most common musculoskeletal complaint that brings people to their doctor. With today's increasingly active society, the number of knee problems is increasing. Khaund and Flynn[8] described the causes and treatments for athletes suffering from Iliotibial Band Syndrome and also suggested some exercises for the sufferers. Chen et al.[3] revealed a strong and robust association between long driving times and knee pain by analyzing the TDHS baseline data and concluded that the public health impact of work-related knee pain among professional drivers could be substantial. Milne[10] discussed the diagnostic features and management of three less common causes of anterior knee pain that GPs should be aware of: the acute impact injury to the patella, jumper's knee problem (patellar tendinopathy) and Osgood Schlatter's. Osteoarthritis is traditionally thought of as a noninflammatory type of arthritis; however, inflammatory mechanisms can be present. Rubin[12] described that the management of osteoarthritic pain involves nonpharmacologic modes of therapy as well as pharmacologic agents.

There has been a shift from the technical medical model of disease and healing to one that emphasises health and wellness. A Medical Decision Support System (MDSS) is a system for the Clinicians to influence decisions in time and to provide patient specific guidelines that can improve the Quality of Life the Patients. Wilson et al.[15] presented a report of current approach to usability and acceptability evaluation of a computer based DSS for cardiovascular disease. Within the framework of technology acceptance modelling, (Schaik et al.[13]) investigated the acceptance of computerized DSS in primary care. Hetlevik et al.[5] evaluated the implementation of clinical guidelines for hypertension in general practice by use of a computer based CDSS. Various Researchers (Karlsson and Forsum[7], Panni et al.[11], Heathfield and Wyatt[4], Aspevall et al.[1], Barker et al.[2]) have used clinical/ medical decision support systems in various fields. Jaspers et al.[6] provided a literature review in clinical decision support systems (CDSSs) with a focus on the way knowledge bases are constructed, and how inference mechanisms and group decision making methods are used in CDSSs. Lin et al.[9] proposed a RTCDSS to process online clinical informatics from multiple databases for clinical decision making in the treatment of prostate cancer based on Web Model-View-

Controller (MVC) architecture, by which the system can easily be adapted to different diseases and applications.

Knowledge-based Medical decision support system helps making more informed decisions regarding the management of complex medical decision making problems by providing access to useful, organized and timely information. In this paper a Knowledge-base Medical Decision Support System for Knee Pain Management, KPKMS, is designed and developed which will help in Decision Making by comparing the effectiveness of various alternate decisions devised with the objective of improving Quality of Care of Patients.

KPKMS Architecture Design

The guiding principles for the designed System are verifiable knowledge, validated system utility and clinical efficacy and user-friendly interfaces for convenient access and knowledge updates. KPKMS System is comprised of five main components– Database Management Subsystem (DBMS), Knowledge Base Management Subsystem, Central Decision Making Desk, Central Vision Exhibit Board, and Dialog Management Subsystem. A user utilizes and maintains data in the database through the Dialog Subsystem, and analyzes the performance by using the knowledge-base management subsystem. Prioritization in the model base can be made by using Quality Analysis Tool Shell comprising of Multi-Criteria Futuristic Decision Making Methodology.

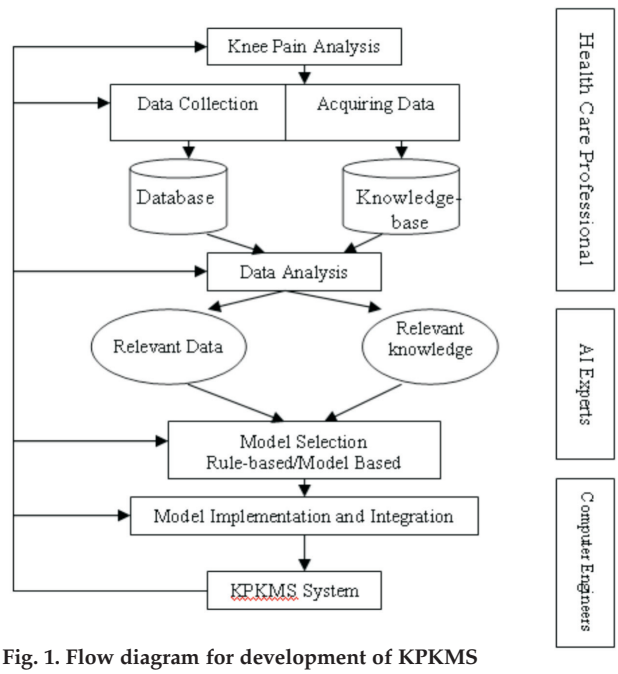

Fig. 1. Flow diagram for development of KPKMS

Database Management Subsystem

The main task of the Database Management Subsystem is the simplification, preparation, and pre–processing of input data of Knee Pain; and also control and verification of the bulk of data required by the Medical Informatics Modules. The Subsystem consists of a central data depository that contains all the relevant historic and current data, and tools to automatically extract the necessary data for their primary sources of storage and re-store them in the warehouse.

Acquiring the Data

A fundamental pat of a KPKMS is the acquisition of data. Various voice-recognition dictation systems and natural language processing methods can be used for recording data directly into a computerized format. Data entered into an e-health record answers the questions who, where, when and how. There are two basic methods for data entry:

a) Automatic entry from the electrical instruments at the bedside

b) Manual System

QUALITY DATA

Gathering computerized data requires careful planning. In most cases, it is estimated that it will take upwards of 2 years to gather complete and accurate e-health records. Furthermore, the quality process will be updated continuously in order to facilitate the acquisition of new data and the advancement of new therapies.

Database Management System software is the software that allows centralized data, manage them efficiently and provide easy retrieval. Currently most DBMS provide heterogeneous database retrieval by using an ODBC/JDBC interface. The relation DBMS are the most popular development tools because of their superior integration, distribution and ease-of-use.

Knowledge-base Management Subsystem

The knowledge-base management subsystem is for knowledge rule management (e.g., retrieval, updating, deletion, etc.) and reasoning. It utilizes its internal knowledge for reasoning, and communicates with the data management subsystem via an integration interface for knowledge updating. It also interacts with the user through the dialogue subsystem to master more in the measuring performance.

In the rule base, the specialized domain knowledge is presented in the form of IF-THEN-ELSE statements and stored in the knowledge base. Users can modify, add or drop into the system their latest knowledge. Once the new knowledge has been added, the system is able to automatically diagnose all vital situations of which a Health Care Professional may face.

Central Decision Making Desk

The Central Decision Making Desk is collection of Programs used for decision making. It comprises of two components:

Quality Control Program

The Quality Control Program selects a suitable rule from the rule base and then gets the facts from the database to infer the conclusion. Upon receiving the known facts from the database, the Program infers and explains the situation and triggers actions or gives the suggestions for decision making.

Quality Analysis Tool Shell

The Multi-criteria and futurologistic approach of Quality Analysis Tool Shell comprising of Model Base Management Subsystem provides an effective dimension to deal with complex multi-criteria decision problems of Knee Pain Management.

Model Base Management Subsystem

The Model Base Management Subsystem accepts the data from Database Management Subsystem, interacts with the related Medical Informatics Modules, computes the values using Multi-criteria Futuristic Decision Making Methodology; and displays the results through Dialog Management Subsystem and Central Vision Exhibit Board for the user for decision making or provides results to the Knowledge Base.

Mcfdm Methodology

Multi-criteria Futuristic Decision Making (MCFDM) Methodology (Singh et al.[14]) is a multi-person, multi-objective, multi-level, multi-period methodology. It implicates multi-criteria approach for futurologistic decision problems and consolidates information about tangible and intangible criteria and alternatives in futuristic decision making process. MCFDM Methodology is a non-linear framework for analyzing both deductive and inductive futuristic thinking that allows the consideration of several Multi Futuristic Decision Factors at a time, along with a feedback control mechanism and numerical trade-off without the use of the syllogism.

Central Vision Exhibit Board

The Central Decision Making Desk of KPKMS System, connected to various Knee Pain Management components, interact through a Central Vision Exhibit Board. In this Board globally shared database, local knowledge base and specialized Decision making sources act upon a Central Black Board Problem Solving Architecture according to a strategy aiming at building a problem solution.

Dialog Management Subsystem

The Dialog Management System is designed for the Decision Members with a variety of Knee Pain Management decision-making needs. The Dialog Management Subsystem comprises of two Interfaces: a) Decision Making Interface and b) Knowledge Update Interface. The Decision Making Interface allows the User to take decisions for curing or preventing knee pain. The Knowledge Update Interface enables the Experts to update the knowledge base. The Experts can add remove or modify an existing rule. The Dialog Management System captures the Decision Members preferences, degree of expertise, skills and then receives and interprets their input, and finally presents the output in the form of charts, text, graphs and tables along with suitable form and visual displays. The Dialog Management System capabilities of KPKMS are broadly classified into two categories: Query Support Display Desk and Decision Support Display Desk due to variety of users with different decision making tasks. While Query Support Display Desk allows adhoc retrieval of Knee Pain Management Information, Decision Support Display Desk supports the Knee Pain Management decision-making tasks and allows the user to generate a number of displays from the data available in the system, into pre-defined format.

Medical Informatics Modules

Knees are complex, weight-bearing joints that provide body with flexibility, support, and a wide range of motion. Knees can be injured from trauma, arthritis, or everyday stress and strain. Knee pain is therefore a common complaint. Depending on the type and severity of joint damages knee pain can be minor or can lead to severe discomfort and disability. To improve the Quality of Life of the Patients and to self-service by patients, the KPKMS comprises of

following Modules for Management of Knee Pain

Diagnosis Module

Understanding what is causing knee pain must be understood in the context of the pain. How old are you? Was there a traumatic event? Where is the pain located? Did the symptoms develop immediately or over time? Once these questions are answered, you can begin to investigate the symptoms. Putting the symptoms together with the history leads to a diagnosis.

The User query, through the Diagnosis Interface, goes to the Central Decision Making Desk wherein the Quality Control Program checks the knowledge base and the database and displays the solution. The knowledge base of the System consists of rule base. Sample rules are as follows:

Rule 1

If the patient has swelling over the inflamed area, aching when walking, and pains when he kneels then the patient is suffering from Bursitis.

if symptom1 [swelling at inflamed area]

and symptom2 [aching when walking]

and symptom3 [pain when kneeling]

then pain_type [Bursitis]

Rule 2

If the patient has pain when the patient gets up in the morning, loss of motion in his knee, eventually deformity of the knee joints, and sometimes a low-grade fever then the patient is suffering from Rheumatoid Arthritis.

if symptom1 [morning pain]

and symptom2 [loss of motion in knee]

and symptom3 [eventually deformity of the knee joints]

and symptom4 [low grade fever]

then pain_type [Rheumatoid Arthritis]

Knee Pain Causes Module

Knees are the largest and heaviest hinge joints in your body. They're also the most complex. In addition to bending and straightening, they twist and rotate. This makes them especially vulnerable to damage, which is why they sustain more injuries on average than other joints. Many knee injuries are due to overuse, problems with alignment, sports or physical activities, and failure to warm up and stretch before exercise. But they can also result from trauma, such as a car accident, a fall or a direct blow to your knee. The Knee Pain Causes Module is an informative Module that displays the possible causes of knee pain. *(Figure 2)*

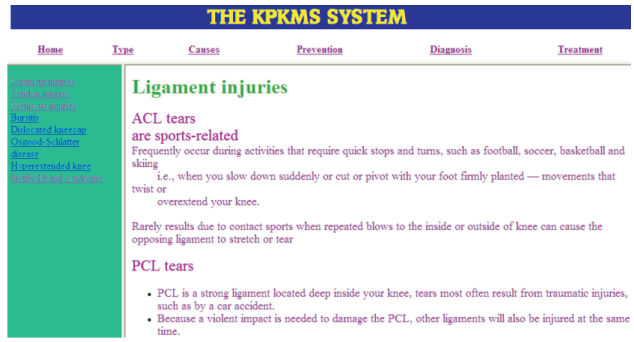

Fig. 2. The Knee Pain-cause Module

Treatment Module

The key to treating many types of knee pain is to break the cycle of inflammation that begins right after an injury. The Treatment Module helps in suggesting the best possible treatment. It interacts with the Central Decision Making Desk wherein it searches the knowledge base and database to suggest the treatment. In case there are multiple treatment options then it gives the best possible treatment option by interacting with the Quality Analysis Tool Shell. This Module helps the Medical Decision Makers in following types of decision issues:

- Which type of treatment will be better if the patient is suffering from arthritis?
- Which type of exercise should be done for treating arthritis?
- Which drug should be taken if ligament is damaged?

Prevention Module

This Module helps in determining the most risky factor that can result in the knee pain. For example, weighing more than your ideal weight is one of the leading risk factors for knee pain. Excess weight increases stress on your knee joints, even during

ordinary activities such as walking or going up and down stairs. It also puts you at increased risk of osteoarthritis by accelerating the breakdown of joint cartilage. This module helps in identifying the most risky factors to prevent the knee pain or display the preventive strategies.

Knee Pain Type Module

Knee pain can arise from the knee itself or be referred from conditions of the hip, ankle, or lower back. All of the following sources of knee pain arise from the knee joint itself. This module is also an informative module. It displays the possible types of knee pains along with its symptoms, treatment, etc *(Figure 3)*

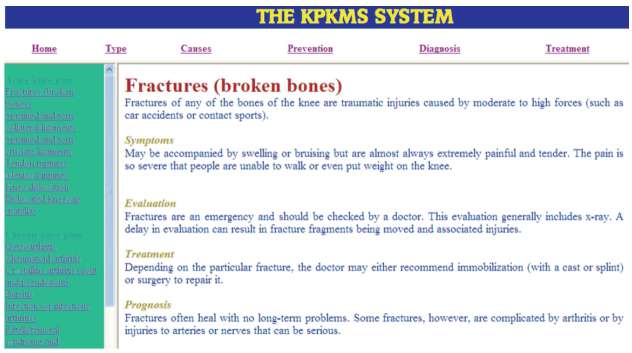

Fig. 3. The Knee Pain-Type Module

PRELIMINARY RESULTS

Presently, the conceptual framework of the KPKMS in terms of its architecture, problem-solving approaches and modes of interaction have been defined, but the actual ability to solve the problem is under development. Currently, the database and knowledge base have been developed partially. The Quantitative Model, i.e. the MCFDM Methodology has actually been implemented on the prototype.

CONCLUSION

In this paper a Knowledge-Based Medical Decision Support System, KPKMS, is designed and developed to support Knee Pain Management. The multi-criteria and futrologistic approach of Quality Analysis Tool Shell provides a comprehensive structured quality vision communication system framework for decision making of multi-criteria complex decision problems of Knee Pain Management by choosing the best one in a set of competing futuristic alternatives. The Support System will help in the Health Care Professionals in Medical Decision Making to improve the Quality of Life of the Patients through the best use of the existing facilities. The KPKMS will not only contribute an efficient mechanism to find an optimal or sub-optimal solution, given any set of whimsical preferences, but will also contribute a mechanism to make the entire process more open and transparent. In this context, the System is a tool designed to cope with the multidisciplinary nature and high complexity of medical decision making problems.

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A Cross Sectional Study on Student's Experience of Community Oriented Learning in Pune City

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ABSTRACT

Family Health Survey is introduced in the syllabus of Community Medicine to give adequate exposure to the undergraduate medical students about the family and its surrounding environment, so that they can understand the health needs of the community from a broader perspective.MBBS curriculum also have been made more community oriented by increasing learning hours in Community Medicine. Present study was planned to take feedback from students regarding family health survey after their community exposure. The study revealed that students received good community exposure and understood the life style, needs, and problems of people residing in the slums. Thus community oriented learning could be complementary to formal teaching in Community Medicine.

Keywords: *Undergraduate Medical Students, Feedback, Learning, Community Exposure*

INTRODUCTION

Community oriented education is an important strategy to train undergraduate medical students for understanding health care needs of the needs of the community and for delivering health care services.[1] This training enables students to relate theoretical knowledge to practical training in a primary care context. This method of teaching and training of medical students has been recognized at various levels.[2, 3]

The medical college in general works with aim to improve the health status of the people by providing holistic health care through training of socially accountable health professionals. Therefore the MBBS curriculum and the teaching program are need based, integrated, community oriented, student centered and partially problem solving.[3] Also the MCI curriculum revised in 1997 has increased teaching learning hours in community medicine to emphasize community based learning.[4]

Accordingly Department of Community Medicine, Bharati Vidyapeeth Deemed University Medical College, Pune gives family health survey to VI semester students during their practical posting of one month. This activity provides students ample opportunities to interact with people of different socio-economic class to understand their problems as well as needs.

AIM

To explore the perception of undergraduate students regarding community oriented learning.

OBJECTIVES

1. To assess the level of satisfaction gained by students through community oriented learning.
2. To study students semester preference for community oriented learning.
3. To assess students preference for the type of study.
4. To study the strength and weaknesses of the survey and unique experiences perceived by the students.

MATERIALS AND METHOD

This is a cross-sectional study was based on feedback taken from eighty eight students of VI semester posted in Community Medicine department during their practical posting. These students were divided into four batches during the period of four months from January 2010 to July 2010.Each batch was divided into groups with two students in each group.

With the help of predesigned questionnaire students conducted a family health survey in field practice area of Urban Health Training Center of Bharati Vidyapeeth Deemed University Medical College, Pune. They have collected information on family composition, socio-economic status, health problems, the needs perceived by the families, recreational facilities, availability of health services, maternal and child health and family planning services etc. Before survey the students were oriented with a complete explanation of proforma.Adequate time was allotted to them to solve their quarries regarding Proforma and survey through discussion with teacher.

The data collection, compilation, entry, analysis of the survey was done by students. On the last day of posting of each batch presentation was done by students in front of all faculty members and students have submitted a comprehensive report.

Feedback on this work was taken with maintaining anonymity and students were encouraged to express their views freely. The feedback consisted of closed ended and open ended questions.

Close ended questions like level of satisfaction, level of community exposure, opinion on exclusion or inclusion of survey in their curriculum were asked.

Students graded level of satisfaction and community exposure from 0 to 5.

(0-bad,1-poor,2-average,3-satisfactory,4- good,5 - excellent) Their preference for 'ideal semester' for doing survey and extension of the same for more than one semester was obtained.

Open ended questions based on the strengths, weaknesses of the study were included. Students were also asked to express their unique experiences they have got during data collection.

FINDINGS

A total of 77% students rated their level of satisfaction for the project as good to excellent and 13% felt that it was satisfactory. Sixty eight percent of students rated the level of community exposure as good to excellent followed by 26% who rated it as satisfactory. Ninety one percent of students felt that this survey should be a routine part of their curriculum and fifty five percent of students preferred VI semester is the ideal semester for doing this work; fifty one percent were not ready for extension of the same survey.

For the preference of type of study work eighty percent of students preferred to do observational as well as interventional study rather than doing only one type of study.

In the open ended questions, sixty six students perceived that good exposure to community was the strength of project in which they came across the real life situations at grass root level. Forty five students opined that cooperation amongst students, cooperation from community side was the strength of project while others have mentioned that it will be helpful for doing project work in future and useful while practicing as a doctor.

Premarajan KC et al [3] mentioned in their study done amongst medical undergraduates from eastern Nepal that eighty five percent of students felt the posting was useful in understanding the practical aspect of epidemiological studies and seventy six percent rated the program from good to excellent. Sixty one percent of students gave the opinion that this posting would help them in their future research activities and in becoming community oriented doctors.

Inadequate time allotment for the project was ranked as important weakness by thirty students while Second important weakness ranked by twenty nine students was language barrier.

In a study done by Sharma AK et al [2] on community based medical education, students were not agree with existing duration for the exercise.

In our study we also asked students to mention the unique experience perceived by them while being in the community. 'Satisfied families though living in the slum' area was the unique experience for 23 students followed by 20 students perceived 'getting a chance of interaction with people outside the college campus' as a unique experience .

CONCLUSION

Feedback on community based learning showed that it was a very good learning experience for undergraduate students. Understanding the community while communicating with people was the unique task for students rather than routine classroom teaching in the college or in a hospital which has made

students to understand Community Medicine thoroughly.

Thus community based learning helped in sensitizing the young medical undergraduates to the community health problems.

Conflict of Interest: None

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Allergy to Antiallergics: A Rare Case Report with Review

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ABSTRACT

H1-antihistamines are commonly used drugs, and probably the most frequently and freely used for allergic diseases. We report a case of hypersensitivity to antihistamines with development of skin eruptions on intradermal injection of the drug. The utricaria as a result of antihistamines was reconfirmed with repetition of the test. This is one of the very rarely reported types of drug reaction with the literature review of the same.

Keywords: *Antihistamines, Urticaria*

INTRODUCTION

Histamine, an important chemical mediator of allergic inflammation, is produced and stored in cytoplasmic granules in tissue mast cells and basophils, from which it is released in large quantities by noncytotoxic mechanisms during the early allergic response.[1] It is composed of a heterocyclic aromatic ring connected to an ethylamine group.[2]

H1-antihistamines are commonly used drugs, and probably the most frequently used for allergic diseases. The molecular basis for their action stands on shifting from the active to the inactive conformation of one of the histamine receptors - H1 receptor.

Antihistamines are pharmacologic inverse agonists of histamine at H1 receptor sites, and act by combining and stabilizing the inactive conformation of the receptor to shift the equilibrium toward the inactive state, preventing H1 response.[2]

A variety of adverse reactions have been attributed to anti histamines. These include central nervous system disorders, cardiovascular and anticholinergic effects.[2] Hypersensitivity to the antihistamines by itself is not a widely occurring entity. We hereby report a case of urticaria to antihistamine, confirmed on rechallenge and radioallergosorbent test (RAST).

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CASE REPORT

A 55-year-old female patient consulted a dental practitioner for the extraction of multiple decayed teeth in the right maxillary quadrant. Ligocaine with 1:200000 adrenaline was administered for the regional block. She developed itching and wide spread erythematous eruptions after the administration of injection. Patient was first managed with dexamethasone 4mg IM and then referred to the outpatient department of Oral and Maxillofacial Surgery. A detailed medical history revealed that the patient was allergic to Penicillin, Tetanus toxid and Ligocaine. We decided to infiltrate the tooth using an H1 antihistaminic agent [Chlorpheniramine Maleate (Avil)] as H1 antihistamines are known to have local anesthetic effect.[3] On request by the patient's attendants we gave an intradermal test dose of inj Chlorpheniramine Maleate (Avil) 50mg, on the flexor surface of the right forearm. After about 3 minutes the patient developed itching and erythematous eruption around the injection site (Fig 1). To reconfirm the same, the test was repeated on the contra lateral forearm with the same results. Later after about 8-10 minutes the patient developed a generalized itching

and eruptions (fig 2). The symptoms gradually disappeared over a period of 20 -30 minutes with Inj Dexamethasone 4mg IV. Patient was then referred to an Immunologist.

Fig 1. Erythematous eruption around the injection site.

Fig 2. Erythema and flushing on the face 10 minutes following injection (Published with permission of the patient).

Allergic reaction to the drugs Lignocaine, Penicillin, Chlorpheniramine Maleate was confirmed by Patch test and RAST (radioallergosorbent) test by an Immunologist. Further the patient was managed under general anesthesia for the extraction of the offending tooth. The surgical episode was uneventful. The patient was advised desensitization of the allergic drugs.

DISCUSSION

Hypersensitivity reactions to H1-antihistamines have been rare since the 1940s [1-4]. A few skin reactions to H1-antihistamines have been described in the literature, usually demonstrated by oral provocation tests. Some mechanisms have been suggested, including type I IgE-mediated reaction, photosensitivity with phenothiazines and terfenadine, and paradoxical nonspecific histamine release.[2] The allergy testing to H1-antihistamines could not distinguish any precise mechanism, but could clearly demonstrate their responsibility.

Cases of urticaria induced by antihistamines have been previously reported. Some authors showed dependence of urticaria upon the cysteinyl leukotrienes . Nevertheless, an immunological mechanism has been seldom demonstrated. In some cases, positive skin prick test – with mizolastine and loratadine - or intradermal test – cetirizine and diphenhydramine - suggested an IgE-induced mechanism.[2]

Some authors [10] support the hypothesis that antihistamines may shift the H1 histamine receptor to the active conformation instead of the inactive state, prompting adverse reactions after dosing. Antihistamines contain an ethylamine group and, in this sense, have same resemblance to histamine. The possibility that antihistamines themselves can be haptens or have chemically reactive metabolites to haptenate should be also taken into account.

Since antihistamines are widely used and hypersensitivity to them is a rare but documented, one must be aware of the possibility that, occasionally, drugs used in the treatment of allergic reactions may act as the causative agent itself.

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Grim Face of Maternal Mortality at Tertiary Care Hospital of Rural India: A 16 Years Study

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ABSTRACT

Background: World health assembly set the millennium development goals (MDG) -5, with the aim of reduction in maternal mortality below 100 per 100,000 live births by year 2015. A maternal death is a very sensitive index that reflects the quality of reproductive care provided to the women of the reproductive age. It has serious implications to the family, the society and the nation. The burden of maternal mortality is quite high in India at 254 deaths per 100,000 live births as per the data of Sample Registration System (SRS) for the period 2004-06. However, India is committed to meet the MDG-5 target of less than 100 deaths per 100,000 live births by the year 2015.

Objectives: To assess the proportion, causes and time trends of maternal deaths in a tertiary care hospital of rural India.

Method: A retrospective hospital based study of 119 maternal deaths over a period of 16 years from January 1994 to December 2009.

Results: Over the study period, there were 20,801 deliveries, giving a proportion of maternal deaths of 572/1,00,000 live births. Postpartum hemorrhage was the leading direct cause while infective hepatitis was indirect cause of maternal mortality. Most women died within 24 hours of admission to hospital. There was significant reduction in total number of deaths due to eclampsia and sepsis in last ten years.

Conclusions: The proportion of maternal deaths in rural area is much higher than the national figure of 254 maternal deaths per 100,000 live births, yet most deaths in study area could have been avoided by minimizing the three delays i.e. delay in decision to seek care; delay in reaching care and delay in receiving care and by promoting overall safe motherhood.

Keywords: *Maternal Mortality, MDG-5, Hepatitis, Postpartum Hemorrhage*

INTRODUCTION

World health assembly set the Millennium Development Goals (MDG-5), with the aim of reduction in maternal mortality below 100 per 100,000 live births by the year 2015. Developing countries from Asia and Africa contribute significantly to the total number of maternal deaths that take place every year in the world. Maternal mortality is defined as the death of any woman while pregnant or within 42 completed days of termination of pregnancy irrespective of the duration or site of pregnancy from any cause related to or aggravated by pregnancy, but not from accidental or incidental causes[1]. India is among those countries, which have a very high Maternal Mortality Ratio. Maternal mortality ratio was 2000 per 1, 00,000 live births in 1938, which declined to 1000 per 1, 00,000 live births by 1959 [2]. In 1998-1999, it dropped down to

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540 per 1, 00,000 live births. Currently it is estimated to be 300 per 1, 00,000 live births[1]. Still, it is far from the desired figure of 100 per 1, 00,000 live births as per MDGs. A population based survey carried out in India, which used longitudinal surveillance and complete coverage of vital events, reported a MMR of 320 per 1, 00,000 live births in rural areas[3]. Pregnancy, although being considered a normal healthy state, carries serious risk of disability and at times death[4]. A maternal death is very sensitive index that reflects the quality of reproductive care provided to the pregnant women[5]. Hence present study was conducted to review the trend of maternal deaths at a tertiary hospital in rural India.

MATERIAL & METHOD

A retrospective hospital based study was carried out in the Obstetrics and Gynecology Department of Rural Medical College (RMC) and Pravara Rural Hospital (PRH) - a rural tertiary level health care centre in Loni, Maharashtra, India over a period of 16 years from January 1994 to December 2009. Pravara Rural Hospital (PRH) is 700 bedded tertiary level healthcare referral centre and on an average 3000 deliveries now take place every year. A total 119 maternal deaths were analyzed with special emphasis on age of the patient, parity, cause of death, time interval from admission to death, and trimester of pregnancy at the time of death. The ethical committee of the institute had approved the study. Results were analyzed by using percentage and proportion.

RESULTS

In the present study there were 119 maternal deaths amongst 20,801 deliveries over the period of study, giving an MMR of 572/1,00,000 live births.

It was observed from table 1 that the majority of the deaths (83.19%) were in the age group of 20 to 29 years followed by 13.44% deaths in the age group of less than 19 years; and only 4 (3.36%) over the age of 30 years. The observations of table 2 revealed that, out of total 119 deaths, 84 (70.59%) were multigravidas and 35 (29.41%) were primigravidas.

Table 1: Age wise distribution of maternal deaths

Age	Total deaths	Percentage
≤ 19 years	16	13.44
20 – 29 years	99	83.19
≥ 30 years	04	3.36
Total	119	100

Table 2: Parity wise distribution of maternal deaths

Parity	Total deaths	Percentage
Primigravidas	35	29.41
Multigravidas	81	68.06
Grand multi	03	2.52
Total	119	100

As observed from table 3, 7 (6.28%) women died within one hour of admission; 48 (40.33%) died between two to twelve hours of admission; and 39 (32.78%) died between thirteen to twenty four hours of admission and 6 (5.00%) died after 7 days of admission.

Table 3: Time interval from admission to maternal death

Time interval (in hrs)	No. of deaths	Percentage
0 -1	07	6.28
2 -12	48	40.33
13 -24	39	32.78
25-165	19	16.00
7 days & above	06	5.00
Total	119	100

Out of the total 119 deaths, 46 (38.65%) were due to direct causes, while the rest were due to indirect causes. In the direct causes, 21 (17.64%) were due to hemorrhage (table 4). Eclampsia was the cause for 13.44% of deaths in the present study. Septicemia accounted for 4.20% of the cases .Inversion of uterus accounted for 0.84% of the deaths. Indirect causes accounted for 73 (61.35%) of the total deaths of which, hepatitis accounted for 52 (43.69%) deaths, anemia for 11 (9.24%) deaths, heart disease for 08 (6.72%) deaths, cerebral malaria for 01 (0.84%) deaths, and viral encephalitis for 01 (0.84%) deaths.

Table 4: Cause wise distribution of maternal deaths

Causes of death	No. of deaths	Percentage
Direct cause	(n=46)	38.65
1. Hemorrhage	21	17.64
2. Eclampsia	16	13.44
3. Sepsis	5	4.2
4. Embolism	3	2.52
5. Acute inversion of uterus	1	0.84
Indirect cause	(n=73)	61.35
1. Hepatitis	52	43.69
2. Anemia	11	9.24
3. Heart disease	8	6.72
4. Cerebral malaria	1	0.84
5. Viral encephalitis	1	0.84

Table 5: Stage of pregnancy at the time of maternal death

Stage	Total no. of deaths	Percentage
1st trimester	00	00.00
2nd trimester	04	3.36
3rd trimester	33	27.73
Post-partum	82	68.90
Total	119	100

It was observed from table 5 that, out of total 119 deaths, maximum 82 (68.90%) deaths occurred in the post-partum period; followed by 33 (27.7%) in the third trimester; and 4 (3.36%) in the second trimester. There was not a single death in the first trimester.

DISCUSSION

In the present study, the proportion of maternal deaths were 572 per 1,00,000 live births, much higher than the reported national figure. Pravara Rural Hospital, Loni, being a teaching institution and a tertiary care centre, drain adjacent wide rural areas. Admissions of moribund cases referred from periphery have resulted into higher number of deaths, like other teaching institutions of India. The corresponding figures for India as a whole vary between 228 to 705/1, 00,000 births [6-11].

In the present study, majority of the deaths (83.19%) were in the age group of 20 to 29 years; with the prevailing custom of early marriage in rural area, maximum number of women present with their pregnancy in the age group of 19-24 years. Other than this, there is no specific reason or risk for the women in this age group. Similar studies done by Kaur et.al[12], Taneja et.al[13], Dogra et.al[14]and Sengupta et.al[11] reported 51.8%, 78%, 48% and 61% of deaths in the age group 20-29 years respectively. The reduction in the number of deaths in women less than 19 years of age may be due to safe MTP (medical termination of pregnancy) practices as a result of which many unmarried teenage girls seek help from specialist doctors for legal abortions, thus reducing the number of criminal abortions and subsequently the deaths associated with its complications.

In the present study of 119 deaths, 84 (70.59%) were multigravidas and 35 (29.41%) primigravidas. Similar results were revealed by Agarwal et. al[15] (43% vs 25%), Sikdar et.al[16] (74.5% vs 25.5%) and Purandare et. al[17] (70% vs 30%). Thomas et.al[18] reported near equal distribution (50.8% vs 49.2%) among primigravida and multigravida. Contrary to the popular saying that child birth gets easier with each experience, the risks involved in repeated child bearing are many. Repeated pregnancies and breast feeding make big nutritional demands that women from poor socioeconomic class are seldom able to meet.

In the present study, 55 (48%) women died within 2-12 hours of admission; 39 women died (32.78%) between 13-24 hours of admission and 6 women died (5.00%) after 7 days of admission. Similarly a study by Sikdar et.al[16] revealed 48 (19.7%) died within first 12 hours and another 30 (12.5%) died within next 12 hours; thus, 78 (32.2%) died within 1 day, 58 (23.8%) died within 1-3 days, 39 (16%) died in between 4 to 7 days. Agarwal et. al[15] reported 44% died within 24 hours, and 22% within 12 hours of hospital stay. Purandare et.al[17] showed that among the 30 deaths, 24 deaths were within 24 hours and remaining 6 died after 24 hours of admissions. Delay in reporting to hospital is the major area of concern. Delay in reporting is either due to late decision by family members to shift the patient from home to hospital or from peripheral hospital to tertiary care hospital. Poverty, ignorance, loss of faith in government health services, higher cost of treatment in private hospitals, lack of transport facilities are the possible reasons for delay in reporting to hospital. Women report in moribund state and at times in irreversible shock.

In the present study, direct causes contributed to 46 (38.65%) and indirect causes contributed to 73 (61.35%) of maternal death. Common direct causes were hemorrhage (17.64%) (antepartum hemorrhage, postpartum hemorrhage and abortion hemorrhage), eclampsia (13.44%) and sepsis (4.20%) (puerperal sepsis, antepartum sepsis and intrapartum sepsis) and pulmonary embolism (2.52%) and amongst indirect causes were hepatitis (43.69%), anaemia (9.24%), heart disease (6.72%), cerebral malaria (0.84%), and pyogenic meningitis (0.84%) etc. Similar study by Trivedi et.al[10] showed hepatitis as the leading indirect cause of maternal mortality accounting for 29.43% of maternal deaths. A study by Bera et.al[19] revealed that among the direct causes, hemorrhage resulted in 23.8% and sepsis contributed for 16.4% deaths and among the indirect causes, jaundice was the commonest cause (19.9%), followed by anemia and heart disease, with 5.9% and 3.4% deaths respectively. Sengupta et.al[11] showed that among the direct causes, hemorrhage (12.40%) and sepsis (17.82%) and among the indirect causes, hepatitis was the commonest cause (29.93%) followed by anemia (17.82%). Damania et.al[20] reported

those 59.5% maternal deaths were due to direct causes; 35.5% due to indirect causes and 4.5% deaths were due to unrelated causes. Bera et.al[19] reported 62.1% deaths due to direct causes; 29.3% deaths due to indirect causes and 8.7% deaths due to unrelated causes. Bhargava H[21] studied 426 maternal deaths, out of which, 334 (78.4%) were due to direct or obstetrical causes and 92 (21.6%) were due to indirect or associated causes. A retrospective study by Kaur et.al [12] showed that direct causes were observed in 76.8% cases and indirect in 19.6% cases. Purandare et.al[17] showed that among the direct causes, hemorrhage was responsible for 70.83%; followed by septicemia (3.3%). and among the indirect causes, anemia accounted for 55.3% (16/30); hepatic disorders accounted for 3.3% and pulmonary embolism accounting for 6.67%. A study by Thomas et.al[18] revealed that among the direct causes, hemorrhage in 20.15% and sepsis in 17.4% and among the indirect causes, jaundice was responsible in 11.9%, followed by post partum cortico venous thrombosis and cerebral malaria, with 7.6% and 5.4% deaths respectively. There is overall reduction in the deaths due to hypertensive disorders. It is mainly due to early identification and referral of cases of pregnancy induced hypertension, timely termination of pregnancy and use of magnesium sulphate in eclampsia.

In the present study, out of total 119 deaths, maximum 82 (68.90%) deaths occurred in the post-partum period. Similar results have been reported by Purandare et.al[17] and Dogra et.al[14] who reported 73.33% and 86.20% of deaths in the postpartum period respectively. A study by Thomas et.al[18] showed the distribution of those who presented in the 1st, 2nd and 3rd trimester and post natal/ post-abortal were 3.5%, 9.7%, 31.9% and 54.9% respectively. Immediate postpartum period is most vulnerable period. Complications like postpartum hemorrhage, obstetric shock, inversion of uterus and thromboembolism are common during postpartum period. Pregnant women with hepatitis disorders, especially infective hepatitis, deteriorate fast during postpartum period, leading to hepatic encephalopathy, disseminated intravascular coagulopathy or postpartum hemorrhage.

CONCLUSION

The proportion of maternal deaths in the present study was much higher than the reported national figure. Lack of antenatal care, poor nutrition, preference for domiciliary delivery, lack of skilled supervision at birth, delays at various levels contributed to unacceptably high maternal mortality in rural area. Poor road conditions, difficult terrain, lack of transport facilities, poverty are the possible additional reasons for delay in admission in emergency situation. Most deaths could have been avoided with the help of early referral, quick, efficient and well equipped transport facilities, availability of adequate blood and blood components, and by promoting overall safe motherhood. Analysis of every maternal death through maternal death audit, either at community level (verbal autopsy) or at the institutional level should be carried. It will help in identifying the reasons and deficiencies in health care delivery system that might contribute in the occurrence of pregnancy related deaths.

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Lymphatic Filariasis Survey in Some Social Welfare Hostels in the Twin Godavari Districts of Andhra Pradesh

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ABSTRACT

A survey was conducted to look for the presence of Lymphatic .Filariasis (LF) disease and microfilaria (mf) among children residing in six Social Welfare Hostels (SWH) in the twin Godavari districts of Andhra Pradesh (AP). The study also elicited the personal protection measures taken by the students against mosquito bites and consumption of DEC (Diethyl-Carbamazine) during Mass Drug Administration (MDA). In none of the 678 (432 boys and 246 girls) students examined in both the districts, any disease manifestation was found. In East Godavari district, 4 boys in the age group of 8 to 12 years were found positive for *Wuchereria bancrofti* mf in the blood. No girl of the district was found positive for mf. Overall microfilaria rate (mfr) in SWH of East Godavari district was below 1 percent (0.87 percent). However, a rather high average mf count of 12.6 per 20 *cu mm* of blood was found. Microfilaria rate among SWH children of West Godavari district was calculated as 1.36 percent with average microfilaria count of 1.66 per 20 *cu mm* of blood. No student used bed net while sleeping at night. The DEC consumption rate during MDA in the SWH of West Godavari district was at a low 48.2 percent. Infection in wild *Cx. quinquefasciatus* mosquito was recorded from the study area. The study showed that there was still active transmission of L.F in the districts even after eleven rounds of MDA.

Keywords: *Lymphatic Filariasis (LF), Wuchereria bancrofti, Microfilaria (MF), Average microfilaria count, Mass Drug Administration (MDA), DEC (Diethyl-Carbamazine) Social Welfare Hostels (SWH)*

INTRODUCTION

Lymphatic filariasis (LF) deserves special attention not only because of the vast number of people at risk, but also because it greatly impedes socio-economic development, ranking third among important parasitic diseases of man[1]. World Health Assembly has adopted a resolution (WHA 50.29) for elimination of LF as a public health problem by the year 2020. National Health Policy of India (2002) aims at elimination of transmission and the prevention of disability due to LF by the year 2015[2]. Andhra Pradesh (A.P) is one of the worst LF affected states in India and since 1999; sixteen districts of A.P are under Mass Drug Administration (MDA) Programme in order to eliminate the problem from the state. [2,3].

The Government of AP has established a large number of Social Welfare Hostels in the state for accommodating school children hailing from oppressed section of the community like Schedule castes (SC) Schedule Tribes (ST) and other Back ward castes (OBC). One of the activities of these SWH is health care of children as they are in the period of growth and development and need optimum health and nutrition [4].

A survey was conducted between October 2010 and January 2011 to look for the presence of L.F disease and microfilaria among the children staying in six Social Welfare Hostels (SWH) in the twin Godavari districts of Andhra Pradesh (AP). As many as 11 rounds of MDA has already been completed in the twin Godavari districts. The study also elicited the personal protection measures taken by the students against mosquito bites and consumption of DEC during MDA.

MATERIALS & METHOD

East and West Godavari districts of A.P are situated on both sides of river Gadavari and are known as notorious for transmission of LF infection. Land surface of LF affected areas of the districts are more or less plain with high subsoil water. Rice, sugar cane and aquaculture are the main livelihood of the population. Apart from that, both the districts have small and

medium industries along with oil and natural gas activities by several agencies like Oil and Natural Gas Commission, Gas Authority of India Limited and Reliance Industries resulting in rapid unplanned urbanization and mosquitogenic conditions.

Three SWH from each Godavari district totaling to six were selected randomly to look for the presence of LF disease and microfilaria amongst the residents of these hostels. The students were in the age group of five to sixteen years. The sample comprised of boys from SWH Vemagiri and Alamuru, and Girls from Kadyam in East Godavari District. In West Godavari District, two SWHs were selected for Girls in Tanaku and for Boys in Kovuru. All the Hostels were situated in semi urban areas. Drainage systems surrounding the Hostels were open type. With prior permission from the Warden of the hostels, night blood surveys were conducted between 20.30 to 21.30 hours. About 20 *cu mm* of peripheral blood was drawn by finger prick on clean glass slides. Slides were marked, dried, brought to Laboratory, de-haemoglobinised, fixed and stained with Giemsa's stain.

The stained slides were examined under microscope for presence of microfilaria. The species of the parasite was identified and density of microfilaria was counted as per standard procedure[5] .The children were examined for the presence of any disease manifestation. Those children found positive for mf were administered Albendazole 400mgm along with DEC tablets @ 6 mg per kg body weight.

The children were questioned about their sleeping habits such as use of bed nets or mosquito repellents in night. They were further asked about receipt and consumption of DEC tablets during the last MDA programme held in September 2009.

Adult culicine mosquitoes were collected from the hostels from both the districts between 06.00 hours and 08.00 hours with the help of aspirator and flash light. Mosquitoes were brought to laboratory and identified. Head, thorax and abdomen of each female *Culex quinquefasciatus* mosquitoes were dissected separately under microscope for L1, L2, and L3 stages of larvae. Mosquito infection and infectivity rates were calculated as per the National operation manual on control of filariasis [6] .

RESULTS & DISCUSSION

Results of L.F survey at SW Hostels in East and West Godavari districts of A.P are shown in table- 1. In none of the 678 (432 boys and 246 girls) students examined, any disease manifestation was found. In East Godavari district, out of 372 boys and 86 girls examined, 4 boys in the age group of 8 to 12 years were found positive for microfilaria of *Wuchereria bancrofti* in the blood. Microfilaria rate among boys worked out to 1.07 percent. Overall mfr in SWH of East Godavari district was 0.87 percent which fell within the elimination criteria[7] of less than 1 percent. No girl of the district was found positive for microfilaria. However, rather a high average mf count of 12.6 per 20 *cu mm* of blood was found. In a recent study in 2009, mfr in Andhra Pradesh Paper Mill colony in East Godavari district was recorded as 0.37 percent[8], which more or less corroborates with our present finding. In West Godavari district, out of 160 blood samples collected from girls, one girl in the age group of 5 to 8 years and another in the age group of 13 to 16 years were found positive for microfilaria of *Wuchereria bancrofti.* Average mfr among girls of SWH of West Godavari districts was noted as 1.25 percent. Out of 60 boys of SWH of West Godavari district, one boy in the age group 12 to 16 years was found positive for mf infection. Overall mfr among SWH children of West Godavari district was calculated as 1.36 percent which is more than the elimination criterion. The average microfilaria count was 1.66 per 20 cu mm of blood.

Table 1: Showing microfilaria rate and average mf density among children residing in Government Social Welfare Hostels in East and West Godavari districts of Andhra Pradesh

Name of District / No. of SWH surveyed	No of children examined			Sex wise / Age wise mf positivity										OverallMf rate/ Amf count
	Boys	Girls	Total	GIRLS					BOYS					
				A	B	C	T	mfr	A	B	C	T	mfr	
E .G District / 3	372	86	458	0	0	0	0	0	0	4	0	4	1.07	0.87 / 12.5
W.G.District / 3	60	160	220	1	0	1	2	1.25	0	0	1	1	1.25	1.36 / 1.66
Total :	432	246	678	1	0	1	2	0.81	0	4	1	5	1.16	1.03 / 7.85

Abbreviations:

A = Children between age groups – 5 – 8 yrs .

B = Children between age groups - 8 – 12 yrs.

C = Children between age groups - 12 – 16 yrs.

T = Total number of children.

Mfr = Microfilaria rate percent.

Amf count = Average microfilaria count per 20 *cu mm* of blood.

Table 2: Showing coverage of SWH children under MDA and protective measures against mosquito bites.

	Districts		Total
	E. Godavari	W.Godavari	
No of Children interviewed	458	220	678
No received DEC during MDA programme	431 (94.1%)	210 (95.4%)	641 (94.5%)
No. consumed DEC during MDA programme	397 (86.6%)	106 (48.2%)	503 (74.2%)
Use of bed nets by the children in night	0	0	0
No of children using repellents/ coils in night			
a) Regularly	125 (27.3%)	106 (48.2%)	231(34.1%)
b) Occasionally	301 (65.7%)	86 (39.1%)	387(57.1%)
c) Never	32 (6.9%)	28 (12.7%)	60(8.8%)

As shown in Table-2, out of 678 children investigated, no student used bed nets while sleeping at night. It was observed that 231 (34.1 percent) children were using mosquito repellants /coils / vaporizers available in market daily in the night and 387 (57.1 percent) used them occasionally. This is in conformity with a previous study[9] during 2006-07 in which 33.5 and 21.6 percent population of East and West Godavari districts respectively were found to use mosquito repellents or coils during night. In the same study, 94.57 and 66.33 percent populations of East and West Godavari districts respectively had received DEC tablets during MDA programme of which 76.06 and 64.89 percent had consumed the drugs. In our present study DEC coverage and consumption among SWH children of East Godavari district were found as 94.1 and 86.6 percent respectively which is commendable. The coverage and consumption among SWH children of West Godavari district was noted as 95.4 and 48.2 percent respectively. The consumption rate in the SWH of West Godavari district was very low. A total of 670 and 218 blood fed female adult *Cx quinquefasciatus* collected form East and West Godavari districts respectively were dissected of which one mosquito from East Godavari district was found positive for L2 stage of infection in the thorax region. Mosquito Infection rate was calculated as 0.14 percent, indicating active transmission in the study area.

CONCLUSION

Although no disease case was recorded in the SWH of Twin Godavari districts, presence of microfilaria among the children was noted. Infection in wild *Cx. quinquefasciatus* was also recorded form East Godavari district. Based on the facts, it may be concluded that there is still active transmission of L.F in the study area even after eleven rounds of MDA programme. It is suggested that such surveys may be undertaken in other SW Hostels to know the status of LF. It may be ensured particularly in SWH of West Godavari District that all children must consume DEC tablets in front of their teachers/ Wardens and drug distributors. Government may explore the possibility of supplying mosquito nets to the children to prevent transmission of vector borne diseases. IEC activities may be streamlined to enlighten the children, their teachers and management of these hostels about the benefits of mosquito nets and consumption of DEC during MDA programmes.

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A Cross-Sectional Study on Client Satisfaction and Utilization of ICDS Services in Kashmir Division of Jammu and Kashmir State

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ABSTRACT

Objectives: Beneficiary satisfaction and utilization of ICDS services in sampled Anganwadi centers (AWCs) of Kashmir Division.

Method: The community based study was conducted during June 2007 to June 2008. Total of 139 Anganwadi centers (AWCs) were selected from three districts (Baramulla, Anantnag & Srinagar) of Kashmir valley. Three registered beneficiaries (pregnant woman, nursing mothers & 3-6 year age children were randomly selected from the register available in the AWC & were contacted and interviewed regarding utilization & satisfaction of services provided in AWCs.

Sampling method: Multistage sampling technique was used in this study.

Results: 10.1% of pregnant women, 10.1% of nursing mothers and 21.3% children 3-6 year age respectively were receiving supplementary nutrition. Preschool education was received by 4.5% children. 12.4% pregnant women had received Tetanus Toxoid through AWCs. 9% of pregnant women, 7.9% nursing mothers and 6.75 of mothers of children of age 3 to 6 years were satisfied by services provided by AWCs. Conclusion: Majority of beneficiaries was aware of the services provided by the AWC but acceptance and utilization of services was miniscule. Overall beneficiary satisfaction was very low mainly due to poor quality of services provided at AWCs.

Keywords: *Anganwadi, Utilization, ICDS*

INTRODUCTION

Integrated Child Development Services (ICDS) scheme, recognized as world's most unique largest community based outreach system for women and child development, had been launched in 1975 in only 33 blocks including bock Kangan of Kashmir division on experimental basis. With immense success in the initial years it was periodically expanded to the extent that in Tenth Five Year Plan ICDS scheme was universalized in the whole country[1.] For client's satisfaction critical factor is the quality of services. The good quality of the services is necessary for acceptability of a program in a community as it determines how beneficiary would perceive about the services and make further demand.

MATERIAL AND METHOD

This was a community based study carried out over a period of 1 year from June 2007-June 2008.The study was conducted in AWCs of Kashmir valley of Jammu & Kashmir state.

Multistage sampling technique was used for study. Kashmir valley is divided into 3 geographical zones; North, Central and South. From each zone, one district was selected using simple random sampling namely Baramulla, Srinagar and Anantnag respectively. 20% of ICDS blocks were selected from each district using simple random technique that comprised of 2 blocks from Baramulla, 1 block from Srinagar and 2 blocks from Anantnag. Again, 20% AWCs were taken from each selected block using above same sampling

technique. Thus total of 139 AWCs were selected. Information regarding number of blocks and AWCs in each district were taken from documentary records of Social Welfare Department Srinagar. Three registered beneficiaries (pregnant woman, nursing mother & 3-6 year age child (mother respondent) were randomly selected from the register available in each AWC & were located in the anganwadi area in 89 operating AWCs (considered those providing services to beneficiaries & where Anganwadi workers (AWW) were present on the day of survey) out of 139 sampled AWCs & were interviewed regarding utilization & satisfaction of services provided in AWCs

Statistical Analysis: Data was analyzed by using statistical package Epi info 3.5. Chi square test was applied for eliciting statistical significance.

Table 1.Beneficiary interview (Pregnant women)

Description	Srinagar (n=21)		Baramulla (n=37)		Anantnag (n=31)		Total (n=89)		p value
	No	%	no	%	no	%	no	%	
No. of women receiving Supplementary Nutrition in Anganwadi centre	2	9.5	5	13.5	2	6.5	9	10.1	0.626
Acceptance of supplementary nutrition to those receiving supplementary nutrition	1	4.8	3	8.1	2	6.5	6	6.7	>0.05
No. of women informed by AWW about time place and date of Tetanus Toxoid Immunization at AWC /SC	3	14.3	5	13.5	3	9.7	11	12.4	>0.05
No. of women who received complete tetanus toxoid immunization during pregnancy	21	100.0	36	97.2	30	96.7	87	97.7	>0.05
No. of women receiving any information on nutrition and other health related topics by AWW	1	4.8	1	2.7	0	0	2	2.2	>0.05
No. of women receiving any Health checkup by ANM at Anganwadi centre	0	0	0	0	0	0	0	0	>0.05
No of women referred by AWW to any Health institution for any complaint during pregnancy	0	0	0	0	0	0	0	0	>0.05
No. of women receiving IFA Tablet during pregnancy	0	0	0	0	0	0	0	0	>0.05
No. of women having any knowledge about the services provided to them in AWC	21	100	37	100	31	100	89	100	>0.05
No. of women satisfied by services provided to them in the AWC	2	9.5	3	8.1	3	9.7	8	9	>0.05

RESULTS

Table 1 depicts among 89 beneficiaries interviewed total number of pregnant women receiving supplementary nutrition (SN) in AWCs were 10.1% & SN acceptance among those receiving were 6(6.7%). Number of pregnant women informed by AWW about time, place & date of Tetanus Toxoid immunization at AWCs were 11(12.4%). The number of women who received TT vaccine was 87(97.7%). The subjects receiving information about nutrition & other health related topics by AWWs were 2.2%. None of the pregnant ladies received health checkup by ANM at AWCs. Neither any AWW referred them to any health institute nor do they receive iron/folic acid tablets during pregnancy in AWCs. Satisfaction regarding I.C.D.S. services provided to them was observed in 28(9%). The inter-district variation was not significant.

Table 2 shows data of response from nursing mothers. Among 89 nursing beneficiaries interviewed, total number of nursing women receiving SN in AWCs were 9 (10.1%), acceptance among those receiving supplementary nutrition 5 (5.6%).

Table 2: Beneficiary interview (Nursing mother)

Description	Srinagar (n=21)		Baramulla (n=37)		Anantnag (n=31)		Total (n=89)		p value
	No	%	no	%	no	%	no	%	
No. of nursing mothers receiving Supplementary Nutrition in Anganwadi centre	3	14.3	4	10.8	2	,6.5	9	10.1	>0.05

Table 2: Beneficiary interview (Nursing mother) (Contd.)

Description	Srinagar (n=21)		Baramulla (n=37)		Anantnag (n=31)		Total (n=89)		p value
	No	%	no	%	no	%	no	%	
No. of women accepting supplementary nutrition at AWC	1	4.8	3	8.1	1	3.2	5	5.6	>0.05
No. of women receiving any information on nutrition and other health related topics by AWW	0	0	2	5.4	1	3.2	3	3.4	>0.05
No. of women receiving any Health checkup by ANM at Anganwadi centre	0	0	0	0	0	0	0	0	>0.05
No. of women having any knowledge about the services provided to them in AWC	21	\100	37	100	31	100	89	100	>0.05
No. of women satisfied by services provided to them in the AWC	2	9.5	3	8.1	2	6.5	7	7.9	>0.05

n=number of operating AWCs, no=number of nursing beneficiaries

Number (No.) of nursing mothers received information about nutrition and other health problems were 3(3.4%). None of the nursing mothers received any health checkup by any ANM at AWCs. 7(7.9%) of the nursing mother were satisfied by services provided at AWCs. Responses from beneficiaries did not vary significantly among surveyed districts.

The respondent mothers of 3-6 year children were interviewed and the description of that is given in the table 3. The number of children receiving supplementary nutrition at AWCs was 19(21.3%). However, 4(4.5%) AWWs were helping mothers in getting their child immunized at AWCs/SC.

No. of children completely immunized for their age were 86(96.6%). Immunization cards were seen in 80 (89.9%) children surveyed. No. of children receiving pre-school education at AWCs were 4(4.5%). None of children receive health checkup by Auxiliary nurse midwife (ANM) at AWCs. Number of children weighed at AWC was 2.2%. 6.7% of the mothers were satisfied by the services provided to their children at AWCs. Though, the data shown in table did not vary significantly among districts.

Table 3: Beneficiary Interview 3-6 years children (Respondent Mother)

Description	Srinagar (n=21)		Baramulla (n=37)		Anantnag (n=31)		Total (n=89)		p value NFHS-III	As per
	No	%	no	%	no	%	no	%		
No. of children receiving Supplementary nutrition at AWC	3	14.3	11	29.7	5	16.1	19	21.3	>0.05	17.1%
No. of children who got immunized with help of AWW	0	0	3	8.1	1	3.2	4	4.5	>0.05	8.4%
No. of children completely immunized for their age (3-6 year)	21	100.0	36	97.2	29	93.5	86	96.6	>0.05	(NA)
Immunization card seen	19	90.5	33	89.2	28	90.3	80	89.9	>0.05	(NA)
No. of children being given any preschool education at AWC	1	4.8	2	5.4	1	3.2	4	4.5	>0.05	10.2%
No. of Children weighed regularly	0	0	1	2.7	1	3.2	2	2.2	>0.05	3.4%
child receive any health checkup	0	0	0	0	0	0	0	0	>0.05	4.8%
No. of women having any knowledge about the services provided	21	100	37	100	31	100	89	100	>0.05	(NA)
No. of women satisfied by the services provided	1	4.8	3	8.1	2	6.5	6	6.7	>0.05	(NA)

n=number of operating AWCs, no=number of children beneficiary, NA: data not available

DISCUSSION

Among 89 pregnant women beneficiaries interviewed, 9 (10.1%) were receiving supplementary nutrition in AWCs & among these acceptance of supplementary nutrition was observed in 6(6.7%) near about similar results were found by NFHS III(2006) 6.3% pregnant women in Jammu & Kashmir State received supplementary nutrition in AWCs[2]. 11 (12.4%) pregnant women were immunized with Tetanus Toxiod through AWCs that is little bit higher percentage than observed by Davey A et al[3] only 5.5% pregnant women utilized AWCs for immunization services

However 87 (97.7%) pregnant women had received tetanus toxoid immunization through sub centers, primary health centers & hospitals & through AWCs. Only 2 (2.2%) pregnant women told that they were given health & nutrition education (NHED). As per NFHS III (2.7%) were given NHED in Jammu & Kashmir State [2] consistent with finding of present study. Davey A et al[3] observed 23.6% AWW's were given health and nutrition education.

As per NFHS III[2] 1.4% pregnant women received health checkup's by ANM at AWCs. But none of the women told that they receive health check up in AWCs in present study. Davey A et al[3] reported that none of pregnant women had ever received iron & folic acid tablets from AWCs & had never been provided antenatal care. Similar finding was observed in present study. Benzamin et. al [4] had also observed less dispensing of iron and folic acid tablets by pregnant women in Ludhiana districts. None of pregnant women were referred by AWW to any health institution. Similar was observed by NFHS III[2] 0.1% were referred. Knowledge regarding ICDS services was observed in almost all beneficiaries. Only 8 (9%) pregnant women were satisfied with services provided to them in AWCs.

Among 89 nursing mothers interviewed, 9 (10.1%) were receiving supplementary nutrition, however acceptance was observed in 5 (5.6%), as per NFHS III (4.4%) were receiving supplementary nutrition in Jammu and Kashmir state. Davey et al[3] reported that 94.5% of pregnant and lactating women were mainly utilizing the supplementary nutrition services in AWC contrasting the finding of present study. Only 3(3.4%) nursing mothers told that they were given nutrition & health education (NHED) in AWCs. According to NFHS III(2006)from Jammu & Kashmir state 1.7% nursing mothers received NHED in AWCs[2] thus supporting finding present study. None of the nursing mother had received any health checkups by ANM at AWCs, as per NFHS III (2006) from J&K State[2]. 1.7% nursing mothers had received health checkup by ANM at AWCs. Almost all nursing mothers were having knowledge regarding ICDS services 7(7.9%) nursing mothers were satisfied by services provided at AWCs.

Mothers of 3-6yrs age children were interviewed regarding services provided to their children in AWCs. 19(21.3%) children were receiving supplementary nutrition at AWCs consistent with results of NFHS III from J&K State 17.1% were receiving supplementary nutrition at AWCs[2] as compared to these finding Davey et al reported that all mothers mentioned that that their children receive supplementary nutrition from AWCs.[3]

However 4(4.5%)responded that their children got immunized through AWCs, near about similar results were observed by NFHS III(2006) from J&K State as 8.4% children were immunized through AWCs[2]. Davey A et al reported 15.9% children had utilized AWCs for their immunization [3] higher percentage then present study. However number of children completely immunized for their age was 86(96.6%) & immunization cards were seen in 80(89.9%) children. This reflects good awareness level among parents although AWC were utilized by few parents to get vaccination.

Number of children (3-6yrs) given Preschool education at AWCs was 4(4.5%). According to NFHS III from J&K State (10.2%) received preschool education [2]. Davey et al reported 42.3% mothers mentioned utilization of preschool education from the AWCs but not regularly, [3] results are contrasting with present study.

None of mother responded that their children receive health checkups by ANM at AWCs but according to NFHS III from J&K state 4.8% received health checkup by ANM at AWCs.[2] according to NFHS III from J&K state 3.4% children were weighed at AWCs similar was observed in present study 2(2.2%) children were weighed at AWCs similarly Benzamin et al also reported growth monitoring was rare phenomena in Ludhiana district[4].Davey et al reported that 56.6% mothers told growth monitoring was done of their children.[3]this was contrasting result of present study.

Knowledge of respondent mothers regarding various ICDS services provided to their children was observed in almost all respondents. Similarly Samridhi Arora et al[5]observed that all parents were aware about Anganwadis & also about the services provided under ICDS scheme. 6 (6.7%) respondent mothers were satisfied by services provided to their children at AWCs.

CONCLUSION

Majority of beneficiaries were aware of the services provided by the AWC but acceptance and utilization of services was miniscule. Overall beneficiary satisfaction was very low mainly due to poor quality of services provided at AWCs.

Conflict of Interest: None

Acknowledgement: District coordinator, ICDS, district Baramulla, Anantnag and Srinagar J & K.

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Emphysematous Cystitis - a Rare Complication in Type 2 Diabetes Mellitus

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ABSTRACT

Emphysematous cystitis is a rare disease seen in uncontrolled diabetes mellitus, which is caused by gas forming organisms. The diagnosis can be made with help of imaging studies .We present a case of emphysematous cystitis in 72 year diabetic male patient.

Keywords: *Emphysematous Cystitis, Diabetes Mellitus*

INTRODUCTION

Emphysematous cystitis is a very rare complication of diabetes mellitus. The presentation may be very variable, high degree of suspicion is needed. We present a case of emphysematous cystitis

CASE REPORT

A 72 years male patient was presented to us with history of fever of 3 days duration and high colored urine and abdominal pain of 3 days duration. The patient was known case of diabetes mellitus since 30 years on oral hypoglycemic medications. He had PTCA about 10years back. He also had ischemic stroke on left side about 2 years back and recovered completely .On examination patient was disoriented and had high degree fever ,per abdomen examination showed supra pubic tenderness and no organomegaly, bowel sounds were normal.Cardiovasular system and Respiratory system examination was unremarkable .His investigation were as follows: HB% 12.8 total count 11800 polymorphs 83 lymphocytes 16 eosinophils 1,urea 104 ,creatitine 2.7 FBS 302 .His urine examination showed numerous pus cells and RBC .Ultrasonography of abdomen showed gas in the bladder wall .A diagnosis of uncontrolled diabetes mellitus with uti and emphysematous cystitis was done .He was started on meropenam 1 gram IV 8 th houraly .Later the culture of urine yielded E .coli sensitive to meropenam.The patient improved with 7 days of antibiotic treatment and discharged with Insulin and other supportive treatment .

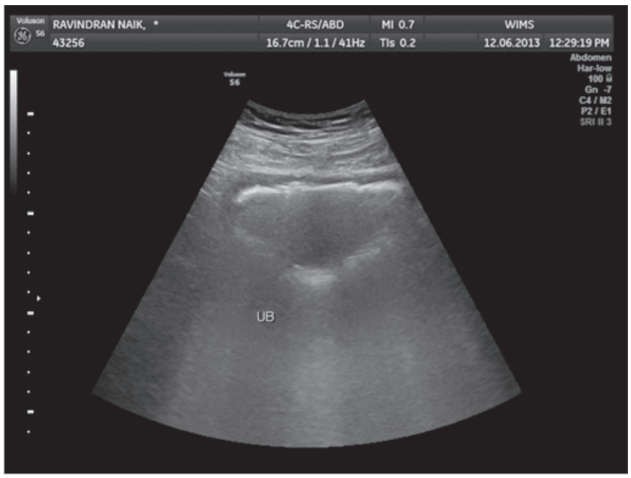

Fig. 1. Picture showing bladder wall thickening and gas in bladder wall

DISCUSSION

Emphysematous cystitis is a rare complication in diabetes mellitus .Very few cases have been reported in the literature .It usually seen in uncontrolled diabetes mellitus .It is chacterised by gas collection in the bladder wall .The most common organisms are E.coli[1], Klebsiella Pneumonia and Enterobactor aerogens .It was first identified in post mortem examination in 1988.Radiological findings are gas filled vesicles in bladder wall. Most cases are confirmed by ultrasonography of abdomen or by CT abdomen .Most patient respond to piperacilline /tazobactum combination of antibiotics. Duration of treatment is about 10 days [2], some patients may develop complications like sloughing off bladder wall and ac peritonitis .A good diabetic control and proper

antibiotic will save many patients with this complication. Overall mortality is 7%[1]

CONCLUSION

Emphysematous cystitis is uncommon complication of uncontrolled diabetes mellitus. Early diagnosis and proper antibiotic treatment reduce the mortality and morbidity.

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Basic Household Amenities and its Interrelationship with Public Health Facilities: A Quantitative Study on Assam

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ABSTRACT

In spite of a quickened rate of economic growth in the last two decades, full coverage of the population in terms of basic facilities, including access to drinking water and sanitation remains a major challenge in India. Same can be said about public health facilities that are available to the citizens, despite of well planned medical strategies that are administered under appropriate authorities. The paper develops two weighted composite indices. The first index is designed to measure the coverage of basic household facilities directly related to healthy life viz. safe drinking water and proper sanitation facilities available in the different districts of Assam. The other index considers the extent in which public health facilities are available in the different districts of Assam based on some specific parameters of public health considered from the review of current literature and available data. The computed indices can provide the relative positions of the districts in terms of basic household facilities and public health facilities separately. An attempt is been made to check the existence of any empirical relation between the index of basic household facility and the index of public health facilities in the different districts of the state.

Keywords: *Public Health, Composite Index, North East India, Development, Deprivation*

INTRODUCTION

Assam is located in the heart of India's North East region. A region that is also known as land of seven sisters, because of the seven states viz. Assam, Manipur, Meghalaya, Tripura, Nagaland, Mizoram and Arunachal Pradesh.

The Assamese society is distinguished by its ethnic diversity. Its people have their origins in the Tibeto-Burman anthropological groups and also other groups including the Aryans. The Bodos, Mishings, Kacharis, Morans, Sooteas, Karbis, Tiwas and other tribes penetrated into Assam at different periods during pre-historic times, while the Ahoms arrived in the 13th century.

In terms of the progress made by the state in human development dimensions by referring to the HDR as, The National Human Development Report 2009, Assam is placed at number 14th position in terms of the Human Development Index. Also there exist a quite visible inter district differences in terms of the access to household amenities.

Given these situations, it would be interesting to examine how this state fares in the domain of human development in terms of basic amenities and health status in the different districts of the state.

The purpose of the paper is twofold. In one hand it tries to quantify through a weighted composite index the level of development in the different districts of Assam in terms of basic household facilities combining the facility of drinking water and sanitation available in the different households of the state. On the other hand, the paper measures the performance of the different districts of the state in terms of available public health facilities by the development of a similar composite weighted index. The parameters considered for developing the composite index in order to quantify public health facilities is based on current literature and available data.

DATA AND METHODOLOGY

The data collected for the purpose are secondary in nature. The data on basic facilities is collected from Statistical Handbook of Assam and the data related to the medical health facilities are taken from a report published by Ram and Sekhar (2006) Ranking and Mapping of Districts based on Socio-economic and Demographic Indicators, International Institute of

Population Studies, Mumbai. The data seems to be a compilation of information based on Census 2001 and National Family Health Survey III.

As mentioned, the objective of the study is to develop two composite indices- one for the basic household facilities and other for the health facilities. So for preparing the weighted composite index of basic health facility, we followed Iyengar and Sudarshan (1982) method who assumed that the weights vary inversely as the variation in the respective variable, on the other hand for expressing the health facility data into a single composite index we used the Data Envelopment Analysis (DEA) for weighting the indicators.

The choice of indicators is based on the current literature as well as on the availability of the data. The indicators under the basic facility and health facility considered for the study are as follows:

Basic facility Indicator: Drinking water facility, Sanitation facility.

Health Facility Indicator: Number of Doctors per hospital, Number of Deaths per thousand population, Birth order more than 3, Under 5 mortality rate, Ante-Natal check up more than 3 per women, 2 TT Injections received per women.

Calculation of weighted indices by Iyengar and Sudarshan Method

The normalised value of deprivation indicator (NI) for the j^{th} facility in the i^{th} district of the state is given by,

$$NI_{ij} = \frac{\max(x_{.j}) - x_{ij}}{\max(x_{.j}) - \min(x_{.j})} \quad \ldots(1)$$

Here x_{ij} represent the percentage of household enjoying the j^{th} facility in the i^{th} district of the state Assam, where i = 1, 2,..., 23 for the different districts of Assam and j= 1, 2 for the basic necessities: safe drinking water (j=1), sanitary facility (j=2).

$\max(x_{.j})$ denotes the percentage of households in a given district, which has the best coverage of the j^{th} facility (j= 1, 2) in entire state and

$\min(x_{.j})$ represent the percentage of household in the district, that has the worst coverage of the j^{th} facility (j = 1, 2) in the entire state.

The value of NI_{ij} varies from zero to one, where the value of 1 implies that the given district is most deprived in comparison to the best district in the country in the j^{th} facility. The reverse is true for a value of 0.

To construct the deprivation index for the district comparison, one must recognize the fact that all the indicators are not equally important. Thus, a simple average of the indicator values should be avoided in the index construction. On the contrary, Morris and Liser (1977) advocated the use of weighted average when developing the Physical Quality of Life Index (PQLI). Another important contributer to this issue is Iyengar and Sudarshan (1982) who assumed that the weights vary inversely as the variation in the respective variable. Das and Nath (2007) also developed a weighted composite index for human deprivation in different river islands of Assam. Based on the current literature, the weighted index of deprivation (deprivation index) for the i^{th} district of the state is given by,

$$DI_i = W_1 \times DI_{i_1} + W_2 \times DI_{i_2} \text{ with } \sum_{i=1}^{22} W_i = 1 \quad \ldots(2)$$

where W_i represents the weight associated with basic facilities ($j = 1,2$) for different districts, where i= 1,2,...,22.

Iyengar and Sudarshan (1982) further linked the weight to variance of deprivation across the regions. More precisely, they postulated that

$$W_j = \frac{C}{\sqrt{Var(DI_i)}} \quad \ldots(3)$$

where C is a normalizing constant that follows

$$C = \left[\sum_{j=1}^{2} \frac{1}{\sqrt{Var(DI_i)}} \right]^{-1} \quad \ldots(4)$$

The choice of the weights in this manner would ensure that large variation in any one of the indicators would not unduly dominate the contribution of the rest of the indicators and distort the inter district comparisons (Iyengar and Sudarshan, 1982).

The normalized values of the indicator using (1) are calculated and the weights are being calculated using the formulas (3) and (4).

Table 1. Weights associated with the indicators of the different basic facilities

Basic facility	Safe drinking water	Sanitary facilities
Weights	0.434285	0.565715

Replacing the weights in (2) the Deprivation Index of different districts are calculated using (1). The raw data used for the computation of the normalized values can be seen in Appendix I.

Table2. Deprivation Index of different districts and their corresponding ranking

District	Deprivation Index	Rank
Barpeta	0.442047	11
Bongaigaon	0.641889	20
Cachar	0.457854	13
Darrang	0.486635	15
Dhemaji	0.556071	18
Dhubri	0.390595	9
Dibrugarh	0.076047	1
Goalpara	0.466383	14
Golaghat	0.267067	4
Hailakandi	0.45111	12
Jorhat	0.36262	7
Kamrup	0.275794	5
Karbi Anglong	0.668532	21
Karimganj	0.434285	10
Kokrajhar	0.906404	22
Lakhimpur	0.554136	17
Marigaon	0.332707	6
Nagaon	0.14615	2
Nalbari	0.390245	8
NC Hills	0.542302	16
Sibsagar	0.239318	3
Sonitpur	0.58645	19

Composite index of health facilities

Data Envelopment Analysis employs linear programming tools to retrieve an efficiency frontier and uses this as benchmarks to measure the performance of a given set of regions (viz. Country, state, district and so on).

The composite indicator is defined as the ratio of a region's actual performance over its benchmark performance:

$$CI_i = \frac{\sum_{i=1}^{M} I_{ij} W_{ij}}{\sum_{i=1}^{M} I_{ij}^{*} W_{ij}} \quad \text{... (5)}$$

Where is the normalised (max-min method) score of sub -indicator (i=1, 2,..., 6) for districts j (j=1,2,.....23) and is the corresponding weight.

Operationally, the expression is being reduced to the linear programming problem by multiplying all weights by a common factor (that does not alter the index value) and solved using optimisations algorithms

$$CI_i^{*} = \arg\max \sum_{i=1}^{Q} I_{ij} W_{ij} \quad \text{.....(6)}$$

Subject to the constraints,

$$\sum_{i=1}^{Q} I_{ik} W_{ik} \leq 1, \; W_{ik} \geq 0, \; \forall \; k = 1, 2, ..., M \text{ and } \forall \; i = 1, 2, ..., Q$$

Thus, the normalised value of different health indicators used in the study is obtained by using the equation (1). The normalized values corresponding to the raw data for the six factors are available in Appendix III and the raw data in Appendix II.

With the set of normalised values in Appendix III the weighted composite indices of the health facility are being calculated using the equation (5) and (6). Table 3 shows the composite indices for the different districts along with their corresponding weights.

Table 3 Composite Health Index of Different districts of Assam

District	W_1	W_2	W_3	W_4	W_5	W_6	Composite Health Index
Barpeta	0.15	0.15	0.15	0.25	0.15	0.15	0.454198
Bongaigaon	0.15	0.25	0.15	0.15	0.15	0.15	0.502743
Cachar	0.15	0.15	0.15	0.25	0.15	0.15	0.455981
Darrang	0.15	0.15	0.15	0.15	0.25	0.15	0.586131
Dhemaji	0.15	0.25	0.15	0.15	0.15	0.15	0.53842
Dhubri	0.15	0.15	0.15	0.25	0.15	0.15	0.3128
Dibrugarh	0.15	0.15	0.15	0.1833	0.1833	0.1833	0.713937
Goalpara	0.15	0.15	0.15	0.15	0.15	0.15	0.53993

Table 3 Composite Health Index of Different districts of Assam (Contd.)

District	W_1	W_2	W_3	W_4	W_5	W_6	Composite Health Index
Golaghat	0.15	0.15	0.15	0.25	0.15	0.15	0.721252
Hailakandi	0.15	0.15	0.25	0.15	0.15	0.15	0.473142
Jorhat	0.15	0.25	0.15	0.15	0.15	0.15	0.769976
kamrup	0.25	0.15	0.15	0.15	0.15	0.15	0.838311
Karbi Anglong	0.15	0.15	0.15	0.15	0.15	0.15	0.550067
Karimganj	0.15	0.15	0.15	0.15	0.15	0.15	0.455778
Kokrajhar	0.15	0.15	0.15	0.15	0.15	0.15	0.576185
Lakhimpur	0.15	0.15	0.15	0.15	0.15	0.15	0.440896
Morigaon	0.15	0.15	0.15	0.15	0.15	0.15	0.538797
Nagaon	0.15	0.15	0.15	0.25	0.15	0.15	0.452188
Nalbari	0.15	0.15	0.15	0.15	0.15	0.25	0.659257
North Cachar Hills	0.15	0.15	0.15	0.15	0.15	0.15	0.404937
Sibsagar	0.15	0.15	0.15	0.25	0.15	0.15	0.639835
Sonitpur	0.15	0.15	0.15	0.15	0.15	0.25	0.68303

Finally, Karl Pearson coefficient of correlation is being calculated between the two indices viz. basic facility and health facility and is found to be -0.282 (p-value = 0.203), indicating that there is no significant relation between basic amenities and health facilities in the districts of Assam.

MAJOR FINDINGS

The findings of the study are delineated as follows

- In case of the weighted composite index for the basic facilities available in the different districts of Assam, Dibrugarh (0.076047) is the least deprived district, while most deprived is that of Kokrajhar district (0.906404).
- When we look at the weighted composite index of the health facilities of the different districts of Assam, Kamrup district (0.838311) is having the best public health facility whereas Dhubri district (0.3128) is bearing the worst health facility.
- There exists no relationship between the two viz. Basic household facility and Public Health facility as the value of correlation coefficient (-0.282) is not significant. Thus, the two indicators that are not enjoying any linear relation.

CONCLUSION

This paper makes an attempt to highlight the continuing importance of focused attention on basic amenities and public health and the way they are linked to the achievement of higher levels of human development. Although the two indicators are independent of each other but individually they contribute to the development of Human Development Index (HDI). During the last decade, at the national level, although there was progress in the supply of safe water, access to toilets in households, still there persist large variations in the pace of achievement across different states and the districts. While we focus into Assam, there exists a large disparity with respect to the accessibility of basic household facility as well as public health facility among the different districts, which is incompetent for the overall human development. Among the districts of Assam there is a lack of uniformity in their geographical set up. Thus, there comes a need for the government assistance and policy measures to reform the situation in a way leading to more inclusive growth.

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Declaration of Conflict of No Interest

We, the authors declare that there are no conflicts of interest in this study. As well as this paper is an original work, which is neither published in any journal nor it is under review in any such journal.

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Study about Awareness and Practices about Carbonated Drinks among School Students in an International School, Bangalore

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ABSTRACT

Title: Study about awareness and practices about Carbonated Drinks among school students in an International school, Bangalore

Background: The consumption of carbonated drinks in youngsters is increasing in alarming proportions. They are often not aware of the health hazards of the excess consumption. Studies have suggested that children who drink a lot of soft drinks risk becoming fat, weak-boned, cavity -prone and caffeine addicted. A cross sectional study was conducted in an International School to assess the awareness and practices in school students regarding carbonated drinks. The study subjects comprised of school students between ages 14years and 18years who were in eight standard to twelfth standard. A total of 300 students were randomly selected and included in the study. A self administered pre-tested structured questionnaire was introduced for the purpose of the study. Maximum of students responded gastritis (46%) specifically as the important ill-effects associated with the consumption of the carbonated drinks for long period of time followed by teeth diseases (20.15 %) and about 23.5% of the them were not aware of the ill-effects of the same at all. A holistic approach should be incorporated to combat the problems associated with the consumption of carbonated drinks.

Keywords: *Carbonated Drinks, Awareness, Attitude, Practices, Teeth Erosion, Gastritis*

INTRODUCTION

Young children are often influenced by media and often do things under its influence. The consumption of carbonated drinks in youngsters is increasing in alarming proportions. They are often not aware of the health hazards of the excess consumption. Carbonation occurs when carbon dioxide is dissolved in water or an aqueous solution[1]. A soft drink is a beverage, often carbonated, that does not contain alcohol like colas, iced tea, lemonade, squash and fruit punch etc. Hot chocolate, hot tea, coffee, milk, tap water, and milkshakes are not carbonated drinks. Many carbonated soft drinks are optionally available in versions sweetened with sugars or with non-caloric sweeteners.[2]

Scientific studies have shown how as few as one or two soft drinks a day can increase one's risk for numerous health problems .Studies have suggested that children who drink a lot of soft drinks risk becoming fat, weak-boned, cavity-prone and caffeine addicted. One extra soft drink a day gave a child a 60 percent greater chance of becoming obese. Each daily drink added .18 points to a child's body mass index (BMI).[3] Soft drink consumption in children poses a significant risk factor for impaired calcification of growing bones.

Many sodas are high in calories and have a lot of sugar. Some of these health problems are obesity, diabetes, tooth decay, osteoporosis, nutritional deficiencies, heart disease, and many neurological disorders.[4] Soft drinks have long been suspected of leading to lower calcium levels and higher phosphate levels in the blood. When phosphate levels are high and calcium levels are low, calcium is pulled out of the bones. The phosphate content of soft drinks is very high, and they contain virtually no calcium.[3]

When one consumes carbonated beverages instead of milk, juice and water, body will not get some of the nourishment as per the needs.[5]There is a growing concern in the medical and scientific communities

about the harmful effects associated with carbonated soft drinks. Soft drinks have been around for over a hundred years, but many of their deleterious heath effects have not been studied or known.[3]Hence the present study has been undertaken to assess the awareness and their attitude regarding health hazards of excess carbonated drinks consumption.

MATERIALS AND METHOD

This cross-sectional study was carried out in an International school in Bangalore. The study subjects comprised of school students in the age group 14-18 years. A total of 300 school students were randomly selected were included in the study. The study period was from January 2011 to June 2011. A self administered pretested questionnaire was used to collect the relevant details. Data was collected after obtaining informed consent. Care was also taken to ensure privacy and confidentiality of the interview. The study had been approved by the ethical and research committee of the institute. At the end of the study health education was given for the same and the response was collected regarding the carbonated drinks. The data was collected and analysed using proportions.

RESULTS

The study was conducted amongst the school students. A total of 300 students were included in the study. Out of which 176 were boys (58.6%) and 124 were girls (41.4%). 23% of the school students were in 8th standard and 12.33% of them were in 12th standard. All of the students were from a very high socio-economic status

All the students had heard and knew the difference between carbonated drinks and non- carbonated drinks. Surprisingly all the school students were consuming carbonated drinks. About76.5% of them was aware of the ill-effects of the same. The awareness in boys and girls were almost equal. Most of the students had read them in books and newspapers (88.7%) and the remaining had heard from their friends, teachers and parents. 65% of the students reported that their parents also have carbonated drinks . 21% of them consumed as their film heroes consumed a particular brand.

Out of the 300 school students who were in the habit of consuming carbonated drinks 105 students suffered from some symptoms (35%).

Maximum of the students responded gastritis (46%) i.e. irritation and burning sensation in the stomach and chest specifically as the important ill effects followed by dental caries (20.15%) Some of them complained of diarrhoeal diseases (7.8%) as the ill-effects associated with the consumption of the carbonated drinks.13% of the students had BMI more than 25(obese) and 57% had BMI between 23 to 25 (overweight)

About 11.3% of the students respectively were in favour of recommending carbonated drinks for long period of consumption. They recommended these drinks because they thought that the adverse effects are seen after consuming for a very long time. Some students also thought it was quite a cool thing to have a coke or a pepsi. However majority of the students were in favour of consuming fruit juice if given an option between carbonated drinks and fruit juice.

As far as the practice of frequent consumption of the carbonated drinks by the students is concerned, they consume 200- 350 ml of the carbonated drinks at a time. Maximum of the students consume Pepsi (39.05%), Coke (37.6%), Miranda (23.35%) in that order. 35% of the students had more than 2 cans per day while 56% had a can per day.

After health education activities and explaining them the effects, 78% boys decided to drink non carbonated drinks like fruit juices, lassi etc and all the girls decided to quit carbonated drinks.

DISCUSSION

A common problem that is associated with consumption of a large number of soft drinks is the increased acid levels throughout the body. Carbonated drinks often contain added acid. The stomach, however, is much more acidic, with a pH around 1 or 2. This overwhelms the acidity of any carbonated drinks, which get down to a pH of about 3 when phosphoric acid is added. [6]

Before the acid of sodas reaches the stomach, it does pass through the teeth. The teeth are eroded by a pH of less than 5.2. Having a pH as low as 3, soda has a corrosive effect on tooth enamel 100 times that of carbonated water.[3]

All soft drinks are very acidic, but dark colas such as Coke and Pepsi are much more acidic. William Frazier states, "in order to neutralize a glass of cola, it takes 32 glasses of high pH alkaline water."[4] Gastronomic distress is characterized by increased

stomach acid levels. Gastronomic distress causes the inflammation of the stomach and erosion of the stomach lining. These symptoms are caused by caffeine and acids found in soft drinks such as: acetic, fumaric, gluconic and phosphoric acids. Prolonged increased acid levels will cause erosion of the gastric lining, which is very painful and disrupts proper digestion. In this study students have responded gastritis as one of the important ill-effects of the consumption of carbonated drinks.[4] Dental caries was also found in a 32.85% of the students. Similar observations were also found by Kishore et al.[7]

Dental cavities are often associated with carbonated beverage. This association is important because the amount of sugars that are consumed is important in forming caries, which is when a cavity affects only the enamel, the outer protective layer of a tooth. Caries are caused by the bacteria Mutans streptococci, which is a part of dental plaque. The bacteria attach to teeth and produce high amounts of acid from sugars and other types of acid.[4] The acids that are not buffered dissolve the apatite crystals of a tooth's surface; this process is called demineralization. Demineralization is characterized by a thick layer of plaque blanketing teeth, dropping to a low pH for several hours removing the calcium nutrients of the tooth. Teeth can be remineralized by calcium, fluoride and phosphate, which are all contained in saliva. Carries are formed when the process of demineralization occurs more often than the process of remineralization.[8,10]

Soft drinks, even though they contain a large number of calories, have little nutritional benefit and are known as "empty calories". Soft drinks are composed mostly filtered water with diet colas containing close to a hundred percent water. Most of the calories in soft drinks are from refined sugars, and there are no other nutritionally beneficial components in soft drinks. The relationship between soft drink consumption and body weight is so strong that researchers calculate that for each additional soda consumed, the risk of obesity increases 1.6 times. This is also seen in the present study that 17% of them were obese.[3,11]

A very serious effect of soft drinks on people's health is the correlation between soft drink consumption and the increased risk of bone fractures and osteoporosis. The large amounts of sugar, bubbles caused by carbon dioxide, and phosphoric acid that are found in soft drinks remove nutritious minerals from bones allowing the bones to become weak and increasing risk for them to break. This is done by the phosphoric acid disrupting the calcium-phosphorous ratio, which dissolves calcium from the bones. Many people consume soft drinks instead of necessary beverages like milk, so their bodies are not receiving enough nutrients, especially calcium.[3] A study concluded, "the high consumption of carbonated beverages and the declining consumption of milk are of great public health significance for girls and women, because of their proneness to osteoporosis in later life".[6, 9] Adolescents who consume soft drinks display a risk of bone fractures three to four-fold higher than those who do not."[3]

The important thing to remember is that over consumption of soft drinks should be avoided because of their numerous harmful effects such as: obesity, osteoporosis, nutritional deficiencies, and tooth decay. It is important to be aware of the harmful effects of such deleterious beverages.[4]

In addition, carbonated beverages contain large amounts of caffeine. Caffeine can cause excitability, insomnia, nervousness, stomach upset, tremors and extra heartbeats. One can a day of cola beverage shouldn't cause any problems for most teens, as long as you stop at that.[5] The liquid fruits can be used as a natural alternative to synthetic beverages .The sugar content is more harmful from the long-term aspects than the pesticide residues in these carbonated drinks. The Minister of Health and Family Welfare (Dr. Ambumani Ramadoss) has clarified in the Parliament the steps that the Government has taken, from the JPC Report of 2003 and what process the Govt. is going through. After the JPC's Report that standards should be fixed to these carbonated drinks, namely, Coke, Pepsi or other subsequent drinks, India was one of the first countries in the world, to fix standards for carbonated drinks. The increasing focus on the ill-effects of carbonated drinks and the need for research will help in the development of preventive, promotional and curative health programme in the community.[12]

CONCLUSION

The knowledge of the students regarding the ill-effects of the consumption of carbonated drinks is not convincing one. The attitudes of the students are relatively better but their practices are neither preventive nor health promoting. Thus, it is recommended that a holistic approach should be incorporated to combat the problems associated with

the consumption of carbonated drinks. There is a need of Behavioural Change (BCC) for youngsters.IEC activities must be done in schools and colleges and young minds should be properly educated regarding the ill effects of such practices if consumed for a prolonged time and in large quantities. Longitudinal studies are recommended to find out the degree of association between the amount consumed and the ill effects.

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A Study about Awareness Regarding Pre-Natal Sex Determination and Gender Preference among Antenatal Women in Rural Bangalore

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ABSTRACT

Background: The preference for son and discrimination against the girl child is almost universal in India and manifest it in many ways. Changes in sex ratio reflect underlying socioeconomic, cultural patterns of a society. Skewed sex ratio is an issue of major concern. Desire for male child manifests so blatantly that parents have no qualms about repeated, closely spaced pregnancies, premature deaths and even terminating child before it is born.

Method: Total 200 antenatal women were interviewed by systematic random sampling with prior consent using a well designed, pre- tested questionnaire. The data was analyzed by percentages and chi-square test

Results: Overall in this study it was observed male preference was in 63% antenatal women. Out of total women with first child as a baby girl 78.6 % keenly wanted second baby as a boy. Almost more than half of the women (59%) were aware about consequences of female foeticide and 69% were aware of the PNDT act.

Keywords: *Gender, Preference, Awareness, Foeticide, PNDT Act*

INTRODUCTION

The preference for son and discrimination against the girl child is almost universal in India and manifest it in many ways. Indian couples have a strong preference for sons over daughters. In an effort to have sons, many couples continue to have children after achieving their desired family size.

Some 10 million female foetuses are estimated to have been aborted over the last two decades in India. In response to this disconcerting trend, and after much public discussion, the Indian government enacted legislation in 1994 entitled the ''Pre-Natal Diagnostic Techniques (PNDT) Act'' to regulate and prevent the misuse of technologies for sex determination. The PNDT Act was implemented in 1996. Its scope was further expanded in 2003 with the prohibition of a whole range of activities that might facilitate deliberate sex selection.[1, 2]

According to 2011 census the sex ratio in India is 940 females per 1000 males. [3, 4] Sex ratio is an important social indicator to measure the extent of prevailing equity between males and females in the society. It is also a sensitive indicator of development. Changes in sex ratio reflect underlying socioeconomic, cultural patterns of a society. Skewed sex ratio is an issue of major concern. At the heart of the problem is the low status of women in society, a patriarchal social framework and value system based on 'son mania'. The problem is getting worse as scientific methods of detecting the sex of the foetus and for termination of pregnancy are improving. This seems to be fulfilling the long felt need of the people through female foeticide. Advances in technology and diagnostic facilities have opened up avenue for the girl haters leading to serious disturbances in sex ratio as a result of female foeticide. If gender preferences could be eliminated entirely, the fertility level in India would decline by about 8 percent.[1]

Desire for male child manifests so blatantly that parents have no qualms about repeated, closely spaced pregnancies, premature deaths and even terminating child before it is born. Birth of female child is perceived as a curse with economic and social liability.[1]

In this light, the study of factors influencing sex ratio becomes very relevant for better understanding of the problem. Therefore the present study was

conducted among antenatal women in rural area of Bangalore to find out the level of their awareness regarding sex determination and attitude towards gender.

OBJECTIVES

- To study socio-demographic factors influencing gender preference in antenatal women.
- To study awareness regarding pre-natal sex determination act among antenatal women.

MATERIALS AND METHOD

A cross-sectional study was undertaken with 200 pregnant women who attended the antenatal clinic (ANC) of MVJ Medical College and research Hospital Bangalore Rural. The study was carried out from August 2011 to November 2011. Every third women registered in the antenatal clinic was selected for the study. A pre-tested and pre-structured questionnaire was used to collect information on their knowledge and attitudes towards gender preference and awareness. The data was entered in SPSS and analysed by using simple statistical calculations.

RESULTS

About 200 antenatal women were interviewed over a period of 3 months. (August 2011 to October 2011).

Almost half of the women were from the age group 21-25 years (46.5%).Only 14.5 % women were in 18-20 years while 9 % above 30 years. The mean age was 23.5± 13.6 years. Only 8 % of the women were illiterate though being a rural population. As expected two thirds of the women were house-wives (76.5 %). 4.5% of them were manual workers also.

There were 7 % of the husbands of the antenatal women were illiterate and half of them had obtained at least education till primary level (53%).Most of the husbands were doing a skilled occupation (58%) while 26 % were unskilled workers. Most of them belonged to lower socio-economic class (67%) according to B.G.Prasad classification.

Out of the total study population primigravida comprised of 39%, II gravid 47.5 %, III gravida 18 %, and IV gravida 9%. In these antenatal women 80.5 % desired for two children followed by 22.5 % who wanted to have 3 children. Only 7% desired more than 3 children.

Overall in this study it was observed male preference was in 63% antenatal women. Majority (61.5%) wanted to have male baby as their first child. Only 6.4% wanted second child as female with the first male baby. All women wanted to have their third baby as boy after two baby girls. Out of total women with first child as a baby girl 78.6 % keenly wanted second baby as a boy. Only 21.4% did not mind if the second child was also a girl .Out of the primigravida only 13 antenatal women would not mind if they had only a single girl child. All the women who had opted for a third pregnancy with two girl children said that they would have not gone for a third child if they would have delivered a boy child in the previous pregnancies. They were pressurized by their husbands or family members for a boy child.[Table no 1]

The major reasons for male preference being social responsibilities are carried out by males (64%), for propagation of family name (56%), dependable in the old age (43%), pressure from family (34%), to perform cremation (42%). Most of them thought that they did not want a girl child as they have to give dowry and are an economic liability (78%).

Our study revealed that socio-demographic factors affect gender preference. Preference to male child was higher among women in age group 18-20 years (72.4%) than that of the women of age group 21-25 years(53.8 %).Preference to male child was seen more in illiterate (100%) than literate (60%), in Muslims (81%) than Hindus (59%), in lower socio-economic status(59%) than middle socioeconomic status (32%). Preference to male child was higher in women who had no male child previously (78.5 %) than those who already had a male child (52.6 %).These differences were statistically significant ($p< 0.05$).[Table no 2]

Of the women, 36.5% admitted that they will go for female feticide. The inclination to female feticide was higher in women who had two girl children earlier. 69%of the antenatal women were aware of the PNDT act and knew that foetal sex determination was a crime and they would be punished. Almost more than half of the women (59%) were aware about consequences of female feticide. Consequences of female feticide expressed by these women were: 'men won't find bride', 'families can't be run', lead to an all-male family and increase in violence against women. The awareness of consequences of female feticide grew with literacy status. It was 63% among literate women and among illiterate only 12.5 % were aware ($p< 0.001$). Only 23 % of women felt that this PNDT act should be

removed as they were very eager to know the sex of the child and then decide to continue the pregnancy. [Table no 3]

DISCUSSION

In the present study it was seen that among the 200 antenatal pregnant women about two-third intended to have two child norm as compared to 2.5 % who opted for one child and 7 % for more than three children. This was seen similar to the study conducted by Puri et al.[5]

In our study, 63 % of women gave preference to male child. A study carried out by Vadera et al[6] showed 58.5% and Puri et al [5] showed that 56% women, which is very similar to our observation in the present study. Similar kind of preference has been observed in different parts of the country evident from studies of Mumbai, Himachal Pradesh and other states[7-9] The studies is done in Haryana shows that with one son living 27% wanted to have next child as male baby and with two sons desireness was seen in 3.5%[9].

Studies in India have identified major factors that underlie son preference. One is the economic utility of sons. Sons are more likely than daughters to provide family labour on the farm or in a family business, earn wages, and support their parents during old age. Upon marriage, a son brings a daughter-in-law into his family, and she provides additional help around the house as well as an economic reward in the form of dowry payments. Another important advantage of having sons is their socio-cultural utility means having one son is imperative for the continuation of the family line, and many sons provide additional status to the family. According to Hindu tradition, sons are needed to kindle the funeral pyre of their deceased parents and to help in the salvation of their souls. Daughters are considered to be an economic liability to her parents mainly because of the heavy dowry payment demanded by the groom's family. Although daughters are often considered to provide more emotional satisfaction to parents than are sons, they become a member of their husband's family after marriage. According to Hindu tradition, however, there is one important reason for having a daughter: her parents can earn religious merit by selflessly giving her away in marriage (kanyadaan). Some parents also cite the need to have a daughter to cry at the time of their death.[2]

The important reasons for son preference mentioned in our present study were similar to those found in the other studies also.

The preference to male child was higher in women with no previous male child. Puri et al.[5],Vadera et al (65%)[6] found that preference to son was higher among women having no male child than those already having a male child. Similar observations were also found in our study where the preference was seen more in women having two girl children earlier. The difference was seen to be statistically significant.

Education of the women and her husband's plays a very important role in the male preference and similar observations were seen in the present study. The difference was statistically significant.

The present study reveals that 36.5% of women would go for female feticide if they discovered the gender of the foetus. These findings are coherent with the other studies conducted. Ajinder Walia reports about the attitude towards female feticide to be 41.25% in his study on "Female Feticide in Punjab: Exploring the Socio-economic and Cultural Dimensions"[11]

Among the antenatal women 69 % aware about the PNDT act and sex determination was a crime. But only 21% agreed it to be crime. Education was one of the important underlying factor. Information was obtained through media, IEC activities, boards displayed at various hospitals and lastly through friends. Similar observations were found in the other studies conducted.

Implications of female foeticide was known to 59 % of women. The socio-economic and education influenced it. Study conducted by Ajinder Walia found similar results.[11]

SUMMARY AND CONCLUSION

The present study shows a clear picture of factors affecting the preference of sons over daughters. The existence of son preference at an alarmingly high rate in our society is the root cause of imbalanced sex ratio. Moreover, the inclination to female feticide is also disturbing trend. Socio demographic factors do play a role. Our study revealed that sex of the previous child affect a woman's preference for her next child, while education increases awareness regarding the consequences of adverse sex ratio. It is surprising that inspite of so much development and improvement in literacy status still the dislike for female child and women is groped in the society that is evident from many studies.

Though there are various legislations in force made by the Government of India, its implementation is

necessary. PNDT act should be strictly implemented and stringent action should be taken against the offenders both the person asking for it and the person giving the information. Social evils like dowry where female child is thought as a liability should be uprooted from the society.

Gender equity educations and programmes should be strongly enforced in schools and colleges where young minds are moulded. Government schemes for the welfare of the girl child should be re-enforced.

Table 1 : Preference for Sons by different sex composition of children in a family

Current children	Preference for a Boy (%)
None (n= 78)	48 (61.5)
1st Boy (n=53)	20(37.7)
1st Girl (n=42)	33(78.5)
1st Boy ; 2nd Boy (n= 3)	0
1st Girl ; 2nd Girl (n= 11)	11(100)
1st Boy ; 2nd Girl (n= 4)	3(75)
1st Girl ; 2nd Girl ; 3rd Girl (n= 6)	6(100)
1st Boy : 2nd Girl; 3rd Girl (n= 2)	2(100)

Table 2 Male preference and the related variables

Study Variable	Male preference		p Value
	Yes	Total	
Age group (yrs)			
18-20	21 (72.4)	29	p>0.05
21-25	50 (53.8)	93	
26-30	45 (75)	60	
>31	10 (55.6)	18	
Education			
Illiterate	16 (100)	16	p<0.001
Literate	110(60)	184	
Socio economic status			
Upper middle	11(42.3)	26	p<0.001
Lower middle	17(42.5)	40	
Upper lower	59(71)	83	
Lower	39(76.5)	51	
Employment status			
Employed	18 (38.3)	47	p<0.001
Housewives	108(70.6)	153	
Education of Husband			
Illiterate	14 (100)	14	p<0.001
Literate	112 (60)	186	
Type of family	p<0.001		
Nuclear	16 (30)	53	
Joint	110(74.8)	147	

*figures in brackets represents percentages

Table –3 Awareness of PNDT act and the related variables

Study Variable	Awareness		p Value
	Yes	Total	
Education			
Illiterate	02 (12.5)	16	p<0.001
Literate	136 (73.9)	184	
Socio economic status			
Upper middle	23 (88.4)	26	p<0.001
Lower middle	37 (92.5)	40	
Upper lower	65 (78.3)	83	
Lower	13 (25.5)	51	
Employment status			
Employed	31 (66)	47	p<0.05
Housewives	107(70)	153	
Education of Husband			
Illiterate	04 (28.5)	14	p<0.001
Literate	134(72)	186	

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Conflict of Interest: None

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Heavy Metal Concentration in Surface Water of East Kolkata Wetland

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ABSTRACT

The East Calcutta Wetlands in India present a somewhat distinctive case where untreated sewage water from the city of Kolkata positioned upstream has been used for decades in downstream agriculture and fisheries. East kolkata wetland has high ecological significance also as it has been a home for other combine biodiversities. This wetland is highly polluted due to the rapid industrialization, urbanization and dumping of solid waste. The water quality of the East Kolkata wetland has been studied with reference to toxic heavy metals. The metals analyzed include lead, chromium, mercury, nickel and cadmium. The heavy metal analysis in surface waters were in the following range ; Cd : 1.19 mg l-1, Ni : 7mg l-1, Pb : 0.15 mg l-1, and Cr : 0.09mg l-1 Hg: BDL respectively. The dominance of various heavy metals in the surface waters of the East Kolkata Wetland various anthropogenic activities. Most of the metal ions were in higher concentration compared to the standards. It has been observed that the quality of the surface water is not safe for aquatic and domestic life, hence necessary management actions should be taken to control the quality of the surface water.

Keywords: *East Kolkata Wetland, Surface Water, Heavy Metal, Ramasar Site, Water Pollution*

INTRODUCTION

This 12,500 hectare area which is located 22° 27' N, 88° 27' E is known as the East Calcutta Wetland (ECW) and was designated as a Ramsar site in 2002. ECW being the world's largest natural recycling center for soluble and solid wastes, it is expected to be rich source of bioremediants. Ghosh[8].Wetlands are defined as lands transitional between terrestrial and aquatic systems where the water table is usually at or near the surface or the land is covered by standing water that does not exceed 6 m. It is the most important part of life- supporting ecosystems that sustained human lives and communities over the millennia. They are an essential part of human civilization, meeting many crucial needs for life on earth such as drinking water, water purification, water storage, recharge of ground water, erosion control and shoreline stabilization[1]. The Bheris – as they are locally called, are shallow flat bottomed waste water fed lagoon type of ponds, which vary between 50 – 150 cm in depth and can be as large as 40–50 ha in size [5] The wetlands & particularly the tidal river Bidyadhari, was historically used to farm salt water fish. With the silting of the river and increasing volumes of sewage disposed into the area, water salinity reduced to almost half, creating ideal conditions for fresh fish culture. A map created by the Canal Drainage Outfall Division (Department of Irrigation, Government of West Bengal, 2000) provides details of all the irrigation canals of the region. It has been seen in study site that the irrigation canals carrying sewage water from the populated city also supplied nutrients to all the non-saline fisheries in this region. Lands located reasonably close to the canals have the opportunity to use the sewage water in agriculture. There was only one area called Babupara located upstream of the leather complex where the same canal supplying wastewater to the fisheries was used to supply irrigation water to the agricultural land. Karaidanga, Vatipota, Narayanpur and Ghoshpara which are located downstream of the leather complex. Algae have the capability to utilize light energy and capture and concentrate nutrients from dilute aqueous solutions in this type of wetland system. Some of the algae are capable of growing commensally in an ecosystem with waste-oxidizing bacteria.

Sampling procedure

The water samples were collected in 2 l polyethylene bottles from well-mixed section of the wetland water surface using water sampler from fifteen points at summer season in the year of 2012, and stored in ice box and transported to the laboratory. The water samples were analyzed for physico-chemical parameters like pH, electrical conductivity (EC), biochemical oxygen demand (BOD), chemical oxygen demand (COD) following standard procedures of APHA [3].

Sample preparations for heavy metal analysis: The surface water samples were thoroughly filtered through the Whatman No.1 filter paper to eliminate suspended solids. Analytical grade reagents were used for analysis (Merck, Germany). Heavy metal analysis was done using atomic absorption spectrophotometer. Operational conditions were adjusted to yield optimal determination. The calibration curves were prepared separately for all the metals by running suitable concentrations of the standard solutions. Average values of three replicates were taken for each determination. The analysis was done using protocol outlined in APHA (2005).

RESULT & DISCUSSION

Table1 : Different parameter of surface water.

Parameter	Drinking water Standard	Irrigation water Standard	Recorded value
BOD	2 mgl-1	3mgl-1	9.1mg/l
COD	2.5mg/l	3mgl-1	38mg/l
Turbidity	10	10	14
Electrical conductivity	590- 42900 µmhos/ cm	2.25	1015µmhos/cm
pH	6.5-8.4	8.5	8.34
Total solids(mg/l)	500mg/l	2100	634
Pb	0.10	5.0	0.15mg l^{-1}
Cr	0.05	0.1	0.09 mg l^{-1}
Hg	0.001	-	BDL mg l^{-1}
Cd	0.01	0.01	1.19 mg l^{-1}
Ni	0.10	0.2	7 mg l^{-1}

The analytical result revealed that the pH values of the surface water are 8.34. EC value recorded are 1015µmhos/cm and BOD value 9.1mg/l Metals that are deposited in the aquatic environment may accumulate in the food chain and cause ecological damage threat to human health. Metals are essential but some metal are highly toxic in high concentration. BOD value indicates organic loading rates in bheris. Here the recorded BOD value comes 9.1mg/l.

The COD value recorded are 38mg/l. The analysis of surface water revealed that heavy metal concentration found to be following value Cd : 1.19 mg l^{-1},Hg:BDL, Ni : 7mg l-1, Pb : 0.15 mg l^{-1}, and Cr : 0.09mg l^{-1} /l. All the value within the limit of drinking water standard value and also the irrigation standard respectivelyPb:0.10mg/l,Cr:0.05mg/l,Hg:0.001mg/l,cd:0.01mg/l,Ni:0.10mg/l.and irrigation water standard respectivelyPb:5.0mg/l,Cr:0.1mg/l,Hg:BDLl,cd:0.01mg/l,Ni:0.2mg/l[4].

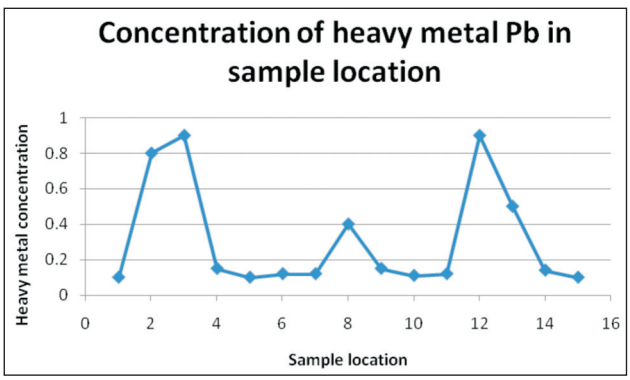

Fig. 1. Concentration of Heavy metal pb in sample location

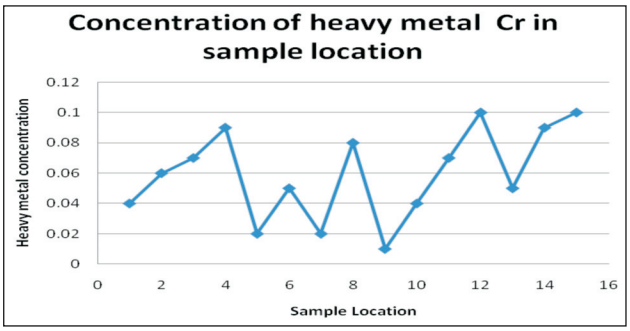

Fig. 2. Concentration of Heavy metal Cr in sample location

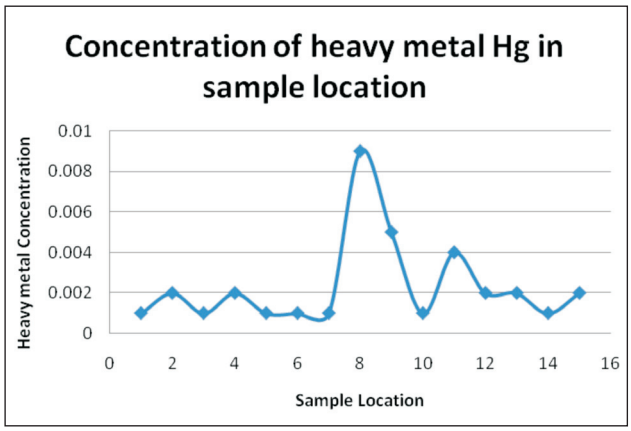

Fig. 3. Concentration of Heavy metal Hg in sample location

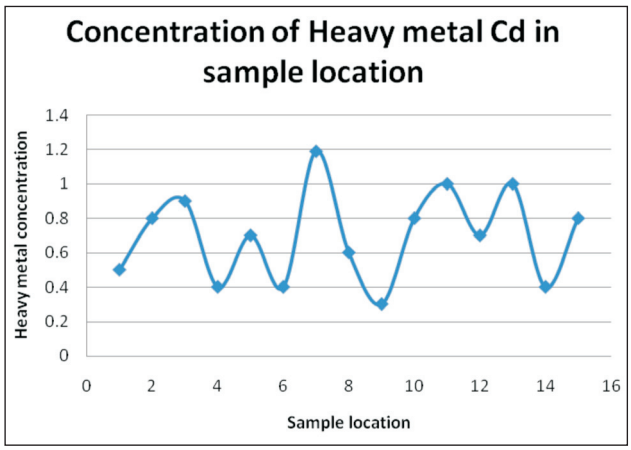

Fig. 4. Concentration of Heavy metal Cd in sample location

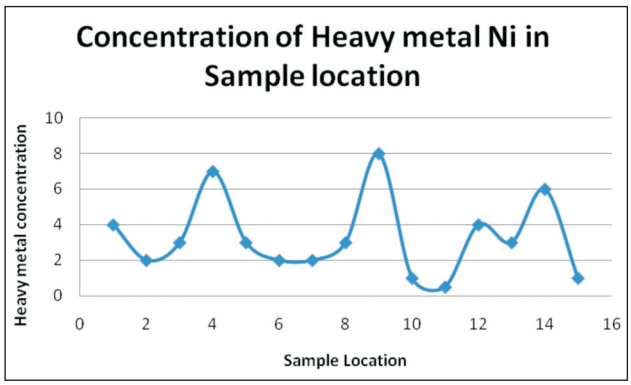

Fig. 5. Concentration of Heavy metal Ni in sample location

Thus, the present study is an attempt to detect the heavy metal in water sample of total East Kolkata Wetland area. If this type of result comes in regular interval of time then Food web will be in a high risk. We were also informed by local farmers about other areas that used wastewater for agriculture from a government sponsored cooperative scheme that lifted water from the canals through electric pumps for distribution. This ultimately will cause a definite causative agent for serious health effect of local people. These bheris show the features of both facultative growth of microorganism and aquafarming is another process of purification. The biochemical reactions occurring in the facultative pond include photosynthesis, aerobic oxidation, organic acid formation, methanogenesis, hetetrophic nitrification as well as denitrification.[6] The fish farmers of ECW have developed such a mastery of these resource recovery activities that they are easily growing fish at a yield which is 2 to 4 times higher than normal ponds and production cost unmatched by any other freshwater fish ponds of this country. [10] Which ultimately helps to purifying the water of bheris. So to protect the area the stringent management action plan should require as early as possible.

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Conflict of interest: NIL

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Ethical clearance: NOT REQUIRED

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Spectrum of Benign Upper Gastro Intestinal Lesions Diagnosed by Endoscopic Examination Followed by Biopsy

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ABSTRACT

Background: Upper gastrointestinal lesions run the gamut from inflammatory lesions to carcinoma. Endoscopy has greatly facilitated biopsy diagnosis. Present study reveals spectrum of benign upper gastro intestinal lesions obtained by endoscopic biopsy.

Aims: 1) To study types of lesions 2) Comparison with Indian and Western literature.

Setting & Design: It is observational study. Patients with upper gastro-intestinal complaints were subjected to endoscopy and biopsy of lesions observed.

Material and Method: 701 upper gastro-intestinal biopsies were received and 283 were benign in three years study. The tissue was routinely processed and stained with hematoxylin and eosin.

Results and Conclusion: Majority of biopsies were gastric. Interesting lesions were - eosinophilic gastritis without parasitic infestation or eosinophilia; trichuris trichura in stomach; adult pyloric stenosis, fundic gland polyp with parietal cell hyperplasia in omeprazole user, ampullary heterotopic pancreas and duodenal ankylostomiasis. When compared with indian and western literature, this study too proves that endoscopic biopsy is useful in diagnosis, reducing surgeries.

Keywords: *Benign Upper Gastro Intestinal Lesions, Endoscopic Biopsy, Interesting Pathologies*

INTRODUCTION

Endoscopy' is derived from greek 'endo' meaning within and 'skopein' meaning to view. (1) . Epoch discovered fibre optics. (2) Adolf Kussmaul [1822-1902] fashioned first gastoscope (1868). Basil I. Hirschowitz invented fibre optic endoscope.(1) Endoscopic accessories-biopsy forceps, cytology brushes, needle aspiration devices and fluid flushing devices. (3)

Indications-Ulcerative, constricting/obstructive lesions, barrett's esophagus, esophageal carcinoma follow up, gastritis(severity/ monitoring), peptic ulcers, polyps/tumours, duodenitis (acute/chronic, severity and monitoring), duodenal ulcer, suspected malabsorption, parasites, tumour diagnosis.(4,5)

MATERIAL AND METHOD

Present study is observational- from Jan 2004 to Dec 2006. Patient with upper gastro-intestinal complaints undergoing endoscopy and biopsy of lesions observed, were chosen. Study groups: symptomatic patients(dysphagia, vomiting, hemetemesis, abdominal lump, weight loss, appetite loss): peptic ulcer cases (monitoring or symptomatic) and suspected malabsorption.

Biopsy samples varied with lesion -sent in formalin solution, routinely processed and stained with hematoxylin and eosin.

FINDINGS

701 endoscopic upper gastro-intestinal biopsies were received and 283 were benign . Endoscopic appearances were: red velvety mucosa (Fig-2)/ irregularity / flattening / ulcers (Fig 3)/ white patches (Fig 1) / polyp (Fig 4).

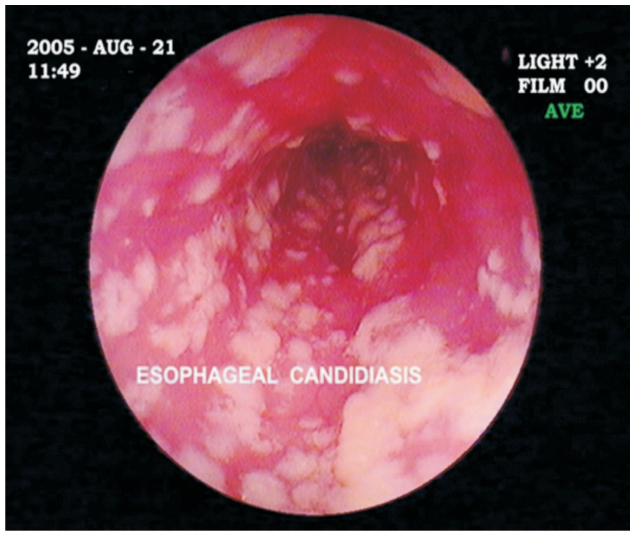

Fig. 1. Endoscopic view of esophagus - white patches

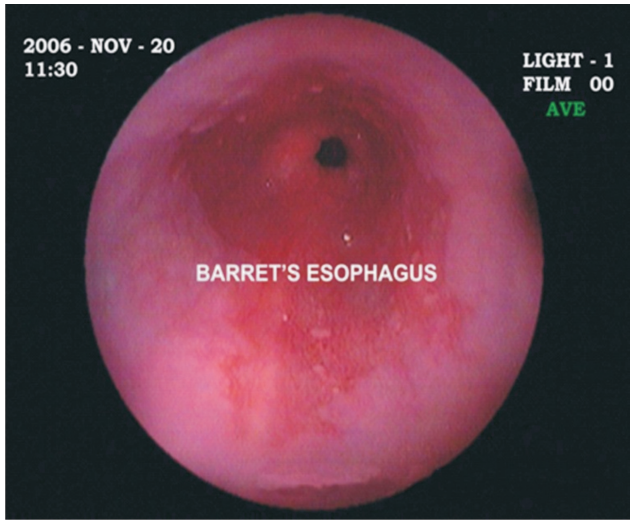

Fig. 2. Endoscopic view of esophagus - red velvety mucosa

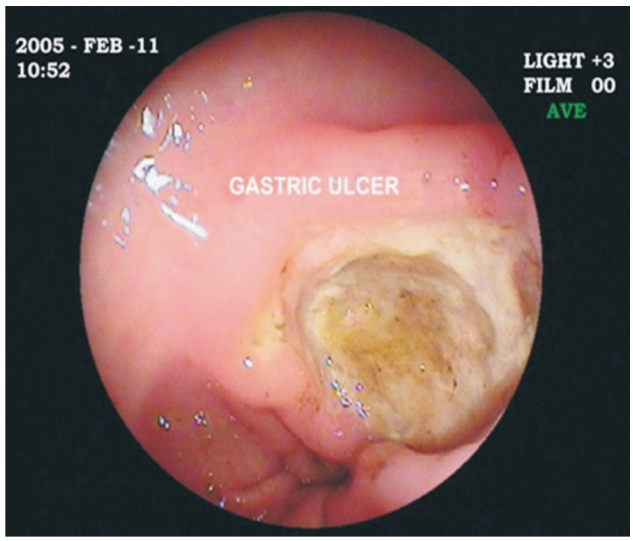

Fig. 3. Endoscopic view of gastric ulcer

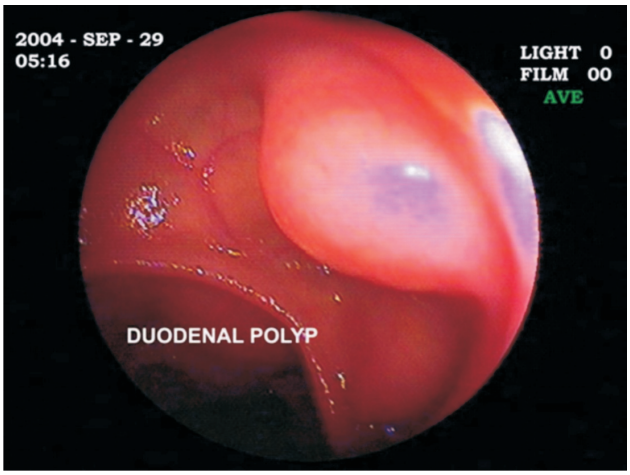

Fig. 4. Endoscopic view of duodenal polyp

Table 1. Overall distribution of lesions

S. No.	Sites	Cases	%
1	Esophagus	15	5.3 %
2	Stomach	216	76.3 %
3	Duodenum	52	18.4 %
	Total	283	100.0 %

Table 2 . Esophageal lesions

S. No	Lesions	Number	Percentage
1	Candidiasis	3	20%
2	Ulcer	3	20%
3	Barrett's Esophagus	9	60%
	Total	15	100%

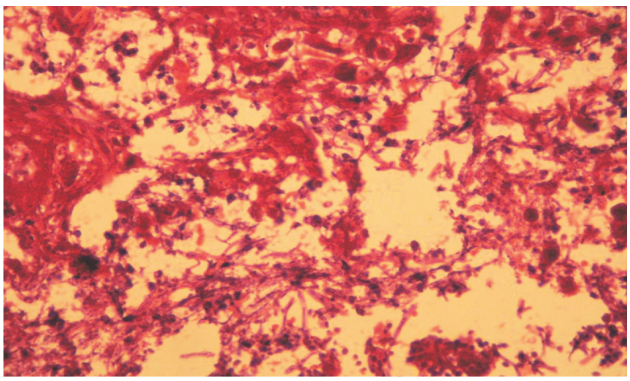

Fig. 5. Photomicrograph showing non-septate candidal hyphae in esophageal mucosa (H&E-x10)

Table 3. Gastric lesions

S.No	Lesions	Number	Percentage
1	Chronic non specific gastritis(CNSG)	156	72.22 %
2	CNSG with lymphoid follicles	6	2.8 %
3	CNSG with intestinal metaplasia	20	9.25 %

Table 3. Gastric lesions (Contd.)

S.No	Lesions	Number	Percentage
4	Eosinophilic gastritis	1	0.46 %
5	Peptic ulcer	15	6.94 %
6	H. Pylori	5	2.32 %
7	Trichuris trichura	1	0.46 %
8	Chronic atrophic gastritis	2	0.92 %
9	Pyloric stenosis(adult variant of idiopathic hypertrophy of pylorus muscle-IHPM)	2	0.92 %
10	Hyperplastic polyp	7	3.25 %
11	Fundic gland polyp with parietal cell hyperplasia	1	0.46 %
	Total	216	100 %

Among gastric biopsies, five cases showed H.pylori (Fig 7). Two IHPM (Fig 9) were obtained: with vomiting and regurgitation for a month without predisposing factor. A single case of eosinophilic gastritis (Fig 6) was obtained without parasite or peripheral eosinophilia. Gastric parasite reported was Trichuris *trichura* (Fig 8) in patient with upper gastro-intestinal upset. Gastric polyps were relatively common in antrum. Few patients had multiple polyps. One patient (omeprazole user) came with dyspepsia. Endoscopy revealed gastric polyp and fundic gland polyp with parietal cell hyperplasia on biopsy.

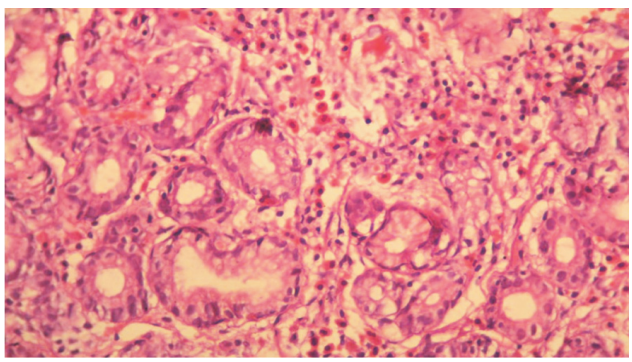

Fig. 6. Photomicrograph showing eosinophils in gastric mucosa – Eosinophilic gastritis (H&E-x40)

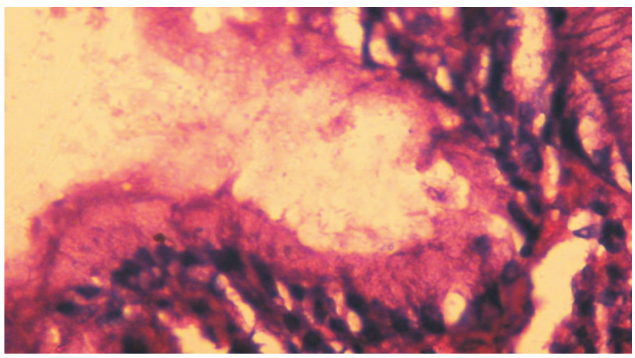

Fig. 7. Photomicrograph showing coccobacilli in gastric mucous layer–H.Pylori (H&E-x40)

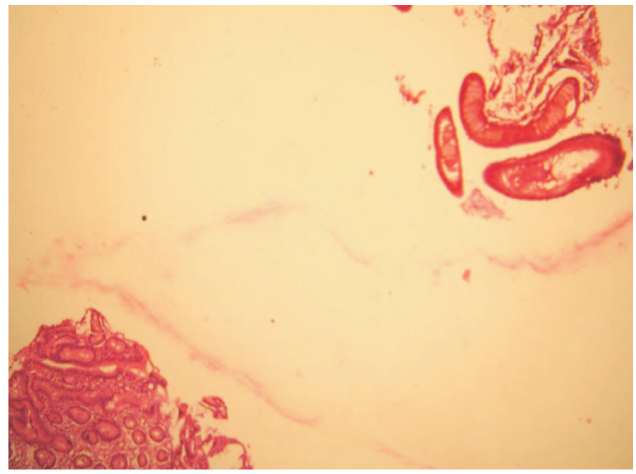

Fig. 8. Photomicrograph showing gravid Trichuris trichura in gastric biopsy (H&E- x10)

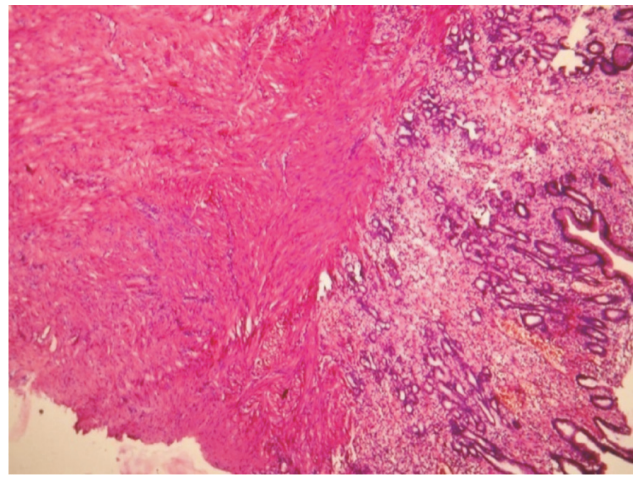

Fig. 9. Photomicrograph showing hypertrophy of pylorus muscle (H&E- x10)

Table 4. Duodenal lesions

S.No	Lesions	Number	Percentage
1	Heterotopic pancreas	1	1.92%
2	Chronic non specific duodenitis	38	73.1%
3	Acute duodenitis	2	3.84%
4	Ankylostomiasis	1	1.92%
5	Ulcer	8	15.2%
6	Partial villous atrophy	1	1.92%
7	Hyperplastic polyp	1	1.92%
	Total	52	100%

In present study, duodenal biopsies constituted 17.2%**.** One patient coming with history suspicious of malabsorption showed partial villous atrophy. Heterotopic pancreas was obtained incidentally in ampulla. Among duodenal parasites, ankylostomiasis (Fig 10) was reported.

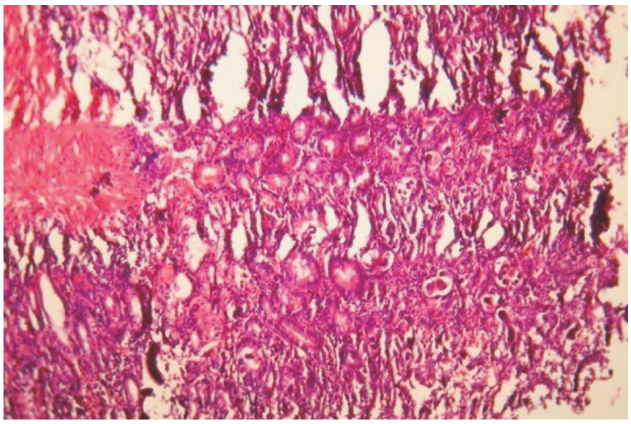

Fig. 10. Photomicrograph showing duodenal -Ankylostoma duodenale (H&E- x10)

Fibreoptic endoscopy has facilitated biopsy diagnosis, highlighting importance of broad differential diagnosis.

Commonly used fixatives -10% buffered formalin, Bouin's fluid or Hollande's fixative. Eosin or methylene blue is used for better visualisation. Stains used –H & E (routinely) and special stains like: Giemsa (Cryptosporidium, Giardia, H.pylori), Warthin Starry silver (H.pylori), PAS (fungi, neutral mucin), GMS (fungi), Meyer's mucicarmine (acid sialomucin) and Alcian blue pH 1.0 (sulphated mucin). The existence of compression artefacts should be known to avoid misinterpretation.[6]

Barrett esophagus was commonest esophageal lesion. Histologically shows fundic gastric glands, cardiac mucous glands and intestinal epithelium.[7] Kaiyo Takubo et al (2004) [8] mentioned :Parameters Committee of American College of Gastroenterology defines it as metaplastic replacement of any length of esophageal epithelium-recognized at endoscopy and confirmed by biopsy as specialized intestinal metaplasia and excluding intestinal metaplasia of cardia.

Classification Of Dysplasia–Negative, Indefinite (Probably negative, Unknown ,Probably positive) and Positive (Low and High grade).[9] Punia RS et al [10] (2006) diagnosed 13 cases of Barrett oesophagus-intestinal epithelium containing goblet cells (6) and gastric epithelium(7). Associated dysplasia was not seen, but one had adenocarcinoma. In our experience, all showed intestinal epithelium with goblet cells and one was indefinite for dysplasia. Despite there are a number of patients presenting with Barrett esophagus and carcinoma, very few show dysplasia-showing Barrett oesophagus as silent disease presenting later as carcinoma. We found higher incidence of esophageal candidiasis (20%) compared to W Rumfield et al(8.33% in 1980 and 7.29% in 1976). [11] This may be due to increasing incidence of HIV. Since candida albicans is commonest commensal, its invasion into tissue or ulcer slough is required for diagnosis. [12] In the evaluation of gastric biopsies, minimum of two samples from antrum , two from corpus, and one each from lesser and greater curvature are advisable for optimal results.[6]

In 1990, Sydney system for grading and classifying chronic gastritis was devised to provide standardized approach to biopsy interpretation. It was upgraded in 1994 as Houston-updated Sydney system. The aspects evaluated were : density of H.pylori, neutrophils, chronic inflammatory parameters, antral atrophy and intestinal metaplasia. Each graded -normal, mild, moderate and marked and scored - 0-3.[13]

Saeyed Afzal et al [14] (2006) studied 686 gastric biopsies and found chronic non specific gastritis(88.6%), H.pylori (6.9%) and peptic ulcer(1.5%). Our study is consistent.

Association between helicobacter pylori infection and peptic ulcer disease was established by Warren and Marshall (1982).[15] Our study revealed lower percentage of H. pylori gastritis (2.3%) compared to Vijaya Mysorekar et al(74.85% and 60.4%-2003).[16] This is because- H. pylori in developing countries establishes multifocal atrophic gastritis and thus, organisms are sparse and difficult to isolate, or due to chronic NSAIDS use(PG inhibition-importantly ,PG E2 and PG I 2 playing important role in mucosal protective mechanisms), mucosal damage occurred is unfavourable for H.pylori to establish. Eosinophilic gastritis is an unusual disease, occuring as part of eosinophilic gastroenteritis. Eustoma rotundatum and Anisakiasis cause high gastric eosinophilic infiltration.[17] 60 gastric biopsies were studied by Thida Lwin et al [18] (2010) showing increased eosinophils and recommended term 'histological eosinophilic gastritis' if average density of e"127 eosinophils/mm^2 or e"30 eosinophils per HPF was observed in at least five HPFs in absence of known causes of eosinophilia. Farhad Navab et al [19] (1972) also reported two such cases. We reported one case.

Trichuris trichura (whipworm) resides in ascending colon. We reported it in rare site -stomach. Similar case was reported by ST Hong et al [20] (2003) : first in literature - gastroenteritis and eosinophilic ascites with gastric trichuriasis.

IHPM is rare entity with uncertain pathogenesis. Incidence of congenital type is 0.25% to 0.5% whereas, less than 200 cases of adult variant are reported. Alizera Zarineh et al [21] (2010) reported one adult variant with no predisposing factor. We reported two such cases.

Table 5- Comparison of Gastric polyps

Polyp Features	Present study	Susan Abrahamet al[22] 2001	Enrico Cristalliniet al[23] 1992
1) Number			
- single	57%	77%	0%
- multiple	43%	23%	0%
2) Location			
a) Antrum	42.90%	60%	58%
b) Body	14.20%	31.50%	35%
c) Both	42.90%	6%	7%

Two types of gastric polyps are distinguished in recent classification - adenomatous and hyperplastic.[24] All our cases were hyperplastic and higher in antrum correlating with Susan Abraham et al [22] (2001) and Enrico Cristallini et al [23] (1992). Investigators in Netherlands evaluated 599 patients undergoing upper gastro-intestinal endoscopy to find : whether long-term proton-pump inhibitor (PPIs) use increases risk for fundic-gland polyps. The latter were noted in 23% of PPIs users and 12% of non–PPI users : fourfold higher risk . [25] Stolte et al (1993) and Odze et al (1996) concluded – Omeprazole has role in fundic gland polyps generation. Paolo Declich et al (1997) found in his study that 1of 64 patients developed de novo fundic gland polyps after two year omeprazole therapy for reflux esophagitis.[26]

Table 6. Comparison of duodenal lesions

Lesions	Present study	Patrick Fitzgibbons et al[27] 1988
1) Heterotopic pancreas	1	0
2) Chronic duodenitis	38	83
3) Acute duodenitis	2	10
4) Gastric metaplasia	0	25
5) Ankylostomiasis	1	0
6) Hyperplastic polyp	1	0

Mc Callum(1979) proposed histological grading of duodenal inflammation :

Grade I: Slight villous thickening, mildly increased cellularity in lamina propria by lymphocytes and plasma cells without significant number of neutrophils.

Grade II: Moderate villous thickening and blunting, moderately increased cellularity in lamina propria and mucosa neutrophilic infiltration.

Grade III: Severe distortion of villous architecture, significantly increased number of inflammatory cells and erosion of surface epithelium.

Chronic non-specific duodenitis is viewed as separate lesion.In our experience, incidence was 73% whereas Patrick et al [27] (1988) reported 72%. Our results are consistent.

Mohamed et al [28] (2000) studied parasites from endoscopic upper gastrointestinal biopsy in 21 patients from Saudi Arabia: *Schistosoma* ova(12) in stomach or duodenum and *Giardia* (8) and *Strongyloides*(1) in small intestine biopsies. We received one case of duodenal ankylostomiasis. Clinicians should be aware that heterotopic tissue may endoscopically present as nodule. The term "heterotopic pancreas" was first used by de Castro et al. [29] Jean-Schultz was first to report that heterotopic pancreas is pancreatic tissue found outside usual anatomical location, incidence being 0.11%-0.21%. Zhou Yuan et al [30] (2009) reported two cases- duodenal and antral. Common sites are duodenum (27.5%), stomach (25.5%) and jejunum (15.9%). Only 21 cases have so far been reported in ampulla.[31] We obtained one such case. Histopathologically, four types are described: type I (pancreatic acini, ducts, and islet cells); type II(pancreatic ducts); type III (acinar tissue) and type IV(islet cells).[32] Our case is unique -ampullary and type III.

Malabsorption syndrome causes chronic inflammation of small intestinal mucosa gradually leading to villous atrophy. Prevalence of celiac disease is 0.7–2.0%. Gold standard for diagnosis is histopathological mucosal damage. It can be unevenly distributed. Thus current recommendations conclude that diagnosis requires at least four biopsy from duodenum with endoscopic correlation. Endoscopic markers might be absent for partial villous atrophy. Giovanni Cammarota et al[33](2009) diagnosed six celiac disease cases- identified as villous atrophy -total (5) and partial (1).

CONCLUSION

Modern gastro-duodenoscopes has provided boost to endoscopists and pathologists.

We received 701 endoscopic upper gastro-intestinal biopsies and 283 were benign. Endoscopic procedure involved biopsy and histopathological diagnosis. Major esophageal lesions were barret's esophagus. Wide spectrum of gastric lesions were obtained, majority were chronic non specific gastritis. Interesting pathologies were: EOSINOPHILIC gastritis without parasitic or peripheral eosinophilia , gastric Trichuris Trichura, Fundic Gland Polyp with Parietal Cell Hyperplasia and Adult Pyloric Stenosis, Ampullary Heterotopic Pancreas and Duodenal Ankylostomiasis. We present these unusual cases to raise awareness of their existence. Thus endoscopy followed by biopsy is useful in diagnosis and management as many lesions don't require surgery.

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Conflict of Interest: Nil

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A KAP Study in Pune City Involving School Children as a Strategy for effective Vector Control in Chikungunya

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ABSTRACT

Background: Chikungunya is a reemerging, debilitating viral disease for which any specific cure or vaccine is not available. There have been massive outbreaks of Chikungunya fever in India in recent past.

Aim: To assess impact of involving school children as change agents in control of Chikungunya vector.

Study area and study design: Community based cross sectional study carried out in 178 houses of school children from 9th standard of Karmaveer Bhaurao Patil school, Katraj, which is a peri-urban area of Pune.

Study duration: From 1st July 2006 to 30th August2006.

Tools for data collection: KAP survey using pre-tested, structured questionnaire and Larval survey.

Statistical analysis: Z test for statistical analyses.

Results: A significant change in knowledge attitude and practices amongst family members of school children towards vector elimination was observed.

Conclusions: If properly involved and guided, school children can be effective change agents towards controlling Chikungunya transmission.

Keywords: *Chikungunya, Vector Control, School Children, Change Agent*

INTRODUCTION

Chikungunya is a vector-borne disease of public health significance in South-East Asia. Recently, till 10th October 2006, 151 districts of eight states/ provinces of India were affected by Chikungunya fever. The affected states were Andhra Pradesh, Andaman & Nicobar Islands, Tamil Nadu, Karnataka, Maharashtra, Gujarat, Madhya Pradesh, Kerala and Delhi. More than 1.25 million cases have been reported from the country with 752,245 cases from Karnataka and 258,998 from Maharashtra. In some areas attack rates have reached up to 45%[1]. Although, Chikungunya is not a killer disease, high morbidity and prolonged polyarthritis and chronic illness cause substantial socioeconomic impact.

There is no specific treatment for Chikungunya fever and no vaccine is available for this viral disease. The only way to prevent Chikungunya is through vector control and prevention of further transmission through early case detection and prompt treatment.[2] Containers breeding mosquito Aedes Aegypti is the major vector of Chikungunya. Vector control is not an easy task, since it involves community participation. Expert committee of WHO for the South East Asia region has also suggested involving school children to detect and eliminate breeding places of Aedes Aegypti in schools, around schools, in houses and also in the neighbourhood.[3]

A brainstorming meeting of the World Health Organization's South East Asian Regional Office held on the subject of "Priority areas for research in Chikungunya and Dengue" has recommended an evaluation of social, cultural and community behavioral practices leading to disease transmission, including knowledge, attitude and practices study in relation to different stakeholders such as general population, decision makers, health care providers,

etc.[4] Hence, the present study was carried out to assess the change in knowledge, attitude and practices concerning Chikungunya vector control after involving school children as change agents.

AIM

To assess impact of school children as change agents in control of Chikungunya vector.

MATERIAL AND METHOD

It was a cross sectional study carried out in 178 houses of school children from 9th standard of a randomly selected, private English medium school in peri-urban area of Pune. Study duration was from 1st July 2006 to 30th August2006. This being Monsoon period, it was most suitable period for vector breeding.

60 medical student volunteers from the 4th semester of the M.B.B.S. course of a private medical college were selected for KAP and larval survey. Medical students were trained in interview technique for KAP survey. Larval survey training was given by zonal entomologist. Students were taken out in the field in small batches and were given practical training for detection of breeding places of Aedes Aegypti larva.

Students from all divisions of 9th standard of a randomly selected English medium school in peri-urban area of Pune were selected as change agents for household vector control measures against Aedes Aegypti. Prior permission from the Principal of the participating school was obtained.

First KAP survey and larval survey was carried out in houses of school children by medical students in July 2006. KAP survey was taken with the help of pre-tested, structured, close-ended questionnaire. A KAP questionnaire was designed to collect data on demographic characteristics, people's knowledge of Chikungunya symptoms, mode of transmission, people's practices in managing water-holding containers and reducing mosquitoes breeding in and around their houses. The female head of household was preferably interviewed, but if she was absent, another adult resident was interviewed. Participants were informed about the purpose of the study and informed, verbal consent was obtained from them. Larval survey also was carried out in each house. Three indices, viz. the House Index (HI), Container Index (CI) and Breteau index (BI), commonly used to monitor vector breeding, were calculated as follows.

HI = (Number of houses infested / Number of houses inspected) × 100

CI = (Number of positive containers / Number of containers inspected) × 100

BI = (Number of positive containers / Number of houses inspected) × 100

After the first KAP survey and larval survey during first home visit, a group of 3- school students was assigned to each medical college student for conducting training. Each medical student trained these three school children by one-to-one communication. Training was given on Chikungunya disease symptoms, mode of transmission, preventive measures and detection as well as elimination of vector breeding places. School students were then asked to spread Chikungunya awareness in their families and also help their families to detect and eliminate vector breeding places. Students were mobilized since good, one-to-one rapport was established with medical students. They were aware that the same medical student would be coming to their houses for inspection of vector breeding places. Second home visit by same medical student was carried out after 6 weeks i.e. in the last week of August 2006. Post intervention KAP survey and larval survey was carried out during that visit. Same family member was interviewed again to assess the change in knowledge, attitude and practices towards elimination of breeding places of Chikungunya vector. The results of pre and post KAP survey and larval survey indices were statistically analyzed and discussed.

RESULTS

Total 178 houses were surveyed for KAP and for mosquito breeding places twice i.e. before and after intervention. Interval between two surveys was 6weeks. For KAP survey, interview of the female head of the household was preferred. Therefore, 82% of the respondents were women. The age of the respondents ranged between 32 and 74 years, of which 24 had studied up to Primary school, 132 up to Secondary school and 22 were graduates. Table 1 shows Socio-demographic profile of the respondents.

Table 1: Socio-demographic profile of the respondents

	Male	Female	Total
Age distribution			
<35	4	5	9
35-60	21	114	135
>60	7	27	34
Education			
Primary	2	22	24
Secondary	24	108	132
Graduation	6	16	22
Total	32	146	178

Table 2 shows change in knowledge about Chikungunya symptoms, mode of transmission and mosquito breeding places amongst family members of school children. It also gives information about change in attitude and practices of Chikungunya control.

Table 2: KAP for Chikungunya amongst households of school children (n = 178)

Attribute	Before	After	Z-value	P-value	Significance
Symptoms	32	102	-8.37	0	High
Transmission	40	125	-10.29	0	High
Breeding places	23	107	-10.6	0	High
Self-responsibility	76	97	-2.24	0.012	Medium
Infrequent cleaning	132	154	-2.96	0.014	Medium

Table 3 shows the findings of larval survey. Larval survey was carried out in each house. Total containers and total containers with breeding found were noted. Commonly used indices to monitor vector breeding viz. House Index (HI), Container Index (CI) and Breteau index (BI) were calculated before and after the intervention and it showed significant improvement.

Table 3: Findings of larval survey

Attribute	Before	After	Z-value	P-value	Significance
Uncovered containers	449	138	7.82	0	High
CI	25%	11.5%	3.34	0.004	High
HI	32%	8%	5.93%	0	High
BI	65	23	5.36	0	High

Table 4 indicates practices carried out at household level towards elimination of breeding places after spreading awareness by school children amongst family members. 78% of households took actions for elimination of breeding places and maximum response was for cleaning indoor area, followed by cleaning of overhead tank and cleaning of peri-domestic area. 22.9% households did not carry out any intervention measures.

Table 4: Interventions done by families after first visit

Intervention	Total number of families* (%)
Cleaned overhead tanks	60 (33.6%)
Cleaned peri-domestic area	49 (27.5%)
Cleaned indoor area	110 (61.8%)
Other	4 (2.2%)
None	39 (21.9%)

* Multiple responses

Fig. 1. Inspecting earthen pots in garden

Fig. 2. Inspecting underground water storage tank

Fig. 3. Open terraces

Fig. 4. Coconut shells

DISCUSSION

Involving school children as change agent and their mobilization for spreading awareness and elimination of vector breeding in their households was the innovative strategy used for intervention in this study. Each medical student was assigned the task of training just three school children and carrying out pre and post intervention survey in the houses of these three school children. This student to student approach was helpful in establishing one-to-one rapport and resulted in effective mobilization of school children.

The study location was peri-urban area of Pune city. Irregular corporation water supply in that area had resulted in tendency to store water in containers and therefore the study area was most suitable for vector breeding. Monsoon season was preferred for the study since it was the most favorable season for mosquito breeding.. Awareness of mode of transmission was most important for prevention. Studies have revealed that human knowledge, attitude and practice of various methods of personal and household protection against mosquito bites vary in different endemic regions of tropical countries.5,6

In the present study, pre-KAP awareness of disease transmission was 27.52%. In a similar study carried out in Gujarat7, 3.7% of the respondents were aware of how Chikungunya spreads and in a study carried out in rural Karnatak8, 20% of the respondents who suffered from Chikungunya and 34% of the respondents who did not suffer from Chikungunya were aware of the mode of transmission of the disease. In a study from Emilia-Romagna, Italy9, it was found that, 61% of the respondents knew that Chikungunya virus is transmitted through mosquito bites. Since our study was carried out during early stage of the epidemic of Chikungunya, awareness was less as compared to other studies.

Significant increase (70.2% as against 27.52%) in the knowledge of disease transmission was observed in the post-intervention KAP survey.

Awareness of vector breeding places was very low at 12.9% as compared to the study done in Karnataka8 where 48% of those affected and 66% of those unaffected had knowledge about the vector breeding places. Awareness of the vector breeding places increased to 60.11% in the post-intervention KAP survey.

The aim of the study was to inform people of the available scientific knowledge of the disease transmission so that they could use this knowledge to bring about change of attitudes and practices for elimination of vector breeding.

Attitude towards self-responsibility of keeping peri-domestic area clean was increased from 42.69% to54.49. But only 27.5% of the respondents had actually cleaned the peri-domestic area before second visit for the post-intervention KAP survey. This shows that the knowledge and attitude change had not resulted into practice of peri-domestic cleaning in every house.

Significant change was observed in the number of uncovered containers. Total number of uncovered containers was drastically reduced from 449 to 138 after the intervention. Thus change in the knowledge had definitely resulted into practice as far as covering of the containers is concerned.

Larval survey done during pre-intervention period showed that the Container Index, the House Index and the Breteau Index were 25%, 32% and 65 respectively. Similar survey in Avadi in south India10 reported that the mean number of containers per household was 9 and the HI and the BI were 30% (17/56) and 39% (22/56) respectively. In a peri-urban zone in the Andaman and Nicobar Islands11, CI was found to be 20.45% and the BI was 104.8. In a similar entomological survey carried out in the Jeli district of Malasia12, The HI, CI and the BI were estimated as 8.44%, 33.4% and 8.71 respectively.

In the present study, Larval indices like the CI, the HI and the BI were reduced significantly after intervention. CI was reduced from 25% to 11.5%, HI was reduced from 38% to 8% and BI was reduced from 65 to 23, thereby reducing the risk of transmission of Chikungunya.

Similar results were obtained following a planned and systematic training and mobilizing program, in Sri Lanka13 where, 7th, 8th and 9th grade students in 2 schools performed multiple mosquito control and education interventions in their communities once a week for 8 weeks. All proportions of the larval indexes were found to be significantly lower following the intervention in that study.

Present study revealed that indoor area cleaning was done in 61.8% of the households. 33.6% of the household cleaned overhead tanks. 27.5% of the households cleaned peri-domestic area and 21.9 % of the households did not take any action. This indicates that the change in knowledge had resulted into action in 78% of the households.

One of the programs organized by the UNICEF on community hygiene also revealed that children are the best change agents at both home and in the community14. Under the National Vector Borne Disease Control Programme15, guidelines have been given to develop mosquito control booklet for school children and to utilize school children as change agents for the IEC and the vector control activities.

In a retrospective study on Chikungunya outbreak in India which was initiated during 2007 in five states, viz. Delhi, Madhya Pradesh, Orissa, Maharashtra and Kerala, for knowledge, attitude, belief and practice regarding Chikungunya fever prevention, Orissa appeared as the most ignorant state and Maharashtra was second least ignorant state as far as knowledge, attitude, belief and practices for Chikungunya fever prevention and control were concerned16.

Hence there is an urgent need to find out Innovative ways to obtain behavioural results associated with vector control, especially in disease like Chikungunya, where specific treatment or vaccine is not available.

CONCLUSION

The current study reveals that school children can be effectively involved as change agents for vector control activities in their households. Elimination of breeding sites can contribute to the reduction of mosquito densities, thereby reducing the transmission. Intensive awareness campaign in the community involving school children will be very effective in controlling spread of Chikungunya and the education sector could be an important partner in Chikungunya control.

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Epidemiological Profile of HIV Positive Cases Attending ICTC of a Teaching Hospital in North Karnataka

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ABSTRACT

Background: HIV / AIDS (Human Immunodeficiency Virus / Acquired Immunodeficiency Syndrome) continues to be a major threat to the community. Integrated Counselling and Testing Centre (ICTC) provides a key entry point in HIV prevention and care.

Objectives:

1. To study socio-demographic profile and risk behaviour pattern of HIV positive ICTC visitors.
2. To know the common sources of referral to ICTC.
3. To know HIV status of spouse / partner.

Study design: A cross-sectional record based study.

Methodology: The present record based cross-sectional study was conducted in November and December 2010 by going through the records of HIV positive cases who visited the ICTC of BIMS Hospital, Belgaum, Karnataka, from January 2007 to December 2009.

Results: The study included all 3,447 HIV positive cases with 43.1% females. 2,532 (73.4%) study subjects belonged to 15 - 49 years. 1537 (78.3%) males and 1244 (83.8%) females were married. 869 (25.2%) subjects had visited the ICTC voluntarily. 1367 (39.7%) were referred by doctors from government and private health care facilities. 1242 (36.1%) subjects did not disclose their risk behaviour pattern. Majority of the responded subjects (74.3%) had heterosexual partners. In 74.2% couples, both partners were HIV infected.

Conclusion: The present study revealed high prevalence of HIV positivity in the visitors of ICTC Belgaum. People have begun using ICTC facilities which reflects greater awareness and change in the attitude towards HIV in the community.

Keywords: *ICTC, HIV Positive, Risk Behavior, Counseling*

INTRODUCTION

Globally, HIV continues to be a major public health priority. According to AIDS Epidemic Update, 2009[1] globally, approximately 33.4 million people are living with HIV / AIDS {adults (31.3 million), women (15.7 million) and children below 15 years (2.1 million)}. Asia, home to 60% of the world population, is second only to Sub-Saharan Africa in terms of number of people living with HIV. India accounts for roughly half of Asia's HIV prevalence with proportion of women accounting 39% of prevalence in the region in 2007 (NACO 2008). Some organizations such as UNAIDS, WHO and NACO estimate national adult prevalence in India as 0.36% amounting to 2.7 million HIV positive people[2].

HIV testing with pre and post test counseling aiming behavior change communication for core / bridge population is the main element of holistic model of health care[3]. The Integrated Counselling and Testing Centre (ICTC) provides a key entry point for a range of interventions in HIV prevention and care like preventing HIV transmission from mother to child during child birth, referrals for STD treatments, condom promotion, care and support for treatment of

opportunistic infections, management of HIV – TB co-infection and for referrals to Anti-Retroviral Therapy (ART). Introduction of highly active anti retroviral therapy (HAART) has dramatically improved the prognosis of HIV infected patients in the industrialized world. Until recently, however access to treatment has been a severely limited in developing countries, where the majority of people with HIV/AIDS live[4]. Integrated counselling and testing is a non coercive, confidential and cost effective approach that provides information, education and communication to motivate behavior change in HIV positive individuals. Both pre-test and post- test counseling have become standard components of prevention oriented HIV antibody testing programmes[5].

In India, Karnataka belongs to one among the other higher prevalence states with HIV infection rate more than 5% among high risk groups and 1% or more in antenatal women[6]. In Karnataka, first case of HIV was reported from Soundatti, District Belgaum. Karnataka is vulnerable to HIV epidemic as it is bordered by well-established & further growing HIV epidemic states like Maharashtra, Goa, Andhra Pradesh and Tamilnadu. Common sharing with many demographic and economic ties with these neighboring states & major transportation routes, high levels of poverty leading to economic pressures that promote commercial sex work are major leading factors. The present study was conducted to study the socio-demographic profile & risk behaviour pattern of HIV positive ICTC visitors, to know the common sources of referral to ICTC and to know HIV status of spouse / partner**.** The present study may provide some important clues in planning the interventions for preparing local action plan and implementing the Information, Education, and Communication (IEC) & Behavioral Change Communication activities for people at large with an opportunity to know and understand HIV/AIDS.

MATERIALS AND METHOD

The present cross-sectional record based study was conducted in ICTC of BIMS Hospital, Belgaum (North Karnataka). Belgaum district has a population of 42,14,505 comprising 51.0% males with average literacy rate of 64.4% (female literacy rate 52.5%) and 76.0% being from rural area, spread over 13,415 square kilometer area as per 2001 census[7]. The data was collected by going through the records of all 3,447 HIV positive cases who visited ICTC from January 2007 to December 2009. The detailed, anonymous and unlinked information of these HIV positive individuals like age, gender, marital status, education, occupation, residence, source of referral to ICTC, risk behavior pattern, HIV status of spouse/partner etc. was entered in the register maintained at ICTC as per National AIDS Control Organization (NACO) guidelines, by the counselor who interviewed the visitors under strict confidentiality. This information was recorded when the individual visited ICTC for the first time. After pre-test counseling and obtaining the consent from the visitors, blood samples were collected. HIV status was diagnosed by using 3 different antigens (Comb Aids, Capillus / Triline and Tridot) as recommended by NACO. This collected data was compiled, tabulated and analyzed by using SPSS software version 11. Chi-square test was used to test statistical differences in the study parameters. P value less than 0.05 was considered statistically significant,

RESULTS

As shown in Table 1, the general profile of ICTC visitors revealed that all the registered visitors (10,791) had received pre test counselling and almost all of them (99.8%) gave their consent thereafter for HIV testing. 10,557 (98.0%) clients who underwent testing, received post test counselling. 3,447 (32.0%) of the total tested visitors were found to be HIV positive after three specified tests.

Table 1. General profile of ICTC visitors

Characteristics	Males	Females	Total
1. No. of Clients registered	6,425	4,366	10,791
2. No. of clients received pretest counseling	6,425	4,366	10,791
3. No. of clients tested for HIV	6,411	4,354	10,765
4. No. of clients received post test counseling	6,338	4,219	10,557
5. No. of clients received HIV test results	6,338	4,219	10,557
6. No. of clients tested HIV positive	1,963	1,484	3,447
7. No. of HIV-TB co-infections detected	298	137	435

General socio-demographic profile of study subjects as shown in Table 2, revealed that of the total 3,447 HIV positive cases, 1484 (43.1%) were females. 2532 (73.5%) subjects belonged to the age group of 15 to 49 years – the most sexually active and economically productive age group, 513 (14.9%) being less than 15 years. The data on educational status revealed that 621 (31.6%) males and 576 (38.8%) females were illiterate. The distribution of cases according to occupation showed that 1,123 (32.6%) subjects were engaged in unskilled / semiskilled works and 518 (34.9%) females were housewives while students contributed to 12.0%. All the females and 1,831 (93.3%) males were residing with their family members.1,537 (78.3%) males and 1,244 (83.8%) females were married. More than half of the subjects (51.6%) were from rural area.

Table 2. Socio-demographic profile of study subjects

Characteristics		Males N= 1963 (%)	Females N= 1484 (%)	Total N= 3447 (%)
Age group	> 15 years	301 (15.3)	212 (14.3)	513 (14.9)
	15-49 years	1414 (72.1)	1118 (75.3)	2532 (73.4)
	≥ 50	248 (12.6)	154 (10.4)	402 (11.7)
Education Status:	Illiterate	621 (31.6)	576 (38.8)	1,197 (34.7)
	Primary	392 (20.0)	309 (20.8)	701 (20.3)
	Secondary	419 (21.4)	391 (26.3)	810 (23.5)
	Higher secondary	49 (02.5)	178 (12.1)	669 (19.4)
	Graduate & above	40 (02.0)	30 (02.0)	70 (02.1)
Occupation:	Unemployed	201 (10.3)	219 (14.8)	420 (12.2)
	Unskilled	398 (20.3)	211 (14.2)	609 (17.7)
	Semi-skilled	412 (21.0)	102 (06.8)	514 (15.0)
	Skilled	618 (31.4)	215 (14.5)	833 (24.1)
	Professional	98 (05.0)	38 (02.6)	136 (04.0)
	Student	236 (12.0)	181 (12.2)	417 (12.1)
	Housewife	-	518 (34.9)	518 (15.0)
Marital status:	Married	1537 (78.3)	1244 (83.8)	2781 (80.7)
	Unmarried	426 (21.7)	240 (16.2)	666 (19.3)
Residence:	Rural	986 (50.2)	791 (53.3)	1777 (51.6)
	Urban	977 (49.8)	693 (46.7)	1670 (48.4)

Table 3 shows the source of referral to ICTC. Majority of the subjects 1,367 (39.7%) were referred by doctors from government and private health care facilities for their illness, while 869 (25.2%) had visited ICTC voluntarily. 537 (15.6%) study subjects were referred by DOTS centre and 435 (12.7%) cases were having HIV –TB co-infection. Table 4 shows risk behaviour pattern of study subjects. 418 (21.3%) males & 824 (55.5%) females did not respond positively to the question on the pattern of risk behaviour followed. 77.2% males and 67.6 % females who responded had heterosexual patterns, while 48 (03.1%) cases were involved in homosexual practices. The data on HIV status of spouse / partner showed that of the total 1,298 couples who visited ICTC, both partners were HIV infected in 963 (74.2%) couples, while in 31 (02.4%) couples, only female partners / wives were infected . 1,476 (42.8%) cases had HIV infected family members (spouse / partners).

Table 3. Source of referral to ICTC

Source	Males N= 1963 (%)	Females N = 1484 (%)	Total N= 3447 (%)
Voluntarily	451 (23.0)	418 (28.2)	869 (25.2)
Govt. Health Facilities	679 (34.6)	523 (35.2)	1202 (34.9)
NGO's	263 (13.4)	162 (11.0)	425 (12.3)
DOTS centre	328 (16.7)	209 (14.1)	537 (15.6)
Blood bank	06 (00.3)	02 (00.1)	08 (00.2)
Private Health Facilities	102 (05.2)	63 (04.2)	165 (04.8)
Others	134 (06.8)	107 (07.2)	241 (07.0)

(χ^2 = 19.93 and P< 0.01)

Table 4. Risk behaviour pattern of study subjects

Risk Behaviour	Males N= 1963 (%)	Females N= 1484 (%)	Total N= 3447 (%)
Heterosexual partners	1193 (60.8)	446 (30.1)	1639 (47.5)
Homosexual partners	48 (02.5)	-	48 (01.4)
Blood transfusion	03 (0.2)	02 (0.2)	05 (00.1)
Parent to child	301 (15.2)	212 (14.2)	513 (14.9)
Did not respond	418 (21.3)	824 (55.5)	1242 (36.1)

(χ^2 = 479.5 and P < 0.000)

DISCUSSION

The general profile of ICTC visitors revealed that all the registered visitors (10,791) had received pre-test counselling and almost all of them (99.8%) gave their consent thereafter for HIV testing similar to the findings in Ahmadabad study[3]. This indicates the effectiveness of counselling in the centre. In the present study, the prevalence of HIV positivity among the visitors attending ICTC was found to be 32.0% which was significantly higher than that reported in the similar studies conducted in Udupi (09.6%)[8] in 2007, West Bengal (17.1%)[9] in 2003 and Ahmadabad (04.8%)[3] in 2007. Females and children below 15 years of age contributed 43.1% and 14.9% to HIV infection load in ICTC respectively, which is comparable to the findings in Andhra Pradesh study[10] but higher than national average of 39.0% females and 3.5% children[6]. The major cause of concern is high HIV infection rate in females as it will lead to a proportionate increase in the children being infected by transmission from the infected mother. 2,532 (73.4%) HIV infected subjects belonged to the age group of 15 – 49 years which is relatively lower than the national figure (88.6%)[6] and that found in other similar studies[8,9,10,11,12]. High prevalence in this age group can be considered as forecasting of financial burden as well as loss of youth for the nation. Similar to other studies[3,10,12], the distribution of cases according to occupation showed that 1,123 (32.6%) subjects were engaged in unskilled / semiskilled works and 518 (34.9%) females were housewives while students contributed to 12.0%

Majority of the subjects were referred by doctors from government and private health care facilities for their illness, while 869 (25.2%) had visited ICTC voluntarily for routine screening purpose which was lower than the findings in Udupi study (50.6%)[8], Ahmadabad study (38.5%)[3] and higher than the figures reported from a study in Chennai in 2004 – 2005 (3.4%)[13]. This improved tendency of voluntary visit to ICTC could be attributed to the increasing awareness in the community which is created by health care personnel, mass media etc. 537 (15.6%) subjects were referred by DOTS centre while relatively lower figures were found in Udupi (11.6%)[8]. HIV – TB co-infection was found in 435 (12.6%) cases HIV and TB.

The risk behaviour pattern in the positively responded cases showed that 77.2% males and 67.6% females were having heterosexual partners which is lower than that found in ICTC Udupi (98.9% males and 75.0% females)[8]. Commonest mode of transmission was found to be heterosexual practice which is similar to the findings of Udupi study (97.0%)[8], Ahmadabad study (51.3%)[3] and that found in Eastern India[14]. 48 (02.5%) cases were having homosexual practices which was lower than that observed in Ahmadabad study (10.0%)[3]. 418 (21.3%) males and 824 (55.5%) females did not disclose their high risk behaviour which was also found in other studies like in Udupi (42.8% males and 90.8% females)[8] and in West Bengal (29.9% males and 53.8% females)[9] and in Ahmadabad (overall 33.0%)[3] and Andhra Pradesh[10]. Such an attitude of non disclosure of high risk behaviour could be attributed to fear of discrimination, stigma, isolation or punishment by family or community a member which still continues to exist in the society towards HIV infected individuals. The data on HIV status of spouse / partner revealed that in the majority of couples (74.2%), both partners were HIV positive while only male partners / husbands were infected in 23.4% of couples. 1,476 (42.8%) cases had HIV infected family members (spouse / partners) which is significantly higher than that observed in Udupi (12.9%)[8].

However, the present study is subject to certain limitations since the information like socio-economic status, type of retro viral infections (HIV I or HIV II or both), and opinion of individuals about disclosure of test results, fear about social / familial support they would face after disclosing their HIV status, condom use etc. were not available, which would have given a

new dimension to the present study. As the information collected is a hospital based data, it decreased its external validity.

CONCLUSION

The present study revealed higher prevalence of HIV positivity, especially in children below 15 years of age. There is an imminent need for IEC efforts on various aspects of HIV / AIDS to community at large to help prevent contraction and transmission of HIV. Being diagnosed as HIV positive has profound emotional, social, behavioral and medical implications, which directly or indirectly affects family life, society response, work status, educational potential and human rights. Increased availability and availing of ICTC services will definitely prove to be a huge potential benefits for the community at large. The empowerment of attendees and empathic attitude of staff at ICTC would be crucial for exhibiting stigma free attitudes.

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A Study of QT Interval of Healthy Individuals and its Determinants in the Indian Setting

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ABSTRACT

Background & Objectives: This study aimed at determining the simultaneous impact of socio-economic status, lifestyle factors like daily exercise, serum potassium and lipid profile on QTc interval in healthy subjects.

Method: A facility-based cross-sectional study was conducted during July-Dec 2009 in a tertiary care hospital. Data on heart rate corrected QT interval (QTc), age, gender, socio-economic status, body mass index, habit of daily exercise, smoking and alcohol status, serum potassium, and lipid profile were obtained in 153 apparently healthy subjects.

Results: The QTc interval increased significantly with advancing age ($r = 0.180$, $p = 0.026$) and higher socio-economic status ($r = - 0.183$, $p = 0.023$). Males (245.97 ± 1.72, mean ± SEM, $P < 0.0001$) had significantly shorter QTc interval than females (257.72 ± 2.22) and subjects with daily habit of exercise had significantly shorter QTc interval than their counterparts ($P < 0.008$). QTc did not correlate at significant level with serum potassium or lipid profile in univariate regression analysis. A backward stepwise multivariable regression analysis showed that heart rate ($P < .0001$), gender ($P < .001$) and age ($P < .003$) independently predicted QTc interval and daily habit of exercise was a weak ($P = .106$) predictor of QTc.

Interpretation & Conclusions: QTc interval is prolonged with increasing age, faster heart rate and female gender. Screening of these individuals for detection of the risk of cardiac arrhythmias may be useful for reducing cardiovascular morbidity.

Keywords: *Associates, Exercise, Indian population, QT Interval*

INTRODUCTION

The QT interval in ECG is a measure of duration of ventricular depolarization and repolarization[1]. QT Prolongation is associated with an increased cardiovascular morbidity and mortality owing to electrical instability[2, 3]. The QT interval is affected age and sex of the patient, heart rate, autonomic nervous tone, sympathomimetics, electrolytes especially calcium, sleep and some drugs like quinidine, procainamide and amiodarone[4].

Several authors have investigated the relationship between age and sex, with QTc (corrected QT) interval and obtained conflicting results[5, 6] because of the presence of confounding factors such as weight, smoking and alcohol intake, which in addition to age and sex influence the ECG parameters. Moreover, in most studies, high risk patients with QT interval prolongation were often studied[7, 8, 9]. Mangoni et al[10] have studied the combined effects of various physiologic and lifestyle factors on QTc interval in normal healthy subjects. However; simultaneous impact of socio-economic status and lifestyle factors like daily physical exercise along with serum potassium, lipid profile, on QTc interval in health subjects has not been reported hitherto.

This study was designed to find out the determinants of QTc interval in healthy subjects across the social strata in order to provide an opportunity to understand the genesis of variability in QTc interval.

METHOD

In a facility-based cross-sectional study during July to December 2009 apparently healthy persons, who attended the hospital for routine health check-up were

subjected to an oral questionnaire after obtaining an informed consent. Demographic, socio-economic and personal history was obtained from the participants using a structured and pre-tested questionnaire. Cardiac examination was done to rule out any cardiac pathology. Three recordings of blood pressure were measured using a mercury sphygmomanometer, after the subject rested in supine position for 10 minutes. The mean of the last two readings were considered.

Subjects, who met the inclusion (Age = 18 to 60 years, both sexes, Systolic BP < 139 mm of Hg and Diastolic BP < 90 mm of Hg) and exclusion criteria (Hypertension, Diabetes Mellitus, Ischaemic heart disease, h/o ingestion of drugs likely to interfere with ventricular repolarization and conduction defects on ECG) were selected. Body mass index (BMI, kg/mt^2) was calculated. Moderate-intensity aerobic physical activity for a minimum of 30 minutes on five days a week was considered as daily physical exercise[11]. Blood sample was analyzed for serum potassium, total cholesterol, serum triglycerides, serum LDL, serum VLDL and serum HDL. A routine standard 12 lead surface electrocardiogram was recorded in supine position (speed 25 mm/sec., voltage 10 mm/mV). All ECGs were recorded between 9.00 - 11.00 AM.

ECGs were scanned and transferred to a personal computer in JPEG format. With 100 % magnification, using an on-the-screen virtual caliper, "screen calipers[12] version 3.3" the durations were measured in pixels and subsequently converted to milliseconds[13]. QT interval, which is the interval between the beginning of QRS complex and the end of T wave, was measured in the lead with the longest interval on the iso-electric line. RR interval was measured, that preceded the longest QT interval of each ECG. Corrected QT (QTc) interval was calculated using Bazett's formula[14] (QTc = QT/ ″RR). All electrocardiograms were analyzed by the second author blinded to the clinical data.

Using Kuppuswamy's socio-economic classification[15], updated for 2007, the study subjects were classified into various socio-economic classes based on their education, occupation and per-capita family income. The study was approved by the Institutional ethics committee.

SPSS12.0 software was used for statistical analysis. Continuous variables were expressed as mean ± SEM. Pearson's correlation coefficients were used to assess the associations between the continuous variables. Differences of QT interval between the groups were examined using Student's t-test and the test of analysis of variance (ANOVA) for non-dichotomous variables. Pearson's chi-square test was used to evaluate the differences in proportions between the groups. Stepwise multiple regression analysis was performed with QTc as dependent variable and others as independent variables to elicit the determinants of the respective durations. A *P* value <0.05 was considered statistically significant.

RESULTS

One hundred and fifty three subjects were included for analysis based on the inclusion and exclusion criteria. The mean QTc interval in this sample population was 250.04 ms (± SEM 1.43). The QTc values in relation to the general characteristics of the study subjects are illustrated in table 1.

Table 1: QTc values in relation to the general characteristics of the study subjects

Characteristic	Sample (%)	Mean QTc (± SEM)*	Significance Test	P value
Age				
Up to 30 years	29 (19.0)	241.28 ± 2.60	ANOVA	
31 – 60 years	98 (64.1)	252.17 ± 1.84	F = 4.60 df = 2	*P* = 0.012**
61years & above	26 (17.0)	251.77 ± 3.32		
Gender				
Male	100 (65.36)	245.97 ± 1.72	t-test	*P* < 0.0001
Female	53 (34.64)	257.72 ± 2.22	t = -4.11 df = 151	
Socio-economic status				
Upper lower SES	66 (43.1)	253.79 ± 2.30	ANOVA	*P* = 0.08***
Lower middle SES	22 (15.0)	246.66 ± 3.26	F = 2.30 df = 3	
Upper middle SES	55 (35.9)	248.49 ± 2.20		
Upper SES	10 (5.9)	240.68 ± 1.43		

Table 1: QTc values in relation to the general characteristics of the study subjects (Contd.)

Characteristic	Sample (%)	Mean QTc (± SEM)*	Significance Test	P value
Smoking				
Yes	24 (15.7)	245.99 ± 3.15	t-test	$P = 0.22$
No	129 (84.3)	250.79 ± 1.59	t = -1.22 df = 151	
Alcohol				
Yes	30 (19.6)	246.80 ± 2.84	t-test	$P = 0.26$
No	123 (80.4)	250.83 ± 1.64	t = -1.19 df = 151	
Daily Exercise				
Yes	16 (10.5)	238.95 ± 4.30	t-test	$P < 0.008$
No	137 (89.5)	251.33 ± 1.48	t = -2.70 df = 151	
Body Mass Index (BMI)				
Thinness (<18.49)	14 (9.2)	245.09 ± 4.43	ANOVA	$P = 0.54$
Normal (18.5 to 24.99)	73 (47.7)	250.81 ± 1.97	F = .618 df = 2	
Overweight (> 25)	66 (43.1)	250.23 ± 2.32		

* SEM: Standard error of mean

** Pearson's correlation analysis of QTc on age with age as continuous variable; r = 0.180, $P = 0.026$

***Pearson's Correlation analysis of QTc on SES with SES as continuous variable; r = - 0.183, $P = 0.023$

QTc interval increased significantly with advancing age and higher socio-economic status. Males and subjects with daily habit of exercise had significantly shorter QTc interval than their counterparts. QTc did not correlate at significant level with serum potassium or lipid profile in univariate regression analysis. A backward stepwise multivariable regression analysis showed heart rate, gender and age as independent predictors of QTc at significant level after adjusting for socio-economic status and exercise (table 2).

Table 2: Multiple regression analysis of QT interval (Dependent variable heart rate corrected QT interval)

Model		B	SE	Beta	T	Sig.	R	R^2	Adj. R^2
1	(Constant)	182.526	13.269		13.756	.000	.509	.259	.234
	HR	.409	.095	.313	4.283	.000			
	Age	.268	.088	.220	3.035	.003			
	Gender	9.273	2.707	.250	3.425	.001			
	Exercise	6.864	4.223	.119	1.625	.106			
	SES	-1.178	1.284	-.068	-.918	.360			
2	(Constant)	176.483	11.513		15.330	.000	.505	.255	.235
	HR	.414	.095	.317	4.344	.000			
	Age	.279	.088	.229	3.184	.002			
	Gender	9.655	2.673	.261	3.611	.000			
	Exercise	7.422	4.177	.129	1.777	.078			

Discussion

QTc interval of this subpopulation was much lower than the studies conducted elsewhere[10]. Though a meta-analysis would be required to draw out the correct interpretation, the variation may be due to genetic pattern of this sub-population.

The age, gender and the heart rate independently predicted QTc interval, after correcting for other variables such as socio-economic status and daily physical exercise. Previous studies[5,6] have investigated the relationship between age and QTc interval, and demonstrated that with increasing age, QTc interval was prolonged. Mangoni et al[10] showed that in healthy subjects, age independently predicted QTc interval after adjusting for gender, smoking and blood pressure. Su HM et al[16] discussed conflicting results obtained by various authors on the relationship between age and QTc and hypothesized that the discordance might be due to the cross-sectional study designs. In contrast,

their longitudinal study effectively avoided the influence of inter-subject variations and showed that QTc significantly ($P < 0.001$) increased during the 4-year follow-up period in both the genders. The prolongation of QTc interval with ageing may be secondary to age related cardiac hypertrophy, patchy myocardial fibrosis and neuro-hormonal activation[10, 16].

The relationship between gender and QTc interval has been investigated earlier[10, 17, 18]. It showed that women had consistently longer QTc. This gender-related difference seems to be due to prolongation of duration of repolarization in women and this phenomenon might be related to blood levels of different sex hormones[10]. A longer QTc in women may be the predisposing cause of increased risk of drug induced ventricular tachycardia[19].

In the present study, heart rate was also a significant predictor of QTc interval. Fananapazir et al[20] demonstrated for the first time, the contributions of the intrinsic effects of heart rate to QT interval and showed heart rate as one of the determinants of QT interval. Similarly, Pearl W et al[21] also showed QTc interval varying directly with heart rate in 781 healthy children of 10-18 years age. Chauhan VS et al[22] has reported variation of the QTc interval during accelerating and decelerating heart rate. During the univariate analysis, study subjects with a habit of daily exercise had significantly ($P < 0.008$) lower QTc interval as compared to their counterparts, which was a weak predictor of QTc as evident during the multivariable analysis. Schouten EG et al[23] had also noted similar findings, but the association was not statistically significant owing to smaller numbers. Studies involving larger samples are required to establish this relationship. It might be speculated that changes in lifestyle with regard to physical exercise may have a preventive impact[23].

This study also revealed that there was a significant ($P = 0.019$) correlation ($r = - 0.183$) between socio-economic status and QTc interval during the univariate analysis with higher socio-economic status subjects having shorter QT interval. The relationship between socio-economic status and QTc interval has not been studied earlier. However, it has been shown[24] that malnourished adults hospitalized in general clinical wards were more likely to have longer QTc interval. Similarly, an inverse association existed between socio-economic status and coronary heart disease mortality[25].

CONCLUSION

In apparently healthy individuals the relative prolongation (within physiological range) of the QTc interval is determined by age, gender and the heart rate. The study also showed significant association between QTc interval and the subject's habit of daily exercise and the socio-economic status. However they were statistically not significant in the final regression model. This might be due to relatively small sample size. Thus, QTc interval is prolonged with increasing age, faster heart rate and female gender which in turn is increases the risk of ventricular arrhythmias. Regular screening of these individuals for detection of the risk of cardiac arrhythmias may be useful for reducing cardiovascular morbidity.

Conflicts of Interest: None declared

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An Analysis of Bacteriological Profile of Intensive Care Unit in Tertiary Care Hospital

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ABSTRACT

The frequency of infections at different anatomic sites and the risk of infection vary by the type of ICU. The samples like Intravenous line tip, pus, urine & blood from patients on ventilator, on central line and with urinary catheter from ICU of Medicine, Pediatric, Burn, Surgical, Respiratory and Trauma were taken for study and were transported immediately to the Microbiology Laboratory for culture of the sample on routine culture media and incubation at 37°C for overnight. This study was carried out on 650 samples. The 252 bacterial isolates from patients admitted in ICU were taken in account. The highest number of isolates were of Gram negative bacteria having cases of pseudomonas sp. are 98 (38.8%) cases followed by 50(19.84%) of Escherichia coli, 20(7.93%) Klebseilla sp & Proteus vulgaris were 16(6.34%) and Citrobacter sp. cases were 05(1.98%) and cases of Gram positive cocci includes 63(25%) cases of staphylococcus aureus. .Highest sensitivity of 89% is noticed with Imipenem and lowest sensitivity with gentamycin and norflox are 23% and 00 % respectively.

INTRODUCTION

Patients hospitalized in ICUs are 5 to 10 times more likely to acquire nosocomial infections than other hospital patients. Infections acquired in the intensive care unit (ICU) account for substantial morbidity, mortality, and expense.[1,2] In a point prevalence study evaluating the extent and patterns of infection among more than 13,000 patients in ICUs around the world, 51 percent of patients had documented infection and 71 percent were receiving antimicrobial agents; gram-negative infections accounted for 63 percent of infections.[2]Since the 1980s, infectious disease specialists have recognized that ICU patients acquire nosocomial infections at a much higher rate than patients elsewhere in the hospital. For ICU patients, the risk is as much as 5 to 10 times greater than for those on general medical wards[3,4,5,6] This increased risk of nosocomial infection results from three major factors: (1) intrinsic risk factors related to the need for intensive care, such as severe underlying disease, multiple illnesses, malnutrition, extremes of age, and immunosuppression; (2) invasive medical devices, such as endotracheal tubes for mechanical ventilation, intravascular catheters, and urinary tract catheters; (3) crowding (*eg*, neonatal ICU) and animate reservoirs (*eg*, colonized or infected patients), which increase the risk of cross-infection in the ICU. The most representative data on nosocomial infection rates have been provided by the National Nosocomial Infections Surveillance (NNIS) system.[7] NNIS data indicate that today's typical hospitalized patient may be sicker than in former years. Data from surveys of NNIS hospitals between 1988 and 1995 demonstrate a significant increase in the number of ICU beds and a slight decrease, not reaching statistical significance, in total beds.[8]

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METHODOLOGY

This is a retrospective study. The study was done on samples received in microbiology lab from December 2009 till November 2010 in Sharda Hospital, Greater Noida. The samples like Intravenous line tip, pus, urine & blood from patients on ventilator, on central line and with urinary catheter from ICU of Medicine, Pediatric, Burn, Surgical, Respiratory and Trauma were taken for study and were transported immediately to the Microbiology Laboratory for culture of the sample on routine culture media and incubation at 37°C for overnight. If any micro organism

grown on culture, it was identified and antibiotic sensitivity testing was done aerobically as per conventional guidelines.

FINDINGS

This study was carried out on 650 samples. The 252 bacterial isolates from patients admitted in ICU were taken in account .The highest number of isolates were of Gram negative bacteria having cases of Pseudomonas sp. are 98 (38.8%) cases followed by 50(19.84%) of Escherichia coli, 20(7.93%) Klebseilla sp & Proteus vulgaris were 16(6.34%) and Citrobacter sp. cases were 05(1.98%) and cases of Gram positive cocci include 63(25%) cases of staphylococcus aureus. (Table 1).Highest sensitivity of 89% is noticed with Imipenen and lowest sensitivity with gentamycin and norflox are 23% and 00 % respectively (Table 2).

Table 1: Different Bacteria isolated in this study

		ICU (n-252)	Percent(%)
1	Pseudomonas sp.	98	38.88
2	Staphylococcus aureus	63	25
3	Escherichia coli	50	19.84
4	Klebsiella sp.	20	7.93
5	Proteus Vulgaris	16	6.34
6	Citrobacter sp.	05	1.98

Table 2: Sensitivity Pattern of bacterial isolates

	Antibiotic	Isolate Sensitivity (%)
1	Amoxy cillin	62
2	Amoxy cillin clavulenic acid	78
3	Imipenem	89
4	Norfloxacin	00
5	Ciprofloxacin	51
6	Gatifloxacin	59
7	Gentamycin	23
8	Amikacin	72
9	Ceftriaxone	67
10	Cefotaxime	72
11	Methicillin	61

Table 3: Bacterial isolates from different ICU

Type of ICU	Ventilator-Associated Pneumonia	Central Line-Associated Bloodstream Infections	Urinary Catheter-Associated Urinary Tract Infections
Medical (n-92)	48(52.17%)	32(34.78%)	12(13.04%)
Pediatric(n-35)	12(37.5%)	20(57.14%)	03(8.57%)
Surgical (n-80)	36(45 %)	40(50 %)	04(05%)
Burn(n-10)	05(50%)	03(33.3 %)	02(20 %)
Respiratory(n-21)	15(71.42 %)	06(28.58%)	00(00%)
Trauma(n-14)	11(78.57%)	02(14.28 %)	01(7.14%)

CONCLUSION AND DISCUSSION

The frequency of infections at different anatomic sites and the risk of infection vary by the type of ICU. Highest number of cases have been detected in medicine ICU due to highest number of admissions and lowest number of cases are detected in burn unit possibly due to lowest admission of cases. Highest rate of infection in medicine ICU and lowest rate of infection in respiratory ICU in urine catheter related and the frequency of specific pathogens varies by infection site. Contributing to the seriousness of nosocomial infections, especially in ICUs, is the increasing incidence of infections caused by antibiotic-resistant pathogens. Prevention and control strategies have focused on methicillin-resistant *Staphylococcus aureus*, vancomycin-resistant Enterococcus, and extended-spectrum â-lactamase-producing Gram-negative bacilli, among others. An effective infection control program includes a surveillance system, proper handwashing, appropriate patient isolation, prompt evaluation and intervention when an outbreak occurs, adherence to standard guidelines on disinfection and sterilization, and an occupational health program for health-care providers. Studies have shown that patients infected with resistant strains of bacteria are more likely than control patients to have received prior antimicrobials, and hospital areas that have the highest prevalence of resistance also have the highest rates of antibiotic use. For these reasons, programs to prevent or control the development of resistant organisms often focus on the overuse or inappropriate use of antibiotics, for example, by restriction of widely used broad-spectrum antibiotics (*eg*, third-generation cephalosporins) and vancomycin. Other approaches are to rotate antibiotics used for empiric therapy and use combinations of drugs from different classes. Key elements of an effective infection control program include a surveillance system,[9] proper hand washing before and after contact with each patient or patient equipment,[10] appropriate isolation of patients with transmissible pathogens, prompt evaluation and intervention in cases of outbreaks,[11] adherence to standard guidelines on disinfection and sterilization of medical equipment,[12] and an effective program of occupational health focusing on preexposure and postexposure management of health-care providers.[13] Proper hand washing, isolation, and disinfection are critical to prevent transmission of resistant pathogens between patients via contaminated equipment or contaminated hands of health-care providers. GI tract colonization of health-care providers with resistant

pathogens does not appear to be a reservoir of these infectious agents.[14]

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A Prospective Study of Role of FESS in Management of Recurrent Nasal Polyposis

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ABSTRACT

Objectives: Nasal Polyps are the most frequent and very prevalent nasal masses, which the otorhinolaryngologists come across. The uncertain etiologies of this condition have contributed greatly to a wide range of treatment, none of which has been uniformly successful or universally accepted. Hence, this literature looks at the various causes of recurrence of nasal polyposis and also compares the efficacy of conventional and endoscopic endonasal polypectomy in terms of safety, recurrence and postoperative morbidity.

Materials and method: The present study was conducted in the Department of Otorhinolaryngology in Vydehi Institute of Medical Sciences and Research Centre from April 2009 to March 2011.

Data for this study was collected. All clinically confirmed cases of recurrent nasal polyposis Cases selected were subjected to a complete examination according to the defined proforma.Detailed history was taken and clinical examination done. Acute infections were treated on medical line and then taken up for surgery. All patients received a course of antibiotics starting one day prior to surgery. The patients were treated either by conventional polypectomy or Functional Endoscopic Sinus Surgery (FESS).The patients were discharged when fit and were strictly called for follow-up on the first week, third week, 2nd month, 4th month, 6th month and 1 year from date of surgery.

Results: Fifty cases having nasal polyposis were selected and subjected to surgical management. The cases were divided into 2 groups. The first 25 cases were identified as Group-1 and were subjected to surgical management using conventional polypectomy. Similarly, the next 25 cases were identified as Group-2 and were subjected to surgical management using Functional Endoscopic Sinus Surgery (FESS).

The salient observations of this study are as follows:

1. Age: The age of the patients ranged from 6-65 years with a mean age of 31.5 years. In case of antrochoanal polyp, the average age was 20 years.
2. Sex: A male preponderance is seen with a male: female ratio of 2.57:1.
3. Complaints: Majority of the patients presented with complaints of nasal obstruction and nasal discharge, followed by headache, sneezing, anosmia and postnasal drip.
4. Diagnosis: Out of 50 cases, 31 patients presented with Ethmoidal polyp and 19 patients presented Antrochoanal polyp.
5. Complications: Bleeding (<50 ml), was the most common intraoperative and postoperative complication.
6. Recurrence: Recurrence was seen in 36% cases with conventional polypectomy and 12% cases with functional endoscopic sinus surgery (FESS), which indicates low recurrence in case of patients who underwent FESS.

Conclusion: Nasal polyposis is a prevalent disease and is known for its recurrence. Functional endoscopic sinus surgery is a minimally invasive technique used to restore sinus ventilation and normal function. Functional endoscopic sinus surgery revolutionized the management of chronic inflammatory sinus diseases. In nasal polyposis, there is no doubt that the polypoidal mucosa needs to be completely removed to prevent recurrence. Endoscopic technique can help achieve this goal and also preserve the healthy mucosa and its physiological function of mucociliary mechanism. Also, patients usually experience only minimal discomfort. Functional endoscopic sinus surgery has better success rates than conventional polypectomy and is less traumatic to the patients. The complication rate for this procedure is lower than that for conventional sinus surgery.

Keywords: *Nasal polyps, Polypectomy, FESS*

INTRODUCTION

Nasal Polyps are the most frequent nasal masses, which the otorhinolaryngologists come across. The uncertain etiologies of this condition has contributed greatly to a wide range of treatment, none of which has been uniformly successful or universally accepted.[1]

Nasal polyps are round smooth, soft translucent, yellow or pale glistening structures attached to the nasal or sinus mucosa by a relatively narrow stalk / pedicle. Surgical treatments include simple polypectomy, intranasal ethmoidectomy and external ethmoidectomy in case of ethmoid polyp. Recently, successful results of endoscope removal have been reported.[2]

Functional Endoscopic Sinus Surgery techniques are now well established. In combination with modern imaging technique particularly CT, these techniques provide diagnostic possibilities unimagined a few decades ago.[3] Modern endoscopic sinus surgery is arbitrarily divided into the Messerklinger and Wigand approaches.[4, 5]

Generally speaking Functional endoscopic sinus surgery is considered to be a relatively safe and effective procedure for treating chronic sinusitis with or without nasal polyps in adults.[6] There have been many studies assessing the result of endoscopic sinus surgery, success rates of which are typically high.[7] Hence, this literature looks at the various causes of recurrence of nasal polyposis and also compares the efficacy of conventional and endoscopic endonasal polypectomy in terms of safety, recurrence and postoperative morbidity.

HISTORICAL REVIEW

The writings of nasal polyps date back to 3000 yrs. The word polyps comes from Greek although it was subsequently Latinized and means 'many footed' (polypous).[8] Fallopius Gabriel (1523AD-1562AD) invented the wire snare for removal of nasal polyps.[9] Kubo in 1904 maintained that the choanal polyps originate from the maxillary sinus mucosa, just inside the ostium.[10] Klemperer in 1950 thought that the cause of polyps was due to the underlying collagen disease.[11] Endoscopy of maxillary antrum also known as Highmoroscopy or sinoscopy was first performed by Hirschman who in 1901 introduced a Nitzes Cystoscope (1879) into the maxillary antrum through an enlarge tooth socket.[12]

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RESULTS

The present study involves 50 cases, 25 each in two groups. The first group of patients who have undergone conventional surgery and the second group who has undergone Functional Endoscopic Sinus Surgery (FESS).

Table -1 shows the age distribution of the patients in both the groups of the study

Age in years	Conventional Polypectomy		Functional Endoscopic Sinus Surgery		Combined	
	No	%	No	%	No	%
5-10	3	12.0	2	8.0	5	10.0
11-20	1	4.0	6	24.0	7	14.0
21-30	7	28.0	6	24.0	13	26.0
31-40	4	16.0	5	20.0	9	18.0
41-50	7	28.0	5	20.0	12	24.0
>50	3	12.0	1	4.0	4	16.0
Total	25	100.0	25	100.0	50	100.0
Mean ± SD	33.96 ± 15.82		29.20 ± 13.93		31.58 ± 14.94	

- The patient's age ranges from 6-65 years.
- The mean age group in Group 1 is 33.96±15.82 and that of Group 2 is 29.20±13.93. The combined mean is 31.58±14.94.
- The highest numbers of patients belong to the following age groups in descending order. (21– 30: (26%), 41– 50: (24%), 31-40: (18%))
- There are 5 cases in age group 5–10 (10%), 7 cases in age group 11-20 (14%) and 4 cases in age group more than 50 (16%).
- In the present study the youngest patient was 6 years old and eldest was 65 year old.

Table 2. shows the sex distribution of the patients in both the groups of the study

Age in years	Conventional Polypectomy		Functional Endoscopic Sinus Surgery		Combined	
	No	%	No	%	No	%
Male	18	72.0	18	72.0	36	72.0
Female	7	28.0	7	28.0	14	28.0
Total	25	100.0	25	100.0	50	100.0

- Both groups had equal distribution of male and female patients (male – 72%, female 28%).
- The male: female ratio in both groups is 18:7 indicating a male preponderance.

Table 3. Shows comparison of signs and symptoms of patients in both groups

Symptoms and Signs		Conventional Polypectomy		Functional Endoscopic Sinus surgery	
		No	%	No	%
1.	Nasal Obstruction	25	100.0	25	100.0
2.	Nasal discharge	25	100.0	25	100.0
3.	Head ache	21	84.0	24	96.0
4.	Anosmia	14	56.0	6	24.0
5.	Sneezing	16	64.0	13	52.0
6.	Wheezing	9	36.0	10	40.0
7.	Post Nasal Drip	12	48.0	10	40.0
8.	Epitasis	1	4.0	1	4.0
	Total	25	100.0	25	100.0

- This table shows that nasal obstruction and nasal discharge are the most common complaints in both groups.
- The next common symptom was headache, followed by sneezing and anosmia.

Table 4. Shows comparison of diagnosis in two groups of patients

Diagnosis	Conventional Polypectomy		Functional Endoscopic Sinus Surgery		p value
	No	%	No	%	
B/L EP	16	64.0	15	60.0	0.771
L ACP	6	24.0	5	20.0	0.773
R ACP	3	12.0	5	20.0	0.440
Total	25	100.0	25	100.0	-

- This table shows that in group 1, 16 patients had Bilateral Ethmoidal polyp and 9 patients had Antrochonal polyp
- This table shows that in group 1, 15 patients had Bilateral Ethmoidal polyp and 10 patients had Antrochonal polyp

Table 5. shows comparison of type of surgery in two groups of patients

Type of surgery	Conventional Polypectomy		Functional Endoscopic Sinus surgery	
	No	%	No	%
EP	0	-	25	100.0
SP	3	12.0	-	-
SP+INA	7	28.0	-	-
SP+INE	15	60.0	-	-

- This table shows that in group 1, 3 patients underwent simple polypectomy, 7 patients underwent simple polypectomy with intra nasal antrostomy, 15 patients underwent simple polypectomy with intra nasal ethmoidectomy
- In group 2 all the patients underwent functional endoscopic sinus surgery.

Table 6. Shows the comparison of recurrence in 2 groups of patients

Recurrence	Conventional Polypectomy		Functional Endoscopic Sinus surgery	
	No	%	No	%
Yes	9	36.0	3	12.0
No	16	64.0	22	88.0
Total	25	100.0	25	100.0
Inference	Recurrence in Endoscopic Polypectomy 0.24 times less likely when compared to Conventional Polypectomy with p=0.047*			

- In group 1, recurrence of polyp was noticed in 9 out of 25 cases, with a success rate of 64%.
- In group 2, recurrence of polyp was noticed in 3 out of 25 cases, with a success rate of 88%.
- The "p value" was observed to be 0.047.

DISCUSSION

For the purpose of this study, 50 cases were taken. Of the 50 cases studied, the first 25 cases were operated by Conventional Polypectomy and the next 25 cases were operated by Functional Endoscopic Sinus Surgery (FESS).

Age Distribution

Polyps are prevalent in both sexes, all ages and in all socio-economic groups, though the average age on onset is in third and fourth decade of life.

In a study by Jean-Michel Klossek et al [13] the average age of patient who underwent endoscopic surgery was 46.7 (18-66). In a study by Neena Chowdhary et al [14], the patients' age ranged from 14-66 years. In a study by Ramesh C. Deka [15] the patient age ranged from 4-45 years.

In our study, the average age of the patient who underwent conventional polypectomy was 33.96 and FESS was 29.2 (6 – 65) years. Hence this study compares well with the previous studies.

A study by Freitas MR et al [16]revealed that 68.75 % of patients with antrochonal polyp were between 8 and

20 years i.e. affection prevailed among children and young adults. In a study by Yuca K et al [17] average age was 24.5 years. In our study the average age was 20 years, which corresponds with the previous studies.

Sex Distribution

In our study, a male preponderance is seen with a male - female ratio of 2.57: 1. In the study by Ramesh C Deka et al and Neena Chowdhary et al also, there is a male preponderance. (1.14:1 and 2.28:1)[15, 14]

Patient complaints

In our study, the most common symptom was nasal obstruction and nasal discharge, followed by headache, sneezing, anosmia and postnasal drip.

In a study by Jean Michel Klossek [13] the patients had nasal obstruction as the most common symptom followed by anosmia, nasal discharge and headache. In a study by Neena Chowdhary [14] the chief complaint of patients having antrochoanal polyp was unilateral nasal obstruction and nasal discharge, while patients with ethmoidal polyp, complained of nasal as well as allergic symptoms.

In the study by Wang H et al [18] a relationship was noticed between allergic factors and nasal polyp especially perennial allergic rhinitis. In a study by Jovicevic J et al [19] shows that nasal polyps were related allergic etiology.

In our study, the chief complaints of patients having ethmoidal polyp were nasal obstruction, nasal discharge, headache, sneezing and anosmia. In case of antrochoanal polyp, the chief complaints were unilateral nasal obstruction, purulent nasal discharge, head ache and post nasal drip which goes in favour of infectious origin. Hence there is correlation with previous studies as it shows similar findings

Clinical Diagnosis

In our study, 31 patients presented with ethmoidal polyp and 19 patients presented with antrochoanal polyp, where as patients in Levin's [6] study 458 ethmoidal polyp and 42 had antrochoanal polyp. A study by Hemanth Chopra [20] showed 56 patients with ethmoidal polyp and 6 patients with antrochoanal polyp.

Intraoperative complication

In our study, bleeding was a major complication, which corresponds with the study by Neena Chowdhary.[14] No other complications were encountered in our study.

Symptom free patients at follow-up

In our study, 64 % of the patients who underwent conventional polypectomy and 88 % of the patients who underwent functional endoscopic sinus surgery were symptom free at the end of one year.

A study conducted by Dalsiel K et al [21]shows that symptomatic improvement ranges from 43%-84% in case of conventional surgeries and 78%-88% for functional endoscopic sinus surgery. A study by Hemanth Chopra [20] revealed 82% symptomatic improvement for Functional Endoscopic Sinus Surgery (FESS). In a study by Lessar et al the result of FESS showed symptomatic improvement of 81% in pediatrics and 84% in adults. According to Venkatachalam et al [22] 72% of the patients had complete relief of symptoms, 16 patients had partial and 8% had no relief following endoscopic surgery.

Recurrence and Success rates

In our study, the recurrence rate was 36% with conventional polypectomy and 12% with functional endoscopic sinus surgery, which corresponds to a success rate of 64% and 88% respectively.

According to Dalsiel K et al [21] the recurrence rate was 8% for functional endoscopic sinus surgery and 35% for simple polypectomy. In contrast to our study, Nicolas Y Busaba et al [23] had a 50% recurrence with endoscopic sinus surgery. According, to a study by Neena Chowdhary et al functional endoscopic surgery had a success rate of 87.5% in ethmoidal polyp and 100% in antrochoanal polyp.

In a study by Zhang X [24] et al, FESS had a cure rate of 93% while conventional surgery had 80%.

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Dental Survey of Children in Jaipur, Rajasthan, India

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ABSTRACT

Objectives: A study was conducted in Jaipur, Rajasthan. The objectives were to determine (1) the oral health status (caries and fluorosis experience) and treatment needs of children in Jaipur, (2) the fluoride concentration in drinking water sources in Jaipur, and (3) possible caries risk factors.

Materials and method: Children aged 6 and 12 years from four socio-demographic areas were targeted in this study. Schools were stratified on the basis of socio-demographic status: rural, urban-upper middle class, -lower middle class, and -lower class. A total of 1600 children aged 6 and 12 years, that is, 400 in each of the socio-demographic classes constituted the sample size of study. Dental caries and fluorosis experience was determined according to WHO guidelines. A questionnaire was completed by the 12-year-olds to obtain information on oral health behaviour and exposure to caries risk factors.

Results: The mean dmft scores for 6-year-olds was 1.01 and 60% were caries-free. The equivalent DMFT scores for 12-year-olds were 0.50 and 72%, respectively. Fluorosis prevalence (very mild or more) was 51.5%. The results of the multiple variable logistic regression analysis indicated that most degrees of fluorosis were associated with significantly less caries experience compared with no fluorosis (ORs of 0.56 or less). Socio-demographic status was also a significant independent predictor of caries experience of caries. Compared with rural children, urban-upper middle class children were more than 50% likely to experience one or more DMFT (OR=1.56).

Conclusions: Caries experience in the primary and permanent dentitions of children is lower than the goals set by National Oral Health Care Programme (NOHCP). High levels of fluorosis are probably due to high levels of fluoride naturally occurring in drinking water (1.25-2.5 mg/L) in urban and rural area respectively, and this indicate that further control of dental caries in Jaipur must be achieved by means other than water fluoridation. Urban children are more likely to experience caries compared with rural children because of easy access to a rich sugar diet.

Keywords: *Dental Caries, Dental Fluorosis, Caries Risk*

INTRODUCTION

India is a country with rich cultural heritage and a population of 1027 Million 2001 (Census), distributed in 28 States, 7 Union Territories, 5564 tehsils/talukas, 640,000 villages and 5161 towns and cities.[1] The Indian population is predominantly rural as over 72% of people continue to live in rural areas.[2]

Dental caries is one of the most prevalent diseases in children worldwide.[3]The prevalence of dental caries has declined in developed countries and the reverse pattern is following in developing countries.[4]

The dentist to population ratio is 1:30,000 which is unevenly distributed. More than 90% of dentists are based in urban settings and only 10% serve the

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populous rural communities.[5]Besides this, there is also an acute shortage of equipment, material and other essential facilities to run the minimal curative services for vast population. Dental health services are provided by tertiary level hospitals, district hospitals, private practitioners and nongovernmental organizations.[6]

The development of dental care policy in india

The development of a policy for oral care in India commenced in 1984 at a workshop in Bombay organized by the Indian Dental Association. A draft policy was completed in 1986.[5] This policy was considered by the Dental Council of India at two national workshops held in Delhi and Mysore in 1991 and 1994, respectively. The outcome was that a National Oral Health Policy for India was formulated.[7] A core committee appointed by the Ministry of Health and Family Welfare (MOH&FW) was established to move this policy forward in 1995.[5] A National Oral Health Policy containing 10 resolutions was then drafted. This was accepted by the Government of India and was included as part of the National Health Policy in the same year.[6] In implementing this policy, the MOH&FW instituted a National Oral Health Care Programme (NOHCP) which had nine goals. This was launched as a pilot project, initially in five states, including Delhi, Punjab, Maharashtra, Kerala, and the North Eastern States.[8]

STUDY OBJECTIVES

In response to Goal 3 of the NOHCP 'To bring down the DMFT (decayed, missing, filled teeth) in school children aged 6-12 years from approximately 4 at present to less than 2', a study was conducted and the objectives of the study were to determine (1) the oral health status (caries and fluorosis experience) and treatment needs of children in Jaipur, Rajasthan (2) the fluoride concentration in drinking water sources in Jaipur, and (3) possible caries risk factors.

MATERIAL AND METHOD

Study Population

This study was conducted in Jaipur district, Rajasthan in 2011. The city today has a population of more than 3.1 million. The ground water in Jaipur has a high fluoride concentration. Fluorides in drinking water of Rajasthan have been found to originate from indigenous rocks, which extend from Delhi to Gujarat. The geological distribution of rocks in Rajasthan reveals that fluorotic ores occupy large areas of eastern and southeast parts of this state, in constricted synclinal bands in the central region of Aravali synchronium. Secondly, around the mica mines, ground water is rich in fluorides and Rajasthan is a rich source of mica.[9] All the 32 districts have been declared as fluorosis prone areas. The worst affected districts are Nagaur, Jaipur, Sikar, Jodhpur, Barmer, Ajmer, Sirohi, Jhunjhunu, Churu, Bikaner, Ganganagar etc.

Children from Grades 1 and 7 from four socio-demographic classes were targeted in this study. Schools were stratified on the basis of socio-demographic status, where urban upper middle, urban lower middle and urban lower class equated with school fees of Indian Rupees 700-1000, 400-700, and 200-400 per month. Rural children attended schools situated more than 5 km from the city boundary where school fees are minimal or not charged.

SAMPLING

A total of 1600 children from Grades 1 and 7 constituted the sample size, including 400 subjects in each of the four socio-demographic classes. A total of nine schools were selected (two from urban upper middle, two from urban lower middle, two from urban poor, and three from the rural area). They were selected randomly from the list of all schools that included all the government and private schools. At each school, all Grade 1 children were selected. These children were mostly aged 6 year but included some aged 5 and 7 years. Similarly, all the children from Grade 7 were selected. They were mainly aged12 years along with some 11- and 13-year-olds.School principals gave consent for the oral examination of the children to be conducted in their respective schools.

Assessment of caries risk factors

A seven item questionnaire was completed during school hours by the 12 year olds. Information was collected on the potential risk factors for caries experience including use of tooth brushes, tooth brushing frequency, type of toothpastes, and consumption of sugar containing food items, beetle nut chewing, dental visits and reasons for dental visits. The questionnaire was completed by each child without discussion among themselves. However, prior to its completion they were given an opportunity ask questions to clarify any related matters.

Caries assessment

Caries assessment was conducted according to W.H.O guidelines (1997).Dental caries was diagnosed by tactile examination with the use of plain mouth mirror and a probe. The decayed component of DMFT was divided in two parts D1mm and D 4mm (depending on the diameter of cavity). Initial caries (incipient/ early caries lesions) was not recorded. The

dental examination was performed in the natural daylight by a single examiner. The instruments were disinfected by chemical procedures during the day.

Fluorosis assessment

Fluorosis was graded by using Dean's index of fluorosis. The fluorosis examination was also performed in good natural day light by the same examiner. Photographs were also taken.

Fluoride concentration assessment

Ground water samples from both the urban and rural areas were collected. They were analyzed in a laboratory for the determination of fluoride concentration (mg/L) in drinking water. The concentration of fluoride in the samples taken from the urban and rural areas were 1.25 and 2.5 mg/L, respectively.

Statistical analyses

The data were later entered into an electronic database for subsequent data analysis using Epi info software. The total number of decayed, missing or filled permanent teeth (DMFT index) was calculated by this criterion.

Following the data checking, the mean DMFT scores were calculated. Firstly, bivariate associations between DMFT scores and the caries risk factors were explored which included use of tooth brush, frequency of tooth brushing, type of toothpastes, and consumption of sugar containing food items, beetle nut chewing, dental visits and reasons for dental visits. Secondly, the risk factors that were significantly associated in the bivariate analysis with the differences in DMFT groups were explored further in a logistic regression analysis to model potential predictors for caries experience in Grade 7 children.

RESULTS

Primary dentition caries experience

A total of 200 Grade 1 children were examined in each of the socio-demographic groups. Overall, 60% of the Grade 1 children were caries free and although the level of caries freedom was greater in females, this gender difference was not significant (Table 1). There were more decayed teeth than missing teeth whereas the number of filled teeth was negligible. Among the decayed teeth, there were more 4mm sized cavities than 1mm.

The overall mean dmft score was 1.01. Children, both male and female, from the urban lower middle class had higher dmft scores, 1.45 and 1.17, respectively, compared with children in the other socio-demographic groups. The difference across the socio-demographic groups was significant (p = 0.010). Caries experience was lowest among the rural children.

Table 1: Primary dentition caries experience of Grade 1 by socio-demographic status

Socio-demographic status	N	%CF	d1mm[a]	d4mm[b]	d	m	f	dmft	SD	p value
Males										
Rural	121	74	0.19	0.23	0.44	0.25	0.00	0.70	1.90	0.000
Urban poor	125	54	0.30	0.36	0.74	0.21	0.03	0.98	1.67	
Urban lower middle class	132	55	0.36	0.83	1.31	0.14	0.00	1.45	2.12	
Urban upper middle class	126	59	0.50	0.40	0.96	0.06	0.00	1.03	1.74	
Females										
Rural	79	58	0.15	0.44	0.62	0.26	0.00	0.89	1.31	0.890
Urban poor	75	63	0.20	0.32	0.60	0.32	0.00	0.92	1.88	
Urban lower middle class	69	58	0.17	0.55	0.91	0.19	0.07	1.17	2.19	
Urban upper middle class	73	58	0.20	0.56	0.79	0.08	0.01	0.89	1.45	
Both										
Rural	200	68	0.18	0.32	0.51	0.26	0.00	0.77	1.70	0.010
Urban poor	200	58	0.26	0.35	0.68	0.25	0.02	0.95	1.74	
Urban lower middle class	201	56	0.29	0.73	1.17	0.15	0.02	1.35	2.14	
Urban upper middle class	199	58	0.40	0.46	0.90	0.07	0.01	0.98	1.63	
Males	504	60	0.34	0.46	0.87	0.17	0.00	1.05	1.89	0.967
Females	296	59	0.18	0.47	0.73	0.21	0.02	0.96	1.72	
Total	800	60	0.28	0.46	0.82	0.19	0.01	1.01	1.82	

a Cavity diameter at least 1mm
b Cavity diameter of 4mm or more

Permanent dentition caries experience

Similarly, 200 Grade 7 children were examined in each of the socio-demographic groups (Table 2). The overall caries experience in this was 0.50 DMFT and 72 per cent were caries free. The DMFT score was highest (0.71) among children from the urban upper middle class and lowest (0.38) among those from the rural area. The differences across the groups was significant (p=0.030).Distributions of the caries experience statistics were similar across both male and female socio-demographic groups.

Table 2: Permanent dentition caries experience of Grade 7 children by socio-demographic status

Socio-demographic status	N	%CF	D_{1mm}[a]	D_{4mm}[b]	D	M	F	DMFT	SD	p value
Males										
Rural	106	75	0.11	0.22	0.35	0.05	0.01	0.42	0.83	0.370
Urban poor	110	71	0.16	0.28	0.50	0.05	0.00	0.56	1.01	
Urban lower middle class	106	72	0.10	0.20	0.36	0.02	0.00	0.39	0.75	
Urban upper middle class	101	67	0.28	0.36	0.64	0.04	0.03	0.73	1.19	
Females										
Rural	94	80	0.07	0.18	0.26	0.06	0.00	0.31	0.75	0.010
Urban poor	90	82	0.10	0.16	0.28	0.04	0.00	0.32	0.83	
Urban lower middle class	94	67	0.06	0.33	0.46	0.10	0.04	0.60	1.10	
Urban upper middle class	99	67	0.25	0.33	0.66	0.03	0.01	0.69	1.17	
Both										
Rural	200	77	0.09	0.20	0.30	0.06	0.01	0.38	0.79	0.030
Urban poor	200	76	0.13	0.23	0.40	0.05	0.00	0.46	0.94	
Urban lower middle class	200	70	0.08	0.26	0.40	0.07	0.02	0.49	0.94	
Urban upper middle class	200	67	0.26	0.35	0.64	0.04	0.02	0.71	1.18	
Males	423	71	0.16	0.26	0.46	0.04	0.01	0.52	0.97	
Females	377	74	0.12	0.25	0.41	0.06	0.01	0.49	0.99	
Total	800	72	0.14	0.25	0.44	0.05	0.01	0.50	0.98	0.398

a Cavity diameter at least 1mm
b Cavity diameter of 4mm or more

Caries experience and risk factors

Caries experience by oral health related behaviors and socio-demographic factors of the Grade 7 children are shown (Table 3). As noted in relation to the data in Table 2, socio-demographic status was significantly (p=0.030) associated with caries experience. No other variable was significantly associated, however, the association between fluorosis and DMFT approached significance (p=0.06).

Table 3: Caries experience by oral health related behaviours and socio-demographic factors of Grade 7 children

	N	%	%CF[a]	Mean DMFT	SD	p value
How do you clean your teeth?	800					
Use of tooth brush	737	92.1	73	0.50	0.99	0.940
Other method or don't clean	63	7.8	71	0.49	0.95	
How often do you clean your teeth?	800					
More than once daily	257	32.1	71	0.59	1.08	0.290
Once daily	466	58.2	75	0.47	0.95	
Less than once daily or never	77	9.6	71	0.40	0.78	

Table 3: Caries experience by oral health related behaviours and socio-demographic factors of Grade 7 children (Contd.)

	N	%	%CF[a]	Mean DMFT	SD	p value
Which of the type of toothpaste you use?	800					
Fluoridated	730	91.2	74	0.50	0.99	0.240
Non-fluoridated	42	5.2	71	0.50	0.80	
Don't use toothpaste	28	3.5	64	0.67	0.94	
Which sugar containing food items do you usually take between meals?	800					
Sweets	122	15.2	75	0.48	1.02	0.200
Chocolates	60	7.5	60	0.78	1.09	
Soft drink	72	9.0	71	0.48	0.94	
Hot drinks	298	37.2	73	0.48	0.92	
Biscuits	238	29.7	76	0.49	1.02	
Other	10	1.2	80	0.30	0.44	
How often do you chew betelnut/pan?	800					
Daily or more than once daily	102	12.7	77	0.46	0.96	0.570
Once or twice a week	196	24.5	70	0.55	0.99	
Never	502	62.7	74	0.50	0.98	

Fluorosis prevalence was 51.5%. This proportion includes those with very mild or more severe fluorosis. Only 13.8% were classified as having normal tooth enamel and 33.9% were borderline and classified as questionable. Respective proportions having very mild, mild, moderate, and severe degrees of fluorosis were: 19.8, 17.4, 10.0 and 4.4%. Children without fluorosis had a mean DMFT score of 0.70 whereas children who had severe fluorosis had nearly half that score.

As a result of the dichotomisation of caries experience in the logistic regression analysis, the unadjusted odds ratios revealed that most degrees of fluorosis were associated with significantly less caries experience compared with no fluorosis (Table 4). This outcome was maintained (ORs of 0.56 or less) in the multiple regression analysis to control for potential confounding. Similarly, socio-demographic status remained as a significant independent predictor of caries experience of caries (OR=1.56) in children residing in Jaipur while gender remained as a non-significant predictor.

Table 4: Logistic regression analysis of potential predictors for caries experience in Grade 7 children

		Unadjusted			Adjusted		
Variables	**N**	**OR**	**95% CI**	**p value**	**OR**	**95% CI**	**p value**
Socio-demographic status							
Urban upper middle	200	1.64	1.05 2.56	0.025	1.56	1.00 2.45	0.049
Urban lower middle	200	1.46	0.94 2.29	0.090	1.40	0.89 2.20	0.141
Urban poor	200	1.05	0.66 1.67	0.810	0.96	0.60 1.54	0.873
Rural	200	1.00			1.00		

Table 4: Logistic regression analysis of potential predictors for caries experience in Grade 7 children (Contd.)

Variables	N	Unadjusted OR	95% CI		p value	Adjusted OR	95% CI		p value
Fluorosis									
Questionable	271	0.38	0.15	0.97	0.040	0.52	0.32	0.84	0.008
Very mild	158	0.65	0.39	1.10	0.110	0.67	0.40	1.10	0.137
Mild	139	0.54	0.31	0.93	0.020	0.56	0.32	0.96	0.037
Moderate	80	0.48	0.25	0.92	0.020	0.52	0.27	0.99	0.049
Severe	35	0.38	0.15	0.97	0.040	0.39	0.15	0.98	0.040
No	110	1.00				1.00			
Gender									
Male	423	1.13	0.83	1.55	0.415	1.15	0.84	1.58	0.370
Female	377	1.00				1.00			

Caries experience dichotomised as DMFT = zero or 1 plus

DISCUSSION

The overall caries prevalence in 6 and 12 year old was low in comparison to the Goal 3 of the NOHCP 'To bring down the DMFT (decayed, missing, filled teeth) in school children aged 6-12 years from approximately 4 at present to less than 2'.

Risk of caries was significantly associated with socio-demographic status and fluorosis. The important question is whether the association is casual or not. As this is cross-sectional study, the caries experience outcome was measured directly on the day of survey, while exposures to the variables of interest were inferred on the basis of the current habits of the children. The weakness of this research design is the assumption that measures of exposure, based on current habits, may be biased estimates of previous habits. Hence, the interference we have drawn on the basis of the exposure estimate can only be interpreted as suggestive of a causal link, rather than proof of one. To prove causation, the ideal research design would be that of controlled cohort study in which the children would be followed for a period, throughout which their exposures to socio demographic factors and other oral health related behaviors along with confounding factors would be assessed at regular intervals. In this way, the exposures could be better quantified.

The inverse association between exposure to fluoride and caries prevalence has been well established in number of studies[10,11,12] and was confirmed in this study.

The higher caries experience of children living in urban areas, as shown in this study, has been observed in many other studies conducted in developing countrie.[13,14,15] In this study the higher level of caries in the children living in urban area could be attributed to lower concentration of waterborne fluoride in the urban area compared with the rural area. The higher caries experience in urban upper middle class might be due to a combination of (1) use of filter water in urban areas. (2) easy accessibility of fast food to urban children, (3) no or less pocket money given to rural children, or (4) a fibrous diet taken by rural children including use of sugarcane. However, it is possible that the lack of association between diet factors and oral hygiene factors with the caries experience observed in the study may be due to the relatively low caries prevalence in population.

These observations indicate that the multifactorial caries is still a mystery. It is recommended, in line with the National Oral Health Policy resolution that a National Institute for Dental Research should be established to determine national oral health needs of the population.[6]

CONCLUSION

Caries experience in the primary and permanent

dentitions of children is lower than the goals set by National Oral Health Care Programme (NOHCP). High levels of fluorosis are probably due to high levels of fluoride naturally occurring in drinking water (0.60-1.25 mg/L) in urban and rural area respectively, and this indicate that further control of dental caries in Jaipur must be achieved by means other than water fluoridation.The low caries experience of the children was most likely due to the high concentration of fluoride naturally occurring in drinking water. Urban children are more likely to have caries as compared with rural children because of the easy availability of refined rich sugar diet and use of filter water for drinking. Fluorides have once again proved to provide caries preventive effect.

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An Unusual Case of Generalized Lymphadenopathy by Cryptococcus neoformans

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ABSTRACT

Incidence of cryptococcal infection is high in developing countries such as India. Cryptococcal meningitis is the most common, life-threatening, opportunistic, fungal disease in human immunodeficiency virus (HIV)-infected individuals. Pulmonary, intestinal, bone marrow, and retinal involvement have also been described. There are very few reports of cryptococcal lymph node involvement. We report here a case of generalized lymphadenopathy by Cryptococcus neoformans in 37 years old male diagnosed by biopsy and culture of the involved lymph nodes.

Keywords: *Biopsy, Cryptococcosis, Culture, Lymphadenopathy*

INTRODUCTION

Cryptococcus neoformans is an encapsulated fungal organism that can cause disease in apparently immunocompetent, as well as immunocompromised, hosts [1]. In human beings, C. neoformans usually causes three types of infection- cryptococcal meningitis, pulmonary cryptococcosis and cutaneous meningitis. Unlike healthy individuals, the immunocompromised host is more susceptible for its survival and dissemination to almost all organs of the body, especially central nervous system, lungs, gastrointestinal tract and reticuloendothelial system [2, 3].Some rare manifestations of cryptococcosis include prostatitis, endophthalmitis, hepatitis, pericarditis, endocarditis and renal abscess [4]. We report here a case of 37 year old HIV patient with generalized cryptococcal lymphadenopathy.

CASE REPORT

A 37 year old male presented with the chief complaint of intermittent fever since last 3 years, loss of appetite with weakness, headache and generalized body ache since last one month, vomiting and pain in abdomen since last 15 days. On clinical examination the patient was fully conscious and well oriented, had mild pallor. Systemic examination revealed hepatosplenomegaly along with bilateral cervical lymphademopathy. Lymph nodes were multiple, 1-3 cm in size, discrete and firm in consistency. The laboratory findings included the following: hemoglobin- 7.3 gm%, platelet count- 1.10 lac /µl, total leukocyte count - 6200 /µl, differential leukocyte count- 81% polymormphs, 18% lymphocytes, 1% monocytes. Peripheral blood smear revealed a hypochromic microcytic picture with no hemoparasites. Patient was also found to be reactive for HIV. CD 4 count was 67 /µl. Chest X ray in posteroanterior view revealed paratracheal lymphadenopathy. Ultrasonography of abdomen showed multiple lymph nodes at porta, paraortic, mesenteric and splenic hilum, massive splenomegaly and mild hepatomegaly. Mantoux test for tuberculosis was negative. Bone marrow examination revealed normal hematopoiesis with toxic changes. Lymph node biopsy was taken from cervical region and was sent for histopathological examination and culture for bacterial, mycobacterial and fungus.

Histopathology (Figure1) showed lesions consisting of scattered or confluent noncaseous granulomas composed of lymphocytes, epitheloid cells

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and numerous multinucleated giant cells containing large number of phagocytosed organisms in the form of yeast that were barely visible as unstained circular forms with Hematoxylin and eosin (H&E). The section stained with PAS confirmed pink to red budding yeast like cells (Figure 2).

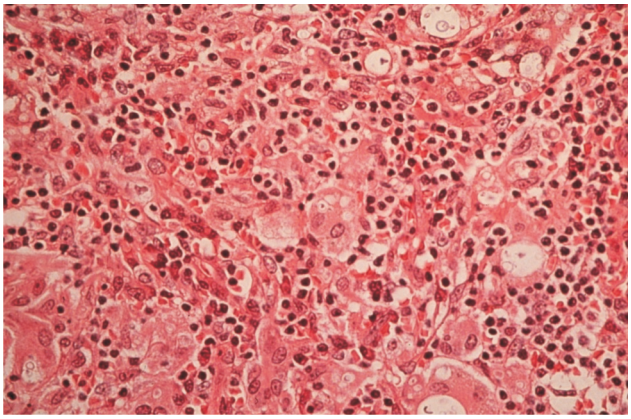

Fig 1. H & E stained section of lymph node. Cryptococcus is in the form of yeast that is barely visible as unstained circular forms.

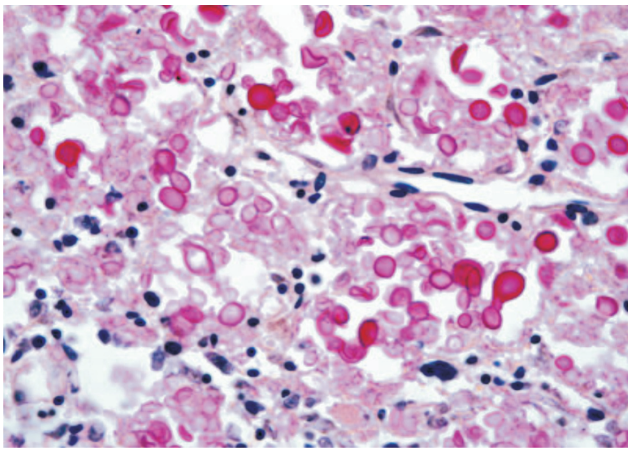

Fig 2. PAS stained section of lymph node. Pink to red colored budding yeast form of cryptococci are clearly visible.

Bacterial culture was sterile. Culture for fungus was done on Sabouraud's dextrose agar (SDA) which yielded smooth colonies of yeast after 5 days of incubation at 37° C. Urease test of this isolate was positive. Isolate was also inoculated on canavanine glycine bromothymol blue (CGB) for 5 days of incubation at 25 ° C to differentiate between C. neoformans from C. gatti. After 5 days of incubation CGB showed no change in color. Thus the isolate was characterized as C. neoformans. The identity of the isolate was also confirmed with the Vitek 2 yeast identification system. Antifungal susceptibility of the isolate was done by AST-YS01 Vitek 2 card. The minimum inhibitory concentration (MIC) values for flucytosine, fluconazole, amphotericin B (Amp B), voriconazole were d"1 µg/ml, 2 µg/ml, 2 µg/ml, and d" 0.12 respectively.

Patient was treated with intravenous amphotericin B 0.5 mg/ kg/day, but after two weeks the serum creatinine elevated up to 2 mg/dL, so amphotericin B was replaced with liposomal amphotericin B 1 mg/ kg/day for eight weeks. This was followed by oral fluconazole 400 mg/day. Eight weeks after the liposomal amphotericin B administration, a follow up clinical examination showed decrease in the size of cervical lymph node. Abdominal CT scan was also performed. It showed marked decrease in the sizes and extents of the multiple lymphadenopathies in the abdomen. Patient was maintained on oral fluconazole (200 mg/day) for twelve months. Follow up CT and clinical examination was normal. For HIV he was started on highly active anti retroviral therapy (HAART). His repeat CD4 count was 500. Finally the patient was advised maintenance therapy of fluconazole at 200 mg/d for whole life.

DISCUSSION

Cryptococcosis is the most common life threatening and second most common fungal infection in up to 8.5% of HIV patients. Since the onset of HIV pandemic in early 1980s the overwhelming majority of cryptococcosis has occurred in patients with AIDS [5]. The clinical diagnosis of cryptococcal infection is often very difficult, even in patients with meningitis. Cryptococcal lymphadenitis affecting mediastinal, abdominal and cervical nodes is rare and very few cases had been reported so far [6]. The diagnosis is most of the time confused with tuberculosis. Therefore diagnosis has to be confirmed by specific laboratory investigations. Cryptococcal lesions affect the lungs, meninges and skin in that order of frequency. Involvement of other organs and structures is uncommon, except in the disseminated disease. Ours is a case of extensive lymph node involvement. The tissue reaction to cryptococcal lymphadentis ranges from a barely perceptible histiocytosis to a tuberculoid reaction, sometimes with heavy calcification [6]. The fungus has an average diameter of 5-15µ and has the characteristic thick halo-like capsule made of acid mucopolysaccharides. It stains red with mucicarmine [7]. Therefore on normal H&E staining Cryptococcus can be easily misdiagnosed. To confirm the diagnosis the section needs to be stained with PAS and or mucicarmine stain. Sometimes smaller fungal cells with thin or absent mucinous capsule may be mistaken

for other organisms particularly Histoplasma capsulatum and Leishmania [7]. Therefore fungal culture is always advised to confirm the diagnosis. Following growth in culture it is also important to identify the fungal isolate till species level as amphotericin and fluconazole resistance is common in non-neoformans species [8]. The drug resistance has also been noted in C. neoformans. The isolates, clinically and in vitro resiatant to amphotericin B and fluconazole has been recovered in patients with relapsed cryptococcal meningitis. Although resistant organisms are rare, potential for increasing number of cases exists because of frequent use of antifungal agents [9]. Therefore antifungal MIC interpretation becomes very important for this organism.

CONCLUSION

The patient in our case presented to us with prolonged febrile illness with cervical, paratracheal and abdominal lymphadenopathy and hepatosplenomegaly with strong clinical possibilities of disseminated tuberculosis or lymphoid malignancy; but only after lymph node biopsy histology and culture it could be confirmed as cryptococcal lymphadenopathy. Thus it can be concluded that disseminated cryptococcosis should be kept in the differential diagnosis of any HIV patient with generalized lymphadenopathy.

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Knowlegde and Responsibilities of Dental Practitioner Regarding Forensic Odontology: An Overview

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ABSTRACT

Dentistry has much to offer law enforcement in the detection and solution of crime or in civil proceedings. Forensic Odontology though a known but is relatively unexplored science that utilizes the dentist's knowledge to serve the judicial system. Most often the role of the forensic odontologist is to establish a person's identity, for which other clues of biometric identification (e.g., fingerprint, face, etc.) may not be available in case of mass disaster or after an accident or a victim of homicide etc. The teeth may also be used as weapons and under certain circumstances, may leave information about the identity of the biter. Forensic odontology has an important role in the recognition of abuse among persons of all ages. Dental professionals have a major responsibility to play in keeping accurate dental records and providing all necessary information so that legal authorities may recognize malpractice, negligence, fraud or abuse, and identify unknown humans.

Keywords: *Forensic Odontology, Abuse, Dental Records*

INTRODUCTION

Forensic is derived from the latin word forum, which means 'court of law'. Odontology refers to the study of teeth.[1] Forensic dentistry or odontology can be defined as "A vital branch of dentistry that occludes its basic principles and knowledge in the field of urban and criminal cases and has a purpose of the scientific expertise, detection and solution of crime, widely existing social problems and finally to be a source of information for archeological and anthropological studies". The forensic dentistry relies on the ability to identify, collect, study and compare information from oral and facial structure.[2] The earliest known example of identification by dental means dates back to 66AD. The identification of Adolph Hitler and Rajeev Gandhi(India), probably the most high profile cases of dental identification[1]

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Forensic odontology involves the management, examination, evaluation and presentation of dental evidence in criminal or civil proceedings, all in the interest of justice. The forensic odontologist assists legal authorities by examining dental evidence in different situations. The subject can be divided roughly into 3 major fields of activity: civil or noncriminal, criminal and research.[3]

In the last few decades, dental identification has been considered as one of the most reliable & accurate method for identification of victims in crime, mass disaster, discrimination of abuse from accident, anthropologic examination. [4,5]

In India, qualified forensic odontologists are very few. So, an attempt should be made to reinforce awareness among dental practitioners about the role of dentist in person identification and to awaken the social responsibility of maintaining dental records of all the patients.[6]

This article is an attempt to reinforce the awareness among dentists about their role & responsibilities in maintaining dental records of all their patients and legal authorities towards forensic dentistry.

IDENTIFICATION

Whenever a human body or the remains of a human body are found, the police are called for investigations. The police in turn may make a formal request to the dental authorities to help them identify the individuals. The most common role of the forensic dentist is the identification of deceased individual. The principal advantage of dental evidence is that, being the strongest structures present in the body, teeth are resistant to post mortem decomposition. Moreover, most materials used by dentist are also resistant. Therefore, the use of dental evidence is the method of choice in establishing the identity of badly burned, decomposed, traumatized and skeletonized remains.[1]

According to Clark, almost 50 percent of identifications in disasters are by dental means[7].Dental identification assumes a primary role in the identification of remains when postmortem changes, traumatic tissue injury or lack of a fingerprint record invalidate the use of visual or fingerprint methods.[3]The fundamental principles of dental identification are those of comparison and of exclusion. Dental identification of an individual can be made mainly by two methods namely:

1. Comparative identification- used to establish that the remains of decedent and a person represented by antemortem (before death) dental records are the same individual.

2. Post mortem dental profiling- where antemortem records are not available, and no clues to the possible identification exist, a postmortem (after death) dental profile is completed by the forensic dentist suggesting characteristics of the individual likely to narrow the search for the antemortem identification.[,6,8]

Antemortem Record

The dental record provides continuity of care for the patient and is critical in the event of malpractice insurance claim.[9] Comprehensive and accurate records are a vital part of dental practice. The primary purpose of maintaining dental records is to deliver quality patient care and follow-up. Dental records can also be used for forensic purposes and have an important role in teaching and research, as well as in legal matters. [10]

A patient record should consist of proper history which should include written notes, radiographs, study models, referral letters, consultant's reports, clinical photographs, and results of special investigations, drug prescription, laboratory prescriptions, patient identification information, and a comprehensive medical history. [10]

Within written notes details history of a patient should be noted down which should include

1. Identification data- name, date of birth, phone number and emergency contact information.

2. Dental history- detail about past dental history, present history, thorough intra, extra oral examination and related structure

3. Clinical examination to include accurate charting

4. Diagnosis should include provisional, differential as well as final diagnosis

5. Treatment plan

6. Documentation of informed consent should always be signed by patient/ relative

7. Medical history- a thorough investigation, to include:

a. Name and phone number of physician

b. Dentists' own evaluation of patients general health and appearance

c. List of systemic disease- diabetes, rheumatic fever, hepatitis, etc

d. Relevant family history

e. Any bleeding disorder

f. Any drug allergies, smoking and alcohol history

g. Any cardiac disorder

h. Pregnancy

i. Physical and emotional tolerance for procedure

j. Any ongoing treatment

Dental Records Maintenance

Maintenance of dental record should be the fundamental role of dental practitioner. Lawney describe a simple procedure to ensure that your dental records are adequate

The antemortem data should include dental radiographs, photographs (intraoral, extraoral,

perioral) written dental, medical records and their updates.[9,11]

1. Changes in the record should not be erased, it should be corrected by single line drawn through it, which will preserve the integrity of the record and shows that you have nothing to hide.
2. Treatment plan should be mentioned in detail.
3. Revision and updates should always be recorded.
4. Unusual physiologic and psychologic reactions and patient's comments concerning therapy should be entered in the record.
5. Express concerns about patients need by doing this you are documenting that you have listened, empathized, understood, and acted upon the wishes of your patient.
6. Never write derogatory remarks in the record-superfluous entries only serve to convey a feeling of unprofessionalism and may create doubts regarding the overall credibility of the remainder of the record. Negative views about patients, such as their failure to follow your advice or attend appointments, should be recorded in a dispassionate and objective manner.
7. Summarize documentation of telephone conversation with patients, consultants, insurance company representatives, or legal authorities on record.
8. All entries should be signed by recording personnel.
9. Treatment models, Prosthodontics appliance, Orthodontic cast or appliance, Inlay or Onlay etc should always be labelled with surface marker (engraving the casts, scribing the denture) or with an inclusion method (metallic labels, microchips)[12]
10. Exposed radiographs should be adequately fixed and washed so that they remain viewable years later
11. Detailed description of radiographic finding, photographs of each radiographs should be taken since radiographs are patients property which can be utilize for comparing with postmortem radiograph which should always be punched with rubber dam so as to avoid any sort of confusion in future.

Retention & Storage of Dental Records:

The dental record is a legal document owned by the dental practitioner, and contains all information about the patient.[10] Storage of dental record is very necessary for each and every dental practitioner which is usually lacking by practitioner due to less of interest and knowledge. Dental office should have a record retention policy usually recommended by guidelines of insurance company. These records must be kept for a certain period after child becomes a major. Dental records may be preserved on microfilm stored with a records storage service (fairy common in jurisdiction) or scanned for electronic storage.[13]

Usually dental practitioners make dental records on paper. However, many dentists now a day are also making use of computerized system to maintain dental record. These electronic records have great quality, patient safety and storage benefits, and will likely to increase more dental clinics and hospitals to become computerized.[10] Computer generated dental records should be maintained since it is easily networked, transferred for routine professional consultation, great quality, patient safety benefits and occupy less space as compared to paper work.

How Long Records Should be Maintained

The NHS terms of service, state that dental records should be kept for a period of two years. The regulations state that treatment records, radiographs, photographs, orthodontic models and study casts should be retained after completion of treatment and care[14]. There are strict time limits applied to such actions:[3,15],

1. Personal information along patient history according to Sylvie Louise Avon should be retained for 7-10 years.
2. Treatment records, X-rays, Study models, and Correspondence are to be retained for 11 years after the completion of treatment.
3. For children, retention of records until the patient is 25 year old
4. Orthodontic models-retain the original pre and post operative models permanently, discard any intermediates after a period of five years.
5. Diagnostic, prosthodontic and/or treatment casts can be photographed and stored for future purpose.

The storage area of these records should be secure and access strictly controlled.

Abuse & Violence

Dental practitioners have three 'R' responsibilties, they are recognize, report, refer to protect the patients and their families from the cycle of violence all to prevalent in society today.[16]

"The primary role of a dentist intervening in any form of violence is not to attempt to resolve individual conflicts or provide counseling to abuse victims"[3]. Awareness of the signs and symptoms of abuse should be a goal for every dentist. Written records including written notes, photographs and radiographs, videotapes or audiotapes should be recorded. The dentist should understand that his or her testimony may be needed for future legal proceeding. If oral injury is involved, the dentist should maintain complete and precise record of finding for scrutiny by legal authorities.[17] Dentist should interview the child with a witness present, but without family members in attendance, so the child may speak freely without fear of reprisal. Doctors should use open-ended, non-threatening questions that require a descriptive answer rather than just a "yes" or "no". Although violence of any age is not a frequent area of concern to the dentist, as a provider of primary health care he or she should report to proper authorities[18]. Simply knowing the sign & symptoms of abuse, discussing about it with patient and knowing where to refer abuse victims are appropriate goals for a dentist.[18]Dental profressionals are mandate by law to report suspicious of child abuse and neglect, but surveys show that dentists do not fulfil their obligation to report .[19]Courts have accounced " any practitioner who fails to identify and report a chilld with historial, physical, and radiological findings that indicate abuse is guilty of professional negligence".[20]

Major reasons preventing dental professionals from getting involved in cases of abuse include ignorance about maltreatment, lack of awareness of legal mandates to report it, fear of dealing with an angry parent, reluctance to believe parents (or others) could be abusive or neglectful, and fear of losing patients and therefore income.[21]

Legal Authority & Confidentiality

Proper identification of dead is required both legal & humanitarian reasons. Dentists must become more aware of their moral, legal, and ethical responsibilties in recognizing and reporting child abuse and neglect.[22]The dental record is a legal document owned by the dentist, and contains subjective and objective information about the patient. When presenting evidence, our role in legal process is to help the jury understand the dental issues. Collection of evidence must be performed in a manner that protects the rights of the person. Dentist should collect a search warrant, court order or legal consent before any evidence is collected.

Dentists are in a privileged position to learn a lot about their patients and this knowledge is acquired under the assumption that it is confidential. Confidentiality encourages open and honest communication, enhancing the dentist-patient relationship, and encourages respect for patient autonomy and privacy. Children who are victims of abuse require special management and the dentist may have an overriding responsibility to break confidentiality and report their findings to the appropriate authorities. Special guidelines exist for patients with AIDS/ HIV and sexually transmitted diseases. Strict confidentiality must be maintained when deaing with these individuals. Disclosure of such information could lead to a complaint of serious profressional misconduct.[23, 24] Forensic dentists, who are associated with identification and crime investigation, are usually required to provide testimony in the court of law in the capacity of an 'expert witness'.

In case of violence the dentist must also understand that his or her testimony may be needed for future legal proceedings. As a scientist, the dental expert witness should present the evidence, confidently, accurately and objectively, relating information in nontechnical terms. Dentist should maintain the information confidentially- may have an overriding responsibility to break confidentiality and report their finding to appropriate authorities in case of any violence.

CONCLUSION

Forensic dental identification depends likely on the availability of antemortem record. So, it is social responsibility of each and every dentist to maintain dental records of their patients for the noble social cause of identification in the event of any disaster or crime. The production, retention, and release of accurate and easily understandable patient dental records are an essential part of the dentist professional responsibility. Dentist must become more aware of

their legal, ethical and moral responsibilities in reporting and recognizing child abuse and neglect. Every practitioner has a responsibility to understand the forensic implications associated with the practice of his or her profession. For the awareness of forensic odontology, the training of specific groups and the organization of multidisciplinary groups should be done.

Conflict of Interest: there is no conflict of interest

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Assessment of Knowledge on Road Safety among Four Wheeler Drivers

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ABSTRACT

With growing urbanization there has been an increase in morbidity and mortality due to road traffic accidents, where drivers were accounted for most of the accidents. In order to assess a questionnaire based study was conducted among educated group of people in suburban area to assess the knowledge regarding road safety and regulations. In the study it was found knowledge on road safety was found low among the subjects, with female lacking knowledge more than male. It was found in the study that phone calls were being attended mostly by male than female counterpart.

Keywords: *Road Traffic, Safety*

INTRODUCTION

Rapid urbanization and increase in purchasing power capacity has led to expansion in road network and increase motorization. Accidents were thought to be natural out come of urbanization and are not preventable as they are unexpected unplanned occurrence and constant rate would naturally exist. But accidents are actually are predictable and preventable. The most common predictable error is that of the driver's accounting for 78.5% of all causes[(1).]

Road traffic accidents are ninth among the major causes of fatality in India and predicted fifth cause in 2030[(1)]. Mortality due to road traffic accidents in India is five times higher than other countries.

The reported road traffic fatalities in 2009 was 10.8 / lakh population and morbidity was 44.4/ lakh [(1)] with an estimated loss of 3% of GDP [(2).]

The study was conducted in suburban area of Chennai among well educated group of peers. Objective was to determine the knowledge of safety among 4- wheeler driver.

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MATERIAL AND METHOD

A questionnaire based study was conducted among 72 peers (38 males and 38 females) above the age of 18 years, whose driving experience was distributed from leaner's to maximum 40 years. Scores were given for each question. Total scores, individual scores, sex difference scores were calculated. Student T- test and 95% confidence interval was used for test for significance.

OBSERVATION AND DISCUSSION

Use of head light: average number of people using low beam on undivided roads

Table 1. Use of low beam on undivided roads

Sex	AVERAGE	Percentage	SD
Males	0.78947368	78.94%	0.413155
Females	0.63157895	63.15%	0.488852
Total average	0.7105	71.05%	

It was observed that only 78.94% of males and 63.15% of females were using low beams on undivided roads. The misuse of head lights were higher in females compared to males (P – value = 0.0695). (Table – 1)

Knowledge on overtaking: scores of 1 was given for a correct answer and 0 for a wrong answer.

Table 2. Knowledge regarding overtaking

	Males		Females	
	Average score	Percentage follow correct rules	Average score	Percentage follow correct rules
overtaking - distance to be maintained	0.526316	52.63%	0.289474	28.95%
preferable side to overtake	0.921053	92.11%	0.842105	84.21%
indicators while overtaking	0.842105	84.21%	0.631579	63.16%
Total score (out of 3)	2.289474	76.32%	1.763158	58.77%

Table 3 . Total scores for 72 subjects – Knowledge regarding overtaking

Total Averages		
Side	0.881579	88.16%
Distance	0.407895	40.79%
Indicators	0.736842	73.68%
Total Score	2.026316	67.54%

Knowledge on side of overtaking and use of indicators while overtaking is high but the distance to be maintained from the rear vehicle after overtaking is not known to many (40.79%). Females had a comparatively low knowledge on over taking (p value – 0.004). (Table 2&3)

Knowledge regarding use of mobile phones: In the study all forms of attending calls either of any means (i.e hand held or hands free or inbuilt) were considered negative safety concern. Of which males preponderance was seen in attending calls while driving which accounted for 52.63%in comparison to female who accounted for 23.63%.

Knowledge scores calculated from seven questions: scores of 1 was given for a correct answer and 0 for a wrong answer.

Table 4. Knowledge scores with 95 % confidence interval

	Males	Females
Mean score (out of 7)	4.61	4.29
Mean score percentage	67.71%	60.86%
Standard deviation	1.17	1.27
95 % confidence interval	4.23 - 4.99	3.87 - 4.71

Table 5. Grading of individual scores

	Males		Females	
Scale of scoring	Percentage of people	Driving experience (avg = 9.47 years)	Percentage of people	Driving experience (avg = 4.37 years)
Poor (< 3)	15.79	11.83	23.68	8.63
Average (4 - 5)	65.79	7.56	63.16	3.03
Good (6-7)	18.42	14.29	13.16	3.15

Knowledge score of total 72 subjects

Table 6. Total knowledge scores for 72 subjects (combined), with 95 % confidence interval

Mean score (out of 7)	4.45
Mean percentage	65.53%
SD total	1.23
95 % Confidence interval	4.17 - 4.73

The average scores (Table - 4) of males were 4.61 (4.23 – 4.99; 95 % Confidence Interval) or 67.71 %, females were 4.29 (3.87 – 4.71; 95 % Confidence Interval) or 60.86%. Mean percentage of total 72 subjects were only 65.53%. (Table – 6)

Comparing the scores of each individual 15.79 % of males and 23.68 % of females had poor score (<3 for 7), whose average driving experience were 11.83 years and 8.63 years respectively. (Table - 5)

CONCLUSION

2010-2020 is declared as decade of action for road safety by UN general assembly resolution [(4)].

To conclude, in order to curtail the morbidity and mortality due to road traffic accidents knowledge of the driver regarding safety measures and rules is essential. But this was lacking irrespective of the educational status and driving experiences. This knowledge score was lacking irrespective of sexes. So in order to curtail we recommend the following:

- Public education which should start primarily from driving schools. Driving schools should be periodically inspected for compliance.
- Enforcement of existing laws with swift penalties would help in increase compliance of the public.
- Automated surveillance system like CCTV, speed detectors, etc should be installed to identify regular defaulters.

- Lane discipline should be maintained and enforced compliance of the same ensured.
- Use of Bluetooth, hands-free and vehicle in built accessories as an alternative to hand held phones should also be condemned as they also pose equal risk.[3]

Conflict of Interest: None.

Ethical Clearance: Ethical waiver was granted for the study.

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Screening for Diabetes Mellitus and Identifying its Associated Risk Factors

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ABSTRACT

Introduction: Globalization, increasing urbanization, changes in traditional family structure & lifestyle & more mechanized workplace also directly affect dietary & physical activity patterns & ultimately increase the risk of diseases like Diabetes.

Objectives: 1) To estimate the prevalence of Diabetes in study subjects. 2) To identify the risk factors associated with Diabetes.

Materials and Methods: A Cross-sectional study was carried out among 200 Out Patient Department (OPD) patients aged ≥30 years in Rural Health Training Centre (RHTC) during June 2013-August 2013. Data was compiled, entered & analyzed using SPSS v20.

Results: Among 200 patients, the prevalence of newly diagnosed diabetes was 5%; in females, it was found significantly more (9%) than males (1%) ($z=2.5955$, $p<0.05$). The people with impaired random blood glucose (RBS=140-200mg/dl) were 13%. The statistically significant association between the prevalence of diabetes and female sex, family history of diabetes and waist circumference was found.

Conclusions: Extensive efforts are required for raising the awareness level & regular screening of high-risk population is recommended for preventing the complications & disability.

Keywords: *Screening, Diabetes Mellitus, Out Patient Department, Risk factors*

INTRODUCTION

Diabetes is one of the major health and development challenges of the 21st century. There are currently 371 million people living with diabetes and another 280 million are at high risk of developing the disease. Half a billion people are expected to be living with diabetes by 2030 & without effective prevention and management programmes the burdens will continue to increase globally[1].The Indian Council of Medical Research-India Diabetes (ICMR- INDIAB) study reported that there are 62.4 million people with type 2 diabetes (T2DM) and 77 million people with pre-diabetes in India[2]. These numbers are projected to increase to 101 million by the year 2030 [3]. Estimates of the current and future burden of diabetes are important in order to allocate community and health resources, and to emphasize the role of lifestyle, and encourage measures to counteract trends for increasing prevalence [4]. In India as per the WHO global health statistics 2013, 11.1 % men and 10.8 % women over 25 years old has raised fasting plasma glucose level (≥126mg/dl) [5].

Diabetes cause significant morbidity and mortality both in urban and rural population, with considerable loss in potentially productive years of life. The present study was planned to assess the burden of diabetes and the associated risk factors by means of screening test among individuals attending the Rural Health Training Centre [RHTC] under the Department of Community Medicine.

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MATERIALS AND METHOD

A Cross-sectional study was carried out in Out Patient Department (OPD) of RHTC, Motahaldu in Haldwani Block of District Nainital over a period of three months (June 2013 to August 2013). Two hundred individuals aged ≥30 years coming to the OPD were screened for Diabetes. The sample size was calculated by using $4pq/d^2$, where p=10%, q =100-p = 90% and d = 6%, hence 100. It was decided to screen 200 individuals i.e. 100 males & 100 females for equal representation. A pretested structured questionnaire was used to obtain data on socio-demographic status, behavioural aspects, including, tobacco use, alcohol use, dietary habits and physical activity, after taking informed verbal consent from the participants.

Inclusion criteria- individuals aged ≥30 years, not a known case of diabetes were included in the study.

Exclusion criteria- individuals aged<30 years, pregnant females of any age group and a known diabetic or on anti diabetic treatment were excluded from this study.

Anthropometric Measurements

Height: measured to the nearest centimeter using a tape stuck to the wall with the subject standing erect and barefoot.

Weight: measured to the nearest 0.1 kg using a digital bathroom scale.

Body Mass Index (BMI) : calculated as body weight in kilograms (kg) divided by square of the height in meters (m^2).

Waist circumference (WC): measured using a non-stretchable measuring tape. Subjects were asked to stand erect with both feet together. One layer of clothing was accepted. Waist circumference was measured at the smallest horizontal girth between the costal margins and the iliac crest.

Hip circumference (HC): measured at the level of greater trochanters with a subject in standing position & both feet together.

Waist to hip ratio (WHR): calculated with the corresponding values of waist and hip circumference.

Blood Sugar level: Random Blood Sugar (RBS) measured by glucometer.

Operational Definitions

Tobacco users: who at the time of survey were using tobacco products in any form either daily or occasionally.

Alcohol users: who were consuming alcohol either daily or occasionally.

Physically active: 30 minutes of daily brisk walk on most days (5) of the week.

BMI: BMI of ≥23 kg/m^2 and ≥25 kg/m^2 was considered as overweight and obese, respectively [6].

WC: The cut off point for central obesity was defined as ≥ 90cm for males & ≥80 cm for females [7].

WHR: The cut off point for central obesity was defined as ≥0.9 for males & ≥0.8 for females [7].

Diabetes was defined as RBS ≥ 200mg/dl as per American Diabetes Association (ADA) criteria [8].

Hypertension was considered if subject's Systolic BP (SBP) was 140 mm Hg or greater and/or Diastolic BP (DBP) was 90 mm Hg or greater as per Joint National Committee (JNC) VII [9] and also if they were on antihypertensive treatment.

Statistical Analysis

Data was compiled, entered & analyzed using SPSS version 20. The unpaired 't' test was applied to compare the means of two groups i.e. between male and female. Fisher's exact test was used to see the association between diabetes and various risk factors.

RESULTS

Two hundred individuals, aged ≥30 years were enrolled in this study. The questions regarding their demographic details, behavioural risk factors like tobacco consumption, alcohol intake, dietary habits and physical activity were asked.

On screening, the prevalence of diabetes was more in case of females (9%) in comparison to that of males (1%) and it was found significant ($z=2.5955$, $p< 0.05$). According to socio demographic characteristic as shown in Table 1 majority of participants were between 50-59 years (30%) and belonged to Hindu community (96.5%). The respondents were mainly from joint families (71.5%) and education status of most individuals (35%) was higher secondary.

Table1: Demographic Characteristics of study subjects

Characteristics of Study Subjects	Number (N=200)	Percentage (%)
Age Group		
30-39	44	22
40-49	55	27.5
50-59	60	30
≥60	41	20.5
Religion		
Hindu	193	96.5
Muslim	02	1
Sikh	05	2.5
Family Type		
Joint	143	71.5
Nuclear	57	28.5
Educational Status		
Illiterate	51	25.5
Primary-Middle	60	30
High School-Inter	70	35
Graduate& above	19	9.5
Occupation		
Housewife	90	45
Farmer	27	13.5
Skilled labour	21	10.5
Unskilled labour	20	10
Service/Business	34	17
Retired	08	4

The comparison between the means of males and females for various variables was done using unpaired't' test as shown in Table 2. It was found highly significant for age, height, weight, hip circumference, waist hip ratio, body mass index and random blood sugar but not for waist circumference.

Table 2: Anthropometric, Physiological and Biochemical Characteristics of Study Subjects

Variables	Males	Females	t	p value
Age (years)	47.4±12.24	51.55±12.20	2.402	0.017*
Height (cm)	165.95±6.76	149.29±11.49	12.499	0.000*
Weight (kg)	64.67±11.79	60.49±12.73	2.409	0.017*
B.M.I. (kg/m2)	23.22±3.60	26.74±5.15	5.437	0.000*
WC (cm)	85.25±11.98	85.24±13.03	0.006	0.995
HC (cm)	91.86±8.48	97.18±13.64	3.313	0.001*
WHR	0.92±0.07	0.86±0.06	5.745	0.000*
RBS (mg/dl)	112.75±23.19	129±50.05	3.115	0.002*

*p<0.05 significant

Fisher's exact test was used to measure the association between diabetes and various risk factors. The statistically significant association between the prevalence of diabetes and female sex, (p=0.0185), family history of diabetes (p=0.0405) and waist circumference (p=0.0449) was found as shown in Table 3.

Table 3: Association of Diabetes with Risk factors

Study variable	Non Diabetic (N=190) No. (%)	Diabetic (N=10) No. (%)	p value
Age (years)			
30-50	114 (60)	4 (40)	0.3227
≥ 50	76 (40)	6 (60)	
Sex			
Male	99 (52.11)	1(10)	0.0185*
Female	91 (47.89)	9 (90)	
Family H/o D.M.			
Present	25 (13.16)	4 (40)	0.0405*
Absent	165 (86.84)	6 (60)	
Hypertension			
Present	78 (41.05)	4 (40)	1.000
Absent	112 (58.95)	6 (60)	
Tobacco Use			
Present	50(26.32)	1(10)	0.2903
Absent	140(73.68)	9(90)	
Alcohol Use			
Present	70(36.84)	1(10)	0.4573
Absent	120(63.16)	9(90)	
BMI			
Normal	88 (46.32)	1(10)	0.1008
Increased	102 (53.68)	9 (90)	
WC			
Normal	51(26.84)	1(10)	0.0449*
Increased	139 (73.16)	9 (90)	
W/H			
Normal	68 (35.79)	0 (0)	0.0676
Increased	122 (64.21)	10 (100)	
Physical activity			
Present	68 (35.79)	2 (20)	0.4989
Absent	122 (64.21)	8 (80)	

*p<0.05-significant

DISCUSSIONS

The prevalence of Diabetes was 5%. The prevalence in other studies from rural areas varies from 3.1% to 19.78% [9-18]. The fasting blood glucose ≥126mg/dl was considered as criteria for diagnosis of diabetes in studies done by Chow et al[15] and Vijayakumar et al[17]. The Oral Glucose Tolerance Test (OGTT) of ≥200mg/dl as per WHO criteria was used by Kokiwar et al[10], Majgi et al[12], Deo et al[14], Rajput et al[16], Zaman et al[18] for labeling a patient as diabetic. V Mohan et al [9] consider diabetes on self-reported basis while Jonas et al [11] defined diabetes as postprandial blood glucose concentration ≥200 mg/dL, glycosylated hemoglobin

≥6%, or self-reported medical diagnosis. Gupta et al[13] has chosen Indian Diabetic Risk Score (IDRS) for seeing the prevalence of diabetes in rural population while in this study random blood glucose ≥200mg/dl was taken as criteria for estimating the prevalence of diabetes. The age of study population also differs. In this study, age ≥ 30 years was taken which was similar to studies done by Kokiwar et al [10], Jonas et al [11] and Chow et al[15]. In studies done by Gupta et al [13], Deo et al [14] and Zaman et al [18] age group included were ≥20years. While study by Rajput et al[16] and Vijayakumar et al[17] included people aged ≥ 18 years , ≥ 15years was taken as study population by Mohan et al[9] .

In this study, female sex, increase waist circumference and positive family history was found to be significantly associated with diabetes. There was no association seen with age, hypertension, body mass index, waist to hip ratio, physical activity, tobacco and alcohol consumption. Positive family history was also associated in studies done by Kokiwar et al[10], Magji et al[12], Deo et al[14], Rajput et al[16], Vijayakumar et al [17], Zaman et al[18]. Increasing age has been a significant risk factor in case of other studies Magji et al[12], Deo et al[14], Rajput et al[16], Zaman et al[18]. In study done by Magji et al[12] and Rajput et al[16] showed a statistically significant association between the prevalence of diabetes and low level of physical activity, and systolic blood pressure. Increase in body mass index was seen significantly associated in studies by Kokiwar et al[10], Magji et al[12], Deo et al[14], Zaman et al[18]. Rajput et al [16] and Vijayakumar et al[17] saw increase in waist hip ratio associated with diabetes in their studies. Kokiwar et al[10] and Magji et al[12] has showed association with socioeconomic status while in studies done by Vijayakumar et al[17] and Zaman et al[18] association of diabetes with hypertension was seen.

LIMITATIONS

The study was not a community based, also, the sample size taken was small. Hence, the results cannot be extrapolated to entire population of rural Haldwani. The findings of random blood sugar could have been further confirmed by fasting and postprandial blood glucose level.

CONCLUSION

This study shows that there is a need for screening high-risk individuals for early detection to reduce the burden of disease and its complications. The Government of India has taken the initiation in this regard by starting a National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Disease and Stroke (NPCDCS) which attempts to create a wider knowledge base in the community for effective prevention, detection, referrals and treatment strategies.

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A Study of the Profile of Hysterectomy Acceptors in Rural Bangalore

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ABSTRACT

Introduction: Uterus, a vital reproductive organ is subjected to many benign and malignant diseases. Many treatment options are available including medical, conservative and surgical approach, but still hysterectomy remains the most common gynecological procedure performed worldwide

Objectives:

1. To describe the profile of hysterectomy cases
2. To evaluate the various indications of hysterectomy
3. To evaluate the various pathological findings

Methodology: Study was conducted in M.V.J medical college and research hospital, Bangalore rural using a predesigned and structured questionnaire. Patients in the Gynecological wards who have undergone Hysterectomy from the period 2010 January to 2011 June were the study subjects.

Results: A total of 293 subjects were interviewed, findings are as follows, mean age of hysterectomy cases is 44 ± 9.9, majority of the cases were in the age group 35-45 years. Common indications of hysterectomy are Uterine prolapse (36%), fibroid (21%), dysfunctional uterine bleeding (17%). Significant pathological findings are Cervicitis(52%), Leiomyoma(12%), Adenomyosis(9%). Information about risk factors for cervical cancer revealed the following. Mean parity is 3, Regular Pap smear test was done in only 1.3% of the cases, none of them were aware about HPV vaccination. None of them reported about multiple sexual partners and STDs. About 1.7% of the study subjects reported that their partners had undergone circumscion, OCP usage for more than 8 yrs was seen in 6.1% of the cases. Poor birth spacing was seen in 33%, poor personal hygiene was reported in 37% of the cases.

Conclusion: As 52% of the study subjects reported cervical inflammation as the pathology findings. Regular cervical cancer screening programmes must be emphasized such as regular Pap smear test should be conducted in women of reproductive age group,

Keywords: *Hysterectomy, Indications, Pathology, Adenomyosis, Leiomyoma*

INTRODUCTION

Uterus, a vital reproductive organ is subjected to many benign and malignant diseases. Many treatment options are available including medical, conservative and surgical approach, but still hysterectomy remains the most common gynecological procedure performed worldwide.[1] Hysterectomy is the second most common major surgical procedure for women in the United States. There is considerable variation in the rates of use of this procedure within the United States and between the United States and other countries. This variation may be related to differences among patients, physicians, and organizations.[2]

Compared to a higher frequency of hysterectomy (10-20%) in other countries, a lower rate (4-6%) has been reported from India. Higher tolerance threshold of Indian women and a 'low level of medicalization' have been proposed as the reasons for this lower rate.[3]

Because of the wide variations in rates of use, questions have been raised about the appropriateness of use of hysterectomy.

The indications for hysterectomy have been questioned for more than 40 years. Although there are clear circumstances when hysterectomy may be indicated such as some stages of gynecological cancer or during an obstetrical emergency, approximately 85 to 90 percent of hysterectomies are performed for other indications, and the benefits and the risks are always not well defined.

Hysterectomy is effective in treating women with abnormal bleeding, symptomatic leiomyoma, endometrial hyperplasia and cervical dysplasia. It may also alleviate symptoms in some patients with endometriosis, chronic pelvic pain, pelvic inflammatory disease and pelvic relaxation. Its role in patients with dysmenorrhoea, premenstrual syndrome and elective sterilization is more limited.[2] The conditions that may lead to hysterectomy cause discomfort and inconvenience rather than threaten life.

The diversity of symptoms can have an immense influence on a woman's Quality of life, affecting aspects of her daily routine, general health and sense of wellbeing. In most women who suffer gynecological disorders, Quality of life improves following a hysterectomy. Moreover, this surgery does not tend to produce any psychological disturbances in otherwise psychologically healthy women. In this way, most women who are undergoing this operation regain a so-called normal life. [4]

Available data on the profile of hysterectomy cases is limited in our country, therefore this study was undertaken.

AIM AND OBJECTIVES

1. To describe the profile of hysterectomy cases
2. To evaluate the various indications of hysterectomy
3. To evaluate the various pathological findings

MATERIAL AND METHOD

STUDY AREA: This study was conducted in M.V.J medical college and research hospital, at Hoskote, Bangalore (Rural), located at Karnataka in South India. Study area constituted Gynecological wards of the above hospital.

STUDY DESIGN: Cross sectional study

Method of Collection of Data

Source of data: Patients in the Gynecological wards who have undergone Hysterectomy from the period 2010 January to 2011 June were the study subjects

Inclusion criteria: All Hysterectomy cases except obstetric indication for hysterectomy

The instrument used for the purpose of the study is a predesigned structured questionnaire. The Questionnaire contains the general information of the person, age at marriage, parity, age of first pregnancy, indications of hysterectomy, histopathology findings and data pertaining to certain risk factors associated with cervical inflammation. A total of 293 patients were interviewed over a period of one and a half years for data collections.

Data Entry and Analysis: Using Micro soft excel and Statistical package for social sciences

Statistical Tests Used: Descriptive statistics

OBSERVATIONS AND RESULTS

A total of 293 subjects were interviewed over a period of one and a half years. Findings are as follows, mean age of hysterectomy cases is 44 ± 9.9, majority of the cases were in the age group 35-45 years. Age distribution of hysterectomy cases are as shown in the table no. 1. Common indications of hysterectomy are Uterine prolapse (36%), fibroid (21%), dysfunctional uterine bleeding (17%), followed by others as shown in the table no. 2. Significant pathological findings are Cervicitis(52%), Leiomyoma(12%), Adenomyosis(9%), followed by others as shown in the table no. 3. Information about risk factors for cervical cancer revealed the following. Mean parity is 3, regular pap smear test was done in only 1.3% of the cases, none of them were aware about HPV vaccination. None of them reported about multiple sexual partners and STDs. Only 1.7% of the study subjects reported that their partners had undergone circumcision, oral contraceptive pills usage for more than 8 yrs was seen in 6.1% of the cases. Poor birth spacing was seen in 33%, poor personal hygiene was reported in 37% of the cases.

Table No 1. Age distribution of Hysterectomy cases (N=293)

Age in years	Cases
25-35	37(13)
35-45	126(43)
45-55	84(29)
> 55	46(16)

Table No 2. Indications of Hysterectomy (N=293)

Indications	No of patients
Prolapse	106(36)
Fibroid	61(21)
Dysfunctional uterine bleeding	50(17)
Pelvic inflammatory disease	36(12)
Cervicitis	24(8)
*Menstrual irregularities	7(2)
**Others	4(1.3)
Ovarian cyst	3(1)
Ca cervix	2 (0.6)

*Menstrual irregularities include Post- menopausal bleeding, polymenorrhoea, menorrhagia.

**Others mentioned in the table are Adnexal cyst, Benign cystic Teratoma, Cervicalpolyp, Ca Endometrium

Table No 3. Pathology findings (N=293)

Significant pathology findings	No of cases
Cervicitis	152(52)
Leiomyoma	34(12)
Adenomyosis	25(9)
Squamous cell carcinoma of the cervix	8(3)
Grade 1 Cervical intraepithelial neoplasia	2(0.6)
Mild dysplasia of cervix	2(0.6)
Adeno- carcinoma of ovary	1(0.3)
Benign cystic teratoma	1(0.3)
Severe dysplasia of cervix with stromal invasion	1(0.3)

DISCUSSION

Hysterectomy is one of the most common surgical procedures having a rate of 6.1-8.6/1000 in all ages.[5] Age distribution of hysterectomy cases are as follows, majority of them (43%) are in the age group (35-45) yrs, 29% of them were in the age group (45-55) yrs, 16% of the study subjects were above 55 yrs old and only 13% of the cases were in the range of (25-35) yrs. However mean age of hysterectomy cases is 44 ± 9.9. Few studies reported almost similar results, in support of our findings, mean age was 45 yrs in two different studies from India and Pakistan [6,1] and mean age was 45.6 yrs in a study conducted at Puducherry.[7] But the age distribution of cases are different in other studies, according to Gupta G et-al 51.40% cases were encountered in 40-49 years, 21.40% women were in age group of 30-39 years.[7] In another study conducted at Gujurat one third of all hysterectomy were in women younger than 35 yrs of age.[8] In a study at Salem peak age was 31-40 yrs.[6]

Common indications of hysterectomy are Uterine prolapse (36%), fibroid (21%), dysfunctional uterine bleeding (17%), followed by others as shown in the table no 2. There are varied findings on indications as per different authors. According to a study done at Puducherry, India Uterine prolapse constituted 40%, Fibroid (34%) and Dysfunctional uterine bleeding (7.7%).[7] Thamilselvi Ramachandran et-al reported Uterine prolapse (31.6%), fibroid (30.3%), dysfunctional uterine bleeding (29%), in a study conducted at Salem Tamil nadu.[6] The following are the findings of a study done at Miruphukas (Pakistan), Uterine prolapse (19%), fibroid (33%), dysfunctional uterine bleeding (12%).[1] Significant pathological findings are Cervicitis(52%), Leiomyoma(12%), Adenomyosis(9%), and others as shown in the table no 3. Different studies report different pathologies again, a study from Pakistan revealed the following pathologies Cervicitis(44.4%), Leiomyoma(59.2%), Adenomyosis(24%).[5] According to Ahsan S et-al the findings are Cervicitis(20%), Leiomyoma(25%), Adenomyosis(30%) in Karachi Pakistan.[9] According to an Indian study major pathologies are Leiomyoma which constituted 35% and Adenomyosis 24.2%.[7] Myoma and adenomyosis constitute leading pathologies of the uterus in most of the studies. There is a 20–25% incidence of uterine fibroid tumor in women of fertile age, these are usually asymptomatic. If a surgical approach is to be adopted, the reproductive desire of the patient must be taken into account. Thus, a conservative myomectomy should be the first recommendation in women without children and who are still capable of becoming mothers. If there is no intention of preserving fertility, hysterectomy is a definitive solution,[4] The difference in findings among various studies may be due to geographical and racial influences it may also depend on the availability and utilization of health care services.

In our study cervical inflammation is the major pathology reported which is 52%. Cervical cancer as an indication of hysterectomy is one of the most preventable pathology if detected earlier as the latent period is in excess of 13 yrs for it to progress from premalignant stage to invasive carcinoma.[10] Information about risk factors for cervical cancer was elicited which revealed the following. Mean parity is

3, majority of the women were parous, mean parity was 5 in a study conducted at Salem, [6] peak parity was between 4-6 in a study at Pakistan.[5] This difference can be explained on the basis of the varied use of contraceptive methods.

Regular Pap smear test was done in only 1.3% of the cases, none of them were aware about HPV vaccination. None of them reported about multiple sexual partners and STDs. Only 1.7% of the study subjects reported that their partners had undergone circumcision, OCP usage for more than 8 yrs was seen in 6.1% of the cases. Poor birth spacing was seen in 33%, poor personal hygiene was reported in 37% of the cases.

RECOMMENDATIONS

As 52% of the study subjects reported cervical inflammation as the pathology findings. Regular cervical cancer screening programmes must be emphasized such as regular pap smear test should be conducted in a women of reproductive age group, thereby cervical cancers can be prevented if diagnosed early as the latent period is in excess of 13 yrs for it to progress from premalignant stage to invasive carcinoma.

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