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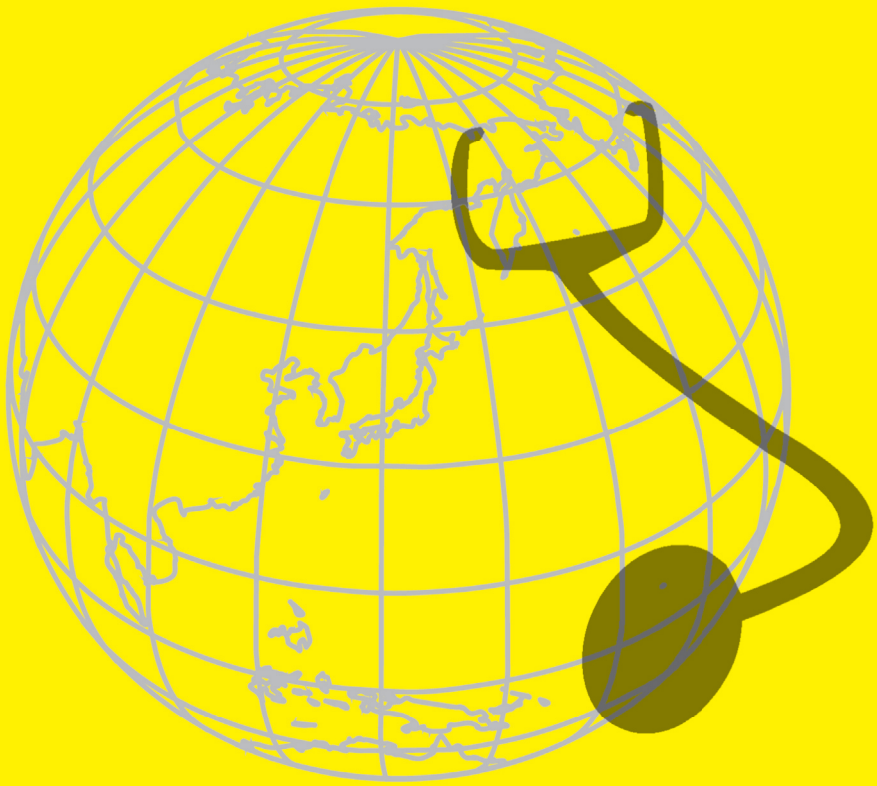

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NANODENTISTRY: Exploring the Beauty of Miniature

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ABSTRACT

Feynman's early vision in 1959 gave birth to the concept of nanotechnology. Since then, nanotechnology has been part of mainstream scientific theory with potential medical and dental applications. Numerous theoretical predictions have been made based on the potential applications of nanotechnology in dentistry, with varying levels of optimism. The most substantial contribution of nanotechnology to dentistry till date, is the more enhanced restoration of tooth structure with nano composites. The field of nanotechnology has tremendous potential, which can bring out significant benefits to the human society such as improved health, better use of natural resources, and reduced environmental pollution. The future holds in store an era of dentistry in which every procedure will be performed using equipments and devices based on nanotechnology. This article reviews the current status and the potential clinical applications of nanotechnology in dentistry.

Keywords: *Nanotechnology, dentistry, naocomposites, nano-robotics.*

INTRODUCTION

Last decade witnessed an unparalleled growth in all the fields of research in medicine. But there is little doubt that nanotechnology has the potential to change all aspects of medicine, health care and human life more profoundly than many other developments of the past taken together. Nanotechnology has revolutionized all aspects of health care into a new paradigm of state-of- the-art patient care beyond traditional, and dentistry is no exception.

The conceptual underpinnings of nanotechnologies were first laid out in 1959 by the noble prize winning physicist Richard Feynman in his lecture, "There's plenty of room at the bottom". In his historic lecture, he concluded saying, "this is a development which I think cannot be avoided". [1] Since then, nanotechnology has come a long way to find its application in Supramolecular chemistry-Self assembling drug carriers and gene delivery systems, Nano particles and nano capsules, Antibody technologies, Polymer-drug conjugates, Polymer-protein and antibody conjugates, Nano-precipitation, nano crystals, Emulsification technologies, Liposome technology, In situ polymerization, Tissue engineering and repair, Dendrimer technologies, Molecular imprinting including recent innovations in dental diagnostics, material and therapeutics. It has been proposed that nano dentistry will make it possible to maintain near-perfect oral health through the use of nano materials, [2-3] biotechnology [4-7] and nano robotics.

This purpose of this article is to review current status of nanotechnology in dentistry and to provide an insight into what the future holds, highlighting the ethical and safety concerns associated with the use of nanotechnology.

APPROACHES TO NANO DENTISTRY

- Bottom-up approaches
- Top-down approaches Bottom-up approaches[8]
- To arrange smaller components into more complex assemblies.

- DNA Nanotechnology utilizes the specificity of Watson-Crick base pairing to construct well-defined structures out of DNA and other nucleic acids.

Top-down approaches •[9] To create smaller devices by using larger ones to direct their assembly.

NANODENTISTRY as bottom-up approach

- Inducing anesthesia
- Major Tooth Repair
- Hypersensitivity Cure
- Nano robotic Dentifrice (dentifrobots)
- Tooth repositioning
- Local drug delivery
- Nano diagnostics

Local Nanoanaesthesia

Dental treatment often involves injection of local anesthetic, which in turn comes with its longer duration of action and varying degrees of efficacy, patient discomfort and complications. Well-known alternatives, such as transcutaneous electronic nerve stimulation (TENS), cell demodulated electronic targeted anesthesia and other transmucosal, intraosseous or topical techniques, have proved to be of limited clinical efficacy. Ongoing research to induce local anesthesia in the era of nano dentistry, is working on colloidal suspension containing millions of active analgesic dental nano robotic particles that could be instilled on the patient's gingivae. These nano robots, after contacting the surface of the crown or mucosa, reach the dentin by migrating into the gingival sulcus and pass painlessly to the target site. On reaching the dentin, the nano robots enter dentinal tubule holes that are 1 to 4 Am in diameter [10-12] and proceed toward the pulp, guided by a combination of chemical gradients, temperature differentials, and even positional navigation, all under the control of the onboard nano-computer as directed by the dentist. Once installed in the pulp, the analgesic dental robots may be commanded by the dentist to shut down all sensitivity in any particular tooth that requires treatment. After completion of the treatment procedure, the dentist orders the nano robots to restore all sensation, to relinquish control of nerve traffic and to egress from the tooth by similar pathways used for ingress.

Major tooth repair

Nano dental techniques for major tooth repair may evolve through several stages of technological development, first using genetic engineering, tissue engineering and tissue regeneration, and later involving the growth of whole new teeth in vitro and their installation. Ultimately, the nano robotic manufacture and installation of a biologically autologous whole-replacement tooth that includes both mineral and cellular components that is, complete dentition replacement therapy should become feasible within the time and economic constraints of a typical office visit, through the use of an affordable desktop manufacturing facility, which would fabricate the new tooth, in the dentist's office. Nano dentistry could also play a vital role in natural tooth maintenance. [13] Tooth Repositioning Orthodontic nano robots could directly manipulate the periodontal tissues, including gingivae, periodontal ligament, cementum and alveolar bone, allowing rapid and painless tooth straightening, rotating and vertical re-positioning within minutes to hours. [14] This offers an advantage over molar uprighting techniques currently in use, which require weeks or months to complete. Dentin Hypersensitivity

Another pathological phenomenon that may be benefited by nano dental treatment is dentin hypersensitivity. [1]Dentin hypersensitivity is a common condition of transient tooth pain associated with a variety of exoge- nous stimuli. There is substantial variation in the response to such stimuli from one person to another. Ex- cept for sensitivity associated with tooth bleaching or other tooth pathology, the clinical cause of dentin hy- persensitivity is exposed dentinal tubules as a result of gingival recession and subsequent loss of cementum on root surfaces [15-17] .Reconstructive dental nano robots could selectively and precisely occlude specific tubules within minutes, offering patients a quick and permanent cure. As nano robots pass through the journey of enamel, dentin, reach into the pulp. Once installed in the pulp, having established control over nerve impulse

traffic, the analgesic dental nano robots may be commanded by the dentist to shutdown all sensitivity in selected tooth that requires treatment. When the dentist passes the icon for the desired tooth on the hand held controlled display monitor, the nerve is immediately anesthetized. After the oral procedures are completed, the dentist orders the nano robots via the same acoustic data links to restore all sensation, to relinquish control the nerve traffic and to retrieve from the tooth via similar path. This analgesic technique is patient friendly as it reduces anxiety, needle phobia, and most important one is quick and completely reversible action. [1,18,19]

Nano robotic dentifrice (Dentifrobots)

A subocclusal-dwelling nano robotic dentifrice delivered by mouthwash or toothpaste could patrol all supra- gingival and sub gingival surfaces at least once a day, metabolizing trapped organic matter into harmless and odorless vapors and performing continuous calculus debridement.[1]

Nano diagnostics

Nanotechnologies already afford the possibility of intracellular imaging through attachment of quantum dots (QDs) or synthetic chromophores to selected molecules, for example proteins, or by the incorporation of naturally occurring fluorescent proteins that, with optical techniques such as confocal microscopy and correlation imaging, allow intracellular biochemical processes to be investigated directly.[20-22]

Even though microarray/ biochip methods making use of the detection of specific biomolecular interactions are now an indispensable tool for molecular diagnostics, there are some limitations. Nanotechnology is being applied to overcome some of the limitations of biochip technology. [23-24]

Gene Therapy

Gene therapy is a recently introduced method for treatment or prevention of genetic disorders by correcting defective genes responsible for disease development based on the delivery of repaired genes or the replacement of incorrect ones.[25] Three main types of gene delivery systems have been described: viral vec- tors, non viral vectors (in the form of particles such as nano particles, liposomes, or dendrimers), and the direct injection of genetic materials into tissues using so-called gene guns.[25-26] Applications of nanotechnological tools in human gene therapy has been reviewed widely by Davis, who described non viral vectors based on nano particles (usually 50-500 nm in size) that were already tested to transport plasmid DNA. He emphasized that nanotechnology in gene therapy would be applied to replace the currently used viral vectors by potentially less immunogenic nano size gene carriers. So delivery of repaired genes or the replacements of incorrect genes are fields in which nanoscale objects could be introduced successfully. [27]

Nano dentistry as top down approach [28]

- Nano composites
- Nano Light-Curing Glass Ionomer Restorative
- Nano Impression Materials
- Nano-Composite Denture Teeth
- Nano solutions
- Nano encapsulation
- Plasma Laser application
- Prosthetic Implants
- Nano needles
- Bone replacement materials

Nano composites:

Currently, nanotechnology has had its greatest impact on restorative dentistry by offering refinements to already clinically proven resin based composite systems. Nano hybrid and nano filled resin-based composites are generally the two types of composite restorative materials referred to under the term "nano composite", usually in a context of particle size. Characterized by filler-particle sizes of ≤100 nm, these materials can offer esthetic and strength advantages over conventional micro filled and hybrid resin-based composite systems, primarily in terms of smoothness, polishability and precision of shade characterization, plus flexural strength and micro hardness similar to those of the better-performing posterior resin-based composites. Beun and colleagues compared the physical properties of nano filled, universal hybrid

and micro filled composites, and observed a higher elastic modulus with the nano filled RBC than most of the hybrids tested.[29]

Advantages:

- Superior hardness.
- Superior Flexural strength, modulus of elasticity and translucency.
- Reduced filling shrinkage.
- Excellent handling properties.

Nano Light-curing glass ionomer restorative

Blends Nanotechnology originally developed for FiltekTM Supreme Universal Restorative with fluoralumi- nosilicate (FAS) technology.

Advantages :

1. Superb polish
2. Excellent esthetics.
3. Improved wear resistance

Clinical Indications:

- Primary teeth restorations.
- Transitional restorations.
- Small Class I restorations.
- Sandwich restorations.
- Class III and V restorations. Core build-ups.

Impression Materials

Nano fillers are integrated in vinylpolysiloxanes, producing a unique addition of siloxane impression materials. The material has better flow, improved hydrophilic properties and enhanced detail precision. Nano fillers are integrated in the vinylsiloxanes, producing a unique addition siloxane impression material that offers better flow, improved hydrophilic properties, hence fewer voids at margin and better model pouring, enhanced detail precision.[30]

Advantages:

1. Increased fluidit
2. High tear resistance,
3. Hydrophilic properties
4. Resistance to distortion and heat resistance
5. Snap set that consequently reduces errors caused by micro movements

Nano-composite denture teeth

Wear resistance is the most important physical properties of denture teeth .Porcelain denture teeth are most wear resistant, but they are brittle, lack bonding to the denture base, and difficult to polish. Acrylic resin denture teeth are easier to re contour, but undergo excessive wear. [28] Nano composite denture teeth comprises of Polymethyl-methacrylate (PMMA), and uniformly dispersed nano-sized filler particles.

Advantages:

- Highly polishable, stain and impact resistant material
- Lively surface structure
- Superior surface hardness and wear resistance

Nano solution

Nano solutions produce unique and dispersible nano particles, which can be used in bonding agents. This ensures homogeneity and ensures that the adhesive is perfectly mixed every time.[30]

Nano encapsulation

SWRI (South West Research Institute) has developed targeted release systems that encompass nano capsules including novel vaccines, antibiotics and drug delivery with reduced side effects. At present, targeted delivery of genes and drugs to human liver has been developed by Osaka University in Japan 2003. Engineered Hepatitis B virus envelope L particles were allowed to form hollow nano particles displaying a peptide that is indispensable for liver-specific entry by the virus in humans.

Prosthetic Implant

Nanotechnologies may produce surfaces with controlled topography and chemistry that would help understanding biological interactions and developing novel implant surfaces with predictable tissue-integrative properties. Nano structured surfaces may control the differentiation pathways into specific lineages and ultimately direct the

nature of periimplant tissues. Furthermore, it is possible to incorporate biologically active drugs such as antibiotics or growth factors during the precipitation of CaP coatings on Ti implants.[31-32] Compared with titanium alloy covered in micron-sized bumps, about 60% more new cells are grown on the same alloy containing nanometer-scale features, e.g.: NanotiteTM Nano-Coated Implant.

Nano Needles

Suture needles incorporating nano-sized stainless steel crystals have been developed. (Sandvik Bioloine, RK 91 TM needles (AB Sandvik, Sweden). Nano tweezers are also under development, which will make cell surgery possible in near future.

Bone replacement Materials

Chen et al. [33] took advantage of these latest developments in the area of nanotechnology to simulate the natural biomineralization process to create the hardest tissue in the human body, dental enamel, by using highly organized micro architectural units of nano rod-like calcium hydroxyapatite crystals arranged roughly parallel to each other.

Hydroxyapatite nano particles used to treat bone defects are;

- Ostim ® (osartis GmbH Germany) HA.
- VITOSS ® (orthovita Inc, USA) HA+ TCP.
- NanOssTM (Angstrom Medica ,USA) HA

Barriers to overcome

- Precise positioning and assembly of molecular scale part.
- Economical nanorobot mass production technique.
- Simultaneous coordination of activities of large numbers of independent micron scale robots.
- Biocompatibility issue.
- Funding and strategic issues.
- Social issues of public acceptance, ethics, regulation and human safety.

CONCLUSION

The aim of 'Nano medicine' may be broadly defined as the comprehensive monitoring, control, construction, repair, defense and improvement of all human biological systems, working from the molecular level using engineered devices and nano structures, ultimately to achieve medical benefit. Nanotechnology has a potential to transform the field of medicine, because it offers novel opportunities for sensing clinically relevant markers, molecular disease imaging, and tools for therapeutic intervention However, many challenges must be overcome if the application of Nano medicine is to realize the improved understanding of the pathophysiological basis of disease, bring more sophisticated diagnostic opportunities, and yield more effective therapies and preventive measures.

Formal interdisciplinary training programs should be instituted, focusing on basic scientific topics; for example molecular biology, colloidal chemistry, cell physiology, surface chemistry, and membrane biophysics towards a common goal of developing newer non invasive technologies that will benefit oral health and general health at large. Nanotechnology is destined to become the core technology underlying all of 21st century medicine and dentistry.

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Conflict of Interest : None

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Study on Awareness of NACO Protocols and Guidelines among Private Medical Practitioners in Urban Davangere Karnataka

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ABSTRACT

OBJECTIVES: To assess the level of knowledge among private practitioners regarding NACO protocols and guidelines.

METHOD: Design: Descriptive, cross sectional survey of private practitioners in urban Advancer. **Sampling**: random sampling**. Subject**s: private practitioners in urban Advancer **Inclusion criteria:** Allopathic doctors practicing in urban Advancer, both MBBS and MD Doctors of all specialities included **Exclusion criteria:** Non allopathic doctors, Doctors who did not give consent. Study period: two months from June to august 2011 **Sample size**: 129

RESULTS: More than two thirds of the study population don't have correct knowledge about the objectives of NACO. Most of private practitioners have good knowledge about HIV.Most of the study population have no knowledge about the questions regarding regimens under NACO guidelines and about perinatal transmission.

RECOMMENDATIONS: Knowledge and Attitudes of Private Practitioners was reasonably good but improvement is required with respect to management of HIV. Targeted continuing medical education programmes and special training sessions are recommended

Keywords: *NACO, HIV, Protocols*

INTRODUCTION

HIV infection is a global health problem of extraordinary dimensions affecting people of all age group worldwide. HIV infection has so far resulted in an estimated 46 million infected worldwide the infection rates are far higher and growing rapidly in different parts of the world such as USA sub-Saharan Africa, the Indian sub-continent, and Asia.,leading to death of 1.6 million-2.1million. Acquired Immunodeficiency syndrome is a fatal illness caused by HIV virus which breaks down the body's immune response, leaving the victim to host of life threatening oppurtunistic infections.

HIV/AIDS situation in India ,since the discovery of the first AIDS case in India in a female CSW in Tamil Nadu in 1986, HIV has now spread to all the States. Nationally, the HIV prevalence among adults (aged 15–49 years) is less than 1%, but with a population of more than 100 crore, India has the world's second-largest number of PLWHA

The National AIDS Control Programme of the Government of India, initiated in 1999, is a completely centrally sponsored scheme implemented in 35 States and UTs by the State AIDS Control Societies and municipal corporation in the cities.It has component of "care and support" for HIV-infected persons, with an emphasis on universal precautions, management and prophylaxis of OIs, and provision of post-exposure prophylaxis (PEP) to health care providers. There has been a paradigm shift in the National AIDS

Control Programme of India and, along with prevention and the improvement of the health care infrastructure for the delivery of care and support, treatment is now perceived as a critical component of a comprehensive.

Private Providers are very accessible to patients and can play a key role in HIV control. They can be Private Practitioners (PPs) or Private Hospitals/ Nursing homes practicing

modern medicine or other systems of medicine. It has been acknowledged that involving private

providers helps to improve both case detection and access to standard services under NACO. It is vital to have a regular and continuous interaction with the private health care providers to sustain their involvement. To achieve good treatment outcomes, Private Providers must follow standard NACOguidelines.

Honourable Supreme Court issued directives to MCI to make the knowledge of NACO protocols and Guidelines compulsory for all health care workers.In view of this CME was conducted on August 7 2010 in SSIMS&RC Davangere ,my study reports the knowledge of PPs after the CME.

OBJECTIVES

- To assess the level of awareness among private medical practitioners regarding NACO protocols and guidelines.

METHODOLOGY:

This is a descriptive cross sectional survey carried out from June to August 2011 in different clinics and hospitals in urban Davangere. .Our sampling frame included Private practitioners (PPs) with appropriate qualification (at least an MBBS) selected on the basis of simple random sampling. Survey was perfomed by visiting private clinics and hospitals/nursing homes in here. Only allopathic practitioners were included in the study irrespective of their field of specialization. Out of 150 private allopathic practitioners approached in Davangere Urban ,only 129 responded. Study was conducted after taking verbally informed consent from each participant. A standardized questionnaire was designed which had multiple choice questions mainly focused on knowledge towards the disease HIV, NACO and its guidelines, was handed over to each of them and were requested to answer appropriate options.

Study was approved by the ethical review board of SSIMS. Due to non invasive nature of the study verbal consent was deemed sufficient.

Microsoft Access 2003 was used for data entry and SPSS was used to carry out the Statistical analyses.

RESULTS AND INTERPRETATION

Out of 150 General private practitioners approached, 129 (86%) consented to participate in the study. They were all working in various types of private facilities spread throughout Davangere urban.

When question raised on the knowledge of the directives issued by supreme court to MCI to conduct CME on NACO protocols and guidelines on HIV/AIDS in all medical centre ,no one were aware of the date of CME conducted in Davangere.

AWARENESS ABOUT THE DISEASE

(Transmission,Prevention and Symptomatology):

In response to the question asked about HIV status, only 76% knew that the stage is asymptomatic.85% knew the common symptoms of AIDS disease. Almost all of the private practitioners (100%) were aware that HIV could be transferred through sexual contact. Furthermore, 100% cited blood transfusion, then (42.6%) did not answer when other modes of transmission like needle prick, perinatal transmission was asked**(Graph-1)**. When asked about preventive measures, 96.9% of the Private practitioners expressed that using a condom could prevent HIV transmission, duration taken for the infection to manifest as full fledged state was put up, 35.7% answered correctly. The above mentioned results showed that knowledge of our Private practitioners was found to be fairly good.

AWARENESS ABOUT THE TREATMENT
Knoledge about Posology

79.1% agreed that they were aware of the name, dose and frequency of all medication currently used for treatment of HIV/AIDS.

NUMBER OF MEDICATIONS TO BE GIVEN UNDER NACO GUIDELINCE

Number of medications to be given under NACO guidelines was asked only 79.8% were aware.

Table 1: Showing Accessibility Of ART

ACCESSIBILITY OF ANTIRETROVIRAL (ART)	Number	(%)
ART CENTER	123	95.3
OTHERS		
(Medical College/ Local physician)	6	4.7
TOTAL	129	100

Place of treatment was asked 95.3% answered ART centers only 4.7% responded other accessibilities.

Minimum counselling to be done for Patients

PPs were asked about minimum counseling to be done for HIV patients to provide psychological support only 58.9% were correct.

When treatment and duration of Post Exposure Prophylaxis (PEP) was asked only 60.5% knew basic regimen and 51.9% knew duration of PEP.

Respondents were asked about the treatment options according to the NACO GUIDELINES regimen, responses included only 55% knew first line regimen 21.8% knew alternate first line regimen 23.2% knew second line regimen. Most practitioners had poor knowledge about HIV Regimens given under NACO guidelines.

AWARENESS ABOUT PERINATAL TRANSMISSION AND TREATMENT

Table 2 : Showing combination ART decreases HIV transmission when administered to mother and infant.

Combination of ART administered to mother and infant decreases HIV transmission	**Number**	**Percentage(%)**
Yes	**62**	**48.1**
No	**29**	**22.5**
Don't Know	**38**	**29.4**
Total	**129**	**100**

Table 3: Showing knowledge regarding NVP/ ZDV prophylaxis in breastfed infant decreases post natal transmission.

NVP/ZDV prophylaxis in breastfed infant decreases postnatal transmission	Number	%
Yes	71	55
No	32	28.7
Don't know	21	16.3
Total	129	100

Table 4: Showing knowledge regarding omitting sdNVP in mother and her non-breastfed infant receiving ART.

Omission of sdNVP feasible if mother and her non-breastfed infant receives ART	Number	Percentage (%)
Yes	25	19.4
No	45	34.9
Don't know	59	45.7
Total	129	100

Table 5: Showing knowledge of optimal timing for administration of sdNVP to the baby

Optimal timing for administration of sdNVP to the baby	Number	Percentage (%)
72 hours after birth	2	1.6
Others	35	27.1
Don't know	92	71.3
Total	129	100

Inclusion of protease inhibitors in combination ART

In HIV infected mother and her breast fed Infant: Only 33.3% answered that there is solution to early cessation of breast feeding. 48.1% answered that combination of ART decreases HIV transmission(**Table-2**). About 55% knew that ZDV/ NVP prophylaxis decreases post natal transmission **(Table-3**). 36.4% responded that post partum administration of HAART is effectivean HIV transmission rate decrease without a decrease in nutritive value of expressed breast milk was put up only 34.1% were correct. **In HIV infected mother and her non breastfed infant:** Question regarding omission of sdNVP by mother and her non breast fed infant receiving ART was asked only 19.4% knew answer**(Table-4**). **Treatment:** Only1.6% of the private practitioners answered correct for the optimal timing for administration of sdNVP to the baby**(Table-5**).63.6% preferred inclusion of protease in combination ART**.**43.4% preferred twice a day ZDV regimen is effective.Only 34.8% gave correct answer when question like PCP prophylaxis can be omitted if the PCP test shows negative among people suspected with HIV infection was asked.

AWARENESS ABOUT OPPURTUNISTIC INFECTION

When a question about opportunistic infection was put up the response was quite good, only 7.8% did not know about Bacterial infection, 8.5% did not know about Fungal infection, 12.4% did not know about malignancies, 20.9% did not know about protozoal infection, 27.1% did not know about Viral infection, 43.4% did not know about Neurological infection. Majority of PPs answered Myco tb, Canidiasis, Kaposis sarcoma, isospora, CMV.

MANAGEMENT OF OPPURTUNSTIC INFECTIONS

When question raised on to manage opportunistic infection like TB was put up only 32.5% answered correctly.

CONCLUSION AND RECOMMENDATION

The study concludes that doctors have sufficient knowledge about the etiology and symptomatology of AIDS. They have shown a more positive attitude towards control and prevention of HIV but still Private Practitioners lacked knowledge about the appropriate management of HIV and awareness about NACO protocols and guidelines was comparatively less.The presence of insufficiency of appropriate management might be due to the fact that most of our PPs do not attend special training sessions regarding diagnoses and management of HIV/AIDS. So CME, Work shops, orientation training programmes must be made compulsorily.

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Psychosocial Problems among Young High School Adolescents in Chandigarh, North India

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ABSTRACT

Background: The psychosocial challenges that mark the adolescence period make them quite susceptible to undesirable exposures raising health and safety concerns. Thus the psychosocial problems of this dynamic group need to be explored thoroughly. **Methodology**: A cross sectional study was conducted among students of class eighth to tenth class (10-12 years) studying in a government high school in Chandigarh. Adolescents were selected by systematic random sampling and the Younger Adolescent Questionnaire (American Medical Association) was administered to obtain information about personal details, medical history, family information, specific health and psychological issues. **Results:** Height (46%) was the most common specific health issue on which adolescents were worried about followed by weight (37%) and skin (27%). About 36% of adolescents got violent on getting angry, 54% were worried about family problems, 26% had thought of seriously running away from home, and 14% had suicidal tendencies. Only about 12% adolescents could discuss issues related to reproductive and sexual health like sex, drugs and alcohol with their parents. **Conclusion**: Psychosocial problems were quite prevalent among the young adolescents in Chandigarh. Family problems, personal appearance related problems were more as compared to substance abuse and unsafe sexual practices. Suicidal tendencies were alarmingly high.

Keywords: *Adolescents, psychosocial problems, Chandigarh*

INTRODUCTION

Adolescence is a dynamic period of one's life. It is important to understand their social, emotional and sexual behavioural pattern to improve the health of this heterogenous group. In India, adolescents comprise nearly 22% of country's total population.[1] Adolescents spend substantial part of their waking hours in school. Thus, schools remain one of the most important settings for introducing preventive interventions for them. The importance of adolescent health and related issues were highlighted in Reproductive & Child Health-II (RCH-II) and later under National Rural Health Mission (NRHM) as Adolescent Reproductive Sexual Health (ARSH). There is ample evidence to show that adolescents are an underserved vulnerable group.[2] Moreover service utilization is also very poor among the youth.[3] With this background, the present study was conducted with the aim of ascertaining the psychosocial problems of adolescents in a high school in Chandigarh.

METHODOLOGY

A cross sectional study was conducted among students of class 8th to class 10th (age 12-14 years) studying in purposively selected government high school, in author's field practice area of Urban Health Training Centre Sector-38, Chandigarh. A sample size of 84 was calculated taking prevalence of psychosocial problems to be 30% and precision (10%). Students were selected by systematic random sampling and every 4th student included from a total of 445 enrolled students in class 8th to 10th. Hence, total students included in study were 102.

Prior permission was taken from school authorities to interact and gather information from students. A separate room was selected keeping in mind the privacy of the students. Weekly interactive sessions were held with the students where they were briefed about adolescence and its various challenges. The female adolescent sessions were conducted by female resident doctor and male adolescent sessions by the male resident doctor so that they did not feel shy to respond.

Younger Adolescent Questionnaire (American Medical Association) was administered to record information.[4] The questionnaire had five sections namely personal details, medical history, family information, specific health and psychological issues and health profile. The students were assured of confidentiality. Data was analyzed statistically using SPSS version 17. Simple descriptive statistics (percentages) were used in describing characteristics of study variables.

RESULTS

Among 102 adolescents interviewed 63 were males (61.8%) and 39 females (38.2%). The mean age of the respondents was 13.6 years. Around 60% of the adolescents belonged to class 9th followed by class 8th (22%) & class 10th (18%). Nearly one third (68%) resided in urban area. 91.2% of the respondents were of the view that Hindi was the most common language spoken where they lived. Majority of adolescents (87.3%) were living with both parents.

Only 20 students (19.6%) reported having any health problem, 31 students (30.4%) visited a dentist last year. Few students ever reported history of allergies or hay fever (8.8%) or asthma (2.9%). Height (46%) was the most common specific health issue on which adolescents were worried about followed by weight (37%) and skin (27%). (Table 2) Maximum adolescents eat vegetables and fruits everyday (85.3%) and drink milk &/or eat milk products everyday (82.4%). Nearly half of them (51%) do strenuous exercise. Out of 39 female respondents, majority (87.2%) had started having period. (Table-1)

Doing well in school was important for majority of adolescents (95.1%) and to their family and friends (87.3%). Nearly 21.6% respondents had been told that they have a learning problem. Majority of respondents (70.6%) knew at least one person who they can talk about problems and majority (74.5%) thought their feelings were listened seriously by their parents or guardians. Nearly half of adolescents (54%) were worried about problems at home and about 23.5% had even thought seriously of running away from home. (Table-1)

About 5% adolescents had firearm at their place, 14% ever carried weapon (in the form of knife or gun etc.) to protect themselves. Two third of the respondents witnessed a violent act (67%) and were worried about violence and safety (55%). About 36% adolescents behaved violently when angry. (Table-1)

Regarding substance abuse, 10% adolescents consumed alcohol in some form, 8% had drugs and 5% tried cigarettes or chewed tobacco. There was also positive history among their friends and in family for substance abuse except for drugs.

About 14 respondents (13.7%) were dating. Overall they had given negative response to exposure to sexual activity but they were interested in receiving information on this topic. In 12 families (12%), parents talked with adolescents about issues of alcohol, drug and sex. Regarding being emotional, most of the respondents (73.5%) had done something fun during the past two weeks. Feeling of sadness and nothing to look forward to be observed in 30% adolescents, and suicidal tendencies observed in 14% of them. (Table-1)

Regarding safety during travel 47% didn't wear helmet while riding two-wheeler, but 55% wore seat belt while in a four wheeler.(Table-1) Girls didn't like to wear helmet as it affected their appearance and few boys also didn't wear helmets because of religious values.

DiSCUSSION

The results of the present study highlighted that there are marked psychosocial problems among adolescents in the age group of 12 to 14 years. With emerging westernization, there is growing concern about sexual promiscuity, changing attitudes

toward sexuality, increased lure towards drugs, premarital sex and homosexuality, psychological and emotional crises, fragile relationships. This takes a heavy toll on the young immature minds.

The study showed that height was the most common specific health issue on which adolescents were worried about followed by weight and skin which corroborate to a large extent with another study by Sathe who found pimples followed by height, weight, figure and looks as the factors troubling adolescents a lot.[5]

Majority of respondents knew at least one person with whom they can share their problems (70.6%) but it is not clear who is that person whether parents, other family members, teacher or friends etc. But in only 12 families (11.8%), parents discussed with them about drugs, sex and alcohol. Mahajan and Sharma reiterated this fact by saying that parents feel uncomfortable sharing such issues with their children so do the children.[6] Therefore they rely on their peers who have all sorts of myths and biased opinions.

The present survey revealed that more than half of the respondents were worried about problems at home and a quarter had even thought seriously about running away from home. Nearly 14% had even thought of killing themselves. Such unhealthy environment is certain to affect their scholastic and overall development. Thus, in a way we are squandering the most precious asset of a nation, the youth.

More than 90% of the students had never tried cigarettes, drugs or alcohol. Similar results were reported from a study by Thakur et al which showed that around 10% of students started smoking before the age of 14.[7] This calls for an intervention before the age of 14 years to prevent smoking among youth.

There is no forum where the young minds can shed their apprehensions and discuss issues without fear, guilt and shame. The schools where they spend most of their waking hours have failed to resolve these concerns. The students were interested in receiving information related to sexuality, relationships etc. because they lacked scientific knowledge on such matters. This draws them to follow their peers who themselves have less knowledge and make matters worse by propagating wrong notions. This presses the need for sex education in the schools. Studies by Watsa and Bhende also support this overwhelming need among adolescents to introduce education in schools regarding sex, emotions, drugs etc.[8-9] It is suggested that counselor should be there in the schools to deal with psychosocial problems of adolescents, so that adolescents can take appropriate decisions. Programmes like adolescent reproductive and sexual health services if effectively implemented can take care many of psychosocial problems among adolescents. Limitation of the study is the small sample size. Factors responsible for psychosocial problems among young adolescents need to be investigated further.

CONCLUSIONS

Psychosocial problems were marked in young adolescents of age 12 to 14 years in government high school in Chandigarh. Most of them were reluctant to discuss issues related to sex, drugs etc with their parents. Providing family education was the felt need of these adolescents. Counseling of parents and teachers in schools is a feasible option. These problems can be taken care of by targeted programmes like adolescent reproductive and sexual health services and school health services.

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Ethical Clearance: This study has been approved by the Institutional Ethics Committee.

Table 1. Physical attributes/ problems which trouble adolescents		
Have a question or worried about	Number of respondents	Percentage
Height	47	46.1
Weight	38	37.2
Skin	28	27.4
Anger or temper	20	19.6
Muscle	19	18.6
Stomach ache	16	15.7
Trouble sleeping	16	15.7
Mouth	15	14.7
Feeling tired	15	14.7
Dying	14	13.7
Headaches	13	12.7
Eyes or vision	12	11.8
Chest pain	11	10.8
None	11	10.8
Colds	9	8.8
Neck or back	8	7.8
Vomiting	8	7.8
Menstruation	8	7.8
Breasts	4	3.9
Others	24	23.5

Table 2. Behavioural and psychosocial attributes of young adolescents in Chandigarh

Items about specific issues	**Percentage of respondents (n=102)**
Eat fruits and vegetables every day	85.3
Do things to lose weight	12
Work, play, or exercise enough to make you sweat or breathe hard at least 3 times a week	51.0
Doing well in school important to you	95.1
Doing well in school important to your family and friends	87.3
Ever been told that you have a learning problem	21.6
Know at least one person who you can talk to about problems	70.6
Parents talk to you about things like alcohol, drugs, and sex	11.8
Worried about problems at home or in your family	53.9
Ever thought seriously about running away from home	23.5
Ever been in a physical fight	45.0
Ever seen a violent act take place at home, school, or in your neighborhood	66.7
Worried about violence or your safety	54.9

Usually wear a helmet	47.1
Wear a seat belt when you ride in a car	54.9
Ever tried cigarettes or chewing tobacco	5.1
Ever tried beer, wine, or other liquor	10
Ever used other drugs such as cocaine, speed, LSD, mushrooms	8
Are you dating someone	13.7
Ever had sex	1
Like to know how to avoid getting pregnant, getting HIV/AIDS	37.3
Ever seriously thought about killing yourself	13.7
Like to get counseling about something that is bothering you	34.3
Do violent things when angry	36.3

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Self Medication Pattern among Housewives in Rural Field Practice Area of MVJ MC & RH, Hoskote

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ABSTRACT

Background : Self-Medication can be defined as obtaining and consuming drugs without the advice of a physician either for diagnosis, prescription or surveillance of treatment. There is a lot of public and professional concern about the irrational use of drugs.

Objectives : 1.To assess the self medication pattern among housewives

2. To assess the attitude towards self medication

Materials and Methods: A Cross sectional survey was conducted in rural field practice area of MVJ Medical College and Research Hospital and interviewed 100 housewives taking self medication irrespective of age using pre tested semi structured questionnaire. Data collected was analysed using SPSS software for windows version 16

Results : Majority of the study subjects were in the age group 20-30 years (45%) and 78% subjects belonged to Hindu religion. Majority of study subjects had studied upto high school (36%) and 11% were illiterates. The most common medical condition for which study subjects took medicines was fever and pain (32%), followed by fever, pain and cough 18%, only pain 15%, fever and cough 13%, only fever 9%. Lack of time (38%) was the main reason for self medication other reasons being financial constraints 29%, minor ailments 17%, and distant health centre 13%. 86% of study subjects responded that taking self medication is harmful.

CONCLUSION : It can be concluded that majority of subjects taking self medication were in younger age groups, highly educated and higher socio economic status. Most common reason was lack of time and financial constraints. This study highlights the urgent need of public education about specific risk/ side effects of self medication and its importance.

Keywords: *Self medication, housewives, drugs, public education*

INTRODUCTION

William Osler has said that "A desire to take medicine is perhaps the great feature which distinguishes man from animals". This desire, however may play havoc when a person starts taking medicine on their own forgetting that all drugs are toxic and their justifiable use in therapy is based on a calculable risk.[1]

Self-care is a behavioural response of individuals to promote or restore their health. Encouragement of self-care is seen as giving patients every opportunity to take responsibility and build confidence in their ability to manage their own health.[2]

One form of self-care is self-medication.Self-Medication can be defined as obtaining and consuming drugs without the advice of a physician either for diagnosis, prescription or surveillance of

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treatment[3]. There is a lot of public and professional concern about the irrational use of drugs. In developing countries like India most episodes of illnesses are treated by self medication because of easy availability of a wide range of drugs commercially coupled with inadequate health services result in increased proportions of drugs used as self medication compared to prescribed drug[4].

Although, OTC (over the counter) drugs are meant for self-medication and are of proved efficacy and safety, their improper use due to lack of knowledge of correct dose, side effects, and interactions could have serious implications, especially in extremes of ages (children and old age) and special physiological conditions like pregnancy and location [5,6]

In several studies it has been found that inappropriate self medication results in wastage of resources, increases resistance of pathogens and generally entails serious health hazards such as adverse drug reactions, prolonged suffering and drug dependence.[7]

Despite the growing research interest in self-medication, little information has been available especially in developing countries.

Hence the present study was undertaken to assess the self medication pattern among house wives in rural field practice area of MVJ Medical College

MATERIALS AND METHOD

The present study was a cross sectional survey conducted in rural field practice area of MVJ Medical College and Research Hospital. For this study a house to house survey was done and we interviewed 100 housewives taking self medication irrespective of age after taking an informed consent explaining the purpose of the study using pre tested semi structured questionnaire. For the purpose of the study self-medication was defined as the use of over-the-counter or prescription drugs, whether modern or traditional, for self treatment, without prior consultation with a doctor. The questionnaire consisted of three sections, first section included questions regarding general demographic information such as age, educational status, marital status, religion etc. Second section consisted of questions related to self medication which includes whether they keep medicines in their home, separate place, classified manner, frequency of self medication, condition for which they use medicines, drugs commonly used, reasons and source of information regarding self medication. Third section contained questions regarding attitude towards self medication, knowledge regarding adverse effects and whether they advice others for self medication. Data collected was analysed using SPSS software for windows version 16 and results are represented in the form of percentages and figures.

RESULTS

Majority of the study subjects were in the age group 20-30 years (45%). Out of 100 housewives majority 78% belonged to Hindu religion, followed by Muslims (18%) and Christians (4%). Majority of study subjects had studied upto high school (36%) and 11% were illiterates. Majority of study subjects belonged to socio economic status class II (40%) according to modified B G Prasad's classification followed by 37% class III, 15% class I, 5% class IV and 3% class V. Majority of the study subjects belonged to nuclear family (91%). Twenty percent of study subjects were not storing drugs in their home, 46% were storing in cup board, 26% in separate box, 5% in kitchen, 2% in refrigerator and 1% in purse. Out of 100 study subjects 44% took self medication every few months, 37% took twice or thrice a year, 11% every few weeks, 6% once a year and 2 % consumed all the time. The most common medical condition for which study subjects took medicines was fever and pain (32%), followed by fever, pain and cough 18%, only pain 15%, fever and cough 13%, only fever 9% and other conditions 13% (diarrhea, gastritis). Most commonly used drugs were analgesics and antipyretics (46%), analgesics 19%, cough syrup 15%, only antipyretics 12% and other drugs 8% (antibiotics, antacids, antidiarrhoeals). Majority of the study subjects cited lack of time (38%) as the main reason for self medication other reasons being financial constraints 29%, minor ailments 17%, and distant health centre 13%. The major source from which study subjects learned to use

self medication were previous illness prescription 50%, directly from pharmacist 34%, media 13% and other sources 2%. Most of the respondents preferred allopathic medicines 82%, 9% preferred homeopathy, 6% ayurvedic and 3% home remedies. It was observed that 86% of study subjects checked for expiry date of the drugs before using them. Eighty six percent of study subjects did not observed any adverse effects, 8% noticed epigastric pain, 2% each noticed nausea and vomiting, allergic reactions and aggravation of symptoms. It was observed that 38% of study population used old prescriptions to decide the dose of self medication, while 25% took medications when pain increases, 21% took medications based on the advice of pharmacist and 16% adjusted the dosage based on the symptoms. Majority 86% of study subjects responded that taking self medication is harmful. It was observed that only 53% of study population were aware of the adverse effects of self medication while 47% were not aware. 53% of study population did not advice others to take self medication, however 23% advised other family members, 16 % advised friends and relatives, and 8% advised their neighbors.

Table 1: Socio- Demographic Profile of Study Population (N=100)

Age (years)	**Frequency**
20-30	45
31-40	36
41-50	13
>50	6
Religion	
Hindu	78
Muslim	18
Christian	4
Educational status	
Illiterate	11
Primary	4
Middle	16
Secondary	36
PUC	19
Degree	14
Type of family	
Nuclear	91
Joint	9
Socio- economic status	
I	15
II	40
III	37
IV	5
V	3

Table 2: Self medication pattern among Study Subjects

Frequency of drug use	**Frequency**
Every few months	44
2-3/year	37
Every few weeks	11
Once a year	6
All the time	2
Medical conditions for drug usage	
Fever+pain	32
Fever+pain+cough	18
Pain	15
Fever+cough	13
Fever	9
Others	13
Commonly used drugs	
Analgesics+antipyretics	46
Analgesics	19
Cough syrup	15
Antipyretics	12
Others	8
Reasons	
Lack of time	38
Financial constraints	29
Minor ailments	17
Distant health centres	13
Others	2

DISCUSSION

Self medication is a serious issue which needs at-most attention. In the present study majority of subjects belonged to 20-30 years age group which is in consistent with other study findings done by Shankar et al [4]. It was also found that the prevalence of self medication was highly practiced among subjects educated upto high school and above (69%) compared to illiterates and lower education, similar findings was also noticed in study done by Utami NA et al in 2005[8]. The results of this study showed that economic conditions also affect the pattern of self medication and it was observed that prevalence of self medication was more in higher economic status class I and II (55%) compared to lower economic class groups which was supported by studies done by Durgawale in urban slum and Seed et al [9,10]. In the present study it was observed that lack of sufficient time (38%) was the main reason for self medication and 29% because of financial constraint. In a study done by Jyoti Kaushal et al[11] showed that 71% of subjects practiced self medication because they felt going to physician put financial restraint on them and rest of them felt they did not have sufficient time to consult doctor, so they consulted the physician only when the condition was serious enough or was not relieved by self medication . In present study the most common medical condition for which study subjects took medicines was fever and pain (32%), followed by fever, pain and cough 18%, only pain 15%, fever and cough 13%, only fever 9% and other conditions 13%. The commonest conditions that led to self medication in a study done by worku et al[12] were headache, fever, cough and diarrhea. In present study most commonly used drugs were analgesics and antipyretics (46%), analgesics 19%, cough syrup 15%, only antipyretics 12% and other drugs 8% whereas study done by Jyoti Kaushal et al[11] showed that the most commonly used drugs were analgesics, followed by antacids, antibiotics, nutritional supplements, cough syrups and anti spasmodic. Study done in HongKong [13], reasons for self medication included the conditions like musculoskeletal pain, minor burns or bruises, gastrointestinal upset, headache, sore throat, skin problem, cough and dyspepsia. In our study most of the respondents preferred allopathic medicines 82%, 9% preferred homeopathy, 6% ayurvedic and 3% home remedies which is consistent with the findings of Durgawale PM (1998) and Phalke et al (2006).[1,9]

CONCLUSION

From the present study it can be concluded that majority of subjects taking self medication were in younger age groups, highly educated and higher socio economic status. Most common conditions which were used self medication for minor ailments like fever, pain and cough. Most common reason was lack of time and financial constraints. Majority were not knowing about adverse/side effects of self medication. Hence this study highlights the urgent need of public education about specific risk/ side effects of self medication and its importance, by mass media and local government authorities.

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Ethical Clearance : Consent was taken from study subjects before interviewing them.

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A Study of Superior Mesenteric Artery in Cadavers in a Medical College of Coastal Andhra Pradesh

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ABSTRACT

BACKGROUND:. There are various surgical problems in the surgical approach of the gut in infancy, childhood & adult. The study of blood supply to the intestine particularly the superior mesenteric artery is important. So the knowledge of occurrence of variations of the origin, course, relations, distribution, & branching of superior mesenteric artery is essential apart from normal distribution in order to prevent complications during surgery.

OBJECTIVES: 1. To study the Human Superior Mesenteric artery & variations in its branches in detail. 2. To compare the diameters of abdominal aorta & superior mesenteric artery at the origin.

MATERIALS AND METHOD:. Around 50 adult specimens were obtained from the Department of Anatomy, 25 dead fetuses & 25 post mortem specimens were obtained from the department of Forensic medicine, Rangaraya Medical College, Kakinada. These specimens were dissected in order to expose the superior mesenteric artery & studied in detail.

RESULTS: No abnormal origin of the superior mesenteric artery in the given specimen is observed. However some variations were seen in the branching pattern of the same.

CONCLUSIONS: Different type of variations in the branching pattern of the superior mesenteric artery is common & the knowledge of which is important for the General & Paediatric surgeons while performing abdominal, particularly the gut surgery in order to reduce the complications during & after surgery.

Keywords: *Superior mesenteric artery, origin, branches, dissection etc.*

INTRODUCTION

Superior mesenteric artery is an unpaired branch that takes origin from the ventral aspect of the abdominal aorta, 0.5 to 1cm below the origin of celiac trunk, usually at the level of 1st lumbar vertebra. It passes in front of horizontal part of duodenum & ends usually at right iliac fossa by anastomosing with one of its own branches, usually the ileo-colic artery. It also supplies the entire gut except the proximal part of duodenum upto the Ampula of Vater & also supplies the large gut into the junction of the right two-third & left one-third of the transverse colon. In addition it supplies a part of the head of pancreas. There are various surgical problems in the surgical approach of the gut in infancy, childhood & adult. The study of blood supply to the intestine particularly the superior

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mesenteric artery is important. So the knowledge of occurrence of variations of the origin, course, relations, distribution, & branching of superior mesenteric artery is essential apart from normal distribution for planning of effective surgeries & prevention of unwanted complications. Our study is an attempt to confirm the details about the Superior Mesenteric Artery as well as find out the major & minor variations.

MATERIALS AND METHOD

Study area: Department of Anatomy, Rangaraya Medical College, Kakinada.

Study specimen: Dissected adult bodies were obtained from department of anatomy, post mortem specimens from the department of Forensic Medicine & dead fetuses were obtained from the department of Obstetrics & Gynecology, Govt. General Hospital, Kakinada.

Sample size: 100 (50 adult dissected specimen, 25 each of post mortem & dead foetal specimen)

Study period: October 2004 to October 2006.

Study variables: level of origin, site, length, course, relations, distribution, branches etc. of superior mesenteric artery.

Statistical analysis: percentages and proportions,

Methodology: The study was carried out in the department of Anatomy of Rangaraya Medical College & Hospital, Kakinada, A.P during the period of October 2004 to October 2006. Around 50 adult specimens were obtained from the Department of Anatomy, 25 dead fetuses were obtained from the department of Obstetrics & Gynecology, Govt. General Hospital & 25 post mortem specimens were obtained from the department of Forensic medicine, Rangaraya Medical College, Kakinada. These specimens were dissected in order to expose the superior mesenteric artery completely & studied in detail all the aspects like level & site of origin, length, course, relations, distribution, branches, anastomoses, diameter etc. The data collected was analyzed.

RESULTS

Out of 100 specimens, 57 were male & 43 were female bodies. It was seen that the level of origin of the superior mesenteric artery is at the lower border of the first lumbar vertebrae in adult as well as foetal specimens. Table 1 shows that the distance between celiac trunk & Superior mesenteric artery is 1 cm for most of the specimens i.e. 38 out of 75(50.67%) of the adult specimen & it is 0.50 cm for most of the foetal specimens i.e. 48% (12 out of 25). The Average length of the superior mesenteric artery among male specimens was 25 cm & 24 cm among females. The foetal male specimens & female specimens showed the average length of 12.5 cm & 11.0 cm respectively. The relations of the artery, the distribution & its termination showed no variations from the normal. Around 60 (80%) of the adult specimen showed the origin of inferior pancreaticoduodenal artery from superior mesenteric artery & 15 (20%) from 1st Jejunal branch whereas 15 (60%) & 10(40%) showed origin from superior mesenteric artery & 1st Jejunal branch respectively in the foetal specimens, which is shown in Table 2. The average no. of intestinal branches varied from 10 to 16 & 9 to 16 among adult males & females respectively whereas in foetal specimens 4 to 7 branches were seen in both male &female specimen. Regarding the average no. of Jejunal branches, it varied from 5 to 7 among both adult males & females whereas in foetal specimens 4 to 7 branches were seen in male & 4 to 6 branches were seen in female specimens. The ileal branch is running upwards and to the left on the lower part of the ileum. It is supplying 12 to 15 cms. of the terminal part of the ileum in all adult specimens and 7 to 9 cms. in all the foetal specimens. It is ending by anastomosing with the terminal part of the superior mesenteric artery. Table 3 shows that the origin of the middle colic artery is from the superior mesenteric artery in 60 (80%) adult specimens and in 22 (88%) foetal specimens. It is arising in common with the right colic artery in 15 (20%) adult specimens and in 3 (12%) foetal specimens. The origin of the ileo-colic artery as an independent branch from the superior mesenteric artery is observed in 72 (96%) adult and 19 (76%)

foetal specimens and is arising as a common trunk with right colic artery in 3 (4%) adult and in 6 (24%) fetuses (Table 4). The formation and the presence of the marginal artery were seen in 74 (98%) adults and 25 (100%) foetal specimens.

Some of the variations observed in this study are as follows:

1. Presence of accessory middle colic artery (Photo No. 1)

There is one accessory middle colic artery which is arising from the superior mesenteric artery just below the origin of middle colic artery. It is directed towards the beginning of transverse colon establishing anastomosis with the middle colic as well as with the Right colic artery.

2. Origin of inferior pancreatico duodenal artery from 1st Jejunal branch of superior mesenteric artery (Photo No. 2). The 1st Jejunal branch was seen arising from the posterior surface of Superior Mesenteric Artery 1cm below the origin even before the artery crossed downwards and to the right and immediately gave the pancreatico duodenal artery. Later this 1st Jejunal branch passes behind the Superior Mesenteric Artery and reached the proximal part of jejunum in some specimens.

Photo No. 1. Specimen showing Accessory Middle Colic Artery

Table 1: Distance between the site of origin of superior mesenteric artery & celiac trunk

Specimen	Distance between celiac trunk & superior mesenteric artery (in cm)	No.	Percentage (%)
Adult	1.00	38	50.67
	1.25	21	28.00
	0.75	7	9.33
	0.50	9	12.00
Total		75	100.00
Foetus	0.50	12	48.00
	0.40	8	32.00
	0.30	5	20.00
Total		25	100.00

Table 2- ORIGIN OF INFERIOR PANCREATICODUODENAL ARTERY

Origin	**Adult**	**Foetus**	**Total**
From Superior mesenteric artery	60 (80%)	15 (60%)	75
From 1st Jejunal branch	15 (20%)	10 (40%)	25
Total	**75 (100%)**	**25 (100%)**	**100**

Table 3: ORIGIN OF MIDDLE COLIC ARTERY

Origin	Adult	Foetus	Total
From Superior mesenteric artery	60 (80%)	22 (88%)	82
From Right colic artery	15 (20%)	3 (12%)	18
Total	**75 (100%)**	**25 (100%)**	**100**

Table 4: ORIGIN OF ILEO- COLIC ARTERY

Origin	Adult	Foetus	Total
From Superior mesenteric artery	72 (96%)	19 (76%)	91
From Right colic artery	3 (4%)	6 (24%)	9
Total	**75 (100%)**	**25 (100%)**	**100**

Photo No. 2: Specimen showing Inferior pancreatico- duodenal artery arising from 1st Jejunal branch

DISCUSSION

It has been observed in our study that the level of origin of the superior mesenteric artery is at the lower border of the first lumbar vertebrae in all the adult as well as foetal specimens which is consistent with Cunningham's manual of practical Anatomy[1], Datta A.K [2], Lockhart [3] & Hamilton[4] but according to Gray's Anatomy [5], it arises at the level of L_1 – both L_2. The distance between celiac trunk & Superior mesenteric artery is 1 cm for 50.6% of the adult specimens whereas Buchanan & Co.[6] described the distance as 1.25 cm which is seen in only 28% in our study as distance may vary from specimen to specimen. It also shows that the distance between the sites of origin of the superior mesenteric artery & celiac trunk in fetuses is less than the adult specimens. There is an absolute increase in the distance between the origins of both the arteries in adults. Thus it can be concluded that as the stature of the foetus is increased, the length of the aorta is also increased & hence the increased distance between the two arteries. With an average of 12.5 cm in fetuses, Buchanan[6] has mentioned the length of the artery as 25 cm in adults which is concurrent with our study. Around 80% of the adult specimen showed the origin of inferior pancreaticoduodenal artery from superior mesenteric artery & 20% from 1st Jejunal branch whereas 60% & 40% showed origin from superior mesenteric artery & 1st Jejunal branch respectively in the foetal specimens which is in conformity with the works of Michels Nicholas A.[7] Woodburne and Olsen[8] found that it arises from the superior mesenteric artery only in 46% of cases. They also stated that from first Jejunal artery inferior pancreaticoduodenal artery takes origin only in 22% which is again similar to our study.

The average no. of intestinal branches varied from 10 to16 among adult specimens which coincides with the work of Morris[9].the branching pattern of ileal arteries in adult specimens, are in conformity with the work of Gray[5], Michels[7] and Russel T. Woodburne[10]. The origin of the middle colic artery is from the superior mesenteric artery in 80% of adult specimens and in 88% of foetal specimens. It is arising in common with the right colic artery in 20% adult specimens and in 12% foetal specimens which is similar to the study by Steward and Rankin et al[11]. The origin of the

ileo-colic artery as an independent branch from the superior mesenteric artery is observed in 96% adult and 76% foetal specimens and is arising as a common trunk with right colic artery in 4% of adult and in 24% of fetuses which is again similar to the studies by Buchanan[12], J.Anson13, Cunningham[1], Grant [14, 15] The marginal artery was first described by Von Haller in 1803 and later by Sudeck in 1907. In 1913, Drummond first used the name "Marginal Artery".

The formation and the presence of the marginal artery in 98% adults and in 100% foetal specimens was seen in our study which is in conformity with Drummond[16], Sudeck[17] and Manasse[18] and Greenberg[19]. The accessory middle colic artery is present in few specimens seen arising from the superior mesenteric artery. It is anastomosing with the superior branch of the left colic artery supplying the upper part of the descending colon. This observation is in conformity with the work of Riolan[20].

CONCLUSIONS

No abnormal origin of the superior mesenteric artery is observed. The Average length of the superior mesenteric artery among adult specimens was 25 cm. Around 80% of the adult specimen showed the origin of inferior pancreaticoduodenal artery from superior mesenteric artery & 20% from 1st Jejunal branch whereas 60% & 40% showed origin from superior mesenteric artery & 1st Jejunal branch respectively. The origin of the middle colic artery is from the superior mesenteric artery in 80% adult specimens and in 88% of foetal specimens.. The origin of the ileo-colic artery as an independent branch from the superior mesenteric artery is observed in 96% of adult and 76% of foetal specimens and is arising as a common trunk with right colic artery in 4% of adult and in 24% of fetuses. The formation and the presence of the marginal artery were seen in 98% of adults and 100% of foetal specimens. There is accessory middle colic artery which is arising from the superior mesenteric artery just below the origin of middle colic artery in some specimens. The 1st Jejunal branch was seen arising from the posterior surface of Superior Mesenteric Artery 1cm below the origin even before the artery crossed downwards and to the right and immediately gave the Inferior Pancreatico-duodenal Artery. Later this 1st Jejunal branch passes behind the Superior Mesenteric Artery and reached the proximal part of jejunum in some specimens. Hence different type of variations in the branching pattern of the superior mesenteric artery is common & the knowledge of which is important for the general & paediatric surgeons while performing abdominal, particularly the gut surgery in order to reduce the complications during & after surgery.

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Study on Awareness of RNTCP Protocols and Guidelines among Private Practitioners in Urban Davangere Karnataka

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ABSTRACT

OBJECTIVES: • To assess the level of knowledge among private practitioners regarding RNTCP protocols and guidelines.

METHOD: Design: Descriptive, cross sectional survey of general practitioners in urban Davangere. **Sampling** : random sampling. **Subjects:** general practitioners in urban Davangere Inclusion **criteria :** allopathic doctors practicing in urban Davangere Both MBBS and MD Doctors of all specialities included **Exclusion Criteria:** Doctors who do not give consent Study period: two months from june to august 2011. **Sample Size:** 165

RESULTS: More than two thirds of the study population don't have correct knowledge about the objectives of RNTCP.Around 80% of practitioners know about the presenting symptoms of tuberculosis.

Less than 20% of the study population have knowledge about the components of DOTS.

Half of the study population have no knowledge about treatment regimen for smear positive TB case under RNTCP.

RECOMMENDATIONS : Organizing CMEs, workshops, training programmes for private practitioners for better implementation of RNTCP

INTRODUCTION

TB is a major public health problem affecting people of all age group worldwide, with high prevalence of infection and mortality rate being in developing countries. With the global annual incidence of 9.1million, the need for the proper and adequate treatment is the need of the hour.India is one of the high burden countries in terms of high TB incidence and accounts for 1.9 million TB cases annually.

The HIV epidemic has the potential to worsen the TB situation. This increases the number of TB cases and accelerating the progress of TB infection to active disease .It is expected that 50-60% of HIV infected people develop TB in their lifetime.

Most recently emerging challenge of TB control in India is multi-drug resistance TB [MDR-TB] because of improper use of anti-tubercular drugs which can transmit drug resistance disease to others and thus requires effective treatment. . The prevalence of MDR-TB has clearly grown significantly in India over the last two decades, accounting for 20%.And those under private sector never get reported.

The National Tuberculosis Programme of India (NTP) was initiated in 1962, based on research by Tuberculosis research centre, Chennai and National TB Institute, Bangalore. There was little impact on the TB burden.

On the recommendations of an expert

committee, a revised strategy to control TB was

The Revised National Tuberculosis Control Programme (RNTCP) established in March 1997, is designed to address the limitations of the earlier NTP i.e., lack of coverage , shortages of essential drugs, poor cure and completion rates, poor quality of sputum microscopy, and a series of factors that have resulted in a non-friendly atmosphere for the patients. -RNTCP is essentially a patient focused programme with an objective to achieve and maintain a cure rate of at least 85% among newly detected infectious (new smear positive) cases and to achieve and maintain detection of at least 70% of such cases in the population

RNTCP uses the DOTS (Directly Observed Treatment, Short-course chemotherapy) strategy, which is based on results of tuberculosis research done in India.Knowledge about direct observation ensures treatment for the entire course with the right drugs, in the right doses and at the right intervals among GPs/PPs is the need of the hour as they are the first contact of a large proportion of the TB patients TB can be controlled by early detection and effective treatment of infectious pulmonary

TB cases who act as the sources of infection. Thus the basic curative as well as preventive strategy is the proper treatment of infectious TB patients until cure.

Private Providers are very accessible to patients and can play a key role in TB control. They can be Private Practitioners (PPs) or Private Hospitals/ Nursing homes practicing

modern medicine or other systems of medicine. It has been acknowledged that involving private providers helps to improve both case detection and access to standard services under RNTCP. It is vital to have a regular and continuous interaction with the private health care providers to sustain their involvement. To achieve good treatment outcomes, Private Providers must follow standard RNTCP guidelines. A laboratory owned by a private provider could be considered to be designated as a microscopy centre only after it has fulfilled all criteria laid down under RNTCP.

OBJECTIVES

- To assess the level of knowledge among private practitioners of urban Davangere on RNTCP protocols and guidelines.

METHODOLOGY

This is a descriptive cross sectional survey carried out from June to August 2011 in different clinics and hospitals in urban Davangere. .Our sampling frame included GPs with appropriate qualification (at least an MBBS) selected on the basis of simple random sampling. Survey was perfomed by visiting private clinics and hospitals/nursing homes in here. Only allopathic practitioners were included in the study irrespective of their field of specialization. Out of 190 private allopathic practitioners approached in Davangere Urban ,only 165 responded. Study was conducted after taking verbally informed consent from each participant. A standardized questionnaire was designed which had multiple choice questions mainly focused on knowledge towards the disease TB, RNTCP and its guidelines was handed over to each of them and were requested to answer appropriate option/s.

Study was approved by the ethical review board of SSIMS. Due to non invasive nature of the study verbal consent was deemed sufficient.
Microsoft Access 2003 was used for data entry and SPSS was used to carry out the Statistical analyses.

RESULTS

Out of 190 General private practitioners approached, 165 (86%) consented to participate in the study. They were all working in various types of private facilities spread throughout urban Davangere

Awareness about Dieses

A knowledge based question regarding the prevalence of TB in India was asked and 62% of them opined that TB is the leading cause of death in India, 24% felt that TB kills more adults than any other disease.

Table 1; Showing symtomatology of TB.

Symptomatology of TB
Haemoptysis
Haemoptysis, persistent cough for 2 or more weeks
Haemoptysis ,persistent cough for 2 or more weeks, fever.
persistent cough for 2 or more weeks.
persistent cough for 2 or more weeks, fever
persistent cough for 2 or more weeks, weight loss
Fever
Weight loss.
Total.

More than 3/4th of the respondents answered persistent cough for 2 or more weeks as the common presenting symptom of TB patients. While 2% considered persistent cough with

haemoptysis , 3% considered persistent cough with fever , 5.3% considered weight loss as the presenting symptom of TB patients.

Poor knowledge regarding the objectives of RNTCP was seen among the study population as only 1/3rd s of them managed to state the correct answer.

Quite alarmingly, only 19% of them were able to answer correctly all five components of DOTS.

In response to the question asked about the indications for sputum examinations,

About two thirds of them answered cough of 2weeks or more, 9% preferred both for cough of 2weeks or more and also for HIV infected patients with cough of any duration, 2.4% said HIV infected patient with cough of any duration, 2.4% said suspected/confirmed extra pulmonary TB with cough of any duration as the indications for sputum examination.

Table 2: Showing treatment of two negative smear TB suspect.

TB suspect with two 2 negative smears subjected to..	**Number(n)**	**Percentage (%)**
Chest X ray.	46	28.2
If cough persists 10-14 days general antibiotic and chest X ray.	42	25.8
If cough persists 10-14 days general antibiotic and repeat 2 sputum examination.	65	39.9
10-14 days of ciprofloxacin.	11	6.1
Total.	165	100

Respondents were asked about the options to proceed in a 2 negative sputum positive case according to RNTCP guidelines.40% of them opted for antibiotic therapy for 10-14 days and to repeat 2 sputum smear examinations, 30% opted to subject the patient for chest X ray,28% for only chest X ray and 5% for ciprofloxacin for 10-14 days.

Considering the correct statement to be antibiotic therapy for 10-14 days and to repeat 2 sputum smear examinations, less than half of the study population have answered correctly.

Table 3: Showing reagents used in Zeihl Neilsen's staining

Reagent not used in Zeihl-Neilsen's stain.	Number(%)	Percentage(%)
Carbol fuschin.	15	8.8
Sulphuric acid.	39	23.8
Methylene blue.	30	18.4
Carbolic acid.	72	49
Total.	165	100

Less than 50% of the study population have correct knowledge about the reagents used for Zeihl-Neilsen's staining

Name of samples required for TB diagnosis

When a question regarding the number of sputum samples required for the diagnosis of new smear positive cases was put up less than half of the GPs knew that 2 samples were required.

While 39% said that 3 and 11-7% said 4 samples were required for evaluation

Number of months for which New case has taken ATT.

Only 1/3rd of them knew the definition of 'new case' as under RNTCP. The respondents stated that 'A TB patient who has never had treatment for TB or has taken any anti-TB drugs for—less than 1 month 37.8%, less than 2months 38.5%,less than 6months17.9 %

DOTS provider can be a family member.

More than half [61.2%] of the PPs wrongly answered that a family member can be DOTS provider.

In response to the question asked about intermittent regimen of DOTS more than half of them stated that it is effective than the regularly prescribed regimen under RNTCP, 16.9% said the dosage required is more whereas 22.7% pf them felt it is expensive.

Treatment for smear positive case under RNTCP

The knowledge among PPs regarding the treatment regimen for new smear positive case under RNTCP was poor. Less than 50% answered the correct regimen advocated by RNTCP.

Table 4 drugs contraindication during pregnancy

Drug contraindicated in pregnancy.	Number(n)	Percentage(%)
Rifampin.	19	11.2
Streptomycin.	96	56.5
Streptomycin,pyrazinamide.	1	0.6
Isoniazid.	38	22.4
Pyrazinamide.	5	2.9
Total.	**165**	**100**

More than 56.5% of the PPs agreed that streptomycin which was considered to be the correct answer as the drug contraindicated in pregnancy. While 22.4% of them said isoniazid, 11.2% said rifampin,2.9% said pyrazinamide was contraindicated.

Table 5 showing sputum monitoring

The follow up o sputum smear examination for new case of TB.	Number(n)	Percentage(%)
2,4,6 months.	70	42.4
2,6 months.	42	24.2
2,3,5,7 months.	42	24.2
2,3,4,6,8 months	10	6.0
Don't know.	8	3.9
Total.	**165**	**100**

More than half of the PPs survey revealed poor knowledge regarding follow up sputum smear examination.

Table 6 RNTCP policy on chemoprophylaxis

RNTCP policy on chemoprophylaxis.	Number(n)	Percentage(%)
Give INH for 6 months to child <6yr who are contacts of TB patient ruling out active TB.	43	27.9
Give INH for 6 months to child <6yr who are contacts of TB patient irrespective of BCG status after ruling out active TB.	55	35.5
Give INH for 6 months to child <6yr who are contacts of TB patient, then do PPD test.	39	24.1
All contacts of TB patientreceive 6 months of INH.	16	10.2
Don't know	7	4.2
Total.	165	100

Less than 1/3rd of the study population revealed poor knowledge regarding RNTCP policy on chemoprophylaxis

MDR TB is resistant to the above drugs.

Only half of the study population had correct knowledge about MDR TB

Table 7 The Best method of prevention

Best method of prevention	**Number(n)**	**Percentage(%)**
Active diagnosis of sputum positive case	38	23.4
Passive diagnosis of sputum positive case	6	3.7
Early diagnosis and treatment of sputum positive casw	109	66.3
Treatment of Mantoux test positive	11	6.7
Total.	**165**	**100**

Around 2/3rd of the study population felt that early diagnosis and treatment of sputum smear positive as the best method of prevention of TB

Table 8 Effective drug inTB HIV coinfection

Effective in TB HIV co infection	**Number(n)**	**Percentage(%)**
Azithromycin	32	19.4
Cotrimaxazole	70	43.1
Ciprofloxacin	46	27
Ethambutol	17	10
Total.	165	100

Nearly half of the study population preferred cotrimoxazole as the drug to treat TB HIV co infection

Table 9 Bacteracidal drug except

Bactiricidal drug except	Number(n)	Percentage(%)
Rifampicin.	20	12.3
Streptomycin.	30	17.8
Isoniazid.	38	22.7
Ethambutol.	77	47.2
Total.	**165**	**100**

Nearly half of the PPs answered ethambutol was not a bactiricidal drug

ACSM stands for	Number(n)	Percentage(%)
Advocacy, Communication and Social Mobilization	60	36.6
Advocacy, Communication and Social Mobilization	58	35.4
Adherence, Communication and Social Mobilization	44	26.2
None.	3	1.8
Total.	**165**	**100**

More than 2/3rd of them did not have knowledge regarding ACSM

CONCLUSIONS

Overall conclusion from the survey can be drawn that PPs had appreciable level of knowledge regarding TB as a disease in proper. Quite alarmingly, knowkedge was lacking regarding the aims and objectives of RNTCP. More than 2/3rd of the study population were unaware of the objectives of RNTCP and the components of DOTS. More than half of the study population answered wrongly about that a family member can be DOTS provider. Almost 2/3rd of the PPs surveyed had wrong notion about the definition of 'New case' under RNTCP. More than half of the PPs were not able to state the correct regimen advocated under RNTCP for the treatment of new smear positive case. More than 2/3rd of the study population lacked knowledge regarding RNTCP policy on chemoprophylaxis. Only 1/3rd answered correctly the expansion of ACSM which is a program employed under RNTCP for upgrading and engagement of private sector for TB control.

The PPs had moderate level of knowledge about investigations carried out for TB diagnosis. More than 2/3rd of the study population knew about indications for sputum examination. Nearly half of the PPs revealed the correct treatment for a TB suspect with two negative smears. Less than half of them knew about the staining test done in TB and the number of samples to be collected for the diagnosis. Almost half of them wrongly answered about the contraindicated anti TB drug in pregnancy. Surprisingly, only half of them were able to give the definition of MDR TB. More than 2/3rd stated that early detection and treatment of sputum positve case as the best method of prevention of TB prevalence.

It may be unreasonable to expect the RNTCP to effectively reach hundreds of thousands of practicing doctors. At the same time, continued mismanagement of TB and MDR-TB patients by private practitioners despite efforts to engage them can potentially undo all the efforts and achievements of RNTCP.:

Some of the recommendations of a recent joint monitoring mission of the RNTCP are also worth reiterating. They include reviewing RNTCP's

current approaches to engage the private sector in TB care and control and redesigning them through strategic consultations with key stakeholders such as allopathic and non-allopathic professionals' associations and non-governmental organizations, pharmaceutical industry, pharmacies and consumer organizations. Assessing ways to set-up a system of mandatory notification is also recommended.

RECOMMENDATION

To address the worrisome situation of TB in India,

- Expand the scope of RNTCP to include private practitioners under the strategy of Public Private Partnership.
- Regular CME/ Workshop should be conducted to private practitioners to upgrade their knowledge.
- Plan and conduct need based training and orientation of practicing private practitioners at national level for various categories of staff. formulates training plans and materials for all categories of staff for use at state and district level on a periodic basis.
- Training materials should be updated at regular intervals

Acknowledgement: District TB officer and staff

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Comparison of Phenylephrine versus Ephedrine for Management of Hypotension during Spinal Anaesthesia for Elective Caesarean Section

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ABSTRACT

Various modalities had been tried for optimal control of hypotension after spinal anaesthesia especially for caesarian section. The present study was undertaken to evaluate effects of intravenous ephedrine& phenylephrine in terms of maternal cardiac effects (Pulse Rate, Systolic, Diastolic & mean Blood Pressure), Palpitation, Arrhythmias & G.I.T. effects (Nausea, Vomiting)& neonatal outcome in the form of APGAR scoring of foetus in caesarian section under spinal Anaesthesia .

Keywords: *Anaesthesia, Spinal, Anaesthesia, Phenylephrine, Ephedrine, and Hypotension.*

INTRODUCTION

In delivery by caesarian section choice of anaesthesia is usually spinal anaesthesia because of its speed, reliability, profound muscle relaxation with dense analgesia & minimal foetal exposure to depressant drugs. On contrary the disadvantage of spinal anaesthesia are maternal hypotension Intrapartum nausea & vomiting.

Concept of preloading is now questionable because of limited cardiac reserve or fixed cardiac output[1]. (Or in emergency when no time available, Prophylactic use of vasopressors has been associated with unnecessary Tachycardia, Urinary retention and reactive hypertension[2] and in some patients do not develop hypotension (after spinal anaesthesia).

Most commonly used vasopressor is mephentermine, Ephedrine &Phenylephrine. But use of vasopressor in pregnant patient may lead to uterine vasoconstriction that could lead to foetal hypoxia & acidosis[3-6]. This problem can be avoided by using vasopressor like phenylephrine.

So here we have decided to conduct a study that compares ephedrine &phenylephrine for efficacy & safety in management of hypotension after spinal anaesthesia.

STUDY DESIGN & DATA COLLECTION

The present search was limited to the pregnant population of age group (20-30 yrs), weighing (55-70kg.) & ASA grade I & II undergoing elective caesarean section at term under spinal anaesthesia having intra operative maternal hypotension in Rama Medical College, NH-24, Hapur, Ghaziabad-245101. Patients with known contra indications of spinal anaesthesia & high risk pregnancies like Eclampsia, IUFD,Placenta previa, Abruption placenta etc. were excluded from the study.

Preanesthetic checkup of all patients were done one day prior to surgery and patientskept fasting for 8 hrs. Prior to surgery.

Pulse rate, NIBP, E.C.G. and Resp. rate were monitored on arrival in O.T. and continued till the end of surgery.

A good intravenous line established in large peripheral vein and patients were preloaded with 10ml. per kg. Of ringer lactate solution. Patients were placed in left lateral position, spinal anaesthesia was given with 25 gauge quincke, s spinal needle in L_3- L_4 interspace and 2ml of 0.5% hyperbaric bupivacaine given under allaseptic

precautions. Patient was given supine position on horizontal operating table with wedge below the right buttock of mother and oxygen was given by face mask at 5ltr/minute.

Level of sensory block was recorded by pin-prick method and motor block was assessed by modified Bromage Scale.

Time between subarachnoid block and skin incision was noted.

Patients developing hypotension i.e. intra operative systolic Blood Pressure of less than 100mm of Hg or fall in systolic more than 30% preoperative value were divided randomly into two groups as follows:

- Inj. Phenylephrine 80μg I.V. bolus followed by 40 μg. One minute later if systolic B.P. less than 100 mm Hg.

- Inj. Ephedrine 10mg l.V. bolus followed by 5mg. One minute later if systolic B.P. less than 100mm Hg.

But addition fluid were not administered to treat hypotension.

Inj. Oxytocin 20unit's infusion in 500ml. of Ringer lactate was started after the delivery of baby.

The results were compiled and were analyzed statistically.

RESULTS

Both the groups were statistically comparative regarding demographic profile.

Table I: MATERNAL DEMOGRAPHIC DATA

Demographic Data	Group E (Mean±SD)	Group P (Mean±SD)	P Value
Maternal Age in years	24.8±1.58	25.03±1.70	0.50
Maternal Weight in kgs	62.06±3.96	62.06±2.74	0.97
Maternal Height in cms	160.91±2.93	161.86±2.25	0.12

The baseline pulse rate, systolic diastolic and mean arrival pressure were found to be comparable between the E & P groups ($p > 0.05$)

Table II: BASELINE HEMODYNAMIC DATA

Baseline Hemodynamic Data	Group E(Mean±SD)	Group P(Mean±SD)	P Value
Pulse Rate in beats/min	77±6.1	71±4.1	0.09
Systolic Blood pressure in mmHg	125±2.88	120±2.64	0.39
Diastolic Blood pressure in mmHg	71±4.5	70±4.4	0.62
Mean Arterial Pressure in mmHg	90±1.7	89±1.8	0.80

It was observed that both E & P groups were similar as for as the average level of sensory block achieved, Total dose of bupivacaine given, Time to achieve T6 level, subarachnoid block-skin-incision time, block to first hypotension time, block to baby delivery time and Total time for the procedure as

p>0.05 as shown in the Table III.

Table III: INTRAOPERATIVE DATA

Intraoperative Data	Group E(Mean±SD)	Group P (Mean±SD)	P Value
Average Level of sensory block	T4±T6	T4±T6	
Total dose of bupivacaine 0.5% in mg	10	10	
Time taken to achieve T6 level in minutes	3.3±0.5	3.4±0.2	1.01
Subarachnoid block-skin incision time (B-SI) in minutes	3.66±0.59	3.77±0.61	0.42
Subarachnoid block-1st hypotension time (B-H) in minutes	3.94±0.55	3.8±0.9	0.46
Subarachnoid block-baby delivery time (B-BD) in minutes	8.6±0.93	8.94±0.97	0.13
Total time for procedure (T-P) in minutes	48±8.3	48±4.3	0.78

In present study there is fall in systolic & diastolic Blood Pressure during the study period from their base line values. Some patients required vasopressor injection (Ephedrine or Phenylephrine) and then rise in B.P. is also comparable.

Table IV: CHANGES IN SYSTOLIC BLOOD PRESSURE

Showing hemodynamic variables: Pulse rate, Systolic Blood Pressure, diastolic Blood Pressure (Mean±S.D.)

Pulse rate (in min)	**Group E(Mean±SD)**	**Group P (Mean±SD)**	**P Value**
at 2 min	78.7±2.42	80.6±2.63	0.06
at 4 min	88.7±2.52	94.3±2.81	0.15
at 6 min	106±3.89*	80.3±5.72*	<0.001
at 8 min	107±3.66*	73±1.3*	<0.001
at 10 min	105±1.8*	78±4.7*	<0.001
at 20 min	99.2±3.58*	79±4.1*	<0.001
at 30 min	87±5.9*	79±4.8*	<0.001
at 40 min	83±7.0*	78±4.9*	0.01
at 50 min	82±6.5*	78±4.6*	0.004
at 60 min	82±6.0*	77±1.3*	0.003

Systolic blood pressure (mm Hg)	**Group E (Mean±SD)**	**Group P (Mean±SD)**	**P Value**
at 2 min	105.6±3.49	105±3.0	0.88
at 4 min	99.28±2.77	99.0±2.73	0.94
at 6 min	112.94±4.51*	110.23±5.04*	0.93

at 8 min	115±2.66*	113±5.13*	0.82
at 10 min	116±4.56*	112±5.5*	0.78
at 20 min	117±2.2*	117±2.98*	0.32
at 30 min	117±2.5*	116±2.89*	0.70
at 40 min	115±2.7*	116±2.07*	0.10
at 50 min	116±3.45*	117±1.39*	0.06
at 60 min	119±3.69*	120±1.56*	0.20

Diastolic blood pressure	**Group E (Mean±SD)**	**Group P (Mean±SD)**	**P Value**
at 2 min	65.5±1.84	66.4±1.89	0.73
at 4 min	61.6±1.73	61.3±1.74	0.91
at 6 min	65.3±4.1*	64.2±3.8*	0.51
at 8 min	70.1±3.77*	70±4.8*	0.32
at 10 min	71.6±4.59*	71.7±4.75*	0.37
at 20 min	76±4.9*	78±5.5*	0.06
at 30 min	73.2±4.17*	75±4.9*	0.07
at 40 min	72±4.3*	72±4.4*	0.50
at 50 min	71±3.1*	70±4.2*	0.94
at 60 min	73.7±6.49*	72±3.6*	0.28

- P value < 0.05 within same group (by paired 't' test)

It was observed that the incidence of hypotension was 71.42% (25/35 patients) in E group where as 68.5% (24/35 patients) in P group.

Table V: TOTAL DOSE OF VASOPRESSOR

No of doses of vasopressor	**Number (%) of patients requiring vasopressor doses**	
	Group E	**Group P**
1 (E-10 mg) (P-80 µg)	20 (51-42%)	22 (60-27%)
2 (E-5 mg) (P-40 µg)	5 (20%)	2 (8.3%)

In our study nausea, Vomiting, Palpitation & Headache was studied in group E & group P intraoperative.

Table VI: NAUSEA, VOMITING SCORE & INTRAOPERARIVE SIDE EFFECTS OF VASOPRESSORS

NV Score	Number (%) of patients requiring vasopressor do ses	
	Group E	Group P
0 (No nausea or vomiting)	26 (74.28%)	32 (91.42%)
1 (Only nausea no vomiting)	8 (22.85%)	3 (8.57%)
2 (Both nausea and vomiting)	1 (2.55%)	0 (0%)
Palpitation	1 (2.85%)	0
Headache	2 (5.32%)	0

DISCUSSION

The most frequent and important complication of spinal anaesthesia is maternal hypotension that affects both the mother and foetus (around 80% if no prophylactic measures used). Hence if hypotension detected should be treated with in 2 minutes by intravenous bolus of vasopressors.

Traditionally ephedrine has been recommended in this role. The Conchrane collaboration published in the Conchrane Database of systemic reviews that no significant difference in the management of hypotension between ephedrine and phenylephrine but present study has been conducted to compare both the drugs.

70 pregnant women undergoing elective caesarian section was studied.

Preanesthetic checkup done& the patients of Eclampsia, PIH, Heart disease were excluded.

On the day of surgery preloading with 10ml/kg Ringer lactate solution as done by DG Thomas (1996), Morgan & Collague (1991), Laparta etal (1995) & David Cooper (2002) But study by Park GE (1996) should that increasing amount of intravenous crystalloid 30ml/kg in healthy partiurients does not significantly after maternal hemodynamic after spinal anaesthesia has no apparent Benefit.

Immediately after spinal anesthesia with 2cc of 0.5% bupivacaine, a Wedge was given below the Right Buttock of mother (10-15° tilt) with oxygen supplementation at 5lt/mt. wedge was also used method of Left Uterine displacement by Morgan & Collague (1991), Laporta (1995), DG Thomas (1996), Dinesh Sahu et al (2003) to prevent supineh ypotensionsyndrome.

Despite this in our study patients developed hypotension (Systolic B.P. <100mm Hg or less than 30% of Baseline), thedrug Ephedrine (10mg I.Vbolus Followed by 5mg I.V bolus) or phenylephrine (80μg Hg followed by 40μg I.V bolus) were given to maintain the Blood Pressure.

In the study by Ngan Kee, is that Prophylacticephedrine (30mg may result in postpartum hypertension. Even Prophylactic Ephedrine during epidural or spinal anaesthesia can lead to foetal acidosis, despite a reduction in hypotension. Both the vasopressors i.e. Ephedrine and Phenylephrine produces rise in mean systolic Blood Pressure within a minute after I.V. bolus because of similar onset of action of both the drugs The systolic B.P. maintain above 100mm Hg (during surgery and post operatively) with exception 20% of ephedrine group &8.3% of phenylephrine group Whichshows hypotension.

Since 20% of patients in ephedrinegroup require more than one dose as compare to 8% patients in phenylephrine group. So phenylephrine appears to be potent than ephedrine.

Thus both phenylephrine & Ephedrine are effective in treatment of maternalhypotension after spinal anaesthesia. Phenylephrine is more potent than ephedrine. There is decrease in heart rate after using phenylephrine so this can be preferred as vasopressor of choice in treating hypotension

in patients.Havingheart disease, hypertension, hyperthyroidism etc. Both the agents are safe for baby. The side effect like Nausea & Vomiting, Tachycardia, Headache were more in ephedrine group than phenylephrine.

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A Study of Nutritional Status of Adolescent Girls of Social Welfare Hostels in and around Vijayawada City

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ABSTRACT

Back ground- In India adolescents occupy a major part (22.8%) of total population[1]**.** Almost half of the adolescent girls were not getting even 70% of their daily requirements of energy and quarters of them were not getting 70% of the required proteins.[2] **Objectives-** To find out the magnitude of malnutrition and anemia among the adolescent girls of social welfare hostels in and around Vijayawada city. **Materials and Methods-** A cross sectional observational study was done among adolescent girl students aged between 10-19 yrs residing in social welfare girls hostels in and around Vijayawada city.. Only girls hostel are included in the study .Two Hostels were selected by simple random sampling method. Anthropometric measurements of the students of class 7th, 8th and 9th were taken and recorded. **Results-** The mean weight and height of adolescent girls found to be 40.82kgs ±0.67 and 1.527m±0.0548 respectively which is below the NCHS standards .The prevalence of under nutrition as per BMI is 37.02% .The mean haemoglobin percentage was found to be 6.87±1.94 gm% . Prevalence of anemia by hemoglobin percentage is 98.44 %. **Conclusions:** The mean weight and height of adolescent girls is below the NCHS standards. Regular sessions of Health education regarding importance of taking balanced diet and Iron & Folic acid and deworming tablets should be provided to all adolescent girls.

Key words: *Age, adolescent girls, literacy, weight, height, body mass index,*

INTRODUCTION

Adolescence has been defined by WHO as the period of life spanning between **10-19 yrs.**[1] It is the period of transition between childhood and adolescence. This is a peri-menarchial period in which physical, psychological changes associated with puberty are molded in a crucial position. Nutritional and Health care of Adolescent is of utmost important In India as adolescents occupy a major part (22.8%) of total population[1].This is the period of rapid physical growth exceeded by only fetal life thus increasing the body demands for all macro and micronutrients in these age groups. Adolescent girls are particularly at high risk of malnutrition as they are more prone to anemia due to loss of blood in menstruation, and due to early marriages and early fertility resulting in adolescent pregnancy further increasing body nutritional demands. Hence, proper nourishment and health of adolescent girls, is of utmost important, in order

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to make the present and future generation of the nation healthier and fruitful.

In India especially adolescent girls are most neglected ones in the family regarding nutritional needs as they are given the last part of the meal thus making them more prone for under nutrition. Almost half of the adolescent girls were not getting even 70% of their daily requirements of energy and quarters of them were not getting 70% of the required proteins.[2]

NFHS reported 37.8 % of adolescent girls are undernourished and 55% are anemic[3]. It was found by WHO estimates that 40%of adolescent girls in the world are anemic[4]. In the present study a modest endeavor is made to know the nutritional and hemoglobin status of adolescent girls who belong to most vulnerable part of the society that is in social welfare hostels.

OBJECTIVES

1. To find out the magnitude of malnutrition and anemia among the adolescent girls of social welfare hostels in and around Vijayawada city.

Materials and methods:

The analysis is based on data collected from a cross sectional survey which was carried out in the social welfare girls hostels located in Vijayawada city, Krishna district, Andhra Pradesh from 1st January 2007 to 30th June 2007 .Sample size is calculated based on the prevalence of anaemia among adolescent girls in India.

There are 6 social welfare girls' hostels and 11 social welfare boys' hostels located in and around Vijayawada city, and in each hostel 80-100 children are residing. As the sample size required for the study is 166, two hostels are included for conducting the study and thus, Social welfare girl's hostel, Gunadala having 84 inmates and Social welfare girl's hostel, Venkateswara Colony having 97 inmates were selected by simple random sampling method.

All the inmates of the hostel students are included in the study .They are in the age group 13-17 yrs and thus belonging to adolescent group. Permission was obtained from the Deputy Director of Social welfare of Krishna district to conduct the study in social welfare girl's hostel. All the adolescent girls staying in hostel are interviewed using structured and pretested questionnaire

TECHNIQUES AND TOOLS

All the students thus registered were subjected to anthropometric measurements. The weight was measured in kilograms with out shoes using a standing weighing machine having precision of 0.5 kg. Check on the scale were made routinely before recording the weight of each student and the pointer was adjusted to screw zero using the screw provided. The height was taken bare footed in centimeter using standard measuring tape. Height was recorded to the nearest 1 cm. The body mass index was calculated as weight in kg/height in m^2. Middle upper arm circumference was measured in centimeter with a non stretchable measuring tape with the right arm hanging relaxed. The measurement was taken mid way between the tip of acromium and olecranon process. Measurement was taken nearest to 0.1 cm. Measurement of hemoglobin percentage done by Sahli's hemoglobinometer was conducted to all the study population.

Based on the measured hemoglobin percentage, the girls are classified as mild, moderate and severe anemia on the basis of WHO classifications.[7] It is analyzed and tabulated with appropriate study variables. Percentages, proportions and appropriate qualitative and quantitative tests of significance are applied by using computer.

RESULTS

Table: 1 - Age wise distribution of study population

Age	Study population
13 yrs	49(27.07%)
14 yrs	63(34.81%)
15 yrs	41(22.65%)
16 yrs	23(12.71%)
17 yrs	5(2.76%)
Total	**181(100%)**

Out of 181 adolescent girls, 49(27.07%) girls are 13 years old, 63 (34.81%) girls are 14 years old, 41(22.65%) girls are 15 years old, 23(12.71%) girls are 16 years old and 5 girls (2.76%) are 17 yrs old.

Table: 2 - Education of head of the family in study population

Education status	Study population l
Illiterate	100(55.25%)
Middle school	69(38.12%)
High school	12(6.63%)
Total	**181(100%)**

Out of the 181 girls from the study population, Head of the family of 100(55.25%) girls are illiterate, 69(38.12%) are educated up to middle school and 12(6.63%) are educated up to high school.

Table: 3 - Mean weights in study population

Age(yrs)	n	Wt (kgs) Means ± SD
13	49	40.045±6.27
14	63	38.84±6.01
15	41	40±4.72
16	23	42.09±6.10
17	5	44.13±2.14
Total	**181**	**40.82±.67**

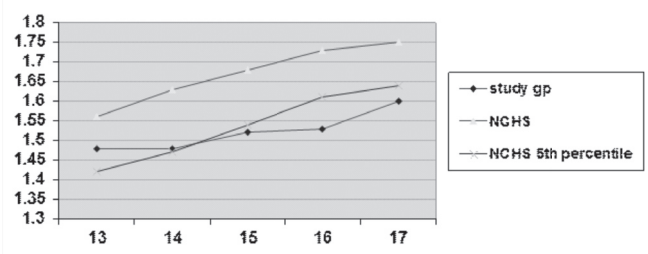
The mean weights of children are 40.045kgs, 38.84kgs, 40kgs, 42.09kgs, 44.13 kgs in the age groups of 13, 14, 15, 16, 17 years respectively

Table: 4 - Age wise distribution of mean heights in study population.

Age (yrs)	N	Ht (meters) Mean ± SD
13	49	1.48±0.069
14	63	1.488±0.055
15	41	1.52±0.061
16	23	1.53±0.059
17	5	1.6±0.029
Total	181	1.527±0.0548

The mean heights of children are 1.48meters, 1.488 meters, 1.52meters, 1.53 meters, 1.62 meters in the age groups of 13, 14,15,16,17 years respectively.

Graph showing Prevalence of stunting in study population



The prevalence of stunting in the study population is 55.25% when NCHS 5th percentile is taken.

Table: 5 - Mean Body Mass Indices (BMI)

Age (yrs)	n	Actual BMI (kg/meter^2) Mean ± SD	Reference BMI (kg/meter^2) Mean ± SD
13	49	18.06±2.67	21.8±6.74
14	63	17.30±2.47	22.0±8.22
15	41	17.39±2.55	23.2±5.91
16	23	17.85±2.6	24.5±7.54
17	5	17.39±1.32	24±7.5

The mean body mass indices of girls in the study population are much lesser than the reference value[9] in the age groups of 13, 14,15,16,17 years respectively.

Table: 6 - Prevalence of underweight according to BMI

BMI(kg/meter^2)	Study population
<18.5(under weight)	67(37.02%)
18.5-25(normal)	106(58.56%)
>25(over weight)	8(4.42%)
Total	**181(100%)**

Out of 181 girls 67(37.02%) adolescent girls are under weight, 106(58.33%) girls are normal weight and 8 (4.42%) girls are over weight.

Table: 7 - Mid upper arm circumference (MAC) in study population

Age (yrs)	N	Actual MAC(cms) Mean ± SD	Reference MAC(cms) Mean ± SD
13	49	23.18±0.84	26.8±6.38
14	63	22.97±0.99	27.7±6.41
15	41	23.22±0.83	29.3±5.39
16	23	23.19±0.40	30.8±6.42
17	5	23.81±0.24	30.7±5.94

In the study population, the mean mid arm circumference of adolescent girls are 23.18 cms, 22.97 cms, 23.22 cms, 23.19 cms, 23.81cms in the age groups of 13, 14,15,16 and 17 years respectively.

Table: 8 - Mean hemoglobin percentages

Age (yrs)	n	(Gm %) Mean ± SD
13	49	7.43±2.05
14	63	6.65+1.86
15	41	6.87±1.84
16	23	7.05±1.75
17	5	7.01±0.11
Total	**181**	**6.87±1.94**

The mean hemoglobin percentages of adolescent girls are 7.43gm%, 6.65gm%, 6.87gm%, 7.05gm%, 7.01gm% in the age groups of 13, 14,15, 16, and 17 years respectively .

Table: 9 - Prevalence of anemia

Severity of anemia	Total
Mild(10gm%-<cut off*)	17(9.39%)
Moderate (7gm%-10gm %)	60(33.15%)
Severe (<7gm %)	101(55.80%)
No anemia (cut off *	3(1.66%)
Total	**81(100%)**

Out of 181 girls, 17 (9.39%) girls were having mild anemia, 60(33.15%) are having moderate anemia, 101(55.8%) are having severe anemia and only 3(1.66%) girls are not having anemia.

DISCUSSION

Mean weights of girls in the present study are higher than that observed by the J.Singh et al in slums of Lucknow [6], Seema Chaudary et all in rural area of Varanasi [7], Swapna Chaturvedi et all in rural area of Rajasthan[8]. Mean heights of children in the present study are below the NCHS standards, similar were the observations from the J.Singh et al in slums of Lucknow[6], Seema Chaudary et all in Rural area of Varanasi[7], Swapna Chaturvedi et all in rural area of Rajasthan[8].

Over all mean heights in the present study are 152.7 cms in study population which is better than the mean heights of children reported by A.Saibaba et al in slums of Hyderabad (147.1)[9]. Prevalence of stunting in the present study is 55.25% ,which is more than the prevalence of stunting reported in Sahara refugee camps, Algeria (40%)[10], National Nutrition monitoring bureau in 2000-2001,Survey of adolescent girls (39%)[11] .

Shahabuddin et al, in his study among residents of Bangladesh with low economic status have reported the prevalence of stunting as 48% which is comparable with the prevalence in the present study[12]. High prevalence of stunting in the present study is significant, indicating iron and folic acid supplementation is needed for longer intervals to prevent obstetric complications in future due to short stature.

Mean body mass indices in the present study, are almost greater than that of rural adolescent girls, hyderabad[14] and lesser than urban affluent adolescent girls New Delhi[13] and NCHS standards. In the present study the overall mean body mass index is found to be 17.66 kg/meter^2. National family health survey II, reported comparatively higher mean body mass index of 20.3 kg/meter^2 in India[3], 19.2 kg/meter^2 in orissa[3], 23.7 kg/ meter^2 in Delhi[3].

The prevalence of under nutrition (BMI<18.5 kg/meter^2) in the present study is 37.02% which is comparable with the prevalence reported by national nutritional centre, Myanmar[15] (32%), second national family health survey in Andhra Pradesh (37.8%)[3]and Karnataka (39.4%)[3].

Mid arm circumferences in the present study is comparable with the mid arm circumference of adolescent girls reported by rural area of Rajasthan[8], Seema chowdary et al in rural area of Varanasi[18] and Aparajitha.D in slums of kolkata[17] and lesser than the NCHS[5] standards.

Mean hemoglobin percentages in the present study is 6.87±1.94,which is lesser than the mean hemoglobin percentages reported by J.Singh et al in slums of Lucknow (10 gm %)[19], Seema Chowdary et al in rural area of Varanasi (12.44 gm %)[18], Kaspa G et al in secondary school girls of Haryana (11.92 gm %)[20]. Comparatively lower hemoglobin percentage in the present study might be due inadequate dietary iron and vitamin intake.

Prevalence of anemia in the present study is 98.44% which is higher than the prevalence reported by Swach foundation in India (85.3%)[21], Shahbuddin et al, 2000 in Bangladesh (98.9%)[13], District house hold survey by reproductive and child health survey (95%)[22], Saibaba et al in registered slums of twin cities of Hyderabad(88%)[9], Vatika sexana et al

in slums of lucknow(70.30%)[16] ,National Institute of Nutrition Survey in Mehaboobnagar (91.8%)[23], Sahara refugee camps ,Algeria (68%)[10], National hemoglobin and nutritional status survey among adolescents in Myanmar (39%)[15], J.Singh et al (56%) in slums of Lucknow[19], Seema choudary et all in rural area of Varanasi (30.74%)[7], Ahmed F in Bangladesh(43%)[24].

The prevalence of moderate and severe anemia in the present study is comparatively higher than the other studies, Indicating urgent need for Iron and folic acid supplementation in the present study to promote cognitive abilities, concentration, work performance and to prevent future obstetric complications and mortality.

CONCLUSIONS

The mean weight and height of adolescent girls is below the NCHS standards. The prevalence of under nutrition (BMI<18.5 kg/meter ^{2}) by body mass indices is 37.02%. The mean hemoglobin percentage of adolescent girls is 6.87±1.94 gm%. There is a need for nutritional education and supplementation is required.

RECOMMENDATIONS

1. For improving the Nutritional status should be planned by creation of post called dietician must visit on a Biweekly on a honorarium basis.

2. Regular sessions of Health education regarding importance of taking balanced diet should be conducted.

3. Iron & Folic acid and Deworming Tablets should be provided to all the adolescent girls.

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Conflict of Interest: None

Source of funding: None

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A Study on the Knowledge, Attitude and Practice Towards Epilepsy among the Population in the Field Practice area of SSIMS & RC, Davangere

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ABSTRACT

Introduction: epilepsy also called seizures is characterized by uncontrolled excessive activity of a part of the brain or all of the central nervous system. It is a common neurological abnormality affecting about 1 % of the world population. According to the WHO's World Health Report, more than 50 million people in the most productive years of their lives suffer from epilepsy, often leading to unavoidable unemployment. Nearly two out of every three new cases are discovered in developing countries. Epilepsy becomes more common as age advances. Onset of new cases occur most frequently in the infants and the elderly. As a consequence of brain surgery, epileptic seizures may occur in recovering patients. Epilepsy is usually controlled, but not cured, with medication. However, over 30% of the people with epilepsy do not have seizure control even with the best available medications. Surgery may be considered in difficult cases. Not all epilepsy syndromes are lifelong - some forms are confined to particular stages of childhood. Epilepsy should not be understand as a single disorder, but rather as syndromic with vastly divergent symptoms but all involving episodic abnormal electrical activity in the brain. This study was conducted to assess the knowledge, attitude and practice of the population towards epilepsy.

Objective: This survey was conducted to study the knowledge, attitude and practice of epilepsy among the population in the field practice area of SSIMS & RC, Davangere.

Review of literature: epilepsy is a common chronic neurological disorder characterized by seizures. It is a brain disorder in which clusters of nerve cells or neurons in the brain sometimes signal abnormally disturbing the normal pattern of neuronal activity resulting in seizures. These seizures are transient signs and/ or symptoms of abnormal, excessive or hyper-synchronous neuronal activity in the brain. About 50 million people in the world suffer from epilepsy and nearly 2 out of every 3 cases are discovered in developing countries.

In the past, epilepsy was considered to be associated with spirit or demon possession and was known as sacred disease. It was described as *'apasmara'* meaning loss of consciousness in ancient Indian medicine.

Epilepsy may develop because of an abnormality in brain wiring, an imbalance of neurotransmitters, or some combination of these factors. Having a seizure does not necessarily mean that a person has epilepsy. Only when a person has had 2 or more seizures is he or she considered to have epilepsy. EEGs and brain scans are common diagnostic tests for epilepsy.

Classification of epilepsy:

1. **Primary / idiopathic**

a. Localization related

- Benign epilepsy with centrotemporal spikes
- Autosomal dominant n octurnal frontal lobe epilepsy

b. Generalized

- Juvenile myoclonic epilepsy
- Juvenile absence epilepsy
- Severe myoclonic epilepsy of infancy
- Progressive myoclonic epilepsy
- Generalized epilepsy with febrile seizure

2. Secondary/ symptomatic

a. Localization related

- Medial temporal lobe epilepsy
- Neoplasm (primary, metastatic)
- Infection (abscess, encephalitis, meningitis, syphilis, cysticercosis, Lyme's disease, tuberculosis, fungal, herpes)
- Vascular (stroke, transient ischaemic attack, migraine, haemorrhage)
- Developmental
- Traumatic
- Perinatal
- Degenerative
- immunologic

b. Generalized

- West's syndrome
- Lennox-gustaut syndrome
- Tuberous sclerosis
- Sturge weber syndrome

Most people with epilepsy lead outwardly normal lives. While epilepsy cannot currently be cured, for some people it does eventually go away. Most seizures do not cause brain damage. It is not uncommon for people with epilepsy, especially children, to develop behaviourial and emotional problems, sometimes the consequence of embarrassment and frustration or bullying, teasing, or avoidance in school and other social setting. For many people with epilepsy, the risk of seizures restricts their independence (some states refuse license to people with epilepsy) and recreational activities. People with epilepsy are at special risk for two life-threatening conditions: status epilepticus and sudden unexplained death. Most women with epilepsy can become pregnant, but they should discuss their epilepsy and the medications they are taking with their doctors. Women with epilepsy have a 90% or better chance of having a normal, healthy baby. Many jurisdictions forbid certain activities or machinery, or other activities in which continuous vigilance is required.

Currently there are 20 medications approved by the Food and Drug Administration for the use of treatment of epileptic seizures in the US: carbamazepine, clozapine, clorazepate, ethosuximide, felbamate, levetiracetam, fosphenytoin, gabapentin, lacosamide, lamotrigine, oxcarbazepine, phenobarbital,phenytoin, pregabalin, primidone, tiagabine, topiramate, valproate semisodium, valproic acid and zonisamide. Other drugs are commonly used to abort an active seizure or interrupt a seizure flurry; these include diazepam and lorazepam. Drugs used only in the treatment of refractory status epilepticus include paraldehyde, midazolam and pentobarbital.

Scientists are studying potential antiepileptic drugs with goal of enhancing treatment for epilepsy. Scientists continue to study how neurotransmitters interact with brain cells to control nerve firing and how non-neuronal cells in the brain contribute to seizures. One of the most-studied neurotransmitters is GABA. Researchers are working to identify genes that may influence epilepsy. This information may allow doctors to prevent epilepsy or to predict which treatments will several new types of therapies for epilepsy, including transplanting fetal pig neurons into the brains of the patients to learn whether cell transplants can help control seizures, transplanting stem cells, and using a device that could predict seizures up to 3 minutes before they begin. Researchers are continually improving MRI and other brain scans. Studies have show that in some case, children may experience fewer seizures if they maintain a strict diet- called the ketogenic diet- rich in fats and low in carbohydrates.

Methodology: This cross-sectional study was designed to assess the knowledge, attitude and practice of people regarding epilepsy in 30 clusters from 12 villages of PHC, Lokikere, Davangere district in the month of June 2011. All the people of age group 15-80 years were included in the study.

A pretested, semistructured questionnaire was prepared and an interview based survey was conducted. A simple random sampling technique was done for selecting the subjects. All the people who gave consent for the survey were interviewed and the opinions were collected. A total of 205 subjects were included in the study. After the survey, statistical analysis of the collected data was done and results were obtained.

RESULTS

Respondents Profile: Table no.1 showing age distribution of the respondents:

Age in years	Frequency	Percentage
10-30	81	41.5
30-50	85	39.5
>50	39	19
Total	**205**	**100**

Out of 205 respondents interviewed 41.5% belong to the age group 10-30 years, 39.5% belong to the age group of 30- 50 years and 19% aged above 50.

Table no. 2 showing gender variation of the respondents:

Sex	Frequency	Percentage
Female	114	55.6
Male	91	44.4
Total	205	100

44.4% of the respondents were males while 55.6% were females.

Table no. 3 showing educational status of the respondents:

Educational status	Frequency	Percentage
Illiterate	43	21
Primary school	59	28.8
High school	51	24.9
PUC	29	14.1
Degree	23	11.2
Total	**205**	**100**

21% of the respondents were illiterates, 28.8% were educated till high school, 24.9% were educated till SSLC, 14.1% were educated till PUC and 11.2% of the respondents were graduates.

Table no. 4 showing marital status of the respondents:

Status	Frequency	Percentage
Unmarrie d	26	12.7
Married	179	87.3
Total	205	100

87.3% of the respondents were married while 12.7% were unmarried.

Table no. 5 showing the number of respondents having heard of epilepsy:

Heard	Frequency	Percentage
No	51	24.8
Yes	154	75.2
Total	**205**	**100**

75.2% of the respondents had heard of epilepsy whereas 24.8% of the respondents had no idea about it.

Table no. 6 showing the number of respondents knowing an epileptic:

Know an epileptic	Frequency	Percentage
Yes	83	53.89
No	**71**	**46**
Total	**154**	**100**

53.89% of the respondents knew an epileptic while 46% of them did not know anyone with epilepsy.

Table no. 7 showing the number of witnesses of a seizure attack:

Witnessed	Frequency	Percentage
No	49	31.8
Yes	105	68.18
Total	154	100

31.8% of the respondents had a seizure while 68.18% had never seen an attack.

Table no. 8 showing the signs observed by the witnesses of a seizure attack:

Signs observed	Percentage
Confusion	4.5
Tongue biting	30.5
Loss of consciousness	57.7
Stiffening	63.6
Staring	10.3

63.3% of the respondents had observed stiffening during a seizure, 57.7% had observed loss of consciousness, 30.5% staring and 4.5% observed confusion.

Table no. 9 showing the opinions of the respondents with regard to allowing their child to play with an epileptic child:

Would allow	Frequency	Percentage
Yes	63	40.9
No	91	59.1
Total	**154**	**100**

40.9% of the respondents did not want to allow their child to play with an epileptic child while 59.1% felt that there was no harm in doing so.

Table no. 10 showing the opinions of the respondents regarding an epileptic child attending school:

Opinion	Frequency	Percentage
Should not attend	32	20.7
Can attend	122	79.2
Total	154	100

9.2% of the respondents % felt that an epileptic child can attend school and 20.7% still felt harm in doing so.

Table no. 11 showing the opinions of the respondents regarding allowing their son/ daughter to marry an epileptic:

Opinion	Frequency	Percentage
Yes	34	22.07
No	120	77.9
Total	**154**	**100**

79.2% of the respondents did not want their son/ daughter to marry an epileptic while 22.07 felt no harm in doing so.

Table no.12 showing the opinions of the respondents regarding different forms of epilepsy:

Opinion	Frequency	Percentage
Madness	4	2
Spirit/ demon possession	3	1.5
Mental retardation	44	21.4
Brain disease	103	50.2
Total	**154**	**100**

50.2% of the respondents felt that epilepsy was a form of brain disease, 21.4% felt it was a form of mental retardation, 1.5% still felt it was a form of spirit/ demon possession and 2% thought it was a form of madness.

Table no.13 showing the opinions of the respondents regarding contagiousness of the disease:

Opinion	Frequency	Percentage
Never spreads	84	54.6
Sometimes spreads	19	12.7
Always spreads	11	7.8
Total	**154**	**100**

54.6% of the respondents felt that epilepsy was not a contagious disease, 12.7% said that it may spread and 7.8% said that it was contagious.

Table no. 14 showing the opinions of the respondents regarding the cause of epilepsy:

Opinion	Frequency	Percentage
Brain injury	43	27.9
Runs in families	43	27.9
Birth injury	26	16.8
Excessive worry	22	14.2
Blood disorder	16	10.3
Witchcraft	2	1.2
Curse from God	1	0.6
Spirit possession	1	0.6
Total	**154**	**100**

27.9% of the respondents felt that epilepsy was caused by brain injury, 27.9% felt that it runs in families, 16.8% of them due to birth injury, 14,2% due to excessive worry, 10.3% due to blood disorder, 1.2% due to witchcraft, 0.6% due to curse from God, 0.6% due to spirit possession.

Table no.15 showing the opinions of the respondents regarding the treatment for a friend/ relative with epilepsy:

Opinion	Frequency	Percentage
See a doctor	136	88.3
See a traditional healer	18	11.6
Total	**154**	**100**

88.3% of the respondents felt that an epileptic should see a doctor for treatment while 11.6% felt that they should see a traditional healer.

Table no. 16 showing the number of respondents with an epileptic in the family:

Opinion	Frequency	Percentage
Yes	30	19.4
No	124	80.5
Total	**154**	**100**

19.4% of the respondents did not have any family member with epilepsy while 80.5% of them had an epileptic in the family.

Conclusion: At the end of the study we can arrive at a conclusion that nearly ¼ of the respondents have never heard of the disease called epilepsy. This shows poor knowledge about epilepsy among the population. It is also observed that there is still a local stigma attached to epilepsy because 59% of the respondents did not want their child to play with an epileptic child, 78% of them did not want their son or daughter marrying an epileptic and 7.8% of them thought that epilepsy is a contagious disease. People with epilepsy are still considered as outcastes by quite a small percentage of population.

Recommendation: By learning about the poor knowledge of the population regarding epilepsy, I would recommend the health services to consider a serious approach in educating the population regarding epilepsy through media and by conducting camps. There is a strong need to remove the deep rooted social stigma associated with epilepsy so that epileptics can also lead normal and healthy life without being considered as outcastes.

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Arterial Supply of Pectoralis Major Muscle- a Cadaveric Study and its Importance in Reconstructive Surgeries

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ABSTRACT

Introduction: The simple anatomy, the ease of harvest and the proximity of flap to the head and neck, the reliability, size and low donor site morbidity have made pectoralis major flaps very ease for the head and neck reconstructive flap surgeries.The objective for this cadaveric dissection study is to find out the origin, intramuscular course and supply of each vessel to pectoralis major muscle and the possible variations for guiding the surgeons for the safe use of it as a myocutaneous flap in reconstruction surgeries without any complications. **Materials and Methods:** A total of 50 pectoral region specimens (both right and left sided) from 25 embalmed adult human cadavers (22 males & 03 females) were studied by dissection method after the approval of Local Ethical Committee. **Result and Conclusion:** The proximal part (clavicular part) of pectoralis major is always supplied by the clavicular branch of thoracoacromial artery (100%) and supplemented sometimes by deltoid branch (98%) or by acromial branch (94%) or by pectoral branch (40%). The distal part (sternocostal portion) is always supplied by the pectoral branch of thoracoacromial artery in all 50 specimens (100%) with supplementary branches from perforating branches of internal thoracic artery and lateral perforating branches of anterior intercostal artery (100%).

Keywords: *Arterial supply, Myocutaneous free flap, Pectoralis Major Muscle, Thoracoacromial artery.*

INTRODUCTION

Every and any muscle may be used as a flap, by having thorough knowledge about the location and subsequent preservation of the vascular pedicles to that muscle.The pattern of blood supply to each muscle determines the extent of safe transposition and its value as a flap for coverage in reconstructive surgery. The success of muscle flaps in constructive surgery is always based on a reliable blood supply. The first myocutaneous free flap used in the reconstruction of head and neck defects was reported by Owens in 1955 who used sternocleidomastoid muscle along with the overlying skin to repair facial defects.[1] The simple anatomy, the ease of harvest and the proximity of the flap to the head and neck, the reliability, size and low donor site morbidity have made pectoralis major flaps very ease for the head and neck reconstructive flap surgeries. Hueston and McConchie first time explained the use of pectoralis major muscle for myocutaneous free flap in reconstructive surgery.[2] Later, Ariyan described the use of pectoralis major muscle in myocutaneous flap in head and neck reconstructive surgery & its versatility and reliability as a flap.[3,4,5,6] The development of reconstructive surgery of cervicofacial region had led to increasing use of myocutaneous flaps to repair the defects arising

from such operative procedures.The pectoralis major myocutaneous flap is one of the most frequently used in this respect.The survival of such flaps, derived from an anatomically distant region, requires that the flap displays good arterial vascularization.It is ideal for reconstructing of head and neck, and even for mediastinum, sternum & ventral thoracic wall defects.The segmental harvesting of the muscle as free flaps leaving the clavicular part or both the clavicular and sternocostal parts aiming to reduce the donor site morbidity.

The whole pectoralis major muscle including both the clavicular and the sternocostal parts when reflected, produces a prominent bulge over the clavicle and the muscle may tends to undergo atrophy as the vessels supplying the muscle may get stretched as they run on the surface of the turned over muscle.If the length of the vascular pedicle lying deep to the clavicular portion is carefully isolated to make it as 'island' flap turning up to the neck, so that only a fine bundle of tissue lied on the clavicle.And this clavicular portion of the muscle is cleared off the pedicle either resection or by leaving the muscle behind, the mobility and safety can be greatly increased.[3] Pectoralis major is supplied by one dominant vascular pedicle from the pectoral branch of thoracoacromial artery, supplemented by several smaller secondary segmental vessels from the clavicular, deltoid and acromial branches of thoracoacromial artery, and perforating branches of internal, superior & lateral thoracic arteries.The presence of a dominant vascular pedicle (together with its musculocutaneous perforators) means that the musculocutaneous flap in this region can be surgically raised solely on the pectoral branch (pectoralis major musculocutaneous flap). This flap can be used to reconstruct the areas of missing tissue following head and neck cancer resections.[7]

This cadaveric dissection method study has been undertaken to define the relationship between the blood supply to the two parts (clavicular and sternocostal) of pectoralis major muscle and also to find out the origin, intramuscular course and supply of each vessel to pectoralis major muscle and the possible variations for helping the surgeons for the safe use of it as myocutaneous flap in reconstruction surgeries including cervicofacial cancer without any complications.

MATERIALS & METHOD

After the approval of the Local Ethical Committee, a total of 50 pectoral region specimens from 25 adult embalmed cadavers (22 males and 03 females) with age 45-55 years, belonging to both right and left sides given for M.B.B.S – Ist year undergraduate students for dissection during the academic years from 2008–2013 in the Department of Anatomy, Azeezia Medical College were dissected to investigate the overall vascularization of pectoralis major muscle. Each muscle was dissected from inferior towards its superior part, as is performed during surgery and all the arteries distributing to the muscle were noted. In the cadavers, pectoral regions were dissected as per the Standard Methods of dissection.The exposure of pectoral muscle was done by four incisions – one midline vertical incision from the midpoint of sternal notch to the xiphisternum; and two horizontal lines along the clavicle superiorly and the seventh rib inferiorly. The skin and subcutaneous tissue was cleaned to expose pectoralis major muscle. After transecting its humeral insertion and detaching the clavicular attachment of the muscle, it was retracted medially and the deltopectoral groove was cleaned & exposed.Always care should be taken so as to not to damage the vascular pedicles entering the muscle.Muscular incisions were made to investigate the intramuscular and submuscular course of the arteries especially pectoral branch of thoracoacromial artery.The origin, course and supply of each nourishing arterial pedicle was noted and tabulated as follows.

RESULTS

Table 1. Arterial supply of pectoralis major muscle (Vessels seen in specimens).

Total cadavers				25
Sex				22 Males & 03 Females
Total specimens				50 (25 right and 25 left sided)
Approx. Age				45-55 years
Arteries observed supplying Pectoralis major muscle				
Thoraco-acromial artery	Origin			In all 50 specimens, arises from second part of axillary artery.
	Its branching from axillary artery in relation to midclavicualr line			In 25 right sided & 07 left sided specimens, it branches from axillary artery lateral to midclavicular line & in remaining 18 left sided, branches medial to midclavicular line.
	BRANCHES	Pectoral branch	Presence	Present in all 50 specimens.
			Origin	In 45 specimens, arises from thoracoacromial artery. In 03 specimens, arises from medial branch of thoracoacromial artery. In 02 specimens, arises from lateral branch of thoracoacromial artery.
			Accompanying structure	In all 50 specimens, lateral pectoral nerve.
			Course	In all specimens, pedicle arises behind pectoralis minor near the superior border, then runs downwards medially deep to pectoralis major (between pectoralis minor & major muscles).
			Supply	Pectoralis minor & mainly the sternocostal portion (distal segment) of pectoralis major and supplementary branch to proximal segment of pectoralis major in some specimens.
		Deltoid branch	Presence	Present in 49 specimens.
			Origin	In all 49 specimens, arises from thoracoacromial artery.
			Accompanying structure	Cephalic vein in deltopectoral groove.
			Course	Ascends upwards to run in deltopectoral groove.
			Supply	Pectoralis minor & as a supplementary branch to proximal segment of pectoralis major.
		Clavicular branch	Presence	Present in all 50 specimens.
			Origin	In all 50, arises from thoracoacromial artery.
			Accompanying structure	Nil
			Course	Ascends medially between pectoralis major and clavipectoral fascia
			Supply	Supply mainly the proximal segment (clavicular & manubrial fibres) of pectoralis major.
		Acromial branch	Presence	Present in 47 specimens.
			Origin	In all 47 specimens, arises from thoracoacromial artery.
			Accompanying structure	Nil
			Course	Runs laterally deep to deltoid muscle.
			Supply	Supply lateral half of proximal segment of pectoralis major as a supplementary branch.

Lateral thoracic artery	Presence	Present in all 50 specimens.
	Origin	In all 50 specimens, as a branch from second part of axillary artery.
	Accompanying structure	Medial pectoral nerve.
	Course	Runs on the lower border of pectoralis minor muscle.
	Supply	As a supplement to the proximal segment of pectoralis major.
Superior thoracic artery	Presence	Present in all 50 specimens.
	Origin	In all 50 specimens, as a branch from first part of axillary artery.
	Accompanying structure	Nil
	Course	Runs on the upper border of pectoralis minor.
	Supply	In 10 specimens, supplies medial half of proximal segment of pectoralis major and do not supply in 40 specimens of pectoralis major.
Perforating branches of internal thoracic artery	Presence	Present in all 50 specimens.
	Supply	Supplies distal segment of pectoralis major in all 50 specimens.
Perforating branches of Anterior intercostal artery	Presence	Present in all 50 specimens.
	Supply	Supplies distal segment of pectoralis major in all 50 specimens.
Any other branch	Presence	Nil

Table 2. Arterial supply of pectoralis major muscle.

Overall arterial supply	Pectoralis minor		• Pectoral branch (in all 50 specimens). • Deltoid branch (in all 50 specimens). • Supplemented by - - branch from superior thoracic artery (in 10 specimens). - branch from lateral thoracic artery (in 10 specimens).
	Pectoralis major muscle	Proximal (clavicular portion)	Mainly- Clavicular branch of thoracoacromial artery (in all 50 specimens) & supplemented by - • Deltoid branch in 49 specimens. • Acromial branch in 47 specimens. • Pectoral branch in 20 specimens.
		Distal (sternocostal portion)	Mainly- Pectoral branch of thoracoacromial artery (in all 50 specimens) & supplemented by - • Perforating branches of ITA (in all 50 specimens). • Lateral perforating branches of anterior intercostal artery (in all 50 specimens).

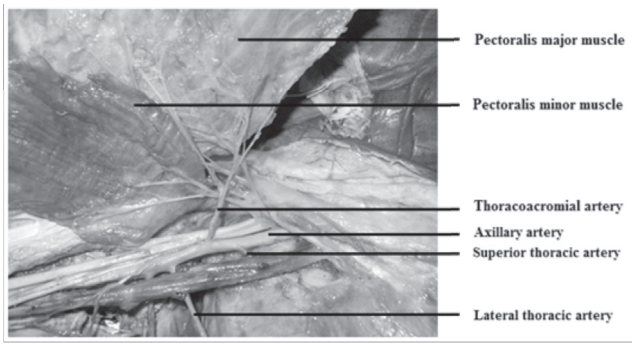

Fig.No – 01. Arteries supplying Pectoralis major muscle.

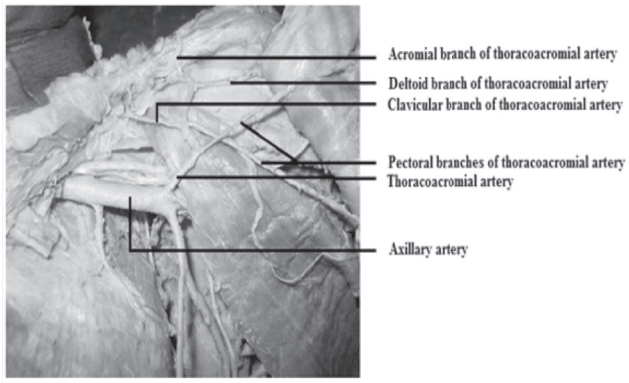

Fig.No – 02. Branches of Thoracoacromial artery – Clavicular, Pectoral, Acromial & Deltoid

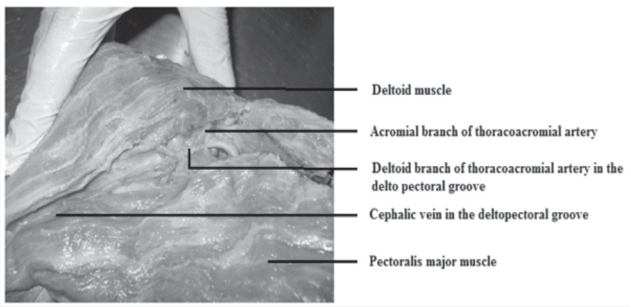

Fig.No – 03. Deltoid branch of thoracoacromial artery in deltopectoral groove.

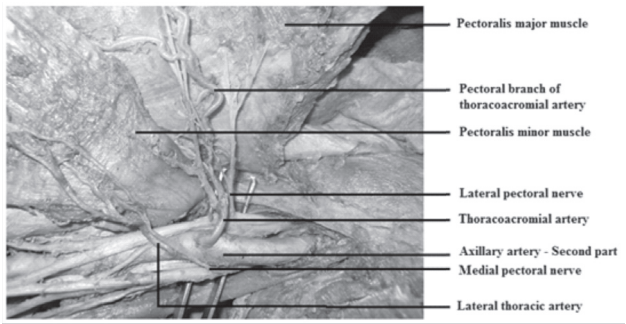

Fig.No – 04. Thoracoacromial artery & Lateral thoracic artery with its accompanying structure.

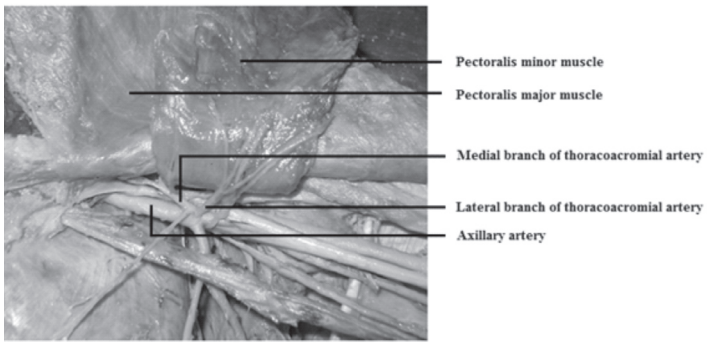

Fig.No – 05. Thoracoacromial artery pedicle divided in to medial & lateral branches.

DISCUSSION

In a study of 30 pectoral region specimens to investigate the origin, length and external diameter of arterial pedicles to pectoralis major muscle, it was confirmed that the thoracoacromial artery arised from the first part of axillary artery in 60% cases and from second part of axillary artery in 40% cases.This study overall revealed that the proximal segment of pectoralis major muscle was supplied by clavicular and deltoid branches of thoracoacromial artery, supplemented by pectoral branch (30%) or superior thoracic artery (23.3%); the distal segment of the muscle was supplied by lateral perforating branches of anterior intercostal artery and the perforating branches of internal thoracic artery. The pectoral branch of thoracoacromial artery (90%) and the axillary artery (66.7%), and the lateral thoracic artery (40%) found to be supplying pectoralis major. This study of them infirmed that the clavicular and pectoral branches of thoracoacromial artery are reliable pedicles for raising the proximal and distal segments of pectoralis major muscle flaps respectively.[8]

In our present study, thoracoacromial artery is observed to be taking origin from the second part

of axillary artery in all 50 specimens (100%), and it gives branches as pectoral and clavicular branches (in all 50 specimens), deltoid branch (in 49 specimens) and acromial branch (in 47 specimens).

In a dissection study of 70 pectoral muscles to find the point of origin, the intra and submuscular course of the pectoral branch of the thoracoacromial trunk for pectoralis major muscle, it was concluded that the branching point of thoracoacromial artery from axillary artery was found to be located lateral to the midclavicular line on the right sided specimens (100%) and medial to the midclavicular line on the left sides (86%). The pectoral branches originated directly from thoracoacromial trunk in 78.6% cases; in 15.7%, it arised from the medial branch of thoracoacromial artery and it was branching from lateral branch of thoracoacromial trunk in 5.7%.[9]

In this current study, thoracoacromial artery is found to be branching from the second part of axillary artery, lateral to the midclavicular line in 25 right sided (100%) and 07 left sided specimens (28%), whereas in remaining 18 left sided specimens (72%), it branches medial to the midclavicular line.This study showed the presence of pectoral branch (accompanying with the lateral pectoral nerve in all 50 specimens) originating from thoracoacromial artery directly in 45 specimens (90%), from the medial branch of thoracoacromial artery in 03 specimens (12%) and from the lateral branch of thoracoacromial artery in 02 specimens (08%).In all the specimens (100%), pectoral branch pedicle arises behind pectoralis minor muscle near the superior border, then runs downwards medially deep to pectoralis major muscle (between pectoralis minor and major).

In another cadaveric study of 23 specimens to find out the pattern of blood supply to the clavicular and sternocostal portion of pectoralis major muscle, it was concluded that the clavicular branch of the thoracoacromial artery found to supply only the clavicular portion of pectoralis major muscle, and the sternocostal portion is supplied by the pectoral branch in maximum specimens indicating that the sternocostal portion of the muscle can be separated from the clavicular portion without interference with its blood supply to the clavicular part (vascular pedicle of clavicular part to be preserved)[10]

Our study revealed that pectoralis minor is always supplied by pectoral and deltoid branches (100%) of thoracoacromial artery with supplementary branches sometimes from superior thoracic artery (20%) or from lateral thoracic artery (20%).Similarly, proximal part (clavicular part) of pectoralis major is always supplied by the clavicular branch of thoracoacromial artery (100%) and supplemented sometimes by deltoid branch (98%) or by acromial branch (94%) or by pectoral branch (40%).The distal part (sternocostal portion) is always supplied by the pectoral branch of thoracoacromial artery in all 50 specimens (100%) with supplementary branches from perforating branches of internal thoracic artery (100%) and lateral perforating branches of anterior intercostal artery (100%).

CONCLUSION

With the aim to find the overall blood supply to pectoralis major muscle in this cadaveric dissection study of 50 specimens (25 right & 25 left sided), it was concluded that the thoracoacromial artery arises from the second part of axillary artery (100%), lateral to the midclavicualr line in all the right sided specimens (100%) and 28% in left sided specimens but in remaining 72% of left sided specimens, it arises medial to the midclavicular line.The proximal part (clavicular portion) of pectoralis major is always supplied by the clavicular branch of thoracoacromial artery (100%) and supplemented sometimes by deltoid branch (98%) or by acromial branch (94%) or by pectoral branch (40%). The distal part (sternocostal portion) is always supplied by the pectoral branch of thoracoacromial artery in all the 50 specimens (100%) with supplementary branches from perforating branches of internal thoracic artery (100%) and lateral perforating branches of anterior intercostal artery (100%).

This indicated that the clavicular and pectoral branches of thoracoacromial artery are reliable pedicles for raising the distal (sternocostal) portion of pectoralis major muscle or the proximal (clavicular) segment without interference with

its blood supply to other segment of the muscle and therefore, can be used as myocutaneous flap in reconstruction surgeries of head & neck safely without any complications.

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Conflict of Interest: Nil

Ethical Committee Clearance: Permission of the Local Ethical Committee of Azeezia Medical College, Meeyyannoor, Kollam, had been obtained for this cadaveric dissection study.

Declaration: We hereby, declare that it is an original work and has not been send to any other journal for publication.

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Study of Clinical Profile, Complications and Response to Treatment of Enteric Fever Cases Admitted in a Tertiary Care Hospital of Solapur

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ABSTRACT

Background: - Widespread and indiscriminate use of anti-microbials and anti-pyretics in enteric fever contributes to the development of some unusual or atypical presentations in our country. So it's important to assess the current clinical presentations, complications and prognosis of enteric fever cases. **Objectives** i) To study clinical profile and laboratory manifestations of enteric fever cases ii) To study trends, response to antibiotics, complications and prognosis of enteric fever cases. **Materials and Methods:** A hospital based cross-sectional descriptive study was conducted from January to December. All proved cases of enteric fever admitted in medicine and pediatric ward of SCSMGH, Solapur were the study subjects. Total 172 cases of enteric fever were admitted during this period. **Statistical Analysis:** Simple proportions

Results: Majority of patients were in 11-20 years (school children and adolescents) age group. Majority of the cases occurred in rainy season. Common clinical features of enteric fever include fever, tachycardia, hepatomegaly and splenomegaly. Relative bradycardia and rose spots considered to be salient features of enteric fever were infrequently seen in our study. More than half of the cases (51.2%) presented during first week of illness. Widal test might be regarded as an important diagnostic tool for enteric fever in strongly suspected cases. Ciprofloxacin was the most commonly used antibiotic in our study. Time to defervescence for patients treated with ciprofloxacin was 5.3 days and that for Third generation cephalosporins was 4.8 days. The proportion of complication was 51(29.65%). Out of 172 respondents, three patients (1.74%) died, 2(1.2%) due to intestinal hemorrhage and 1(0.6%) due to disseminated intravascular coagulation (DIC) and 18(10.5%) lost to follow up and remaining all recovered completely.

Conclusion: Changing pattern of fever and atypical presentation of enteric fever should be borne in mind so that an early diagnosis can be made to initiate appropriate therapy and thereby reducing mortality.

Keywords: *Enteric fever, time to defervescence*

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INTRODUCTION

Enteric fever is a systemic illness caused by Salmonella typhi or paratyphi A or B. In India the disease is endemic with an incidence ranging from 102 to 2219 per 100,000 population[1]. It results in considerable morbidity, absenteeism and resource utilization. A limited study conducted in an urban

slum in India showed that 1% of children up to 17 years of age suffer from enteric fever every year[2]. In endemic areas book picture signs and symptoms of enteric fever are not often seen. Widespread and indiscriminate use of anti-microbials and anti-pyretics also contributes to the development of some unusual or atypical presentations of enteric fever in our country. Unusual manifestations produce diagnostic dilemma and delay in diagnosis of the disease permitting the patient to pass through varied and uncommon complications[3]. The present study was concerned with the evaluation of varied clinical presentations and antibiotic response in enteric fever.

OBJECTIVES

i) To study clinical profile of enteric fever cases

ii) To study laboratory manifestations and response to antibiotics

iii) To study trends, complications and prognosis of enteric fever cases.

MATERIALS AND METHOD

A hospital based, cross-sectional, descriptive study was conducted in a teaching hospital of Solapur from January to December after obtaining Ethical Committee clearance.

Selection of cases: All proved cases of enteric fever admitted in medicine and pediatric ward of SCSM General Hospital, Solapur were the study subjects.

Criteria for labeling the case as an enteric fever-

i) Suggestive clinical picture &

ii) Blood culture positive for Salmonella typhi and/ or Salmonella paratyphi organisms. &/or

iii) Widal test positive as per following criteria [4, 5]

a) Titre of TO 1: 100 or more and/or TH 1: 200 or more.

b) A rise in titre which is at least four fold.

The cases of enteric fever treated on OPD basis were not included in this study.

Total 172 cases of enteric fever were admitted during this period.

The information was collected in a predesigned and pretested proforma which included sociodemographic data, time of presentation, clinical features, laboratory investigations, complications, treatment details, outcome etc.

The interviews of the patients and their relatives (in case of children below 12 years) taken at the time of hospital visit and at time of discharge after taking their informed consent.

RESULTS

Total no. of proved enteric fever cases admitted during the study period were 172.

Majority of the patients i.e. 70(40.7%) were in 11-20 years age group. The age ranged from 9 months to 68 years, the mean age being 18.5 years. Male to female ratio was 1.6: 1.

The season wise distribution showed that 103(59.9%) cases occurred in rainy season followed by 46(26.7%) in summer season.

Out of 172 respondents, more than half of the cases i.e. 88 (51.2%) presented during first week of illness and only 17(9.9) presented during third week of illness. Not a single case was reported in or after fourth week of illness.

All 172 (100%) had history of fever with a mean duration of 8.5 days (range 2-21 days). Around 2/3rd i.e. 109(63.4%) had high grade and 63(36.6%) had moderate grade fever. Not a single respondent had low grade fever. Other symptoms were shown in the graph no. 3.

At the time of examination, all patients were febrile. Out of all these, 90(52.4%) had continuous fever and 62(36%) had intermittent fever and only 20(11.6%) had remittent type of fever. Tachycardia (pulse > 100/min) was seen in 54(31.4%), hepatomegaly was present in 52(30.2%), splenomegaly was seen in 43(25%) and both Hepatosplenomegaly seen in 42(24.4%) cases. Relative bradycardia was seen in 12(7%) cases and rash (rose spots) was present in 9(5.2%) cases. Other signs were shown in graph no.4.

The mean white blood cell (WBC) count was 6159/cumm with a range from 2460/cumm to 15600/cumm. The WBC count was in normal range (4000-11000/cumm) in 115(66.8%) cases while 23(13.4%) patients had leucopenia (WBC count <4000/cumm).

Leucocytosis (WBC count >11000/cumm) was seen in 34(19.8) patients. Thrombocytopenia (platelet count < 1.5lacs/cumm) was seen in 20(11.6%) patients. Hyperbilirubinaemia (> 1 mg/dl) was seen in 45(26.2%) patients and while ALT was elevated (>60IU/ml) in 33(19.2%) patients.

Table no. I- Comparative data of Blood culture and Widal test

Blood culture	Widal test	No. (%)
Positive	Positive	69(40.1)
Positive	Negative	32(18.6)
Negative	Positive	71(41.3)

Blood culture was positive in 32(18.6%) cases and Widal test was positive in 71(41.3%) cases while both were positive in 69(40.1%) cases. Out of 140 Widal positive cases, 130(92.8%) were

S. typhi and 6(4.3%) were S. paratyphi A while only 4(2.9%) were S. paratyphi B. Out of 101 Blood culture positive cases, 92(91.1%) samples were positive for S. typhi and 6(5.9%) were positive for S. paratyphi A and 3(3%) were positive for S. paratyphi B.

Out of 172 patients, 92(53.5%) patients received antibiotics before being admitted to the hospital. Quinolones were taken by 48(27.8) patients before admission while Beta lactams were taken by 20(11.5%) patients. Amoxicillin was taken by 15 (8.7%) patients and Azithromycin was taken by 4(2.2%) patients while Roxithromycin by 2(1.1%) patients. Remaining 4(2.2%) patients had taken combination of quinolones, azithromycin and chloramphenicol.

Data on the duration of prior antibiotic use was available only in 55(59.8%) of the 92 cases and the mean duration of prior antibiotic use was 3.9 days (range 1 to 10 days)

Ciprofloxacin was the most commonly used antibiotic in our study; 109(63.4%) out of 172 patients. Third generation cephalosporins were used in 38 (22.1%) patients, rest of the patients 25(14.5%) received various other antibiotics singly or in combination. The mean duration of receipt of antimicrobials after hospitalization was 11 days.

Time of defervescence was defined as the time taken from the initiation of antibiotic in the hospital to the time in days when temperature remained below 37.5 deg C for at least 48 hours. The mean time to defervescence was calculated for various groups of patients. Time to defervescence for patients treated with ciprofloxacin was 5.3 days (range 1 to 10 days) and that for Third generation cephalosporins was 4.8 days (range 1 to 8 days). The time of defervescence for patients with S.typhi infection was 5.1 days (range 2-9 days) and that of S.paratyphi A was 3.4 days (range 1 to 6 days). The mean time to defervescence in the group of patients who had received antibiotics prior to admission was 4.9 days and that of the patients who had not received prior antibiotics was 5.5 days.

Table no. II: Complications of enteric fever

Complications	No. of patients (%)
Hematological Complications	25(14.53)
Hepatobiliary Complications	13(7.56)
Gastro-intestinal Complications	12(6.98)
Musculoskeletal Complications	10(5.81)
Central Nervous system Complications	9(5.23)
Respiratory Complications	4(2.33)
Cardio-vascular Complications	2(1.16)
Genito-urinary Complications	2(1.16)
Others	3(1.74)

Out of 172 cases, 51(29.65%) had one or the other complication. Complication rate was slightly more in female patients.

Most common complications in the form of pancytopenia (Hematological) were seen in 15(8.72%) of cases. Grave complications were intestinal hemorrhage and intestinal perforation (Gastrointestinal) seen in 6(3.4%). Others important complications seen were arthritis (Musculoskeletal), Typhoid meningitis &Typhoid encephalopathy (Central Nervous system), pneumonia (Respiratory) and Myocarditis (cardiovascular).

Three patients (1.74%) died, 2(1.2%) due to intestinal hemorrhage and 1(0.6%) due to disseminated intravascular coagulation (DIC) and 18(10.5%) lost to follow up and remaining all recovered completely.

DISCUSSION

Enteric fever is present throughout the world but is particularly endemic in countries like ours where water supply and sanitation is poor. The illness may occur at any age, but in our study it was seen predominantly in young population. This might be due to their mobility, consumption of unhygienic food and water in schools and colleges. Similar findings were observed by other studies[3, 6]. Majority of the cases occurred in rainy season. This might be attributed to increase in fly population and increased chances of contamination of drinking water during rainy season. The present study findings are comparable with findings of H. N. Mangal et al[6]. More than half of the cases (51.2%) presented during first week of illness which might be due to more health awareness among people. Several other studies also support these findings[7, 8]. All patients had history of fever with a mean duration of 8.5 days (range 2-21 days). Around 2/3rd (63.4%) had high grade and 63(36.6%) had moderate grade fever. Not a single respondent had low grade fever. This finding was comparable with the studies conducted by Dr. Amit Kulkarani[9] and P.N. Kelkar et al[10]. Low grade fever was not seen in a single patient as this study was conducted on indoor patients and patients with low grade were most often likely to be treated as out patients. Classical pattern of enteric fever is continued type of fever, but in this study only half of the cases reported with continued type of fever most likely due to frequent use of antipyretics and indiscriminate use of antibiotics. Classical step ladder rise of temperature was not seen. All the other symptoms and signs reported by us were similar to those reported in earlier studies[9, 11, 12]. Relative bradycardia and rose spots considered to be salient features of enteric fever were infrequently seen in our study. Few other studies have also found these to be inconsistent features of enteric fever[3, 8]. Leucopenia and relatively normal leucocyte count is common in enteric fever, which was also seen in our study. It is mainly due to the depression of myeloid series in the marrow. This is an agreement with the findings of Wg Cdr S Gupta et al[12].

Widal test continues to be used in India for diagnosis of enteric fever as culture is time consuming and prior use of antibiotics may reduce the rate of isolation of organism. In this study, Out of 140 Widal positive cases, 92.8% were S. typhi and 4.3% were S. paratyphi A while only 2.9% were S. paratyphi B. Out of 101 Blood culture positive cases, 92(91.1%) samples were positive for S. typhi and 6(5.9%) were positive for S. paratyphi A and 3(3%) were positive for

S. paratyphi B.. These findings go in hand and hand with findings of Nikhil Patankar and Ira Shah[13].

As many as 92(53.5%) patients received antibiotics before being admitted to the hospital either single or in combination. Similar observations were made by S Jog et al in Mumbai[11].

Ciprofloxacin was the most commonly used antibiotic in our study followed by third generation cephalosporins. The mean duration of receipt of antimicrobials after hospitalization was 11 days. The deferverscent period for ciprofloxacin is about 3-5 days and for third generation cephalosporin is about 3 days according to the literature. In the present study, we have observed that the deferverscent period for patients treated with ciprofloxacin was comparatively longer i.e. 5.3 days and that for Third generation cephalosporins were 4.8 days. The mean time to defervescence in the group of patients who had received antibiotics prior to admission was 4.9 days and that of the patients who had not received prior antibiotics was 5.5 days. These findings were supported by other studies[11, 14].

Out of 172 cases, 51(29.65%) had one or the other complication. Complication rate was slightly more in female patients, might be due to more no. of female patients arrived late at which time already complication had occurred. Our findings are far from the findings of A.S. Dauod[7] et al and Nikhil Patankar and Ira Shah[13] who found complication rate of 7% and 18.8% respectively.

Khan M et al also observed that female patients were more significantly ill[15].

Out of 172 respondents, Three patients (1.74%) died, 2(1.2%) due to intestinal hemorrhage and 1(0.6%) due to disseminated intravascular coagulation (DIC) and 18(10.5%) lost to follow up

and remaining all recovered completely.

Fatality rate observed in this study was 1.74%. Dr. Amit Kulkarani[9] in a hospital study found that mortality was 4%. The causes of mortality in 3 patients were lying in their late arrival and development of complications.

CONCLUSION

Thus present study found majority of patients in 11-20 years (school children and adolescents) age group. Majority of the cases occurred in rainy season. Common clinical features of enteric fever include fever, tachycardia, hepatomegaly and splenomegaly. Relative bradycardia and rose spots considered to be salient features of enteric fever were infrequently seen in our study. More than half of the cases (51.2%) presented during first week of illness. Widal test might be regarded as an important diagnostic tool for enteric fever in strongly suspected cases. Ciprofloxacin was the most commonly used antibiotic in our study. Time to defervescence for patients treated with ciprofloxacin was 5.3 days and that for Third generation cephalosporins was 4.8 days . The proportion of complication was 51(29.65%). Out of 172 respondents, Three patients (1.74%) died, 2(1.2%) due to intestinal hemorrhage and 1(0.6%) due to disseminated intravascular coagulation (DIC) and 18(10.5%) lost to follow up and remaining all recovered completely.

RECOMMENDATIONS

1) The specific age group like school going children and adolescents should be identified as high risk group and imparted health education towards prevention of enteric fever.
2) Changing pattern of fever and atypical presentation of enteric fever should be borne in mind so that an early diagnosis can be made to initiate appropriate therapy and thereby reducing mortality.
3) The indiscriminate use of drugs in enteric fever should be discouraged

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Evaluation of Cytological Grading in Breast Carcinoma in Correlation with Histopathological Grading

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ABSTRACT

Carcinoma breast is the most common malignancy in females next to carcinoma cervix. Fine needle aspiration cytology of the lumps is the primary method in establishing the diagnosis of carcinoma. The nuclear grade of the tumor is an important prognostic factor that determines the outcome in breast cancer. The material obtained from the aspirate smears can be used to assess the cytological grade using Robinson criteria. This was correlated with well established histological grading of Scarff Bloom Richardson. Total of 70 cases were studied for which the histopathological correlation was available. The accuracy was 76.8%.

Keywords: *Cytological grading, Histological grading, Breast carcinoma*

INTRODUCTION

Breast carcinoma is the most common malignant neoplasm next to carcinoma cervix[1]. Breast cancer is a malignant neoplasm with a heterogeneous prognosis. Evaluation of prognostic markers is of growing interest. These include tumor histological grading, cell proliferation index, estrogen and progesterone receptor status and lymphnode status[2, 3]. A recent National Institute of Health consensus conference on breast carcinoma recommended that nuclear grade assessment should be mentioned in pathology reports[4]. Although these are well documented in surgical specimen, very few studied have been undertaken to evaluate the prognostic parameters on fine needle aspiration cytology (FNAC). In breast cancer, FNAC technique is used as primary tool in establishing the diagnosis. Hence the most important service, after diagnosis, that pathologists can render their clinical colleagues is the accurate cytological grading of invasive ductal carcinoma[5, 6]. This study was undertaken to establish the accuracy of cytological grading of breast carcinoma in correlation with its histopathological grading.

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MATERIALS AND METHOD

This study was carried out in Karnataka institute of medical sciences, Hubli, Karnataka a tertiary care centre over a period of two years (2006 and 2007). Hundred cases of carcinoma breast diagnosed on fine needle aspiration cytology were followed up, either lumpectomy or modified radical mastectomy specimen were considered for histopathological examination.

Of the hundred cases 70 cases underwent surgery and were considered for the study. Fine needle aspiration cytology was done using 5ml syringe with 20-22 gauge needle. Smears stained with Haematoxylin -Eosin stain, Papanicolaou stain and May- Grunwald- giemsa's stain were

examined. These smears were used for cytological diagnosis. Papanicolaou stained smears were used for cytological grading. This staining permits the assesment of nucleoli, chromatin pattern and nuclear membrane. Grading was done using robinson's cytological grading system (Table 1). Histopathological specimen were processed routinely and stained with Haematoxylin- Eosin stain. Histopathological grading was done using Nottingham modification of Scarff Bloom Richardson system (Table 2).

RESULTS

In the present study, cytological grading was done using Robinson grading. Thirty six of the cases were grade 2, followed by 21 of grade 1 and 13 were grade 3(Table 3). Histopathological grading was done using Nottingham modification of Scarff Bloom Richardson system. Thirty four cases were grade 2, followed by 28 cases of grade 1 and 8 cases of grade 3 (Table 4).

When cytological and histopathological grading were compared, 21 cases were of grade 1 on cytology out of which 20 were of grade1 and 1 case was grade 2 on histopathology. Of the 36 cases of grade 2 on cytology 8 were grade 1, 25 were grade 2 and 1 was grade 3 on histopathology. Of the 13 cases of grade 3 on cytology, 6 were grade 2 and 7 were grade3 on histopathology (Table 5).

The accuracy was 76.8%. $?^{?}$test= 61.475 ($p<0.0001$).

DISCUSSION

Any lump in the breast is a cause of concern in females. With growing awareness about the breast cancer lump in the breast is coming to clinical attention more frequently than before. Fine needle aspiration cytology being easy and simple procedure is most widely used technique in diagnosing breast carcinoma[7, 8]. Tumor grading does not require special procedures and therefore incurs no additional cost yet is one of the most important prognostic factors to consider in predicting outcome in breast cancers[9, 3]. A new era of systemic adjuvant therapy heralded in which treatment is given before surgery. Studies have shown a high response rate with tumors rapidly decreasing in size[10]. Assessment of the biological aggressiveness of the cancer without removing it would therefore be important. Tumor grading based on FNAC plays an important role in preoperative chemotherapy[11]. It will also help in assessment of serial estimates to analyze how pre treatment modulates tumor grade. This study evaluated the applicability of grading to cytology aspirates. In our study majority of the cases were of grade 2. On comparison with histological grading the accuracy was 76.8%. However Chhabra et al[3] observed 65%, Taniguchi et al[2] observed 44.4%, Robinson et al[5] 56.9% and Meena et al[1] 87% accuracy on cytological grading. This discrepancy in the accuracy can be attributed to the tumor heterogeneity.

Tables and figures:

Table 1. Robinson's criteria for cytological grading of breast carcinoma.

	Score 1	Score 2	Score 3
Dissociation	Cells mostly in clusters	Mixture of single and cell clusters	Cells mostly in singles
Cell size	1-2X RBC size	3-4XRBC size	>5XRBC size
Cell uniformity	Monomorphic	Mildly pleomorphic	Pleomorphic
Nucleoli	Indistinct	Noticeable	Prominent or pleomorphic
Nuclear margin	Smooth	Folds	Buds or clefts
Chromatin	Vesicular	Granular	Clumped and clear

Grade	score
1	3-5
2	6-7
3	8-9

Table 2. Nottingham modification of Scarff Bloom Richardson system:

Criteria	Score 1	Score 2	Score 3
Tubule formation	>75% of tumor	10-75% of tumor	<10% of tumor
Nuclear pleomorphism	Minimal variation in size and shape of nuclei	Moderate variation in size and shape of nuclei	Marked variation in size and shape of nuclei
Mitotic count/10hpf	0-5	6-10	>11

Grade	score
1	3-5
2	6-7
3	8-9

Table 3. Table showing cytological grading using Robinson criteria:

Grade	Number of cases	Percentage
1	21	30
2	36	51.4
3	13	18.6
Total	70	100

Table 4. Table showing histopathological grading:

Grade	Number of cases	Percentage
1	28	40
2	34	48.6
3	08	11.4
Total	70	100

Table 5. Table showing correlation of cytological and histopathological grading:

Cytological grading	Histological grading			Total
	1	2	3	
1	20 (95.2%)	1 (4.7%)	0	21
2	8 (22.2%)	27 (75%)	1 (2.8%)	36
3	0	6 (46.2%)	7 (53.8%)	13
Total	28	34	8	70

CONCLUSION

Assessment of biological aggressiveness of cancer without removing it would be valuable. Our study showed cytological grading of breast carcinomas using Robinson's system correlated well with histological grading of Scarff Bloom Richardson system. Hence it was concluded that assessment of nuclear grade in breast carcinoma aspirates is easy, does not require any special stains or procedure, is reproducible and correlates well with nuclear grade.

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Conflict of Interest: None.

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Ethical committee clearance: was obtained from the college ethical committee before the start of the study.

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Prevalence of Musculoskeletal Pain in Male Grocery Store workers

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ABSTRACT

BACKGROUND: Grocery store workers are known for their long hours of work and comparatively tedious and heavy job as compared to many other professions. Their work involves heavy external loading, frequent lifting of heavy loads, awkward working positions and long duration of work .They work for nearly 12 hours a day 72 to 84 hours per week, which provides a biomechanical platform for numerous types of musculoskeletal pain. Long hours at work can give rise to 'Burnout Syndrome' associated with long term exhaustion, emotional instability, insomnia and reduced interest. This further gives rise to diminished output from the worker.

OBJECTIVES: To find prevalence of musculoskeletal pain in male grocery store workers.

MATERIALS AND METHODOLOGY : It was a questionnaire-based survey in the grocery stores of Pune and Mumbai.

Hundred male workers were included in the study. Inclusion criteria being workers in the age group of 18-35 years and more than Six months of work experience. The Nordic Musculoskeletal Questionnaire was used to locate the joints involvedand Numerical Analog Scale (NAS) was used to quantify pain.

DATA ANALYSIS : The 'P' values were obtained using Chi-Square test with reference to equal distribution of categories. 'P' valued of less than 0.05 was considered significant with 95% confidence interval.

RESULTS : Eighty-nine per cent respondents experienced pain at least one pain site and 11% subjects experienced no pain at all. Study shows that Lower back region is the site where 60% subjects reported pain in last 12 months and 56% in last Seven days. Other frequent sites of pain were knees, ankles/feet, Hips/thighs followed by upper back, neck and shoulders. Average NAS pain for neck and lower back is significantly higher among the volunteers who work for less than 12hours a day compared to the volunteers who work for more than 12 hours a day.Average NAS pain at other sites did not differ significantly between two groups of working hours. Average NAS pain for Lower back is significantly higher among the volunteers who have more experience (≥Nine years) compared to the volunteers who have less experience (<Nine years).

CONCLUSION : Significant number of male grocery store workers suffers from musculoskeletal disorders due to their occupation.

Keywords : *Grocery store workers, Chronic pain, Musculo-skeletal disorders*

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INTRODUCTION

In general, people complain of body pains due to physical exertion particularly those perform work, which are long hours and are labor intensive.

Grocery store workers are known for their long hours of work and comparatively tedious and heavy job as compared to many other professions. They are exposed to various occupational diseases as they have high physical exertion and occupational loading like remaining in the orthostatic position for 95% of activities and stereotyped repetitive use. Their work involves heavy external loading, frequent lifting of heavy loads, awkward working positions and long duration of work.They work for nearly 12 hours a day 72 to 84 hours per week, which provides a biomechanical platform for numerous types of musculoskeletal pain. In addition, grocery store workers are involved in delivering goods at customer's residences over short or long distances. This exposes them to harsh environmental conditions, increased risk of accidents while travelling, etc.

Musculoskeletal disorders (MSD) have come to the attention of researchers concerned with health and work related questions, due to their cost and impact on life quality. The term MSD covers any injury, damage or disorder of the joints or other tissues in the upper/lower limbs or the back[1]. Common causes of Occupational injuries are poor ergonomics, manual handling of heavy loads, misuse or failure of equipment, exposure to general hazards, inadequate safety training and clothing, etc.[2]

In Germany, the normal weekly working hours are between 32 to 38.5 days. The European Union gives a maximum limit of 48 hours' work in a week[3].Long working hours means working more than 60 hours in a week[3]. It can be a normal work time or normal work time plus overtime. Unfortunately this a reality in many countries, developed, developing or emerging. During the overtime, at least 60% get hurt according to studies. A 60-hour week brought a 23% greater risk, the study of US records from 110,236 employment periods found[4]. Etiology of musculoskeletal pain is now generally accepted to be multi-factorial, en-compassing physical, psychological& social influences. Many of the work related injuries and illnesses experienced by Supermarket workers are musculoskeletal disorders (MSD) such as back injuries and sprains or strains[5].

In USA In 1997, compensation for such injuries comprised $1 out of every $3 spent on workers' compensation. Costs of MSDs were expected to rise from $20 billion to $54 billion / year[6].

Long hours at work can give rise to 'Burnout Syndrome' associated with long term exhaustion, emotional instability, insomnia and reduced interest. This further gives rise to diminished output from the worker[7].

Thus to find the incidence of musculoskeletal injuries in grocery store workers, this study was carried out.

AIMS OF STUDY

To find prevalence of musculoskeletal pain in male grocery store workers.

OBJECTIVES OF STUDY

To find out whether pain is associated with years of experience, number of hours worked per day and number of working days per week.

MATERIALS AND METHODOLOGY

After receiving permission from the ethical committee of the college, study was started.

It was a questionnaire-based survey in the grocery stores of Pune and Mumbai.

Hundred male workers were included in the study. Inclusion criteria being workers in the age group of 18-35 years and more than 6 months of work experience.

Exclusion criteria were any history of fracture, subluxation, dislocation, any congenital abnormality or any major surgeries and illnesses.

The Nordic Musculoskeletal questionnaire was used to locate the joints involved and Numerical Analog Scale was used to quantify pain. All the

subjects gave written consent. Prior to filling the questionnaire, all the doubts and grievances of the subjects were answered. Most of the subjects understood 'ENGLISH' language (with little help required). For subjects who could not cope up with English, the questionnaire was converted into 'MARATHI'. Study was conducted during working hours (mostly during the day). Demographic details sheet was duly filled and then Nordic Musculoskeletal questionnaire and pain scale were given to the subject with instructions regarding their completion.

DATA ANALYSIS

The 'P' values were obtained using Chi-Square test with reference to equal distribution of categories. 'P' valued of less than 0.05 was considered significant with 95% confidence interval.

RESULTS

Table 1: Classification of sample population according to working hours per day, years of experience

Age of Workers	18-35 years	100%
Number of Working hours per day	< 12 hours	47%
	≥ 12 hours	53%
Years of experience	< 9 years	52%
	≥9 years	48%
Number of Working days per week	6	47%
	7	53%

Fig 1: Subjects who experienced pain at least One pain site in the questionnaire accounted for 89% and subjects who experienced no pain at all were 11%.

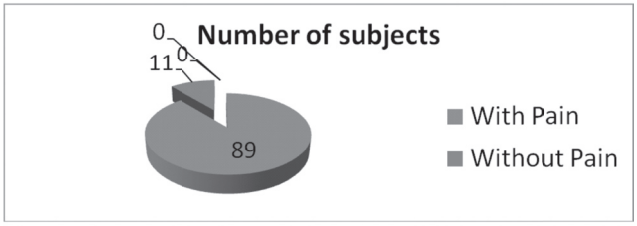

Table 2: Nordic Musculoskeletal Questionnaire (% Respondents)

Body region	Have you at any time during the last 12 months had trouble (%respondents)	Have you had trouble during the last 7 days (% respondents)	During the last 12 months have you been prevented from carrying out normal activities (%respondents)
Neck	30	23	16
Shoulder	25	14	10
Elbow	15	6	3
Wrist/Hands	16	11	6
Upper back	33	30	13
Lower back	60	56	40
Hip/thigh/buttocks	30	24	2
Knees	37	28	14
Ankle/Feet	35	29	13

Table 2: Percentage respondents for all the sites of pain and whether any activity was prevented. It shows that Lower back region is the site where 60% subjects reported pain in last 12 months and 56% in last 7 days, and is most prevalent site of pain. Other frequent sites of pain were knees, ankles/feet, Hips/ thighs followed by upper back, neck and shoulders.

Table 3: P-value of NAS and Number of working hours

Pain Site	No. of Working Hours		P-value
	< 12 Hours	≥ 12 Hours	
Shoulders	1.128	1.151	0.47844
Elbow	0.574	0.679	0.37371
Wrist/Hand	0.808	0.490	0.15878
Neck	1.828	0.849	0.01573(Significant)
Upper Back	1.894	1.208	0.07811
Lower back	4.361	2.472	0.0006263(Significant)
Hips/Thigh	1.149	0.830	0.18020
Knees	1.808	1.226	0.10769
Ankle/Feet	1.638	1.378	0.28288

NB: P-value is obtained using independent sample't' test. Value<0.05 is considered to be statistically significant.Average NAS pain for Neck and Lower Back is significantly higher among the volunteers who work <12hours a day compared to the volunteers who work >12 hours a day .Average NAS pain at other sites did not differ significantly between two groups of working hours.

Table 4: Comparison of NAS pain scale across two groups and number of years of experience

Pain Site	**No. of Years of Experience**		**P-value**
	< 9 years	**≥ 9years**	
Shoulders	1.019	1.270	0.27959
Elbow	0.597	0.688	0.33728
Wrist/Hand	0.731	0.542	0.27543
Neck	1.231	1.396	0.35895
Upper Back	1.827	1.208	0.09663
Lower back	2.808	3.958	0.02660(Significant)
Hips/Thigh	0.934	1.125	0.21036
Knees	1.731	1.250	0.14596
Ankle/Feet	2.115	0.833	0.00180(Significant)

NB: P-value is obtained using independent sample't' test. Value<0.05 is considered to be statistically significant. Average NAS pain for Lower back is significantly higher among the volunteers who have more experience (≥Nine years) compared to the volunteers who have less experience (<Nine years). Average NAS pain for ankle/feet is significantly higher among the volunteers who have less experience (<Nine years) compared to the volunteers who have more experience (≥Nine years). Average NAS pain at other sites did not differ significantly between two groups of number of years of experience.

DISCUSSION

Grocery store job has the potential risk of developing musculoskeletal disorders (MSD). Prolonged standing, sitting, poor ergonomically designed work place and stress are just a few factors contributing to such pain/disorders. MSD's are a considerable problem in grocery store workers both in terms of their scope and their severity.

Out of 100-sample size, about 53% of the population was working for 12 hours or more.

Seven days per week works out to 84 hours per week, which by any standards is too much. According to The Indian Minimum Wages Act and The Factories Act, 1948, 48 hours/week is maximum limit suggested for a male worker in India.[8] European Union also allows maximum limit of 48 hours/week. Even the compulsory weekly off is not taken by about 53% of the population in the study. They work all seven days/week. They save their leaves for going to their hometown, which they do once a year.

Pie chart shows that about 89% of the

population has suffered from pain in at least one body part. This is a high percentage considering that age of the sample population is 18-35 years. Problems due to degenerative changes in the body have not started considering the young age group. Such high pain percentage could be due to wrong ergonomics, overwork, less rest and due to other psychosocial factors like away from family, less monetary security and staying in the uncomfortable accommodation.

Buckle et al (1986).[9] found 65% of the employees having pain in at least one body region. Ohlsson et al. (1984) found pain prevalence rate of 57%. Lina Forcier et al.(2008) found 83% of the employees had some sort of musculoskeletal problem in 12-month period. Porter et al. (2003) calculated prevalence of musculo-skeletal discomfort due to pain of more than 50%.

Our study shows that maximum pain is present in low back followed by knees and ankle feet. All these are weight-bearing joints. The grocery store workers are required to stand for long time even if there are no customers. This puts lot of weight bearing stresses on the joints leading to joint pains and early degeneration.Ryan et al.[10] had found significant correlation between times spent standing and symptoms in the lower limb and foot. Since these workers work continuously all seven days a week, without adequate rest periods, the back pain or pain in other joints does not resolve and becomes chronic and leads to problems in carrying out normal activities. Probably the solution can be fixed working hours, right ergonomics and freedom to sit when customers are not there, so that body gets adequate rest[11].

Study also shows that maximum individuals responded for pain in the lower back region in the last 12 months as well as last 7 days. In addition, 40% of individual stated that low back pain was the significant reason behind normal activity limitation. Back pain has been identified as the leading cause of disability among persons less than 45 years and is the third leading cause of disability[12]. Low back pain tends to aggravate when working positions are maintained for a long time. Standing in a fixed posture is a risk factor for low back pain[11]. Prolonged standing causes muscle fatigue due to effort required to maintain an upright posture. Intervertebral disc is stressed from excessive lordosis, agonist-antagonist muscle contraction and spinal transmission of heel impact. Insufficient rest periods between working days aggravate the spasmodic state of the muscles leading to chronic pain and ADL difficulty. So the workers complain of pain in 12 months as well as Seven days. The same probable causes can be behind pain in knees and hips/thighs.

Upper back, neck troubled 33% and 30% of the respondents. Twenty five percent of individuals also complained of pain in shoulder. This could be because grocery store workers are required to load, unload goods, arrange the goods in the shelves, show the goods to the customers, bag the goods,etc. Therefore, even if they are not lifting heavy loads, continuous work leads to fatigue of muscles and ultimately pain.

A parameter that draws significant attention is that individuals who work less than 12 hours a day have shown significantly higher scores on NAS scale in lower back and neck as compared to individuals who work for more than 12hours a day. Due to increased expectations and demands from the job, the workers are expected to do more work is comparatively less time. This makes the workers do the work in awkward postures for prolonged duration. They do the same work repeatedly[13].This causes sprains and strains in the muscle and hence the pain. Psychological working conditions such as problems with the authorities/superiors, intimidation at work and high psychological job demands are significantly related to Low back pain[11].

Our study found higher incidence of pain in upper back, knees and ankle in individuals who have less work experience as compared to those with more work experience.Even though only 'p' values in ankle were significant. Probable explanation for the above finding can be that prolonged working for number of years increases the endurance of the muscles, which now support the spine better, resulting in less pain. Another reason could be that working for a span of few years gives rise to accommodation and improved tolerance to pain. With time, there is acceptance

of pain. This acceptance leads to lower intensity of pain, less pain related anxiety, less depression, less physical and psychosocial disability and better work status[14].Pain related acceptance leads to enhanced emotional and physical functioning in chronic pain patients[15, 16]. For back pain, we have found that pain increases as the years of experience increase. Constant loading and unloading of spine leads to increased wear and tear and degenerative changes and hence the pain.

CONCLUSION

Significant number of male grocery store workers suffers from musculoskeletal disorders due to their occupation.

Acknowledgement : All the subjects who willingly participated in the study.

Conflict of Interest : Nil

Source of Support : Nil

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Guillain-Barre Syndrome in Pregnancy- a Case Report

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ABSTRACT

Guillain-Barre Syndrome (GBS) is very rare in pregnancy with an annual incidence estimated between 1.2 and 1.9 per 100,000 cases. In spite of unusual occurrence, it carries high maternal risk complicating pregnancy in the clinical settings. Delayed diagnosis has been reported to be common because of the initial nonspecific symptoms, which might mimic changes during pregnancy. We described two patients who developed progressive ascending paralysis during the second trimester of pregnancy. A 24yr old second gravida in the 23weeks of gestation developed weakness in all four limbs without involving respiratory and facial muscles. Based on clinical criteria the patient diagnosed with GBS and started on intravenous immunoglobulin. Following the therapy, she had a dramatic improvement within two weeks, and showed complete recovery and healthy ongoing pregnancy on subsequent follow up after three months. The second patient was 24yr old primi gravida at 28weeks of gestation presented with ascending paralysis involving respiratory muscles. Criticality of the patient warranted mechanical ventilation and supportive therapy but unfortunately, the patient died of severe autonomic instability. The case reports presented in the study aim to highlight the significance of diagnosis sensibly in advance allowing earlier intervention of necessary immunomodulatory strategies, which have been shown to improve the outcome alongside multidisciplinary care.

Keywords: *Guillain-Barre syndrome, pregnancy, early diagnosis, management*

INTRODUCTION

Guillain-Barre syndrome (GBS) is an acute demyelinating disease of uncertain aetiology and its occurrence in pregnancy may be a coincidental or antecedent event, but increases the chances of maternal and perinatal mortality[1]. At rarely, the course of pregnancy is unaffected. In patients having severity of symptoms like respiratory depression and bulbar symptoms, the syndrome entails an increased risk to both mother and foetus[2]. Because of infrequency and coexistence of this syndrome in mid pregnancy, and in order to accentuate early diagnosis and treatment, we reported two cases of GBS of same period with different presentation and outcome.

CASE REPORTS

Case -1: A 23yr old G2P1L1 of 23weeks presented to our clinic with the symptoms of body ache and weakness in all four limbs existing for 3 days. She had difficulty in opening the lid of bottle, getting up from the squatting position and inability to walk with slippers for two days. Her previous medical history was found to be uneventful. When we performed neurological examination, it revealed normal higher motor functions, decreased power in all limbs, bilateral flexor plantar responses, and absence of deep tendon reflexes .She was not in acute distress. Her cough reflex sounded normal with no sign of respiratory muscle weakness, sensory loss and cranial nerve involvement. At the time of gynaecological evaluation, we

observed that her uterine size and obstetric history was corresponding to the age of gestation and ultrasonography indeed revealed a single live foetus of 22weeks with no anomalies.

The patient was also subjected to non-gynaecological investigations like complete blood count (CBC), blood glucose, serum electrolytes, renal function test (RFT), liver function test (LFT), creatinine Kinase (CK), Human immunodeficiency virus (HIV), Hepatitis-B (HB), and antibody titre levels for CMV, Dengue &, APLA. The normal blood profile was observed within range of usual limits. Based on the medical history and clinical observation of peculiar symptoms of patient resembling progressive muscle weakness and areflexia we confirmed the case as GBS. Hence, we decided to opt for intravenous Immunoglobulin (Ig) therapy at a dose of 0.4gms/kg/day for 5 days. In addition to Ig perfusion, necessary supportive care and physiotherapy was offered to the patient. When the treatment was commenced, she was having the power of 2/5 and 3/5 in lower and upper limbs, respectively. It gradually improved to 4/5 and then 5/5 by the end of two weeks. Deep tendon reflexes were normal in all four limbs. Throughout the stay, patient and foetal well-being had been constantly monitored with regular obstetric evaluation. The patient was finally discharged after two additional weeks of follow-up with a complete recovery.

Case-2: A 22yr old primigravida with 25weeks of gestation presented with symptoms of weakness and numbness on all four limbs for 3 days. Progressively she was unable to walk, sit up, rollover on bed with a difficulty in swallowing & coughing. She had slurring of speech followed by inability to hold the neck. Apart from the above, no other significant observations were found in her medical history. Her neurological examination revealed normal higher motor functions , unilateral Bell's palsy, slurring of speech, power of 2/5 and 3/5 in lower and upper limbs respectively, bilateral plantar flexor and missing deep tendon reflexes, diminished cough reflex & pin prick sensation and vibration in distal extremities and no respiratory distress. Patient also underwent routine investigation of complete blood profile as mentioned above for the previous patient and all seemed to have in normal range.

On day1, patient's vital signs were stable, at the same time weakness in the lower limb was more than that in the upper limb without evidence of respiratory muscle weakness. Since our facility did not get equipped with plasmapheresis unit at that time, the patient could not afford for Ig therapy. We could manage her only with supportive treatment. Next day the patient's condition was deteriorated; she developed autonomic instability, was not in a position to move her upper limb, had respiratory distress and fell in saturation. As an emergency measurement, we have given her intubation and artificial ventilation. The same night patient went for cardio/respiratory arrest from which she could not be revived.

DISCUSSION

GBS is an acute inflammatory demyelinating disorder affecting peripheral nervous system. The incidence is rare in pregnancy and as on now there were no reports available in India especially on the mid stages of pregnancy and its exact aetiology is yet to be established but it might correlate to an aberrant immune response[1]. Approximately two third of diseased patients have an antecedent acute illness due to consequence of infection with especially CMV, Infectious Mononucleosis virus, respiratory viruses and bacterial and viral gastroenteritis [3].

Pregnancy has also been implicated as antecedent event; however, none of these conditions is crucial to the diagnosis. Effect of pregnancy and birth process on the disease is still unknown.

GBS during pregnancy can start in any trimester or even shortly after childbirth at lower complication rate in first and second trimester. In the third trimester, severe respiratory-compromise has been often observed with 10% mortality due to pregnancy-induced changes such as increased tidal volume, minute ventilation, decreased functional vital capacity and huge demand for metabolic process and airway mucosal hyperaemia. Hence, ventilator support needs to be provided to the patient at the earliest to avoid respiratory failure and foetal hypoxia [4]. GBS during pregnancy in

general does not affect the development of foetus or infant and it would not also provoke the induction of spontaneous abortion or foetal death, as GBS antibodies do not cross the placental barrier [2, 5]. However, there is a possibility of getting into premature labour in case of severity of clinical signs [2]. Development of severe GBS at third trimester has been closely associated with increased risk of aspiration pneumonia for the mother.

From the treatment perspective, an effect of pregnancy on GBS is usually minimal. Management of GBS should therefore mainly be of supportive avoiding complications otherwise that is going to influence the viability of foetus [2]. In terms of supportive care for GBS, it is going to be the same for both pregnant and non-pregnant woman.

Mechanical ventilation is one of the approaches can be used without harming much to mother and foetus[2, 4]. Both plasma exchange and parenteral passive immune therapy have been reported to be attempted by many gynaecologists during all three trimesters and in this way, adverse reactions to both mother and foetus would be kept minimal. A remedy received from Ig therapy is just as effective as plasmapheresis. Ig is often preferred to plasmapheresis because it does not require insertion of large venous catheter. It is known from earlier studies that overall about 70 % of patients responded well to Ig than plasmapheresis[3, 5]. There is no clinical evidence of added benefits obtained from both the therapeutic measures.

While managing pregnant women having diagnosed with GBS under intensive care unit (ICU) additional precautions may be required which include providing enough physical and moral support, prophylactic management of thrombo-emboli and avoiding aortocaval compression[2].

The clinician based on the standard obstetric evaluation makes the decision on mode of delivery. As the uterine contractions are unaffected by the disease, the first and second stages of labour can proceed normally but the 3rdstage might be more difficult due to muscle weakness[6]. Lower segment caesarean is performed for obstetric indications [2, 7, 8]. Following postpartum, the patients recover much rapidly due to improvement in cardio/respiratory parameters [2]. If a woman has had GBS during pregnancy, there is no evidence of augmented risk of recurrence during subsequent pregnancies.

CONCLUSION

GBS in pregnancy carries high maternal risk. **G**lobulin, **B**reathing & **S**upportive care, provided at an earlier stage of disease would translate the condition into favourable maternal and foetal outcome. Delayed diagnosis is due to the initial non-specific symptoms, which might resemble the changes in course of pregnancy. High degree of medical suspicion is necessary in order to make an early diagnosis more valuable since mortality rate in the patient varies depending on the severity of illness. Therefore, we would like to emphasize on following: "**G**uess the possibilities, **B**eware of the complications and **S**upport the patient" which would be the basic line of management of GBS during pregnancy.

We intended to publish the study reports it is not only because of rarity of GBS in mid pregnancy but with the intention of adding current knowledge to the physicians who are in obstetric practice. So that the routine complaints of the pregnant women like muscle weakness, general malaise, tingling of fingers and respiratory discomfort during antenatal visit are paid more attention at the time of diagnosis and timely care is given. In that, way we can improve the welfare of patient suffering from the disease.

ABBREVIATIONS

GBS – Guillain Barre Syndrome

CMV – Cytomegalovirus

LSCS – Lower Segment Caesarean Section

APLA – Anti Phospho Lipid Antibody

IV – Intravenous

ICU – Intensive care unit

RFT - Renal function test

LFT- Liver function test

Pt - Patient

CONSENT

Written informed consent was obtained from the institution for publication of this case report.

Competing Interests

Authors declare that they have no competing interest.

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Utility of Toluidine Blue Staining in the Detection of Oral Epithelial Dysplasia: a Diagnostic Adjunct

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ABSTRACT

Objective: the objective of this study was to evaluate the diagnostic reliability and efficacy of invivo staining with toluidine blue, in the detection of oral epithelial dysplasia in patients with oral leukoplakia.

Materials and method: The study comprised of 50 clinically suspicious cases of oral leukoplakia. All lesions were submitted to staining with an aqueous solution of 1% toluidine blue followed by biopsy and histologic analysis.

Results: The sensitivity and specificity for the detection of dysplastic lesions by this test were 69.77% and 85.71%, respectively. The positive and negative predictive values calculated were 96.77% and 31.58%.

Conclusion: Toluidine Blue staining was found to be highly reliable in the detection of severe and moderate dysplasias but its use is questionable in the detection of mild dysplasias, owing to high false negative results. It is a simple, inexpensive and sensitive chair side test; a valuable adjunct to diagnostic process but not a substitute for either clinical judgment or biopsy. It has high feasibility, especially in low socioeconomic areas.

Keywords: *oral leukoplakia, epithelial dysplasia, toluidine blue*

INTRODUCTION

Cancer is one of the leading causes for all human deaths with its incidence worldwide varying between 2-18% and 0.1 to 13.5% in India. Smoking and chewing tobacco products is responsible for high incidence of oral cancer[1]. Nearly all Oral Squamous Cell Carcinoma's are preceded by visible clinical changes in the oral mucosa, usually in the form of white or red patch[2] i.e., a precursor lesion subsequently develops into cancer. Studies have shown that between 16 and 62% of oral carcinomas are associated with leukoplakic lesions when diagnosed[3] and an Indian house-to-house survey showed that about 80% of oral cancers were preceded by oral pre-cancerous lesions or conditions[4]. Epithelial dysplasia is present in up to 16% of leukoplakias[5, 6], with malignant transformation occurring in up to 43% of dysplastic lesions[7, 8]. The five-year survival rate for patients with early, localized disease is approximately 80%, for those with distant metastasis, is 19% [9]. Hence

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the goal of treatment of oral cancer must be to move diagnosis to early stage disease and further to oral premalignant lesions.

The most frequently used adjunctive diagnostic technique to complement clinical examination and in diagnosis of dysplasias and carcinomas is the Toluidine Blue Dye test[10].Other techniques mostly rely on laboratory based investigations with variable false negative results. Toluidine blue staining is preferred, as a simple, inexpensive, and sensitive chair side test[11].

Toluidine blue is an acidophilic metachromatic dye of the thiazine group. In solution, it takes on a blue violet colour[12]. It selectively stains acidic tissue components. The test is based on the fact that dysplastic cells may contain quantitatively more nucleic acids and a dysplastic epithelium also has some loss of cohesion. This facilitates the penetration through the epithelium and retention of the dye in cancer cells, which are replicating in vivo, whereas normal mucosae fail to retain the dye.

Most of the clinical series have investigated the efficacy of toluidine blue staining in malignant lesions. Few studies involve statistically considerate number of epithelial dysplasias, leading to lack of reinforcement of use of toluidine blue staining for dysplastic lesions. Moreover in population of rural India having lesions expressing dysplastic features, cost effectiveness is a major concern; as in this region where the study was carried out.

This study was initiated to evaluate toluidine blue application as a worthwhile and simple diagnostic adjunct to clinical impressions.

MATERIALS AND MEHOD

The study consisted of 50 clinically suspicious cases of oral leukoplakia, selected randomly among the outpatients who visited the dental clinic of the Department of Oral Medicine and Radiology, Jaipur Dental College from June 2010 to October 2011. There were 46 men and 4 women in age group between 20- 70 years.

All patients were subjected to detailed clinical history taking and a thorough extra-oral / intra-oral routine examination. An informed consent was obtained from all patients. To prevent false positive results patients were advised antifungal application and to stop the habit of using tobacco. Patients were called for biopsy after 7 days so that the inflammatory component is reduced. Each lesion was photographed before and after the direct application of toluidine blue. Toluidine blue was applied as a mouth rinse using the protocol described by Mashberg[13]. The stain was considered positive when the surface mucosa took on an intense blue color, either if the entire lesion was stained or just a portion of it. Biopsies were performed in all cases that underwent the test.

EXCLUSION CRITERIA

- Presence of any systemic disease.
- Patients who have been treated for oral leukoplakia.
- Patients not willing for biopsy of the oral mucosa

INCLUSION CRITERIA

Clinical and pathological grading of patients with leukoplakia lesion was done using the modified OLP staging method suggested by Vander Waal I (2009)[14] in his study and , formerly adapted from Vander Waal I, Axell T (2002)[15].

Clinical grouping was done on the basis of either:

- Homogeneous type
- Non-homogeneous type that may be either speckled or nodular or verrucous leukoplakia or proliferative verrucous leukoplakia subtype.

Histopathological grading[16]:

1. Squamous hyperplasia
2. Mild dysplasia
3. Moderate dysplasia
4. Severe dysplasia
5. Carcinoma in situ

RESULTS

This study involved 50 patients of leukoplakia with mean age of 44.8 $\pm$ 10.88 (mean $\pm$ S.D).

Table 1 depicts that the non homogenous (speckled) leukoplakia retained stain with a higher frequency than homogenous leukoplakia.

Toluidine blue staining identified 31 positive lesions while 19 lesions were negative on the dye result (table 2).

Out of 23 moderate dysplasia patients, 22 stained positive while from 17 cases of mild dysplasia only 5 stained positive accounting for false negative results.

Toluidine blue detected dysplastic changes in 30 out of 43 cases of biopsy proven dysplasia, i.e., were true positive (TP), while the remaining 13 were false negative (FN). Out of the 31 toluidine positive cases only 1 case was histopathologically diagnosed as non-dysplastic i.e, was false positive (FP); while 6 cases were true negative (TN).

The sensitivity and specificity values of the toluidine blue test for the detection of malignant or premalignant lesions were 69.77% and 85.71% respectively (Table 3)

The positive predictive value (PPV) was 96.77%, which is the probability of a person with a positive test to actually have a disease, while the negative predictive value (NPV) was 31.58%, i.e., how much is the probability that a healthy person generates a negative test result.

DISCUSSION

Toluidine blue has evolved as a major adjunct which assists in the selection of the site of greatest risk assessment and detects any second lesion that might have been missed during the initial examination. It identifies premalignant lesions and margins of dysplastic/ malignant tissue that may not be readily apparent clinically. It appears to offer an immediate, feasible diagnostic control over the subjective impression of the clinician. Its value lies in reinforcement of clinical impression, the control over clinical false negative and reduction of false positive results. Moreover there is not as much subjective determination necessary as compared to cytological examination. Cost effectiveness of Toluidine blue application as diagnostic adjunct is much better than Chemiluminiscence, which is an expensive product, with marginally improved results.

Considerable controversy exists concerning the efficacy of toluidine blue stain as a clinical indicator of premalignant and malignant lesions of the oral cavity. Many studies report all levels of diseases and great variability exists in the study design. This justifies further experimental studies on the utility of this diagnostic tool.

In various reported studies, the sensitivity and specificity rates regarding the efficacy of toluidine blue staining range from84-100% and 44-100% respectively[17,18,19,20,21,22,23,24,25,26,27,28,29]. A meta analysis by Rosenberg and Cretin[30] in 1989 revealed a sensitivity rate of 97.7± 4.65% and a specificity rate of 90.8± 9.34%. In our study, sensitivity was 69.77%, which was lower than the previous studies. This may be because of higher false negative results owing to hyperkeratotic feature of leukoplakic lesion, in which surface layer of keratin contains pyknotic or no nuclei. This layer does not facilitate dye penetration to the deeper epithelial layers and thus cellular changes at the depth of the epithelium may be missed by the dye[10].

According to Gondolfo et al[31], another factor would be the misinterpretation of the staining results based on the intensity of the stain and the staining procedure (mouth rinse or application).

Specificity values according to our study are 85.71%, which are comparable to previous studies.

This depicts lower level of false positive results which will reduce the number of unnecessary biopsies, relieving physical and psychological trauma to patient.

Because of higher number of dysplastic lesions included in the study, comparison of stain retention among mild, moderate and severe dysplasias is possible which was not done in previous studies.

Epstein et al[32] in their study indicated that all severe dysplasias retained the dye. This was further verified in our study. Nearly all the moderate dysplasias retained stain while only 30% mild cases of dysplasia retained stain. It has also been remarked that those retaining the dye may

have higher risk of developing cancer[32, 33]. But more studies are needed to verify this fact.

The low level of False Positive results led to increase PPV which was 96.77% in our study. This value is higher than studies by Onofre et al[29], 43.5%; and Epstein et al[34], 37%. But this is same as in the study by Zhang et al[33], 86% i.e., lesions which retained stain demonstrate 96.77% probability of having areas with dysplasia/ carcinoma.

The NPV is similar to Zhang et al[33], 22% which is lower than the values obtained by Onofre et al[29], 88.9% i.e., lesions that do not retain stain demonstrate a 31.58% probability of not having areas of epithelial dysplasia or atypical cells.

TABLE 1: Clinical diagnosis vs toluidine blue staining

Clinical Diagnosis	n no. of subjects	Toluidine Blue	
		+	-
Homogenous leukoplakia	18	2	16
Speckled Leukoplakia	32	29	3

TABLE 2: Histologic diagnosis vs toluidine blue staining

Histologic Diagnosis		n no. of subjects	Toluidine Blue	
			+	-
Epithelial Dysplasia	**severe**	3	3	-
	moderate	23	22	1
	mild	17	5	12
No Dysplasia		5	-	5
Hyperkeratosis		2	1	1

PPV: Positive Predictive Value NPV: Negative Predictive Value

TABLE 3: Sensitivity and specificity of toluidine blue

		Biopsy		Total
		Positive	**Negative**	
Toluidine Blue	**Positive**	30 (69.77%)	1 (14.28%)	31
	Negative	13 (30.23%)	6 (85.71%)	19
Total		43	7	50
PPV				96.77%
NPV				31.58%

CONCLUSION

Toluidine Blue staining is a simple, non-invasive and well tolerated procedure. Its cost effectiveness accounts for even wider utility in low socio-economic status population.

Furthermore, lack of studies for other adjunctive modalities enhances its use in detecting malignant and premalignant lesions.

Conclusively, it can be said that staining with toluidine blue can be a valuable adjunct

to diagnostic process, in comparison to other diagnostic procedures, as long as its inference is carefully correlated with the clinical characteristics and histopathological diagnosis of the lesion.

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Parturition-Induced Pubic Diastasis: an Underrecognized Peripartum Complication- a Case Report and Review of Literature

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ABSTRACT

Parturition-induced pelvic instability is a rare encounter , with incidence of symphyseal rupture after vaginal delivery ranges from one in 600 to one in 30,000 deliveries. We here by present a case of 20 year old primigravida, who had postpartum pelvic diastasis following normal vaginal delivery of a healthy 4.0 kg baby, managed conservatively .

Keywords: *Symphysis pubis diastasis.*

INTRODUCTION

Peripartum ligamentous relaxation with moderate widening of symphysis pubis and sacroiliac joints is physiologic and occurs regularly. Ligamentous relaxation provides relative mobility of the pubic symphysis and Sacro iliac joint, resulting in widening of the birth canal and facilitating delivery. This occurs secondary to increased elasticity of the pelvic joints induced by an elevation in circulating progesterone and relaxin[1].The condition is usually asymptomatic but may result in pelvic pain, impaired mobility, stress incontinence or difficulty in voiding. Most patients present with severe pain located in the areas supplied by the pudendal and genitofemoral nerves. The pain may radiate to the sacroiliac joints and radiate down the buttocks and legs. These symptoms start typically in the second trimester and become progressively worse towards term. The condition usually resolves in the first year following delivery.

Predisposing risk factors include elderly primigravida, bony abnormalities of the pelvis, fetal macrosomia,obstructed labour,epidural analgesia and especially instrumental delivery Anterior separation of the pubic symphysis of more than 2.5 cm progressively causes injury to the posterior pelvic ring, including disruption of the Sacroiliac joint or sacral fractures[(2)]. Pubic symphysis diastasis following vaginal delivery are rarely associated with soft tissue and visceral injuries compared to traumatic symphyseal rupture .Cases of bladder incarceration [(3)] and bowel herniation [(4)] have been reported in traumatic symphysis pubis diastasis.

X ray of the pelvis, AP, and lateral view are required for confirmation. CT scan provides additional information on the extent of Sacroiliac joint dislocation. Magnetic resonance imaging (MRI) can reveal soft-tissue injuries, including clefts within symphyseal cartilage, joint hemorrhage, and edema. In addition, MRI can be used to detect ligamentous injuries of the pelvic floor. Treatment of postpartum symphyseal rupture has

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traditionally been non-operative. Historically, bed rest, analgesics, and application of a pelvic binder to facilitate reduction of the diastasis are routinely sufficient to ensure full recovery in most cases. Close follow-up is imperative to be certain of the effectiveness of non-operative therapy. Recovery from symphyseal rupture can be expected within 6 weeks. Operative treatment of the postpartum unstable pelvis has been advocated rarely and should be considered if conservative treatment has failed to control symptoms of severe pain.

Case report;

We report a case of a 22 year primigravida who was referred to our teaching hospital for traumatic PPH and severe pain in the pubic area following a normal vaginal delivery of a four kg full term healthy female baby the same afternoon at 4:00pm.On discussion with the accompanying doctor the administration of oxytocin was controlled and no overdose of this drug was given. There was neither prolongation of delivery time nor it was an instrumental delivery. On examination patient vitals were stable. Lab investigation revealed hemoglobin of 7.7% PCV 27% blood group B positive and normal urine examination. Per abdominal examination revealed uterus well contracted and retracted. Severe tenderness was elicited in the symphysis pubis and a wide pubic symphyseal diastasis was present on palpation and the separated bony ends was obvious on abduction of thighs. Per speculum examination showed bilateral cervical tear with avulsion of anterior vaginal wall. Anterior wall of bladder was seen through the separated space of Retzius with displacement of urethra and clitoris laterally as shown in figure 1.Under adequate exposure vaginal and cervical tear was sutured and complete hemostasis achieved ,followed by adequate compatible blood transfusion . Pelvic X ray revealed wide separation of symphysis pubis up to 4.5cms. Abdominopelvic ultrasound showed normal study. Patient was managed conservatively by external pelvic binder , immobilization and analgesics. Patient was discharged on 27th post partum day. Patient is well on follow up.

Fig1. Post-Partum diastasis with
(A) Space of Rezius
(B) Anterior wall of bladder diastasis.
(C) Displaced Urethra (D) Clitoris.

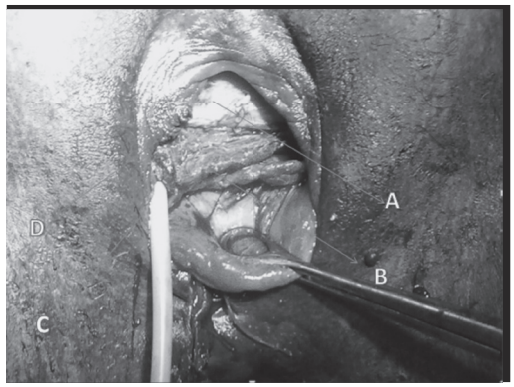

Fig2. X ray of Pubic Symphysis with 4.5 cm

DISCUSSION

Parturition-induced pelvic instability is a rare encounter, with incidence of symphyseal rupture after vaginal delivery ranges from one in 600 to one in 30,000 [5] deliveries. Peripartum ligamentous relaxation with moderate widening of symphysis pubis and sacroiliac joint is physiologic and occurs regularly, which is thought to be hormonally mediated by relaxin and progesterone [1]. Physiologic peripartum symphyseal widening ranges from 3 to 7 mm and often remains asymptomatic. Slight pubic diastasis in the absence of clinical symptoms is frequent and does not necessitate medical treatment. After delivery, laxity of these ligaments gradually diminishes, the pubic diastalsis disappears, and pelvic stability is restored.

Predisposing factors include multiparity, complicated delivery, forceps or vacuum assisted

delivery, shoulder dystocia, maternal hip dysplasia, or prior pelvic trauma, hyper abduction of the thighs and epidural anesthesia[6,7]. Treatment of postpartum symphyseal rupture has traditionally been non-operative and conservative as opined by Dunbar R P and Omololu et al [8,9] in their case studies. Bed rest, usually in a decubitus position, analgesics and the application of a pelvic binder to facilitate reduction of the diastalsis are sufficient to ensure full recovery in most case.The successful surgical treatment of the chronic postpartum pelvic pain usually is anterior pubic fixation with or with

Parturition-Induced Pubic Diastasis: out Sacroiliac joint stabilization.

CONCLUSION

Disruption of the symphysis pubis is a rare injury during childbirth. Conservative treatment is successful in most cases, and operative management is to considered in severe displaced case. The occurrence of a symphyseal separation should not significantly alter the management of subsequent pregnancies, and conservative therapy is recommended for any recurrence of symptoms.

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Prevalence and Pattern of Active Epilepsy in School going Childrens in Kashmir Valley

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ABSTRACT

BACKGROUND : Prevalence of active epilepsy vary widely in different geogra- phical areas and there is paucity of studies primarily conducted in school going childrens from developing countries. We conducted this study to deter mine prev- alence of active epilepsy in school going childrens in a defined area (Kashmir valley)

METHOD: This was a population based study conducted in school childrens. The selection of schools was done using PPS method (proportionate to population size) used in cluster surveys. The pretested questionnaire was administered to 60 rando- mly selected childrens from each selected school. The positive responders were re- examined by two neurologists.

RESULTS: The crude prevalence rate of epilepsy in school going childrens (6-16 yrs) was 3.3/ 1000.Males had higher prevalence (3.81/1000) than females (2.77/ 1000). Childrens from lower middle socioeconomic class had highest prevalence (3.56/1000). Most common seizure type was generalized tonic clonic (78.9%). 89.47% of childr- ens with epilepsy were on antiepileptic drugs.

CONCLUSIONS: The prevalence rate were comparable to other studies conducted in childrens (in india and abroad) however there was significant improvement in public awareness about epilepsy in Kashmir valley over past few decades.

Keywords. *Prevalence, Active Epilepsy, School going childrens, Symptomatic Seizures*

INTRODUCTION

Epilepsy is the most common neurologic disorder in childhood. Prevalence rates of childhood epilepsy reported from different countries in asia varied from 4.4 to 9.9 (per 1000)[1,2,3].The variability might be related to differences in case selection, ascertainment procedures, age ranges included or dissimilarities in the frequency of childhood epilepsy in various populations. In Scandinavian studies, reported epilepsy prevalence rates among school childrens varied from 2.4-11.6 per 1000[4,5]. However there is paucity of studies conducted primarily in school going children's from developing countries like India. The aim of our study was to assess prevalence rates of epilepsy in school going children's (6-16 yrs) in our region (Kashmir).

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MATERIAL AND METHOD

Study area and Population: The state of Jammu and Kashmir occupies the northern most extremity

of India.The state has three provinces : Kashmir, Jammu and Ladakh. The study was conducted in Kashmir province which comprises of six districts with total population of 5476970 (males 2877211 and females 2519759). The population of school going childrens is 1231139 males and 1101028 females. In the capital city Srinagar the tertiary care medical institute SKIMS (Sher-i-kashmir institute of medical sciences) is located which cater to the care and management of neurologic disorders.

Study Design: The present study was conducted in all the six districts of the valley. The selection of the schools was done using PPS (proportionate to population size) method used in Clusters Survey[6]. It comprised of following 4 steps :

1. List of schools with their enrolment was procured from Directorate of School Education Kashmir division. The schools were serially arranged and student population and cumulative population was calculated.
2. Sampling interval was calculated by dividing cumulative population by Cluster number 30.
3. One school which had cumulative population between one and the sampling interval was randomly selected .
4. Next school was selected by adding sampling interval to the cumulative population of the first selected school and so on.

Sixty students (30 boys and 30 girls) were screened from each school. Total numbers of schools screened in the valley were 96 (16 schools in each district). The screened schools included both government and private schools in urban as well as rural areas to make the sample adequately representative.

Screening Instrument: The questionnaire was designed to ensure maximum sensitivity in identifying individu- als with epilepsy. It comprised of six questions aimed at disclosing the presence of epile- psy and was modified from the WHO questionnaire[7](Table 1). To validate the questionnaire, it was pretested in SKIMS neurology outpatient department by two neurologists. The sensitivity and specificity of the questionnaire was 100% and 78% respectively.

Study: The study was conducted over a period of one year from March 2009 to March 2010, with 1st March 2009 taken as a prevalence day. The questionnaire was administered by a medical postgraduate in local language and each child was interviewed separately. Those childrens who were suspected to have epilepsy their symptoms were subsequently confirmed by interview with eyewitness of the episode. A neurologist was present at the time of the final interview. Further information regarding the family size, income, occupation, obstetric history and birth order was collected from the parents. History of anticonvulsant medication and other traditional methods of treatment were also recorded in the positive case. A total of nine hundred and sixty childrens were screened in each district.The following types of seizures were excluded from the study:

1. Febrile seizures.
2. Single seizure.
3. Provoked and symptomatic seizures.

The definitions were adopted from the Guidelines for Epidemiological Studies on Epilepsy, a document published by International League Against Epilepsy (ILAE) in 1993[8].

The socioeconomic status of the child was assessed on the basis of Kuppuswamy classification[9]. This scale has been widely used in India and is based on three variables i.e. education, occupation, and income of the family.

The classification of seizures like Generalized Tonic Clonic, Absence, Partial Seizures, Mixed and Unclassified was as per that of ILAE[4,10].

Since the present study is purely a descriptive investigation, no statistical tests of significance were used in the analysis of the data.

FINDINGS: Nineteen cases of epilepsy were confirmed by the neurologist out of a screened population of 5760 through the questionnaire. Table 2 and 3 shows the age and sex specific prevalence

rate in the present study. The prevalence rate was highest (3.34/1000) in the age group of 10-12 years and 52.6% of the cases belonged to this group. According to gender, the prevalence rate was slightly higher in the males (3.81/1000) than females (2.77/1000).The crude prevalence rate of 3.3/1000 was found in the age group of 6-16 years . There was a history of febrile convulsions in the family of 15.8% of the probands and an equal percentage had a positive family history of epilepsy.

The capital city Srinagar and the remotest district Kupwara had the highest prevalence ratio of 4.16/1000 each. Based upon the Kuppuswamy classification 79% of the cases were found in the childrens of middle socioeconomic class (Table 4). Generalized tonic clonic type of seizure was the commonest type (78.9%) followed by complex partial seizure (10.5%), absence seizures and unclassified seizures accounted for 5.3% of cases [Table 5]. Both the cases in 13-16 year age group were of generalized tonic clonic type. The average age of onset of seizures in the present study was 7.66 ± 3.19 years (7.06 ±3.77 in males and 8.49 ±2.12 in females). Though there was no major difference in the frequency of epilepsy in children belonging to small sized family (47.4%) as compared to large sized family (52.6%). In 47.36% of epilepsy , the proband was second in the birth order while as the proband was first in birth order in 21% and third in birth order in 21%. In 89.5% of the cases, the mother was unskilled occupationally , while as in 42% cases, the father was unskilled occupationally.

The present survey revealed that 52.6% of the cases detected had undergone at least one electroencephalogram while as 89.5% had received long term anticonvulsant medication. In the cases that had undergone EEG study, 20% were reported to be normal study, while as rest had epileptiform discharges in the form of spike wave and sharp and slow wave discharge. The commonest antiepileptic drug used was diphenylhydantoin. The survey for knowledge and attitude in the positive cases of epilepsy revealed that the current medication was prescribed by a neurologist in 63% cases and by general practitioner in the rest. Only 42% of the cases had contacted a doctor as their first contact while as quack, local chemist or a local health worker was the first contact in the majority of the cases. About 90% of the cases in the survey had visited a spiritual healer (peer) at some point of time for this illness .

CONCLUSION

In Scandinavian studies, reported epilepsy prevalence rates among school childrens varied from 2.4-11.6 per 1000[4,5]. Waaler PE et al reported a prevalence rate of 5.1/1000 in childrens of the age group 6-12 years in a population based study restricted to a county in Norway and considered it comparable to that of other developed countries[11]. The prevalence rate of 3.3/1000 in the age group of 6-16 years in our study is lower than those in the above mentioned studies. Although no study conducted in the school going children's is included in their meta analysis, Sirdharan and Murthy reported an age specific crude prevalence of epilepsy as 5.3/1000 and 8/1000 from India in less than 10 years and 10-19 years age groups respectively[2]. In the respective age groups a prevalence of 9.2 and 9.8/1000 has been found in Pakistan[3]. All these studies were not targeted at population of school going children and idiopathic as well as symptomatic cases were included in the study design. In the present study symptomatic seizures were excluded hence a lower figure is not surprising. Shorvan and Farmer considered application of screening questionnaire in a selected population followed by examination of the positive responders as useful epidemiological tool for the developing countries[12], a method used in the present study also. In our study, the questionnaire was applied by a doctor and cases were examined by neurologist, thus attempting to minimize the problem of case ascertainment. A higher prevalence rate of 3.81/1000 in males as compared to females 2.777/1000 in the present study matches to the studies in childhood epilepsy from United States and Europe[13,14]. Some epilepsy prevalence studies conducted in the developing world have also noticed the preponderance of males[2,15].The reasons for this difference are not known.The results of the studies on the relation between birth order and the epilepsy have been variable. Some have reported that epilepsy is more common in first and second born individuals, while as others reported association between epilepsy and higher birth order. In the epilepsy family study of Columbia

University, the proportion of first born individual appeared to be higher among the probands with epilepsy than among their unaffected siblings[16,17]. This relationship however disappeared after controlling for the sibship size[18]. In the present study, 47.36% cases the proband was second in birth order. In our study 79% cases were classified to have generalized tonic clonic type of seizures, a result similar to other population based studies from Kashmir, Pakistan, and China[1,2,3,15]. According to Shorvan and Farmer[10], the requirement for EEG in applying the definitions of partial and generalized seizure types from the International League Against Epilepsy (ILAE) means that almost no epidemiological studies from the developing countries can truly report seizure type. Hence, there is a chance that so called generalized seizures are infact secondary generalized. The finding of National General Practice of Epilepsy from the United Kingdom and the study of Waaler PE et al from Norway support the argument[11,19]. These studies reported that 52% to 58% of the seizures are partial in onset with or without secondary generalization. A previous study of prevalence and pattern of epilepsy in Kashmir was conducted by Koul et al in 1988[15]. This study reported epilepsy prevalence rate of 2.47/1000 for general population and 3.19/1000 in those aged less than 14 years . In that study, 78.9% cases had generalized tonic clonic type of seizures. The figures are comparable to our study conducted about 20 years later, with one most prominent difference i.e. about 90% of the cases in our study had received anticonvulsant treatment, while as about 74% of cases had received no such treatment in the study of Koul et al. It looks that public awareness about epilepsy and its treatment has undergone a change over this period of time. Similar observations were seen in a cross-cultural study conducted by Alisa khan and SM Sheikh[20]. In 63% of cases in our study, the AED was prescribed by the neurologist which indicates an improvement in the availability of specialist care in the Kashmir Valley.

Table 1. The screening questionnaire

1. Have you ever lost consciousness or fallen unexpectedly?
2. Have you ever had episodes in which you lost contact with your surrounding?
3. Have you ever had uncontrollable shaking of your arms and legs?
4. Have you ever lost control of your bowel or bladder?
5. Have you ever had episodes of blank spells with staring look or strange behavior?
6. Have you ever injured yourself (tongue bite/burn injury etc) ?

Table 2 Frequency and Prevalence of active Epilepsy according to age.

Age Group (Years)	No. of Cases (%age of total)	Population At Risk	Prevalence Ratio/1000
6-9	07 (36.8%)	1709	4.09
10-12	10 (52.6%)	2994	3.34
13-16	02 (10.5%)	1057	1.89
Total	19	5760	3.3

Table 3 Frequency and Prevalence of active Epilepsy according to sex.

Age Group (Years)	No. of Cases (%age of total)	Population At Risk	Prevalence Ratio/1000
Males	11 (57.9%)	2880	3.81
Females	08 (42.1%)	2880	2.77
Total	19	5760	3.3

Table 4 Prevalence rate of Epilepsy according to the socioeconomic class of the family.

Socioeconomic Status	Population Surveyed	No. of positive cases	Prevalence Ratio/1000
Upper Class	306	01	3.26
Upper Middle Class	1538	05	3.25
Middle Middle Class	1791	06	3.35
Lower Middle Class	1123	04	3.56
Lower Class	912	03	3.28

Table 5 Seizure types in school going childreds in kashmir valley.

Types of Seizures	No. of patients
Generalised Tonic Clonic Seizures	15
Partial Seizures	2
Absence Seizures	1
Unclassified Seizures	1

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Impact of Nutrition on Quality of Life of Women with HIV/AIDS

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ABSTRACT

Background: HIV infection is a chronic infection that affects the immune system of the body. Women have always been a vulnerable section of our society. Those who are affected with HIV are doubly vulnerable due to the HIV per se and malnutrition , which in turn may affect their Quality Of Life (QOL). There are many studies which suggest that malnutrition is common in HIV but it is important to know whether this malnutrition affects Quality Of Life (QOL) of these vulnerable women.

Method: A cross sectional study was conducted from June 2011 to December 2011.The study population consisted of 116 women on ART. Weight, height, BMI and haemoglobin percentage measured. Data on quality of life was collected by using the short version of the World Health Organization Quality of Life Instrument WHO QOL- BREF.Data was analysed using SYSTAT 13 statistical software.

Results: Among 116 patients, 48 (41.37%), 68 (58.63%) were asymptomatic and symptomatic respectively. The weight, BMI and haemoglobin level of the symptomatic were significantly lower than the asymptomatic subjects. The mean weight, BMI and haemoglobin were 46.5$\pm$8.33 kg, 19.92 ± 3.75 (kg/m^2) and 10.15 ± 1.21g/dl respectively. A positive correlations between the nutritional parameters and the CD4 cell count: weight ($r = 0.48$; $p< 0.05$), BMI ($r = 0.58$;$p< 0.05$), and Hb% ($r = 0.75$; $p <0.05$) was seen. It was seen that QoL score were significantly associated with weight, BMI and haemoglobin.

Conclusion: People with HIV+/AIDS can be informed about the basic concepts of optimal nutrition by identifying key foods and nutrients, along with lifestyle changes, that contribute to a strengthened immune system. Moreover, nutritional management, counseling and education should be beneficial to the quality and extension of life in AIDS.

Keywords: *HIV/AIDS, ART(anti retroviral treatment),QoL(quality of life),BMI(body mass index) and Haemoglobin*

INTRODUCTION

Malnutrition has been most commonly associated with HIV/AIDS. It plays synergistic role in immunosuppressant initiated by HIV and has been proposed to be an independent risk factor for HIV disease progression[1]. Protein Energy Malnutrition (PEM) and wasting is common in HIV/AIDS patients. It was seen in Rajasthan that 67% HIV positive patients suffered from

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PEM [2]. PEM has been seen to be accompanied with an increase in Resting Energy Expenditure (REE). There was a slight increase of REE in the asymptomatic phase of HIV, a great increase was seen with AIDS and greatest increase was seen with active secondary infection [3]. In a chronic disease like HIV/AIDS the Quality Of Life (QoL) of the patients form an important aspect. WHO has defines QoL as individuals' perception of their position in life in the context of their culture and value system in which they "live and in relation to their goals, standards, expectations and concerns" [4]. The relation between nutritional status and quality of life is not well defined. However wasting also reduces the quality of life in HIV/AIDS patients [5]. It is evident that the relation between nutritional status and quality of life still remains to be unfolded. Therefore the objective of the study was to assess the nutritional status, quality of life and to examine if there is any relationship between them. Women were selected as subjects as they were a vulnerable group and incidence of HIV infection was increasing among them.

MATERIALS AND METHOD

The present study was undertaken to study the relation between nutritional status and quality of life of women with HIV/AIDS.

Sample selection: Hundred and sixteen HIV positive female patients more than 18 years were selected. The study was conducted at Antiretroviral Therapy Centre, in a tertiary care hospital, Mysore. Over a span of six months between June 2011 to December 2011 data was collected. All Subjects who were previously diagnosed to have HIV infection and were taking Anti Retroviral Therapy (ART) and were willing to participate in the study were included. A written consent was taken from each of the subjects and they were assured of complete confidentiality. The study was a cross sectional study and the subjects were contacted in the hospital. The data was collected by interviewing the patient in local languages.

Tools For Data Collection

For assessment of nutrition weight, height, body mass index and haemoglobin [7] were measured by standard methods. To assess the quality of life of the patients WHO QOL BREF questionnaire was used.

BMI was calculated from the height and weight using the following formula:

BMI = Weight (kg) / Height ^{2} (m).

Statistical analysis:

Data thus obtained was coded and entered into Microsoft excel worksheet. This was analyzed using SYSTAT 13 version. To find out the association of QoL with BMI and Hb% t- test was applied. The statistical significance was evaluated at 5% level of significance.

RESULTS

The mean age of the study population was 35.9 ± 8.8 years and about 45.7% (53) of the subjects were illiterate. 54.3% (63) subjects were employed. Among the working women, most of them (36women) were unskilled worker. About half of the total study population were widowed and separated which indicated the heavy responsibilities that these women had to bear alone without any support apart from their HIV positive status. Mean income of the family of the subjects was Rs 25810.34 ± 54042.32 per annum. 76 (65.5%) of the study subjects belonged to stage 4/5 of socio economic stage.

The World Health Organization clinical stage classification (NAIDSCOI, 2007) was used to classify the patients into 2 groups: asymptomatic (corresponding to stage 1 of WHO classification) and symptomatic (stage 2-4). Table 1 shows that symptomatic women have lower CD4 counts than asymptomatic women.

Opportunistic infections are very commonly associated with AIDS. Information was collected regarding opportunistic infection. In the present study most prevalent (30.8%) opportunistic infection was Tuberculosis. The heights of both asymptomatic and symptomatic patient were similar (Table 2). Unlike height, the mean weight of the symptomatic subjects was lower than the asymptomatic ones and it was statistically significant. The BMI of the symptomatic group was also significantly lower than asymptomatic subjects.

The relation between nutritional parameter

and quality of life is given in Table 4. Patients with better weight, BMI and higher haemoglobin percentage had better QoL score. It was found that height was not significantly associated with QoL.

The patients also presented with significant and positive correlations between the following nutritional parameters and the CD4 cell count: weight ($r = 0.48$; $p < 0.05$), BMI ($r = 0.58$;$p< 0.05$), and Hb% ($r = 0.75$; $p < 0.05$).

Table 1: Clinical parameters of subjects

Clinical parameter	Total n=116 Mean±SD	Asymptomatic n=48 Mean±SD	Symptomatic n=68 Mean±SD	P* value
Duration of infection	16.94±17.64	16.93±16.45	16.95±18.88	NA
Duration of ART	11.55±11.78	13.26±12.31	8.21±11.45	NA
CD4 Count	376.13±214.4	436.83±208.29	333.29±209.68	p<0.05
p<0.05 taken as significant				

Table 2: Nutritional status of subjects

Parameter for Nutrition	Total Mean±SD	Asymptomatic Mean±SD	Symptomatic Mean±SD	P* value
Weight(Kg)	46.50±8.33	48.89±8.77	43.18±7.45	p<0.05
Height(cm)	150.55±5.76	150.67±5.24	150.32±5.98	p>0.05
BMI(kg m^{-2})	19.92±3.75	21.0±3.34	18.65±3.90	P<0.05
Hb%	11.15+1.21	11.43+1.23	10.95+1.16	P<0.05
p<0.05 taken as significant				

Table 3: QoL according to nutrition parameters:

Parameter for nutrition		Qol Score Mean±SD	P* value
Weight(Kg)	<40	47.1±8.68	p<0.05
	40-50	51.6±7.72	
	>50	53.2±8.33	
Height(cm)	<145	52.3±8.31	p>0.05
	145-155	50.5±8.85	
	>155	54.6±8.94	
BMI	<18.5	49.1±7.70	p<0.05
	18.5-24.9	53.4±8.23	
	≥25	55.2±6.97	
Hb%	<10	47.6±8.39	p<0.05
	≥10	52.7±8.47	
p<0.05 taken as significant			

DISCUSSION

It is seen that nutrient intake of the patients with HIV is very low. This is of concern since the requirement of such patients is 10-15% more than the normal RDA in case of energy and 1.5-2 gm kg^{-1} day^{-1} of ideal bodyweight in case of protein [7]. Energy and protein deficit leads to morbidity and mortality due to opportunistic infection[8] . Studies have suggested that higher income and education lead to better coping strategies, and since the study population in our study were representative of lower income group and majority of the women were illiterate, the coping strategy was not good enough. This could be explained probably due to

lack of appropriate counseling of the patients[9]. In case of HIV, nutrition is an important factor which affects quality of life. Better nutrition is one of the key factors which helps in delaying AIDS in an HIV infected individual, thus leads to a better quality of life. This was evident by the association of nutritional parameter with quality of life. The weight was significantly associated with QoL. Studies suggest that if the weight of the patient increases the quality of life of the patient also increases[10]. This may be because decreased weight is an important marker of disease progression and symptom status which affects QoL. Decrease in weight among Indian women of the lower socio economic group makes them feel that they are unattractive and this leads to a decrease in QoL scores. Lower weight is related to increased disease progression which leads to decreased activity, mobility and work capacity. BMI per se was significantly associated with QoL score. According to a study, women feel that being underweight will disclose their HIV positive status. This disclosure might lead to shame and discrimination in the community due to social stigma of this disease[11]. Thus a low BMI may lead to decreased QoL scores . It was seen that patients with better Hemoglobin percentage had better quality of life score. A study claimed that an improvement in the hemoglobin level in an HIV/AIDS patient increased her quality of life scores from 35 to 43.9 using MOS instrument for measuring quality of life[12].

CONCLUSION

It is evident from the results of the present study that the nutrition status affects the quality of life of these women. It is known fact that HIV infection along with morbidity affects the dietary intake which along with disease condition in turn influences the nutritional status of the subjects. Lastly quality of life is affected by nutritional status and in our study we saw that BMI and hemoglobin was significantly associated with it. Therefore intervention need to be planned aiming to improve nutritional status primarily BMI and hemoglobin to improve the quality of life of these women.

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Work Place Evaluation of Safe Biomedical Waste Management Practices in Designated Microscopy Centres(DMC) and Tuberculosis unit(TU) under Revised National Tuberculosis Control Programme

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ABSTRACT

Safe biomedical waste management (BMWM) at RNTCP centres is critical for worker and patient safety. Though there are guidelines, wide gap between precept and practice of BMWM exists. Hence this cross sectional study was undertaken in randomly selected 8 DMCs/ TUs of two districts of Bihar state in 2007 to evaluate the infrastructure, resource availability and to identify the constraints and difficulties in effective implementation of guidelines for safe BMWM practices at DMC/TUs.16 Lab technicians and 60 patients on DOTS were interviewed. Main observations were that sharp-pits available in 50%DMCs/TUs; sputum sample not disposed as per guidelines in 50%DMCs/TUs and in 6 DMCs, foot-operated bins and running water supply not available. Plastic waste incinerated at 3 DMC/TUs. All lab-technicians trained in last 6 months but hand washing practices glaringly lacking. Only 25% patients were aware of safe disposal of sputum. Need for emphasis on worker safety among lab technicians and Proper Patient counseling regarding safe sputum disposal.

Keywords: *Biomedical waste management, RNTCP, Designated microscopy centre, Tuberculosis unit*

INTRODUCTION

Revised National Tuberculosis Control Programme (RNTCP) is being implemented and expanded across the country since 1993. Expansion has entailed the establishment of over 12,000 designated microscopy centers (DMC) with training of thousands of laboratory personnel and over 2,400 laboratory supervisors. Overall performance of the programme has been good in terms of achieving cure and treatment success above 85% and 7-fold reduction in TB death under RNTCP. Over 9.4 million patients are put on treatment since its inception, thus saving nearly 1.7 million additional lives[1].

Damien Foundation India Trust (DFIT), one of the members of International Federation of Anti-Leprosy associations (ILEP) has been providing technical support for Tuberculosis Control in 22 districts in state of Bihar through mainly 22 District Technical Support Teams with DMCs and TUS operational since 2004[2-4].

Most of the biomedical wastes generated under RNTCP are at DMCs and Tuberculosis Unit (TU). Technical guidelines have been developed for disposal of the waste generated under RNTCP as per Biomedical Waste (Management and Handling)

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Rules of 1998[5]. However, there is wide gap between precept and practice. Hence, an exploratory study was undertaken with the objective to evaluate the extent of implementation of policy guidelines of safe biomedical waste management (BMWM) practices with respect to DMC & TU of RNTCP.

OBJECTIVES

- To evaluate the infrastructure and resource availability for implementation of the guidelines for safe BMW practices at DMC/TUs
- To identify the constraints and difficulties faced by the lab technicians in effective implementation of the guidelines at the field level.

MATERIALS & METHOD

Cross sectional study undertaken during the period Jan-Feb 2007 in the state of Bihar. 2 districts implementing the RNTCP were randomly selected in the state of Bihar. Random samples of 8 DMCs/ TUs were selected from each district. Work place evaluation involved by using observational Checklist for DMC/TU; Personnel discussions with the Laboratory Technicians and Patient exit Interviews.

The DMCs/ TUs were evaluated using a pre-designed observational checklist with reference to infrastructure availability and procurement of consumables required for safe disposal of waste.

Discussions were held with the Lab technicians of the DMCs/ TUs especially to assess the training component and also the monitoring activities in relation to waste management practices.

Exit interviews of patients subjected to sputum examination were done to assess the correct practice of proper sputum collection and disposal. Patients who were on Directly Observed Treatment Short Course (DOTS) treatment who came to collect the drugs were interviewed for awareness on safe disposal of sputum.

A total of 16 DMCs/TUs were evaluated. 16 Lab technicians were interviewed. Exit interview was done for 66 patients who included 60 patients who were already on DOTS and 6 newly diagnosed cases who were available at the point of evaluation.

FINDINGS

Evaluation of Infrastructure & resource availability: Infrastructure availability assessment revealed that civil works was complete as per the guidelines and was adequate. Pits for sharp disposal were available in only 50% of DMCs/TUs. While the foot-operated bins were not available in 6 of the DMCs; in other places the quality of the bins provided is not easily washable. Running water supply was not available in 6 of the DMCs/ TUs which would hinder in the working process and also affects the hand washing practices. Consumable supply was sufficient for waste management and atleast one month stock was available in all the DMCs/TUs. Though phenol was available in all the centers, only 3 (18.8%) of the DMCs/TUs had phenol in the bin during the functioning of DMC for disinfection of sputum cups. The usual practice was that phenol was added only at the end of the day to the container with sputum cups and then discarded. The used slides after disinfecting were crushed and disposed off by part time sweeper in municipal bins as per prescribed norms. Sputum sample collected were not disposed as per guidelines in 50% of DMC/ TUs. Incineration of plastic waste was practiced in 3 DMC/TUs.

Evaluation of the training and practice regarding BMW among Lab technicians: All the lab technicians have been trained in the last 6 months. The major lacunae was the lack of emphasis on training on importance of the safety of the workers and hence their complacent attitude and practice. Hand washing practices was glaringly lacking. When it comes to monitoring, there was no waste register or injury register maintained and no designated person allocated for monitoring. Standard precautions while handling the samples were not followed diligently in all the centres.

Evaluation of the knowledge and practice regarding safe disposal of sputum among patients: On patient interview, it was observed that though correct instructions for producing good sputum sample was given to patients in most of the cases,

but clear instructions as where the sputum needs to be collected and the necessary precautions to be taken while collecting the sputum was lacking in all the 6 new cases interviewed on exit interview. And also out of 60 patients who were currently on DOTS treatment, only 15 i.e.25% were aware of safe disposal of sputum who were mainly educated by the senior treatment supervisor.

DISCUSSIONS

Proper waste disposal as per the established norms, water treatment, disinfections and sterilization of equipment, all can reduce the risk of exposure to infection of patients, health care providers and the community at large[1.] Accordingly, the waste management and worker safety should not be viewed in isolation, but has to be integrated in the broader framework of the peripheral institutions' waste management practices. Since RNTCP has been integrated into the general health system, such waste management is a component of overall facility management of the respective state health system institutions where RNTCP centres are located.

Most of the biomedical wastes generated under RNTCP are at DMCs and Tuberculosis Unit (TU). At treatment centres, there is minimal amount of waste generated in the form of empty blister packs and used syringes (which are generated only in Category II cases, at the rate of 24 syringes per Category II patient treated)[6]. The types of waste generated are Human/biological waste (sputum); Sharp waste (needles, glass slides etc.); Used blister packs, drug packaging material; Plastic waste (waste generated from disposable syringes, cups and glasses); Laboratory and general waste such as liquid waste, broomsticks, and paper waste[6,7].

It has been estimated by an Environment Assessment study conducted for the RNTCP that the average quantum of waste generated in RNTCP centre is approximately 2.5 to 3.8 kg per day, which is relatively small[6]. However, this constitutes the infectious waste which is potentially an occupational risk for the technicians working at these units and eventually to the community at large if not handled carefully according to the laid down guidelines. In our study, we were not able to estimate the quantum of waste generated as only one point evaluation was carried out.

Despite recommendations by WHO, the Central TB Division (CTD) has not disseminated widely the guidelines on measures to decrease the risk of nosocomial transmission of TB in high-risk settings[8]. Disposable syringes were used in all the centers but Joint TB review by WHO in 2003 observed that non-disposable syringes were still being used for streptomycin, and unsafe waste disposal was still being practiced at some health facilities, posing a risk of HIV transmission[8]. But in our observation, disposable syringes were used for giving streptomycin injections. It was also observed that multiple laboratories (MCs, hospitals, sanatoria) within the state do not follow RNTCP guidelines and demonstrate very poor infection control practices for solid waste disposal.

CONCLUSIONS

The major constraints were lack of emphasis on training on importance of the safety of the workers and the resource availability. Safe disposal of sputum as per guidelines was glaringly lacking. Plastic waste incineration followed in certain places. The main issue and challenge is the need for attitudinal change which could definitely overcome the existing constraints and difficulties. Awareness and counseling the patients regarding proper disposal of sputum is essential which should be diligently done by the senior treatment supervisors and the DOTS agent so as to motivate the patient to practice on a regular basis.

Hence, there is a strong need for emphasis on effective implementation of clearly laid down National guidelines & policy keeping in lieu of the worker safety. Training and retraining of workers in relation to safe disposal of sputum is needed for attitudinal Change. Adequate Infrastructure provision like hand washing facilities, material supply etc should be provided for effective implementation of the programme. Emphasis to prevent burning of plastics, especially the chlorinated ones and Safe disposal of sharps in a separate pit is of crucial importance. Need to encourage all health care workers involved in RNTCP to adopt Standard Precautions in handling

the samples.

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Conflict of Interest: None

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Bizarre Parosteal Osteochondromatous Proliferation of the Metatarsal Bone - a Three Years Follow up with no Recurrence

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ABSTRACT

Bizarre perosteal osteochondromatous Proliferation or Nora's tumours are rare lesions seen on mostly tubular bones of hands and feet presenting clinically as bony swellings. Though they simulate osteochondromas they have distinct radiological and histological appearance. Though the lesions are benign, they are known to recur. We report a case of Nora's tumour in the fourth metatarsal of right foot. Imaging studies helped diagnose it and histological examination confirmed. It was treated with surgical excision and there has been no recurrence till a recent follow up of 3 yrs.

Keywords: *BPOP, Nora*

INTRODUCTION

BPOP is a rare tumor first described by Nora et al in the hand and foot in 1983 [(5 2)].The lesion is important because it can be mistaken for other benign and malignant conditions; radiological and histological diagnosis can differentiate from other tumors. Despite high risk of local recurrence, local excision seems to be the treatment modality of choice. We report a case of Nora's lesion in the fourth metatarsal of right foot.

Case Report:

We had a young Tibetan man, aged 25 yrs presenting to us with vague discomfort and minimal swelling on the right foot since 3 months. There was no history of fever, weight loss or trauma. Pain was more on walking and used to subside when he rested. Examination revealed a diffuse swelling on the dorsal aspect of foot on inspection but palpation of the plantar aspect revealed a firm, immobile non tender lobulated swelling on 4th metatarsal shaft. Movements of the foot and ankle were full range and normal. Routine lab investigations were normal, and X rays taken revealed a bony irregular, well defined bony outgrowth on the 4th metatarsal

The tumour was approached from plantar aspect and thorough excision was carried out. The tumour was not in continuity with medullary canal and was free of any soft tissue adhesions. The excised specimen was bluish, multilobulated about 3X2X2 cms in size. The histopathology of the tumour revealed the cartilaginous cap with irregular maturation into bone. Cartilage had atypical chondrocytes. The ossification was seen as irregular trabeculae with blue tinge. The spindle cells were seen between trabeculae.

DISCUSSION

BPOP of Bones (Nora et al 1983) [1,2] is rare lesions. They usually present as bony swellings from small bones of hands and feet, long bones as ulna, radius, tibia, fibula and femur can also be affected very rarely[1]. They usually affect proximal and middle phalanges and Metacarpals and metatarsals.[2,3].Hands are four times more affected than feet and lesions don't involve distal phalanx in distinction from subungual exostosis.[4,5] There is no sex predilection and they equal in men

and women. They occur in all age groups but commonly seen during third and fourth decade[1]. Though history of trauma is present in some, the symptoms are due to swelling per se. The cause of Nora's lesion is unknown. It may be related to reparative process following trauma to the periosteum, as this was noted in 30% of cases in the series by Meneses et al [6,9].

At a recent follow up of 3 yrs patient does not have any recurrence and the foot is fully functional.

Fig 1: picture showing diffuse sweeling

Fig 2: X ray showing the bony outgrowth on dorsum of right foot

CT done showed bony mass arising from plantar aspect of 4th metatarsal and it was extramedullary, measured about 3X2x2 cms in size.

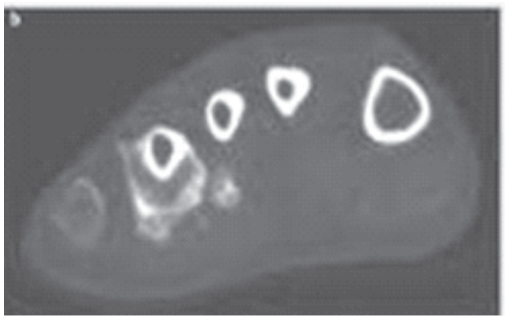
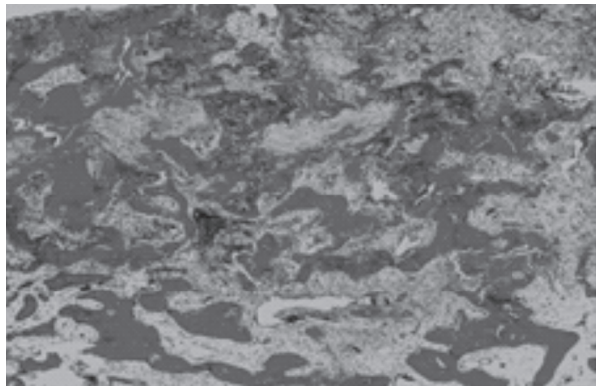


Fig 3: CT section showing the extent of tumour

Fig 4: Histopathology slide showing features of BPOP



Clinically they present as painless swellings which grow over a period of months to years [8, 12]. Pain and inflammatory signs may be experienced due to mass effect or mechanical problems[8,10]. Examination reveals 0.5 to 3 cms, firm mass and skin overlying is pinchable[1]. Joint motion may be restricted on occasions due to location of lesion at the ends of bones.

Radiologically, BPOP is a well marginated, ossified mass arising directly from cortical surface of underlying bone [5]. It is generally attached by a broad base and underlying cortex is intact [2, 11 12]. It is generally attached by a broad base and underlying cortext is intact [1, 4, 12]. Periosteal new bone formation is not there but cortical erosion is present. CT is better than plain X rays to show absence of continuity between cortex, medullary cavity of BPOP and bone of origin[11]. MRI confirms no periosteal reaction and medullary involvement in BPOP, and is associated with normal medullary canal and adjacent soft tissues [4,6]. Grossly, it is described as a lesion with a nodular surface covered by glistening cartilage and a distinct blue tint of bone[2]

Grossly the tumour may be confused with osteochondromas, but beside the localization, some histological differences are apparent [8].The bony trabeculae are typically covered by a cartilaginous cap with irregular endochondral ossification[2 4]. The cartilaginous component shows irregular groups of numerous bizarre, and enlarged chondrocytes which are commonly binucleated[7,8]. This contrasts with the more regular alignment of chondrocytes in

osteochondroma and with malignant features such as hyperchromasia and /or cytological atypia noted in any aggressive process as osteosarcoma or Gr I,II chondrosarcoma[2,3]. The frequent recurrences may support a neoplastic origin however, the histologic features showing a maturation of cartilage to bone suggest a reactive process.

BPOP is a benign lesion so no treatment is required unless it is symptomatic. If there is pain and loss of function due to swelling the treatment is surgical excision with wide margins[11 13] or ray amputation[6]. In our case there is no recurrence till a recent follow up after 3 yrs.

Conflicts of Interest: Nil

Support: Nil

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An Epidemiological Investigation of Leptospirosis Outbreak in Shimoga District of Karnataka, India

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ABSTRACT

Background and objectives: Leptospirosis is considered as one of the most widespread zoonotic diseases in the world. It is apparently emerging rapidly as a significant public health problem in developing countries including India. Various programs have been implemented to improve the surveillance and early initiation of control measures to contain such outbreaks. Here we describe an outbreak of leptospirosis in the densely forested Western Ghats foot hills of Karnataka.

Method: The study was conducted in the villages coming under the 3 PHCs belonging to Thirthahalli taluk of Karnataka during middle of January 2011. A total of 286 cases were reported in the outbreak. Information about potential risk factors, clinical features, treatment history was collected by interviewing the cases using a structured questionnaire.

Results: Age of the patients ranged from 3 to 62 yr. there was no significant differences in sex and age distribution. The epidemic spread along 3 PHC area involving 32 villages. It took 4 days to reach the peak and declined gradually over a period of 2 weeks. The disease was more common among agriculture workers and those working in forestry and fisheries.

Discussion and conclusion: The epidemiological investigation team mobilized at short notice, conducted an epidemiological investigation, and arrived at a probable diagnosis of leptospirosis. The factors that had a significant association were agricultural practices, factors relating to house and environment, animals in house and rat infestation, working in logged water for paddy cultivation. We emphasize the importance of an effective surveillance system in detecting and responding to outbreaks (IDSP), especially in case of outbreaks of emerging disease. In this context, a strong laboratory support is important to give direction to the epidemiological investigation.

Keywords: *leptospirosis, surveillance, epidemiological investigation, agriculture practices, IDSP.*

INTRODUCTION

Leptospirosis is considered as one of the most widespread zoonotic diseases in the world[1]. It is a septicemic zoonosis with multisystem involvement, caused by the pathogenic strains of **Leptospira interrogans**[2]. Rural farm workers are at high risk for leptospirosis, and it can be a significant public health problem when water and food safety are not ensured. Several epidemics of leptospirosis have occurred in southern and western parts of India during the past century[2]. The organism has been detected in farm animals in many parts of the country[3]; however, human infections have been more or less localized. In 1998, researchers warned that, unless adequate public health measures were initiated, large leptospirosis epidemics were possible in areas where the disease had not been previously reported[4]. In addition, they recommended improving clinical diagnosis and conducting systematic epidemiologic studies to control the disease.

Although the incidence of the disease seems to have decreased in developed countries, it is apparently emerging rapidly as a significant public health problem in developing countries. A number of outbreaks have occurred during the past few

years in various places such as Nicaragua, Salvador and Rio de Janeiro[5] in Brazil and Orissa[6,7], Mumbai[8] and Andaman Islands[9] in India

Epidemiologic investigation of leptospirosis is often hampered by the difficulty of making a definitive microbiologic diagnosis. Isolation of leptospira from clinical samples provides a definitive diagnosis; however, the value of culture is limited because samples have to be collected before the administration of antibiotics, and culturing requires prolonged incubation[10].

Here we describe an outbreak of leptospirosis in the densely forested Thirthahalli taluk of Shimoga district in Western Ghats foot hills of Karnataka, India.

MATERIAL AND METHOD

The study was conducted in the villages coming under the 3 PHCs belonging to Thirthahalli taluk of Karnataka during middle of January 2011. Thirthahalli a scarcely populated taluk falling under the densely forested Western Ghats of Karnataka. More than half of the population of this region is engaged in outdoor work (cultivators, agricultural laborers, marginal workers, livestock farmers, forestry workers, hunters, etc.). The major crop cultivated during the monsoon season is paddy and areca. In January 2011 a total of 286 fever cases were reported to the 3 PHCs of which 48 cases were admitted. A suspicion of leptospirosis was made by the taluka health authorities and the matter was referred to the district health authority and district administration. It was considered as a public health emergency and a team was sent for investigation to investigate the fever cases suspected to be leptospirosis by the district health authority. The team consisted of an epidemiologist as the team leader, a microbiologist and representation from the medicine department, all belonging to the government medical college located at the district head quarters.

INFORMATION ABOUT POTENTIAL RISK FACTORS

Information about potential risk factors was obtained by Interviewing the cases using a structured questionnaire, i.e. environmental (type of house, house surroundings, proximity to water bodies, ownership of house and agricultural land), contact with animals (rearing cattle, swine, cat or dogs and rat infestation of houses) and behavioral/occupational factors (participation in agricultural activities, fishing, contact with garbage and sewage, cleaning animals, direct contact with animal urine, and recreational activities such as swimming).

A suspected case of leptospirosis was defined as any patient who reported to any of the PHCs, on or after January 1 2011, with complaints of fever associated with severe muscle tenderness, any bleeding tendencies including sub-conjunctival hemorrhage, jaundice, cough, haemoptysis and breathlessness, oliguria or signs of meningeal irritation[11].

CLINICAL SPECIMENS AND LABORATORY TESTS

Lepto-dipstick test15 was done following standard procedure on the serum samples of the suspected cases at the PHC as an aid to rapid diagnosis for initiating specific treatment. Microscopic agglutination test (MAT) was done on all suspected cases and convalescent serum samples following standard procedure for confirmation[11]. Also 2-3 ml of blood was drawn and sent to higher centre for Isolation of leptospires from the blood samples. The cases were also tested for typhoid fever by widal test and malaria.

DIAGNOSTIC CRITERIA

A positive dipstick test was considered as an indication of possible current leptospiral infection for the purpose of initiating specific treatment. A positive Microscopic agglutination test (MAT) was considered as a confirmatory evidence of current leptospiral infection[11].

RESULTS

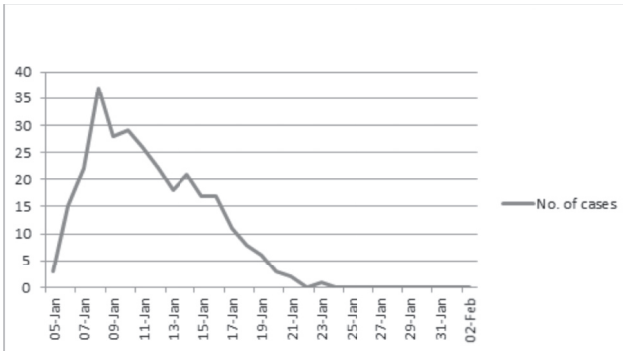
Socio-demographic characteristics: Age of the patients ranged from 3 to 62 yr. Among the 286 patients with fevers 204 (71.32%) males and 82 (28.67%) were females. About 50 per cent of the patients were in the age group 15-34 yr and two confirmed cases were in preschool age group. There were two deaths reported during the epidemic (both were male patients).

Chart 1: Epidemic curve of fever cases

The epidemic spread to around 32 villages falling under 3 PHCs namely Hunchana katta, Hiremalali and Konandur, of which majority of

the cases were reported from the PHC Hunchana katta area (Table 1). The epidemic started abruptly reached a peak in about 4 days and then gradually decreased over a period of two weeks (Chart 1).

Table 1: geographic distribution of fever cases



Place	Population	No of fever cases	Positive for leptospirosis
PHC Hunchana katta	3714	151	24
PHC Hiremalali	3140	84	11
PHC Konandur	14742	51	05
Total	21596	286	40

Table 2: Outcome of laboratory tests

1.	Positive for leptospira by Leptocheck	42
2.	Positive for leptospira by MAT	40
3.	Positive for Widal test(1:160)	Nil
4.	Positive for Widal test(1:40)	60
5.	Positive for malaria	Nil

Of the 286 blood samples 40 were positive for leptospira antibody and 60 were positive for widal test also(titres < 1:40), the possibility of typhoid fever was ruled out as there was no feature suggestive of typhoid fevers and also the titre level was too low to interpret as typhoid cases.

Table 3: Distribution of fever cases by their occupation

Occupation	No (%)
Agriculture	183 (63.9)
Forestry	42 (14.68)
Hunting	08 (2.79)
Fishing	05 (1.74)
Others	48 (16.78)
Total	286 (100)

Most of the patients with fever involved in agriculture and related activity, 42(14.68%) were working forest and animal husbandry, and 48(16.78%) were involved in other occupations.

Table 4: Frequency of symptoms among patients hospitalized

Symptoms	No (%)
Fever	286(100%)
Headache	213(74.47%)
Myalgia	180(62.93%)
jaundice	23(8%)
Vomiting	32(11.8%)
Loss of consciousness	3(1%)
Abdominal pain	2(0.6%)
Conjunctival suffusion	6(2%)

Fever was the most constant feature among the patients followed by headache, myalgia and vomiting. Jaundice was present in 23(8%).Two patients with loss of consciousness were referred to higher centre for further management.

DISCUSSION

The epidemiological investigation team mobilized at short notice and conducted an epidemiological investigation, arrived at a probable diagnosis and used all available resources to confirm this diagnosis (the district hospital laboratory, the medical college laboratory and even a national laboratory).

The outbreak of fever suspected to be leptospirosis was observed usually in February every year since 2007. The number of fever cases more than doubled this season at a much early time. Although Karnataka is one of the states in India which has a strong surveillance system

which is functioning effectively under integrated disease surveillance project, and the diagnostic facilities are provided at the district level under this project.

In an era of emerging and re-emerging communicable diseases, it is imperative that the health services remain alert to all possible outbreaks[2]. Hence it is important to have a good public health surveillance system, which is able to pick up any unusual events early enough and alert decision makers enabling them to act swiftly and effectively.

The treatment of the fever cases also posed a challenge, as the treatment was started much before the confirmation of the epidemic by broad spectrum antibiotics like ciprofloxacin, doxycycline and penicillines. WHO recommended protocols for the prevention and control of leptospirosis were implemented which included the daily administration of 100 mg doxycycline every day or the weekly administration of 300 mg doxycline till the epidemic subsides[2]. All the people in the affected area were provided the prophylaxis.

The factors that had a significant association were agricultural practices, factors relating to house and environment such as animals in the house like cattle and pig, rat infestation, sewage and garbage handlers, working in logged water for paddy cultivation. Working in logged water for prolonged period of time has been identified as a risk factor in other studies also as water may be contaminated with excreta and urine of rodents and abrasions in the mucosa may facilitate the entry of leptospires into body[2].

CONCLUSION

To conclude, we emphasize the importance of an effective surveillance system in detecting and responding to outbreaks (IDSP), especially in case of outbreaks of emerging disease. In this context, strong laboratory support is important to give direction to the epidemiological investigation. This is usually lacking and neglected in low-income countries and needs further strengthening. Improved water management would reduce the risk of exposure to contaminated water. Health education and environmental sanitation should be emphasized.

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Oral Ulceration: an Unusual Manifestation of Secondary Syphilis - a Case Report

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ABSTRACT

The oral cavity is the most common extragenital site of infection. Oral lesions in secondary stage syphilis are particularly common when associated with general symptoms and cutaneous eruption. However, the exclusive oral localization, not associated with general manifestations, is uncommon. We report a case of a 27 year old male patient with isolated oral ulceration as the sole presentation of secondary syphilis. In contrast with the oral lesion of primary syphilis, which tends to be solitary, painless, indurated ulcers, oral lesions of secondary syphilis are typically painful, multiple and accompanied by a concomitant cutaneous eruption.

Keywords: *Syphilis; Secondary stage; Oral Lesions*

INTRODUCTION

Syphilis is an acute and chronic sexually transmitted disease (STD) caused by Treponema pallidum that produces skin and mucous membrane lesions in the acute phase.[1] The name syphilis was coined by Italian physician and poet Girolamo Fracastoro in his epic noted poem written in latin entitled "Syphilis sive morbus glallicus" (Latin for "Syphilis or the French disease") in 1530.

The protagonist of the poem is a shepherd named Syphilus (perhaps a variant spelling of Siphylus, a character in Ovid's metamorphoses). It is said to have evolved from between 15,000 and 3,000 BC and transported to Asia by Portuguese sailors led by Vasco da Gama.[2]

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CASE REPORT

A 27- year- old male patient reported to the department of Oral Medicine and Radiology with the chief complaint of ulcer in the mouth since three weeks. Patient gave the history of recurrent ulcers for past one year at an interval of about six months. It was the third time that ulcer has occurred which was present for past three weeks which was small and gradually increased to present size , associated with mild, dull and intermittent pain.

On General Physical Examination patient was moderately built and nourished and all vital signs were with in normal limit. Intra Oral Examination of lesion revealed irregular shallow ulcerative lesion covered with pseudomembranous covering with an erythematous border present on right and left buccal mucosa , lower and upper labial mucosa measuring approximately 1x1.5cm, 1x3.5cm , 0.5x1cm and 0.5x1cm in size respectively associated with crusting present at the junction of vermilion border and upper labial mucosa. All

shallow ulcerative lesions are tender and smooth in texture. (Fig 1,2,3,4). Based on history and clinical examination we arrived at a provisional diagnosis of Pemphigus vulgaris.

Hematological investigation showed all the values were with in normal limits except for increased ESR. Histopathological analysis revealed moderately hyperplastic and keratinized epidermis with focal ulceration and exudate. There is dense dermal and conspicuously perivascular plasma cell infiltrate in superficial and deep dermis with an ill defined collection of histiocytes and perineural infiltrate also noted (Fig 5,6) These findings suggested Secondary Syphilitic lesion. Based on histological analysis patient was re-evaluated and he did not have any skin or genital lesions and the patient denied any extramarital sexual relationship So further Serological tests were carried out and Venereal Diseases Research Laboratory (VDRL) test was positive and Treponema Pallidum Hemagglutination (TPHA) value was 1/160 and ELISA test for HIV was negative.

Taking into consideration of history, clinical examination, histological analysis and serological tests led us to the final diagnosis of Secondary Syphilis. Therefore we treated the patient with penicillin G. benzathine 1.2 million units each week for 3 weeks along with betamethasone 4 mg intramuscular each week for 2 weeks to avoid Jarisch-Herxheimer reaction. Complete resolution of lesions were obtained within 10 days . (Fig 7,8,9).

DISCUSSION

Syphilis is caused by Treponema pallidum, a spirochete, and is characterized by episodes of active disease interrupted by the period of latency. This is a gram positive, motile, slender, fragile, microcephalic spirochete which is pathogenic to humans and can be best demonstrated by the dark field microscope with a fresh specimen since it stains poorly except by silver impregnation.[3,2]

It is believed that T.pallidum does not invade completely intact mucosal epithelium as well as gain entry via minute abrasions or hair follicles. With in a few hours after invasion, bacterial spread to the lymphatics and blood stream occurs, resulting in early widespread dissemination of the disease. The early response to the bacterial invasion is an endarteritis and periarteritis.[3]

Until the advent of penicillin and the antibiotic era in the mid- 20th century syphilis was a prevalent disease , infecting between 8% and 14% of the population living in the urban areas around the world.[1] Transmission occurs via oral-genital, oral-anal, or other sexual contact with contaminated material, and through intra-uterine transmission.[4]

Syphilis can be classified as either congenital or acquired.[2] The acquired form can be classified as primary, secondary, latent and tertiary depending on the elapsed time after exposure; primary infection occurs after 2 to 3 weeks , secondary infection 4 to 6 weeks after infection and late syphilis is present for more than 1 year. Unborn children of women with untreated syphilis during pregnancy may acquire congenital syphilis in utero.[1]

The features of secondary syphilis reflect the hematogenous spread of Treponema pallidum, and similarly to its other mucocutaneous features, the oral manifestations of secondary syphilis can be more extensive and/or variable than those of the primary disease.[5] The symptoms and sign of secondary syphilis include fever, arthralgia and malaise and generalized eruptions of the skin and mucous membranes.[3]

Mucous patches are highly infectious, since they contain vast number of organisms. [2] The lesions of the secondary stage undergo spontaneous remission within a few weeks, but exacerbations, may continue to occur for months or several years. [2] Leao JC et al reported oral lesions arise in at least 30% of patients with secondary syphilis although, very rarely oral ulceration may be only manifestation of infection. [5] Carlesimo M et al reported that the oral cavity is the most common extragenital site of infection, although isolated ulcerations in secondary syphilis are unusual. In fact there are only a few reports of secondary syphilis, presenting with isolated oral lesions.[6] In the present case irregular shallow ulcerative lesion covered with pseudomembrane and an erythematous border was seen which is the only manifestation of secondary syphilis in the oral

Fig1: Lesion on right buccal mucosa

Fig 2: Lesion on left buccal mucosa

Fig-3: Lesion on lower labial mucosa

Fig 4: Lesion on upper labial mucosa

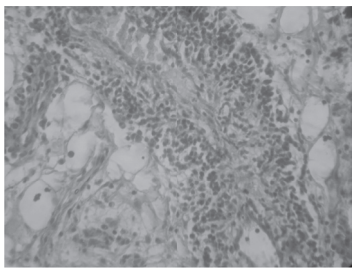

Fig 5: Micrograph at lower magnification showing dense infiltrate of plasma cells.

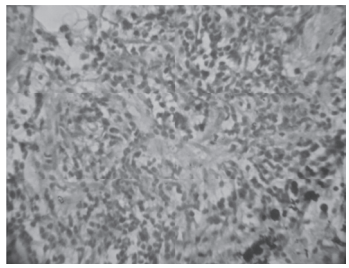

Fig 6: Micrograph at higher magnification showing perivascular plasma cell infiltrate with collection of histiocytes and perineural infiltrate also noted.

Fig 7: Complete resolution of lesion on buccal mucosa.

Fig 8: Complete resolution of lesion on lower labial mucosa.

Fig 9: Complete resolution of lesion on upper labial mucosa.

cavity.

Typical mucous membrane lesions tend to be oval- to- crescentric erosions or shallow ulcers of about 1 cm diameter, covered by grey mucoid exudates and with an erythematous border. [5,6] The patches usually arise bilaterally on the mobile surfaces of mouth, although the pharynx, gingiva, tonsils, and very rarely the hard palate can be affected. [5] The mucous patches may coalesce to give rise to, or arise de novo as, serpiginous lesions, sometimes termed Snail track ulcers. [5]

The first serologic technique to diagnose syphilis was first described by Wasserman in 1904. Serologic tests for syphilis divide into two categories, non treponemal and treponemal serologic test. In non-treponemal serologic test, such as Venereal Disease Research Laboratory (VDRL) and Rapid Plasma Reagin (RPR), the antibodies to be measured are non specific treponemal antibodies. Treponemal serologic tests such as Fluorescent Treponemal Antibody absorption (FTA-ABS), Treponema Palladum Haemagglutination Assay (TPHA) and Enzyme immunoassay (EIA) are more complex based upon the detection of specific antibodies to cellular components of treponema palladium are used for confirmation. [7,1]

Detailed description of the histopathological features of oral syphilis are scarce , possibly because of the rarity with which oral diseases is biopsied. One of the key microscopic features is plasma cell infiltration , at least in primary and secondary disease. Perivascular infiltrate with a preponderance of plasma cells are, however , common in oral biopsies which extends deeply into submucosa that should perhaps bring the diagnosis to mind. [8,6]

The diferential diagnosis of oral lesions of secondary syphilis includes erythema multiforme, stomatitis, pemphigus, lichen planus, candidosis, oral gonorrhoea and other sexually transmitted diseases. [6]

The current medical management of syphilis includes the use of parenteral long acting benzathine penicillins. Alternate drugs for patients allergic to penicillin include oral doxycycline and oral tetracycline. [1,3]

CONCLUSION

We present our case because of the rare presentation of localized oral lesions of secondary syphilis for past one and half year with the absence of skin lesions. There are only a few reports of secondary syphilis presenting with isolated oral lesions. Moreover, we emphasize the atypically long duration of the oral involvement with secondary syphilis is a highly infectious disease and it is important that clinicians maintain a high clinical index of suspicion and crucial that an accurate diagnosis be made at presentation.

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Ethical Clearance: NIL

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An EMIC Classification of Women's Illnesses through Pile Sorting Technique

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ABSTRACT

Background: The present ICMR sponsored study describes the use of pile sorting technique to ascertain the way in which women classified their illnesses. **Materials and methods:** A female anthropologist administered pile sorting technique on 20 literate women (age range 18-41) using a list of 15 common illnesses/symptoms of women written on thick cards in bold letters in Hindi which was made on the basis of experience gained during baseline data collection. **Results:** Manual analysis of the data revealed that "weakness" as an entity was paired with 12 out of 14 other listed illnesses. Its maximum pairing was with vaginal discharge, (35% respondents) uterine prolapse and scanty menses. Vaginal discharge was also paired with "melting of bones". Headache and fever was paired most frequently but they were never paired with reproductive symptoms. **Conclusion:** Respondents views on women's illnesses are in consonance with Vedic line of thinking. Weakness emerged as the major aetiological denominator for many of reproductive health problems of women.

***Keywords**: Pile sorting, Qualitative research, Emic perspective, Women's health*

INTRODUCTION

In recent years, there has been a rapid growth in the use of qualitative research in reproductive health of women. However, in India, there is still a scarcity of such research data. Qualitative research methodology originated around the turn of 20th century as a method of anthropological research for in-depth study of people's way of life. The inductive approach provides a philosophical basis for qualitative research.[1] The key to qualitative research is discovering and understanding the context in which decisions, actions and events occur.[2]

In India, the little data that do exist on women's health has been primarily acquired from epidemiological and clinical standpoints. These perspectives have been successful in ascertaining the prevalence of women's morbidities, but to date unsuccessful in exploring women's own perception of their health i.e. the factor which affects the utilization and choice of health care.[3]

An ICMR study on use of mobile clinics to meet reproductive health needs of women was conducted in rural Haryana. The study involved use of qualitative research methods. Present article gives details of use of pile sorting technique which was done with an objective to ascertain the extent to which women in the study area share a common classification for women's illnesses.

MATERIAL AND METHOD

For the purpose of the baseline data collection 500 families each, in control as well as in intervention areas of each centre, were interviewed regarding various aspects of reproductive health. The details of methodology have been given elsewhere.[4] After the baseline data collection, clinics were organized every month in ten villages of the intervention area to provide primary reproductive health care to

the women. The pile sorting technique described here was conducted in these villages on the clinic days by the female anthropologist selected for the study.

A list of 15 common symptoms/illnesses of women was made on the basis of experience gained during baseline data collection (table - 1). Each illness was written on a thick card (9cm*6cm) in bold letters in Hindi. On the reverse side of the card each illness was given a serial number 1 - 15. The anthropologist was trained in administering pile sorting technique.[5]

The anthropologist administered the technique on 20 women. Only literate women educated upto at least 8th standard were chosen for the study. Two women were selected from each study village. Preference was given to Anganwadi workers and female teachers of primary schools in the study area. The respondents were explained about the purpose of the study. Their consent was also taken. All the cards were spread before them with the name of the illnesses facing up, on a cot or a table. The names of the illnesses were read aloud to them. They were also asked to read for themselves all the cards. They were then asked to sort out the cards into as many different piles as they thought appropriate. They were asked to do this sorting on the basis of the perceived similarity or linkages between listed illnesses. For each sorted pile they were asked to give reasons for grouping those illnesses together.

For each respondent the details of pile sorting done by her was noted on a separate paper. For the sake of convenience of recording of data, only the number code given to each card were noted. The cards were shuffled between visits to respondents. On an average each took 15 minutes. Results of the pile sort was tabulated using a proximity matrix (Table – 2). A hatch mark was placed in the appropriate intersection box each time the two illnesses were in the same pile. A tabulation of the 'most close' (higher numbers) illnesses and the 'most distant' (lower numbers) illnesses was prepared on the basis of proximity matrix data (Table – 3). For this the number of hatch marks in each matrix square was divided by the total number of informants and multiplying the result by 100. This gave the percent of informants that grouped the two illnesses together. Explanations provided by the respondents for grouping the illnesses together were also noted and incorporated in the results.

RESULTS

In all, 20 respondents participated in pile sorting. The age range of the participants was 18-41 years. Only two of them were unmarried. All respondents except the one who was educated upto 8th standard, were educated upto 10th standard or above. Two of them were graduates. Eleven of them were Anganwadi workers, three were teachers, and the rest six were non-working (house wives).

The list of the illnesses used in the study is shown in Table-1. It also included some symptoms in local vernacular language. Table-2 shows the proximity matrix derived from pile sorting. Headache and fever were paired together most frequently (Table-3). However, these illnesses were least frequently paired with other illnesses (Table-4). Fever was paired with headache, backache and weakness only, whereas weakness was paired with many illnesses, e.g. backache, fever, white discharge, menstrual problems, melting of bones, pain in flanks (*nalon mein dard*) and prolapse uterus (body comes out).

DISCUSSION

Qualitative research provides data from respondent's point of view i.e. the 'emic' perspective as opposed to the traditional survey data which yields the provider's point of view i.e. the 'etic' perspective.[5] Exploration of how people group illnesses (which illnesses are considered similar) can help us to better understand people's 'folk theories' about the cause of illness, the sequences of illness development and other aspects of their explanatory models of physical and mental health problems. Pile sorting technique provides such kind of data in a rather informal set up where the respondents take it more 'like a game'.[3]

Of the 15 illnesses/symptoms used in our study, 'weakness' emerged as an entity which was paired with almost all the other illnesses except '**paira'** and 'swelling in body'. It was paired maximum number of times with vaginal discharge.

Weakness was told as a cause as well as effect of vaginal discharge. Similar findings have been reported by other workers.[6,7] The author himself came across such opinions expressed by his respondents during focus group discussions and key informant interviews conducted in the study population during baseline data collection.[4] This data triangulation endorses the linkage between 'weakness' and vaginal discharge as perceived by our respondents.

In Indian set up, white vaginal discharge is equated to 'dhat' and semen of men.[4,6] Semen has been described as a precious and power giving fluid as per Vedic line of thinking.[6,8] Loss of semen has been said to lead to seepage of strength from the body leading to weakness. Thus, vaginal discharge is visualized as a malady which saps the victim's vitality and vigour and thoroughly weakens her.[9] Similar opinions have been reported among rural Maharashtrians.[6]

Fifteen percent respondents paired weakness with scanty menses. Indian masses value blood as a vital fluid. Deficiency of blood in body is equated with weakness. As per their opinion the symptom of scanty menses is the result of weakness as many of them explained. "when there is deficiency of blood in the body, menses will expectedly be scanty". **(Jab shareer mein khoon thoda hoga to mahina to kam hi aayega).** Ten percent of respondents paired weakness with uterine prolapsed(body comes out). Women in India use various indirect terms to describe uterine prolapsed e.g. 'body comes out', 'roof has fallen', 'heaviness down below'. Studies done earlier in India as well a study conducted by the author himself indicate that the use of the term 'weakness' by respondents has deeper connotations.[4,10] When women complain of 'weakness' in a clinic they may be hinting at uterine prolapsed or vaginal discharge.[9] But often, the term weakness is misunderstood by western-medicine trained doctors in gynaecological OPDs. They take it at its face value. For them 'weakness' signifies malnutrition or anemia and calls for prescription of hematinics.[10] Thus, they send back the women without detailed check up. The problem of vaginal discharge (or uterine prolapse), which may not be named directly by the patients, because of a 'culture of silence' associated with reproductive health problems, thus, may remain untouched and unattended.[6,11]

Vaginal discharge was also paired with 'melting of bones' by 35% respondents. This is in consonance with Vedic line of thinking where bone **(asthi)** is a precursor of semen **(veerya).** As per the Vedic concept food is assimilated in seven stages from chyle **(rasa)** to semen **(veerya)** through the action of body heat i.e. first, food is converted into 'rasa' which is then converted into (rakta). This gets converted into flesh**(maans)** fat (meda) bone**(asthi)** marrow**(majja)** semen **(veerya).**[12]Thus, bones melt and gets converted into bone marrow and then into semen (vaginal discharge in women). This possibly explains the perceived link between melting of bones and vaginal discharge as described by our respondents. Other researchers have also documented such linkage between melting of bones and vaginal discharge as perceived by their respondents.[6]

In our study the term 'paira' was linked with heavy menses and vaginal discharge by 30% and 10% respondents respectively. It is similar to the terms 'pair', 'pandhara', 'padar', 'pardar', 'parma' or 'pradar' used by the respondents in a study from Maharashtra.[6] On enquiry, our respondents told that the word 'pair' was used in agriculture in context of describing the flow of irrigation water. Thus the use of the term 'paira' may have some relation with 'flow'. However, this needs further in-depth investigations. In Maharashtra study the term 'pradar' was equated with underclothes. In Charaka Samhita also, 'pradar' term is used for colporrhea or excessive flow of menses.[13]

Thus, the consumer perspective (rural north Indian women in this case) is deeply laced with Vedic line of thinking as far as women's illnesses are concerned. Fever and headache were least frequently paired with reproductive health problems/symptoms listed in our study. This indicates that our respondents considered reproductive health problems to be in a different realm as contrasted to other bodily symptoms like headache and fever. Weakness, however, was referred to not just as a somatic symptom but was perceived to be intimately linked with reproductive

health problems like vaginal discharge, uterine prolapse and scanty menses.

Table – 1

List of 15 common women's illnesses with their local Hindi terms

S.No	Name of the illness	Local term (Hindi)
1.	Weakness	Kamjori
2.	Scanty menses	Mahina kam aata hai
3.	Heavy menses	Mahina jyada aata hai
4.	Irregular menses	Mahina aage peechche hona
5.	Weight pressing down below	Bhaar padta hai
6.	Pain in abdomen	Pet dard
7.	White vaginal discharge	Safed paani
8.	Paira	Paira chalta hai
9.	Uterine prolapse('body' comes out)	Shareer bahaar aata hai
10.	Bones melt	Haad galta hai
11.	Swelling in body	Gaat mein soza/sozish
12.	Pain in abdominal flanks	Nalon/pedu mein dard
13.	Fever	Bukhaar
14.	Backache	Kamar dard
15.	Headache	Sir dard

TABLE – 2

Proximities Matrix for Pile Sorts of Women's Illness & Symptoms*

		I	**L**	**L**	**N**	**E**	**S**	**S**		**N**	**U**	**M**	**B**	**E**	**R**	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
I	1															
L	2	3														
L	3	2	10													
N	4	3	10	7												
E	5	1	1	0	0											
S	6	1	2	1	3	0										
S	7	7	1	1	2	1	0									
	8	0	0	6	3	5	0	2								
	9	2	1	1	1	5	0	2	0							
N	10	3	0	0	2	0	0	7	2	2						
U	11	0	1	4	1	3	1	1	1	5	4					
M	12	2	0	0	1	2	2	2	1	1	3	2				
B	13	6	0	0	0	0	2	0	0	0	0	0	0			
E	14	5	2	1	2	0	8	2	0	0	1	0	2	2		
R	15	1	0	0	0	0	6	0	0	0	0	0	0	14	5	

* Serial numbers 1-15 shown in this table are the same as given in table – 1

TABLE – 3: Tabulation Sheet for the Pile Sorts of Women's Illnesses

Sl.No	PAIRS OF MOST CLOSE ILLNESSES		%	EXPLANATIONS FOR "CLOSENESS"
1.	Headache	Fever	70	Fever leads to headache
2.	Scanty or Heavy menses	Irregular menses	50	Problem of menstruation
3.	Backache	Pain in abdomen	40	When there is backache there is pain in abdomen also
4.	Weakness	White discharge	35	Weakness <=> white discharge
5.	Melting bones	White discharge	35	Melting of bones lead to white discharge
6.	Heavy menses	Paira	30	Synonymous
7.	Weakness	Fever	30	Fever leads to weakness
8.	Swelling of body	Body comes out	25	Synonymous
9.	Weakness	Backache	25	Weakness causes backache
10.	Weight pressing down below	Body comes out	25	Weight pressing down below causes body to come out
	PAIRS OF MOST DISTANT ILLNESSES		**%**	**EXPLANATION FOR "DISTANCE"**
1.	Swelling in body	Heavy menses	20	Heavy flow causes swelling of body
2.	Weakness	Scanty menses	15	Weakness leads to scanty flow
3.	Bones melt	Weakness	15	Melting of bones lead to weakness
4.	Body comes out	Weakness	10	Weakness leads to uterine prolapse
5.	Scanty menses	Backache	10	Scanty flow leads to backache
6.	Swelling in body	Pain in flanks	10	Swelling of body leads to pain in abdominal flanks

Table – 4- Frequency of pairing of various illnesses

Illness	Paired with other -Yes	illnesses- No
Weakness	12	2
Vaginal discharge; irregular menses	11	3
Backache: swelling in body; pain in abdominal flanks	10	4
Heavy menses; scanty menses; uterine prolapse	9	5
Pain in abdomen; melting of bones	8	6
Weight pressing down below; paira	7	7
Fever	4	10
Headache	3	11

LIMITATIONS

The study is mainly based on literate north Indian women. Thus, it may not necessarily reflect the typical village women's point of view.

Conflict of Interest: None

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Ethical Clearance: The study was ethically cleared by the Institutional Ethical Committee of PGIMER, Chandigarh

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Perinatal Mortality: an analysis of the Causes and Determinants of Deaths

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ABSTRACT

Objectives (i) To determine the causes of deaths in perinatal period. (ii) To ascertain the sociobiological determinants of perinatal mortality.

Material and Method: All perinatal deaths and live births in the one year study period were recorded. in rural and urban field practice areas of Department of Community Medicine, JNMC, Aligarh Muslim University, Aligarh (Uttar Pradesh) India. The cause of death was ascertained using verbal autopsy procedure.

Results: In the study period, 700 live births and 31 perinatal deaths were recorded. The leading causes of still births were prematurity and complications of the placenta, cord and membranes whereas for early neonatal deaths, the major causes were prematurity including low birth weight and birth asphyxia.

Conclusion: Most of the deaths especially early neonatal deaths are preventable if the issues like promotion of institutional deliveries, strengthening of the referral system, early recognition of danger signs by health workers through training and reporting of deaths is made mandatory and according to the system.

***Keywords*:** *Perinatal deaths, still births, early neonatal deaths, sociobiological factors*

INTRODUCTION

Early neonatal deaths and stillbirths, together known as perinatal deaths, account for 7 million annual deaths worldwide [1,2]. Still birth is considered as the death of the foetus weighing 1000 gm (this is equivalent to 28 weeks of gestation). The early neonatal mortality are those deaths that occur with the period commencing at birth and ending 7 completed days after birth. Perinatal deaths contribute to four percent of the global burden of disease and are the leading cause of the burden of disease measured in disability adjusted life years (DALYs) in low and middle income countries (LMIC) [3]. 98% of these perinatal deaths occur in LMIC, with more than 70% occurring in community settings, often in the home [4]. Furthermore, a high percentage of births and deaths are not recorded in vital registration systems [1].The early neonatal mortality rate in India is 25/1000 livebirths, wheareas it is 32/ 1000 live births for Uttar Pradesh,. The stillbirth rate for Uttar Pradesh is 9/1000 live births. The Sample Registration System estimates for perinatal mortality rate in India is 33/1000 total deaths [5].

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Unfortunately, a major barrier to improving perinatal mortality outcomes and data collection in LMIC is that vital registration systems that include Cause of Death are available for only 3% of all perinatal deaths worldwide. Thus, current data on perinatal cause of death may be inaccurate, and perinatal mortality rates may be underestimated [6]. Data on childhood mortality is collected by various methods which are not uniform throughout India. A large number of perinatal deaths go unreported and, if reported, they are often misclassified. Knowledge of the relative importance of different causes of still birth and neonatal deaths in developing countries is still lacking[7]. As most of the deaths in the rural areas occur at home and a medical certification by a qualified practitioner is not possible, there is a need for simpler methods, such as verbal autopsy, which can be used by the trained health workers to establish the cause of death.

Verbal autopsy is a method used to establish the cause of a death based on interview with next of kin or other care givers [8]. They can be administered by lay people, and qualified personnel read the forms and stories and interpret the results [9].

In order to ascertain the causes of deaths in the perinatal period by using the verbal autopsy procedure, a population-based study was undertaken with the following objectives (i) To determine the causes of deaths in perinatal period. (ii) To ascertain the sociobiological determinants of perinatal mortality.

MATERIAL AND METHOD

A prospective community based study was undertaken for a period of one year (July 2005 to June 2006) in rural and urban field practice areas of Department of Community Medicine, JNMC, Aligarh Muslim University, Aligarh (Uttar Pradesh) India. The study was conducted in seven villages of Jawan Block and three localities in urban area.

All the live births and the deaths in perinatal period were recorded during the study period by house-to-house visits. A detailed history of the events of birth of the baby and the circumstances leading to death were elicited from the respondent. The choice of respondent in all the stillbirths was the mother while in neonatal deaths, in majority of the deaths, either of the parent of the deceased were interviewed. Wherever the medical certification and medical records were available, they were used in arriving at the cause of death. International Classification of diseases (ICD-10) codes was used. The age of the deceased child was ascertained by the exact date of birth if the parents could recall or by the religious and the ritual events. The cause of death was ascertained using standard verbal autopsy procedure.

Asphyxia was considered when the newborn had absent or weak cry or had absent or slow gasping respiration at the time of birth. Birth injury was defined as injury to the baby resulting from mechanical factors such as compression or traction during parturition. Maternal severe anaemia was diagnosed when there was pallor and breathlessness on exertion. Neonatal jaundice was considered when there was history of deep yellow discolouration of the body. Prolonged labour was defined if the duration of the first and second stage of labour was more than 18hr. Infections were considered when a baby has three of the following-refusal to feed, convulsions, fever, diarrhea, vomiting, abdominal distension, rapid breathing, umbilical sepsis and pyoderma. Antepartum Haemorrhage (APH) was the vaginal bleeding after 20 weeks of gestation and before delivery. Prematurity was considered when the baby delivered before 37 completed weeks of gestation. Placental complications were either placenta previa (bleeding without pain) or abruption placentae (bleeding with intermittent or constant abdominal pain other than labour pain). Complications of cord included cord prolapsed (umbilical cord delivered first). Bad obstetric history was considered when there was previous history of one or more abortions or still birth or neonatal deaths. Socioeconomic status was divided into lower or higher according family income more than or less than Rs 1000.

Statistical analysis was done using appropriate statistical software. Before investigating into the causes of death, the consent of the mother or guardian was taken.

In case of doubt, the cause of death was

ascertained after discussion with the consultants of Department of Community Medicine and Department of Paediatrics.

RESULTS:

There were a total of 31 perinatal deaths (8 still births and 23 early neonatal deaths) (Table 1).

Table 1: Distribution of perinatal deaths

Classification of death by age and sex			
Age	**Still Births N(%)**	**Early neonatal N(%)**	**Perinatal N(%)**
	8(25.8)	23(74.2%)	31(100%)
Sex			
Female	3(37.5)	10(43.5)	13(41.9)
Male	5(62.5)	13(56.5)	18(58.1)
Total	8(100)	23(100)	31(100)

The prominent causes of perinatal mortality as defined by the verbal autopsy were birth asphyxia, prematurity, congenital malformations and anaemia among mothers. Out of 8 still births, the leading causes were prematurity (25%), complications of placenta, cord and membranes (12.5%), maternal complications of pregnancy (6.7%), anaemia in mother (25%) and antepartum haemorrhage (12.5%) (Table 2). Stillbirths due to anaemia in the mother were found in rural as well as urban areas. In (26.4%) of the still births, proper antenatal care was not taken by the mothers. No cause could be identified in only one of the still births. Among early neonatal deaths, the majority 60% occurred on the first day of life and among these, the maximum occurred during the first hour of birth.

Table 2: Cause of perinatal deaths

Still births	ICD	N(%)	Early neonatal deaths	ICD	N(%)
Anaemia	O99	2(25)	Prematurity(including LBW)	PO5.1	7(30.4)
Prematurity	PO7.3	2(25)	Birth asphyxia	P21.9	12(52.2)
Compl. Of placenta & cord	PO2	1(12.5)	Congenital malformation	Q00.0	2 (8.70)
Eclampsia	O15.0	1(12.5)	Congenital malformation	QO5	1(4.35)
Antepartum hemorrhage	O46	1(12.5)	Neonatal jaundice	P59.0	1 (4.3)
Not known		1(12.5)			
Total		8(100)	Total		23(100)

The prominent causes of deaths in the early neonatal period were prematurity (including low birth weight) (30.4%), birth asphyxia (52.2%), congenital malformation (13%) and neonatal jaundice (4.3%) (Table 2). 69% of the deceased did not attend any health facility. In three cases congenital anomaly was reported in the babies like anencephaly and meningocele. There were certain undesirable practices that were reported, such as application of oil/ Turmeric/ Ghee (52.2%), Cutting the cord with Glass/ blade (26.1%), Broken Cup (8.6%). In two cases the cord was cut with a broken light bulb. Giving prelacteal feeds

such as Honey with water, tea, sugar water etc was seen in (86.9%) of the cases.

70% of the mothers did not attend antenatal clinics. In two cases, twins were delivered by untrained dais (traditional birth attendants) and in each of the cases, both the babies died of birth asphyxia. Perinatal deaths in rural areas exceeded the deaths in urban areas. Perinatal deaths were more common among males as compared to females but this difference was found to be statistically insignificant. Among the perinatal deaths, 61.3% of the deliveries were conducted by untrained personnel consisting of untrained dais, relatives and/or friends. The Perinatal Mortality Rate (PNMR) decreased as the age of the mother at delivery increased, the PNMR being highest if the mother's age is less than 20 years. (Table 3).

Table 3: Association between maternal age and perinatal deaths

Maternal age (years)	Perinatal deaths	Births	Perinatal Mortality Rate*
<20	12	81	148.1
20-25	14	257	54.5
25 and above	5	362	13.8
Total	31	700	44.3

*calculated as per 1000 live births

Table 4 gives the relative risk of various factors associated with perinatal mortality. The maximum relative risk was noted with maternal age in cases when the maternal age was less than 20 years. Primigravida had two times more risk for perinatal deaths.

Table 4: Sociobiological factors associated with perinatal mortality

Factors	Perinatal deaths	Live births	RR (95% CI)
Sex			
Male	18	349	1.37
Female	13	351	(0.68-2.76)
Socioeconomic status			
Lower	23	557	0.748
Higher	8	143	(0.341-1.63)
Parity			
Primigravida	11	128	2.34
Others	20	572	(1.15-4.77)
Maternal age			
<20yrs	12	80	4.38
≥20yrs	19	620	(2.2-8.37)
<30yrs	26	552	1.37
≥30yrs	5	148	(0.537-3.52)
Antenatal checkups			
yes	9	379	0.361
none	22	321	(0.168-0.77)
Obstetrics history			
Bad	6	68	2.13
Not Bad	25	632	(0.9-0.52)
Delivery conducted by			
Trained personnel	12	244	1.17
untrained	19	456	(0.578-2.37)
Literacy mothers			
illiterate	28	574	2.0
literate	3	126	(0.61-6.47)

DISCUSSION

Knowledge about the distribution of causes of death in populations is essential for public health planning, resource allocation and measuring the impact of interventions. However, in high mortality settings, vital registration data are often missing, incomplete or inaccurate. Medically-certified

cause of-death data are available only for less than one-third of over 57 million deaths occurring worldwide annually[10].Rapid improvement of poorly performing vital registration systems in many countries is not realistic. Verbal autopsy has been used not only to gather data on the cause-of-death structure of certain populations, but also in investigations of infectious disease outbreaks and risk factors for certain diseases, and in measuring the effect of public health interventions[11].

Among perinatal deaths, the number of deaths was greater among males as compared to females. This could be attributed to the well described survival advantage in the neonatal period among girls. Age of the mother at delivery was an important factor contributing to perinatal mortality. Babies born to mothers of age less than 20 years were less likely to survive as compared to mothers at higher age. This indicates mothers in this lower age group may be biologically ill prepared for child bearing. Howaldar and Bhuiyan also found that neonatal mortality for children of mothers under 20 years at the time of child's birth was about one and half time higher than those where mother's age is 20-29 years [12]. More research is required focusing on this aspect. There was slight difference in the relative risk of the perinatal deaths in relation to whether delivery was conducted by trained or an untrained personnel. This may be due to poor training of the dais and if they were not following the proper guidelines.

Among early neonatal deaths 35.2% of the deceased did not present to any health facility. Around 27% children were taken to a health facility for treatment, but only after waiting for over 1 or 2 hours when the condition of child deteriorated. This may imply that change in the treatment seeking behaviour of new mothers could reduce the early neonatal deaths[13].

68% of the early neonatal deaths occurred on the first day of life. As per the National Family Health Survey (2005-06), nearly 30% of the deaths occur within 12 hours of birth[13]. This is the period when timely interventions must be planned to reduce deaths.

The majority of the deaths in the perinatal period were due to birth asphyxia and prematurity. 30% of the early neonatal deaths where the cause was prematurity compared to 59% reported by Gaddi and Seetharam [14]. Asphyxia caused 52% of neonatal deaths compared to 20% reported by Khurana et al [15]. The difficulty of distinguishing birth asphyxia from other causes with the use of verbal autopsy has been noted in validation studies[16].Thus in the early stages of use of verbal autopsy in such cases requires the use of verbal autopsy along with objective assessments by physical autopsy to validate further in this population.

In assigning the causes of early neonatal deaths, prematurity was among the major causes. The extent of prematurity was reported by the respondent and may not be reliable. Anaemia among the mothers was also an important cause of perinatal mortality. Similar were the observations by other study wherein it was observed the mothers whose hemoglobin was less than 10 gm/dl at some time during the ante-natal period experienced significantly higher perinatal mortality (97.1/1000) than in those with hemoglobin greater than 10 gm/dl or more (25.1/1000)[17].

CONCLUSION

The main causes of perinatal deaths are preventable to a larger extent. For the prevention of these deaths, measures that can improve the outcome could be registration of pregnancy, antenatal care promotion of institutional deliveries, strengthening of referral system and early detection of danger signs by health workers through training. Reporting of deaths should be made mandatory and according to system. While achieving good quality vital registration data should be a long-term objective, alternative methods of ascertaining and estimating cause-of death distributions at the community stage must be used in the short-term.

Ethical Clearance: Prior to the start of the study, approval was taken from the Board of Studies (BOS), Department of Community Medicine, Faculty of Medicine., J.N. Medical College, A.M.U., Aligarh.

Conflict of Interest: None to declare.

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ABO Blood Groups and Oral Squamous Cell Carcinoma

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ABSTRACT

Background: The ABO blood type, an easily accessible factor in patient's genetic makeup, has been associated with many diseases.

Aim: To investigate the association between oral cancers and ABO blood groups.

Materials & Method: In the present study 108 patients of histopathologically diagnosed oral squamous cell carcinoma and 1000 individuals with habit of tobacco chewing were included with their blood groups.

Results: Blood group A and B individuals in their 4th and 5th decades of life were more susceptible to oral cancer which is statistically significant. Patients of well differentiated squamous cell carcinoma were predominantly in B blood group and moderately differentiated were in A blood group which is statistically highly significant. Tobacco chewing habit was predominant in B blood group individuals followed by A , O and least in AB blood group individuals.

Conclusion: Tobacco chewing habit was predominant in males of Gujarat state, India and individuals with blood group B were more prone to tobacco chewing habit and oral squamous cell carcinoma in their 4th to 6th decades of life. Buccal mucosa was the predominantly affected site in B blood group individuals followed by O blood group individuals, which suggested genetic susceptibility in oral squamous cell carcinoma.

Keywords: *ABO Blood-Group, Buccal Mucosa, Genetic, Oral Squamous Cell Carcinoma, Tobacco*

INTRODUCTION

Cancer, name generally is enough to warrant concern or trepidation. Oral squamous cell carcinoma is 3rd most common of all malignancies of the body. Now a days its incidence increases in almost all parts of the India. Till today its exact aetiology is not known. Many studies have shown significance of genetic factors in development of oral cancer. Development of cancer is called Carcinogenesis, which is a multi-step process and requires accumulation of several molecular genetic alterations in the epithelial cells occurs due to change in protein and DNA adduct level. It is observed that blood group susceptibility to carcinogens reflect fundamental biochemical response of the body, hence it may be useful

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to determine genetic susceptibility of cancer therefore many researchers have tried to find out the association between ABO blood groups and malignant tumours. ABO blood groups are a stable feature of population which is inherited and they differ among various geographic and ethnic groups.[1]

Tobacco is genotoxic and causes oral cancer by damaging the DNA; even though it is definite that a large numbers of people having identical tobacco habit in same environment all of them do not develop oral cancer. Therefore it switches to our mind that there should be some associated factor that can play a role in occurrence of oral cancer. Blood group is one of the inherited factor and documentation of appearance and disappearance of blood group antigen in many cancer has been reported. In 1953 Aird et al, reported close association between gastric cancer and blood group A.[2] Since then many had reported the association between different malignant tumours and blood groups. In India 1970 Pradhan et al, reported significant relationship between blood group B and blood group AB with oral cancer.[3] Hence the present study was planned to find out the association of blood groups and oral squamous cell carcinoma in Gujarat state of India with the aim to establish its role in cancer screening program because in recent year tobacco chewing habit is much more prevalent in pre-teen and young adults in Gujarat.

MATERIALS AND METHOD

In the present study 108 patients who were histopathologically diagnosed and treated for the oral squamous cell carcinoma by various oncologist of Ahmedabad city of Gujarat state were included. The details of ABO blood groups and tobacco habits were collected from their recorded data file. 1000 normal individuals who had habits of chewing tobacco in various forms for more than one year duration but without any apparent oral lesions were selected randomly as control in the study. Their blood groups were noted.

STATISTICAL ANALYSIS

All the data were analysed with software SPSS version 17.0. The Chi –square test used for qualitative data. All the analysis was done at 5% level of significance.

Table 1: Correlation between grades of oral squamous cell carcinoma, patients' blood groups and age groups

AGE	BLOOD	GRADES OF ORAL SQUAMOUS CELL CARCINOMA						TOTAL		P VALUE
GROUPS	GROUP	WELL		MODERATE		POOR				
		n	%	n	%	n	%	n	%	
30-39	A	1	0.93	5	0.05	0	0	6	0.06	0.044
	B	10	0.093	3	0.028	0	0	13	0.12	
	AB	1	0.009	3	0.028	0	0	4	0.037	
	O	2	0.019	4	0.037	0	0	6	0.056	
40-49	A	1	0.0093	5	0.0463	0	0	6	0.056	0.048
	B	11	0.102	3	0.028	0	0	14	0.13	
	AB	1	0.009	3	0.028	1	0.009	5	0.046	
	O	2	0.019	2	0.019	1	0.009	5	0.046	
50-59	A	5	0.046	4	0.437	0	0	9	0.083	0.98
	B	4	0.037	3	0.0278	0	0	7	0.065	
	AB	0	0	0	0	0	0	0	0	
	O	9	0.083	8	0.074	0	0	17	0.157	

60-69	**A**	1	0.009	3	0.028	0	0	4	0.037	0.392
	B	1	0.009	0	0	0	0	1	0.009	
	AB	1	0.009	0	0	0	0	1	0.009	
	O	1	0.009	1	0.009	0	0	2	0.019	
70-79	**A**	0	0	2	0.019	0	0	2	0.019	0.364
	B	2	0.019	0	0	1	0.009	3	0.028	
	AB	1	0.009	1	0.009	0	0	2	0.019	
	O	0	0	1	0.009	0	0	1	0.009	
TOTAL		54	0.5	51	0.4722	3	0.0278	108	1	

*: SIGNIFICANT

Table 2: Shows correlation between tobacco chewing habits, blood groups and age groups of control

AGE	**BLOOD**	**HABIT**								**TOTAL**		**P VALUE**
GROUP	**GROUP**	**BETEL NUT**		**GUTKHA**		**MAVA**		**TOBACCO+ LIME**				
		n	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	
20-29	**A**	18	0.02	28	0.03	14	0.01	34	0.03	94	0.09	0.028
	B	16	0.02	38	0.04	16	0.02	28	0.03	98	0.1	
	AB	2	0.002	20	0.02	3	0.003	4	0.004	29	0.029	
	O	10	0.01	26	0.03	18	0.02	22	0.02	76	0.08	
30-39	**A**	12	0.01	26	0.03	12	0.01	12	0.01	62	0.06	0.017
	B	8	0.01	20	0.02	22	0.02	18	0.02	68	0.07	
	AB	2	0.002	10	0.01	2	0.02	4	0.04	18	0.018	
	O	0	0	22	0.02	10	0.01	4	0.04	36	0.04	
40-49	**A**	4	0.004	26	0.026	14	0.014	22	0.022	66	0.066	0.018
	B	6	0.06	34	0.03	30	0.03	40	0.04	110	0.11	
	AB	1	0.01	15	0.02	4	0.04	3	0.03	23	0.02	
	O	0	0	18	0.02	12	0.01	32	0.03	62	0.06	
50-59	**A**	2	0.002	18	0.018	14	0.014	14	0.014	48	0.048	0.622
	B	4	0.004	18	0.018	14	0.014	18	0.018	54	0.054	
	AB	0	0	6	0.06	2	0.02	4	0.04	12	0.01	
	O	0	0	22	0.02	20	0.02	18	0.02	60	0.06	
60-69	**A**	4	0.004	8	0.008	2	0.002	4	0.004	18	0.018	0.101
	B	2	0.002	6	0.006	4	0.004	2	0.002	14	0.014	
	AB	0	0	6	0.01	8	0.01	0	0	14	0.01	
	O	0	0	6	0.006	2	0.002	2	0.002	10	0.01	
70-79	**A**	0	0	4	0.004	4	0.004	2	0.002	10	0.01	0.008
	B	0	0	0	0	8	0.008	0	0	8	0.008	
	AB	0	0	0	0	0	0	2	0.002	2	0.002	
	O	0	0	2	0.002	2	0.002	4	0.005	8	0.008	
TOTAL		91	9.1	379	37.9	237	23.7	293	29.3	1000	100	

* SIGNIFICANT

Figure 1: Correlation between age groups of Patients with oral squamous cell carcinoma

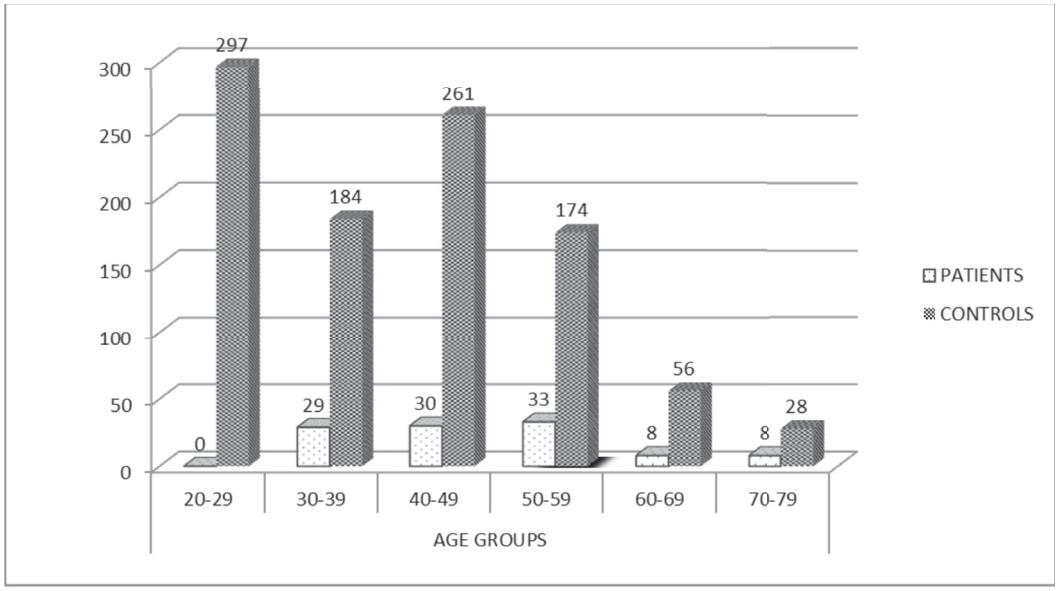
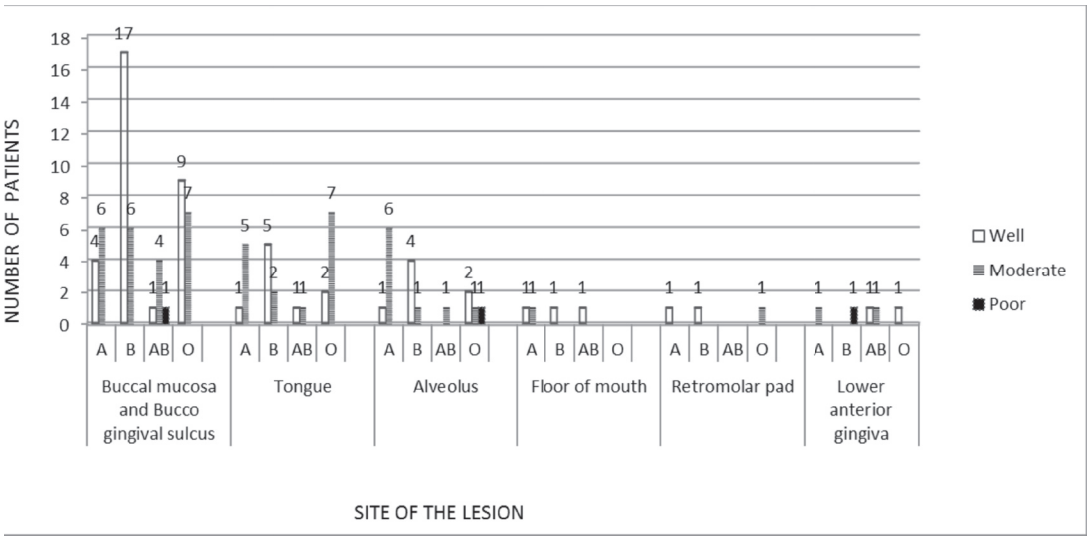


Figure 2: Correlation between sites and blood groups of Patients with oral squamous cell carcinoma



RESULT

In this study all the 108 patients with various grades of oral squamous cell carcinoma were male having habits of Gutkha, Mava, and Tobacco+Lime .The distribution of patients were made according to their age groups and blood groups. Majority of patients were of well differentiated 54(50%) and moderately differentiated 51(47.22%) squamous cell carcinomas, while only 3(2.78 %) were of poorly differentiated squamous cell carcinoma. The blood group A and B individuals in their 4th and 5th decades of life were more susceptible to oral cancer which is statistically significant (P=0.044 and 0.048), whereas in the 6th decade O group individuals were more affected and AB group seems to be least susceptible to oral cancer. Well differentiated squamous cell carcinoma was predominant in B group and seen in 28 individuals, but moderately differentiated squamous cell carcinoma was predominant in A group and seen in 19 individuals which is statistically highly significant (P=0.0078). On assessing the incidence of oral cancer in regard to various blood groups, high incidence was seen in

B group individuals (35.2%) followed by O group and A group and least in AB group individuals which is shown in Table 1.

The individuals with tobacco chewing habit without any lesion were considered as control. They were in the age range of 20 to 79 years and had various tobacco chewing habits such as Gutkha, Tobacco+Lime, Mava/Kheni and Sweet/plain Betel nuts. Amongst them Gutkha chewing was the most predominant habit followed by tobacco+lime, Mava, and betel nut chewing. In A and B group individual these habits were more prevalent in 3rd , 4th and 5th decades of life while in O group individuals it was more common in 6th decades. Along with this it appears that chewing habit was predominant in B group individuals followed by A group, O group and least in AB group individuals which is shown in Table 2.

It is observed that oral cancer occurs after a decade from start of tobacco chewing habit. Therefore in the present study habit was started in third decade and seen in 297individuals and remains pronounced up to 5th decades, whereas oral cancer occurred in the 4th decades and observed in 29 patients and gradually there was increase in its incidence in subsequent decades up to 6th decades and thereby it decreases which is shown in Figure 1. It is also observed that A, B, AB and O group individual had oral cancer mainly on buccal mucosa, tongue and alveolar process with predominance of buccal mucosal involvement, where as other sites were least affected which is shown in Figure 2.

DISCUSSION

Blood group is an inherited element which is helpful in determining the genetic susceptibility or protection of persons against cancer. Many researchers have tried to correlate the relationship between the blood group and cancer of various organs including oral cancer. It may be considered that the presence of particular blood group has shown susceptibility to different disease, but its association in oral cancer still remains controversial.

The present study comprised 108 patients with oral squamous cell carcinoma and 1000 individuals having various tobacco chewing habits with the same geographic environment and blood groups of all of them were identified. From the present finding it is clearly evident that group B and group O individuals were more susceptible to oral cancer as compare to A group individual while in AB group individual the susceptibility was doubtful. Mital et al and Raghwan et al reported least susceptibility of group B individual, but finding of Pradhan et al and Ghooi et al are quite similar to us.[3,4,5,6] Bushranaaz et al reported blood group A had 1.46 times higher risk of developing oral cancer compared to people of other blood groups.[7] We observed that oral cancer was predominant in 4th to 6th decades which were in accordance with Koffi Amegbor et al, who noted 82% of oral cancer patients in 4th to 6th decades.[8] We also investigated the blood group association with grades of oral squamous cell carcinoma where B group individuals were predominantly affected by well differentiated squamous cell carcinoma and A group individuals were predominantly affected by moderately differentiated squamous cell carcinoma and these findings are highly significant. This difference may be because of some genetic variation between two blood groups as in both the groups; individuals were of same age group and had identical tobacco habit.

On assessing the tobacco chewing habit it was more pronounced in B group individuals followed by A, O and AB group individuals and accordingly in the present study B group individuals were more affected by oral cancer. On the contrary O group individuals with tobacco chewing habit were somewhat less as compare to A group, even though oral cancer was slightly more pronounced in O group individuals. The difference was not observed between tobacco chewers and oral cancer individuals in AB groups because of least number.

There was marked difference in occurrence of oral cancer on various oral sites in individuals with different blood groups. The buccal mucosa was predominantly affected in B group individuals, tongue was more affected in O group and alveolar process was more affected in A group individuals with well to moderate grades of oral squamous cell carcinoma. The findings of Ghooi et al are quite similar to us.[6] Mital et al did not find any

site predilection in B group individuals but all the three sites were predominantly affected than the other groups of individuals.[4] While Tyagi et al and Raghavan et al reported high incidence of oral cancer of buccal mucosa in A group individuals and Pradhan et al did not find any difference in cancer of buccal mucosa and tongue with blood group A and B. [3, 5, 9] Thus it appears that there is some difference in the finding of studies of other states from India. That might be due to geographic and ethnic variations. Therefore the racial and ethnic distribution of blood groups play an important role to predict the cancer risk in mask screening for oral cancer specifically in people with tobacco chewing habit.

CONCLUSION

This study conclude that tobacco chewing habit was predominant in males of Gujarat state, India and individuals with blood group B were more prone to tobacco chewing habit and oral squamous cell carcinoma in their 4^{th} to 6^{th} decades of life. The buccal mucosa was the predominantly affected site in B group individuals followed by O group individuals, which suggest genetic susceptibility in oral squamous cell carcinoma.

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Knowledge of Diabetes Mellitus and its Risk Factors among Known Diabetic Patients of Urban Poor: a Community Based Study

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ABSTRACT

Aim: To assess the knowledge of diabetes among diabetic patients of urban poor.

Background: Diabetes has been a major threat to public health, as 3.2 million deaths are attributed to diabetes every year. The management of diabetes depends on awareness of patient regarding diabetes, self care activities and knowledge of symptoms and complications.

Materials and method: The study was carried out in the Urban Health Center area of Belgaum. The knowledge of diabetes, its risk factors, signs or symptoms and complications was assessed among diabetic patients, by using scoring system. Data was analyzed using percentages, proportions and statistical test (chi-square test) was used for categorical data.

Results: The study revealed that, out of 192 diabetic patients, 108(56.25%) knew something about diabetes. Among 109(56.77%) who knew about its risk factors, only 44(22.92%) knew all the risk factors and more than half, [104(54.17%)] patients knew the impact of diabetes on other organs.

Keywords: *Diabetes, knowledge, symptoms, Complications, awareness, risk factors.*

INTRODUCTION

An epidemic of Non Communicable Diseases has set, in developing countries posing a major health burden. The world wide prevalence of diabetes is estimated to increase to 5.4% by 2025 and developing countries will be responsible for 75% of diabetics in 2025.[1] The highest burden will be on India being the second most populous country in the world, which is predicted to, almost 70 million Diabetics in India and will be a diabetic capital of the world by 2025. [2]

The co-morbidities and complications can affect the quality of life of diabetics and can be severe or fatal if not detected and treated promptly, especially among vulnerable population groups including urban poor, low income groups, illiterates etc.[3] Diabetes has been a major threat to public health as 3.2 million deaths are attributed to diabetes every year. [4]

The management of diabetes depends on knowledge of patient on self care activities, knowledge on symptoms, complications etc. The diabetes is a lifelong disease and poses a huge economic burden on patients especially treatment

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and management of complications. World Bank estimated that diabetes will account for 1,870,000 isability adjusted life years (DALY) in India, with per capital health expenditure of $21. [5] Awareness of disease, its risk factors, associated symptoms and complications, is equally important in preventing complications and managing disease condition as treatment and restriction of diet. There are evidences that, diabetic patients often have inadequate knowledge of disease and its complications which markedly increase their risk of CVD, stroke, kidney failure etc.[6]

According to a study, the education intervention improved diabetics' knowledge and long term control of diabetes.[7] The questions are whether our patients are aware about their disease, its symptoms and complications. There is a need to assess the level of awareness about diabetes and assess educational needs of diabetic patients; hence, the study was planned to provide base line information to develop an appropriate education tool for intervention program.

MATERIALS AND METHOD

The study was carried out in the Urban Health Center area of Khasbag, Belgaum, where in, an underprivileged population resides. The study was conducted over a period of one year (2008-2009) after obtaining ethical clearance from institutional ethical committee. The house to house survey was conducted in ward 21 to select the patients. All known adult diabetic patients and patients who gave written consent were included in the study. A pre designed and pre tested questionnaire was used as study tool which comprised of general information, knowledge on diabetes, its risk factors, signs or symptoms and complications. The level of awareness was assessed by using scoring system. Each correct answer was awarded with maximum score 2, not sure answers was given 1and incorrect response was given 0 point. Data were analyzed using percentages, proportions and statistical test (chi-square test) was used for categorical data.

RESULTS

A total of 192 subjects were identified and included in the study. Among the interviewed 107(55.73%) were males and 85(44.27%) were females. Out of 192 diabetics, 120(62%) were literates and majority 115(59.88%) belonged to class IV and V socio-economic status and 101(51.05%) were working in an unorganized sector.

More than half (53.64%) of diabetic patients were between 36 to 60 years, which is the most productive age group. The overall knowledge of diabetic patients was average. The study revealed that, 108(56.25%) patients said that, they know something about diabetes and it is rapidly increasing, but only 11(10.18%) knew about the types of diabetes.

Regarding knowledge on risk factors of diabetes, 93(48.44%) patients did not know about the risk factors which can precipitate diabetes. Among 109(56.77%) who knew at least one risk factor, 44(22.92%) knew all risk factors, 9(4.68%) said physical inactivity, 17(8.86%) said family history of diabetes as a risk factor and 13(6.77%) stated obesity as a risk factor of diabetes. Most of the patients 160(83.33%) knew one or other symptoms of diabetes mellitus.

The knowledge about impact of diabetes on other organs and complications of diabetes was also assessed among the patients. More than half, 104(54.17%) patients knew the impact of diabetes on other organs. Among them 19(18.26%) said it affects eyes, 20(19.23%) said kidneys, 11(10.51%) as heart and 36(34.61%) said that diabetes affects multiple organs. Majority 142 (73.93%) of patients had knowledge of complications associated with diabetes mellitus.

The knowledge of men was better than females and the association of knowledge and gender was significant. The knowledge among business men was average and knowledge among people in un-organized sector was poor. The significant association was found between knowledge of diabetes and occupation.

Table No 1:

Knowledge regarding symptoms of diabetes mellitus among diabetic patients.

Knowledge of Symptoms	**No**	**Percentage**
Yes	160	83.33
No	32	16.66
Types of Symptoms		
Itching	8	5.00
Drowsiness	8	5.00
Weight loss	9	5.62
Sweating	9	5.62
Slow healing	10	6.26
Visual disturbances	**15**	**9.37**
Excessive hunger	**16**	**10.00**
Thirst	**16**	**10.00**
Excessive urination	**19**	**11.88**
Multiple	**50**	**31.25***
Total	**160**	**100.00**

Table No 2: Knowledge regarding Complications of Diabetes Mellitus among diabetic patients.

Knowledge of Complications	**No**	**Percentage**
Yes	142	73.95
No	50	26.05
Knowledge of various Complications		
Oral complications	2	1.40
Fever	2	1.40
Joint pains	4	2.82
Raised Blood pressure	9	6.33
Gangrene/foot ulcer	10	7.04
Hypoglycemia	11	7.74
Digestive problems	12	8.46
Heart	**13**	**9.17**
Nephropathy / Kidney problems	**16**	**11.26**
Retinopathy / eye problems	**18**	**12.68**
Multiple	**45**	**31.70***
Total	**142**	**100**

Table No 3: Association of level of Knowledge on Diabetes and Socio –economic factors.

Level of Knowledge	Poor	Average	Good	Total
Gender Male Female	 12(11.21%) 26(30.58%)	70(65.42%) 51(60.00%) **X^2=14.57 df=2 p=.001**	25(23.36%) 8(9.41%)	 107 85
Education Illiterates Primary School Secondary School PUC & above	 29(39.73%) 7(11.11%) 2(5.55%) 0.00	44(60.27%) 50(79.36%) 18(50.00%) 9(45%) **X^2= 76.36 df=6 p = .001**	 0.00 6(9.52%) 16(44.44%) 11(55.00%)	 73 63 36 20
Socio-Economic Class I Class II Class III Class IV Class V	 0.00 2(13.33%) 2(3.63%) 16(22.53%) 18(40.90%)	3(42.85%) 9(60.00%) 38(69.09%) 46(64.78%) 25(56.81%) **X^2=34.08 df=6 p=.001**	 4(57.15%) 4(26.66%) 15(27.77%) 9(12.67%) 1(2.27%)	 7 15 55 71 44

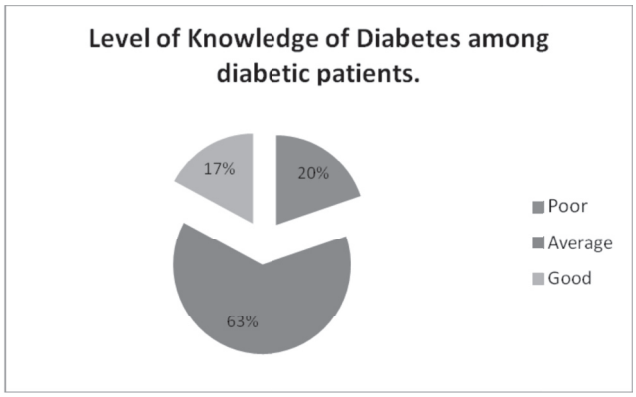

Fig:1

DISCUSSION & CONCLUSION

Diabetes is a life time problem and its management is most complex one with poor awareness about the disease. Many studies have showed poor general awareness of disease among patients, which varied by age, sex, social status and place. In present study 56% had correct knowledge of diabetes and 90% did not know about its types. In Nepal study 82% knew about the disease they suffering.[8] And a study conducted in Chennai revealed that 75% of population knew about disease.[9] The knowledge about disease among patients was slightly better than our population. Thus knowledge varied from place to place.

Fifty percent patients in the present study, knew about the risk factors of diabetes whereas, in a study conducted in Ludhiana only 28.7% knew about the risk factors of a disease .[10] The urban population had better knowledge about risk factors. Only one third of patients in Belgaum knew multiple symptoms and risk factors of DM where as in Karachi, Pakistan 42.2% patient could not name a single symptom of disease.[6] The knowledge regarding complications was better as, 73.95% subjects were aware about complications of diabetes and one third of patients knew multiple complications. Similar, study in southern Indian city showed that, less than 30% patients were aware of complications of diabetes, which was poor compared to our study subjects .[11]

Though overall knowledge of diabetes was good, many patients were unaware about the symptoms and risk factors associated with diabetes. There is a need to improve the knowledge level of patients regarding risk factors, symptoms and complications of diabetes, which they suffer from.

From the study results we may conclude that, health education program is the need of the time, which aids self care and improve the quality of life and life span of diabetic patients.

The study also recommends for an urgent need for cost effective, new strategies like shared care approach in health promotion programs, which will have a significant benefit with regard to disease prevention, detection, patient compliance to the treatment, self care & management of complications.

There may be various other factors associated with poor knowledge of disease. There is a need to understand and explore these factors of poor awareness level. This may help us to improve the quality of life of diabetic patients and in turn improve the management of co morbidities and complications associated with diabetes mellitus.

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Determining the Perceived Body Image and Dieting Attitude among High School Students in Selected Schools of Udupi District

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ABSTRACT

Objective : The objectives of the study were to determine perceived body image and dieting pattern among the high school students of Udupi district

Materials and method : A descriptive survey design was used and samples were selected using multi stage sampling technique. Samples consisted of 200 high school students from four high schools. Multistage sampling technique was used. The analysis of the data was done using inferential and descriptive statistics.

Results : Majority, 97 (48.5%) of the samples had moderate perception of their body image. The mean value of the student's perception of body image total score was 59.7. The standard deviation was 17.32. It was also found that majority, 113 (56.5%), of the high school students followed unhealthy dieting attitude. The mean (SD) of the total score of the dieting attitude was 1.565(0.497).

Conclusion : Nutrition is very important for children. Poor nutrition is often cited as a major reason for the delay in the onset of puberty among adolescents. The present study revealed that majority of the students had moderate perception of one's body image and followed an unhealthy dieting attitude. The growth spurt and increase in body fat that occurs with puberty may predispose the adolescents to weight preoccupation, body shape dissatisfaction and harmful weight control.

Keywords : *Perceived body image, dieting attitude, high school students*

INTRODUCTION

One in every five people in the world is an adolescent, and 85% of them live in developing countries. The world health organization in its fact sheet on 'adolescent health' stated that nearly two thirds of premature deaths and one third of the total disease burden in adults were associated with conditions or behaviours that began in youth which included tobacco use, large intake of junk food, a lack of physical activity, unprotected sex or exposure to violence.[1]

A study was conducted by Lila on the aspects of body image perception among preadolescent girls in Northeastern Johannesburg, South Africa. The study revealed that the subjects placed much importance on being thin. Among the samples, 63.96% adolescents felt that if a girl was thin she would be more popular. Also 73.80% felt that they would be healthier if they are thin. The study concluded that a negative body image and disordered eating habits are relatively common among females.[2]

The Human Development Report (2009) which was prepared by the United Nations Development Programme (UNDP) reported high rates of

malnutrition among children in slums, and the urban elite and also highlighted the fact that rich urban children eat excessive calorie which are nutrient empty (devoid of minerals and vitamins). Obesity with micronutrient deficiency and protein energy malnutrition is on the rise among children and adolescents in urban India.[2]

An early identification of the unhealthy eating regimens or under nutrition in children will help in undertaking timely actions to ensure a better future for them.[4] Therefore, the researcher felt a need to do the present study to determine the extent of body weight and body shape dissatisfaction in a group of high school students and to examine whether body mass index (BMI) and perception of body image predict changes in the dieting attitude.

METHODOLOGY

The present study was conducted in Udupi district of Karnataka. A total of 200 high school students were selected. The study was conducted in four high schools (three kannada medium and one English medium) of the Udupi district.

Correlational survey design was considered to be the most appropriate design to assess the perceived body image, BMI and dieting attitude among the high school students.

The instruments included Dieting attitude scale and Perceived body image scale. The dieting attitude scale included 26 items. The scale was categorized as healthy dieting attitude and unhealthy dieting attitude. Both positive and negative items were included. Negative items were reversely scored. The reliability of the dieting attitude scale was found to be 0.8. The perceived body image scale included 22 items. Three point rating scale was used to rate the items. To analyze and interpret the perceived body image, the scale was categorized as mild perception of one's body image (1-36), moderate perception of one's body image (37-72), high perception of one's body image (73-110). Both positive and negative items were included. Negative items were reversely scored. The reliability of the perceived body image scale was found to be 1.0.

The data collection was done after obtaining the administrative permission from the college and from various schools on January 2012. The sampling technique used for the study was multistage sampling technique. Out of 4 zones in the Udupi District (Brahamavara, Baindoor, Karkala, Kundapura) the Karkala zone was selected using simple random sampling technique. In Karkala, there are 19 private high schools and 21 government high schools. By systematic sampling (k=4th school) of the private high schools, four private high schools were selected. Students belonging to 8th, 9th, 10th standard were randomly selected from each school. Questionnaires were administered out to the randomly selected students.

FINDINGS

Table 1 reveals the perceived body image of the students collected using the perceived body image scale. It is presented in terms of frequency, percentage, mean and standard deviation.

Table 1: Percentage, frequency, Mean and standard deviation of perceived body image of the high school students

n=200

Perception of body image	Frequency	Percentage (%)	Mean	Standard deviation
Mild perception	41	20.5		
Moderate perception	97	48.5	59.7	17.32
High regard to body image	62	31		

Majority, 97 (48.5%) of the samples had moderate perception of their body image. The mean value of the student's perception of body image total score was 59.7. The standard deviation was 17.32.

Table 2 shows the Dieting attitude score collected using the dieting attitude scale which is presented in terms of percentage, frequency, mean and standard deviation

Table 2: Percentage, frequency, Mean and standard deviation of dieting attitude of the high school students

=200

Dieting attitude	Frequency	Percentage (%)	Mean	Standard deviation
Healthy attitude	87	43.5	69.68	9.46
Unhealthy attitude	113	56.5		

Table 2 findings reveal that majority, 113 (56.5%), of the high school students followed unhealthy dieting attitude. The mean (SD) of the total score of the dieting attitude was 1.565(0.497).

Table 3 reveals the relationship between perceived body image and dieting attitude. The data shows that there is significant relationship between perceived body image and dieting attitude. The finding of the study inferred that perceived body image and dieting attitude is negatively correlated i.e., high regard of one's body image will lead to unhealthy dieting attitude among high school students.

Table 3: Correlation between the Perceived Body Image and dieting attitude

= 200

Variables	"r" value	p - value*
Dieting attitude Perception of body image	-0.438	0.000

*p<0.05

Table 4 depicts the association between perceived body image and selected demographic variables. The chi square tests were calculated. The following null hypothesis was formulated to test the significance of association between perceived body image and selected demographic variables including age, gender, class of study, and birth order in the family.

Ho_1: There will be no significant association between perceived body image and selected demographic variables at 0.05 level of significance.

Table 4: Association between perceived body image and selected demographic variables

n =200

Demograhic characteristics	Mild perception (f)	Moderate perception (f)	High perception (f)	Chi square	df	*p*-value	Significance*
Age							
12-14	76	28	10	7.805	2	0.020	S
15-17	42	37	7				
Gender							
Male	57	34	4	4.550	2	0.103	NS
Female	13	31	61				
Class							
8	27	7	4	5.760	4	0.218	NS
9	53	30	9				
10	38	28	4				

*NS- not significant, S- significant

The chi square values presented in table 4 reveals that there is significant association between age (*p*-value=0.028) and perceived body image at 0.05 level. Thus, the null hypothesis Ho_1 is rejected indicating significant association between these variable. Whereas no association is observed between perceived body image, gender and class. These variables are independent of the perceived body image.

Table 5 reveals on the association between dieting attitude and selected demographic variables. To find the association between dieting attitude and selected demographic variables, the following hypothesis was formulated to test the significance of association between dieting attitude and selected demographic variables including gender, birth order, and class of study.

$H0_2$: There will be no significant association between dieting attitude and selected demographic variables at 0.05 level of significance.

Table 5: Association between dieting attitude and selected demographic variables

n =200

Demographic characteristics	Healthy	Unhealthy	Chi square	df	*p*-value	Significance*
Age						
12-14	45	69	1.749	1	0.186	NS
15-17	42	44				
Gender						
Male	49	46	4.805	1	0.028	S
Female	38	67				
Class						
8	17	21				
9	36	56	1.471	2	0.479	NS
10	34	36				

*NS- not significant, S- significant

The chi square values presented in table 5 shows that gender (*p*-value=0.028) is significant with the dieting attitude at 0.05 level. There is no association found between dieting attitude, age, and class. These variables are independent of the dieting attitude.

DISCUSSION

The present study revealed that majority of 97(33.1%) of the samples had moderate perception of one's body image and 62(21.2%) had high regard to one's body image. The findings were supported by a descriptive-analytical survey conducted in Iran by M. Akbarbegloo among the students of Urmia University in Iran. Simple random sampling was used to select 260 Iranian students. The results of this study revealed that perceived body image concern in students was moderate (57.47±5.6). Females were significantly more concerned about body image ($p<0.02$) but no significant correlation between BICI and age ($r = -0.07$, $p<0.25$) was found.[3]

The findings of the present study revealed that a majority of the samples 113 (38.6%) had unhealthy dieting attitude and 87 (29.7%) had healthy dieting attitude. The findings were supported by a study conducted by Margaret Grigg et al to assess the disordered eating and unhealthy weight reduction practices among adolescent females. Eight hundred sixty-nine Australian school girls ages 14–16 years were selected using stratified sampling technique. Of the total sample, 77% wanted to lose weight and 51% had tried to lose weight in the past month.[4]

The present study revealed that there is moderately negative but significant relationship between perceived body image and dieting attitude. A cross-sectional survey was carried out

by Ramberan K, Austin M, Nichols S to assess the ethnicity, body image perception and weight-related behaviour among adolescent females attending secondary school in Trinidad. A total sample of 250 adolescent females was selected using simple random sampling technique. Fifty-one per cent of participants had a negative body image perception. Altered body image perception was associated with a significant higher mean Body Shape Questionnaire BSQ16 score ($p < 0.001$) and increased likelihood of reporting being diagnosed with an eating disorder (OR = 2.03, 95% CI: 1.78, 2.31; $p = 0.01$) compared to non-altered body image state.[5]

The present study revealed that there is association between gender (x^2=0.028) and dieting attitude at 0.05 level. These findings were supported by a cross-sectional survey conducted by Rafael T et al to assess the relationship between perceived body weight and body mass index based on self- reported height and weight among university students in seven European countries. The study found out that adolescent girls and boys (n=2,500) only consumed 12 and 30 percent, respectively, of the Food Guide Pyramid's serving recommendations for dairy; and 18 and 14 percent, respectively, of the serving recommendations for fruit.[6]

IMPLICATION

Nursing practice

Nurses, as members of the health care team, have a specific role to play when it comes to the children's perception of their body image. A complete nursing assessment can very well illustrate the underlying problem. The present study emphasizes the fact that it's important to help children have a good perception of his/her body image so as to contribute to healthy dieting attitude. The study draws the attention of the nurses towards importance of routine health checkups to analyze the student health and life style and contribute to student's lifestyle modification.

Nursing Education

The nursing curriculum consists of knowledge related to health information and appropriate strategy to impart knowledge. The education should be directed in such a way that students are able to identify the risk factors of unhealthy dieting issues that can arise. Assessment of the health needs of the school aged children and formulation of long term and short term goals and objectives are the major functions of the nurse educator.

Nursing Administration

The nurse administrator needs to supervise and evaluate the nursing aspects and nursing outcomes of the school health programs. They have the obligation to motivate the nursing personnel, impart knowledge and educate them with the recent health issues. The nurse is in a position to plan comprehensive care to the children.

Nursing Research

Nurse researchers are at a position to identify new stream of possibilities and impart them for the betterment of tomorrow. Researchers need to evaluate the students at a broad level. With the rising of the technology, the nurse needs to undertake more school health programs to mould students on to importance of right perception of their body image with healthy dieting attitude.

Recommendations

- A similar study can be replicated using a larger population drawn from different districts.
- An evaluative study on the effectiveness of a school health program can be conducted on the knowledge and dieting attitude of the high school students.
- A comparative study can be done to assess the perceived body image, dieting attitude and BMI between two age groups.

CONCLUSION

Nutrition is very important for children. Poor nutrition is often cited as a major reason for the delay in the onset of puberty among adolescents. The present study revealed that students had moderate perception of one's body image and that majority of the students followed unhealthy dieting attitude. In general, adolescents have insufficient knowledge of food composition and

healthy nutrition. They find it difficult to follow healthy eating recommendations and frequently consume foods that they perceive as unhealthy.

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Injury Profile in Basketball Players

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ABSTRACT

Background and purpose: Basketball is a popular team sport worldwide played in professional leagues, school teams, college teams. Though basketball is considered as a limited contact sport, athletes are at a risk for acute injuries as a result of trauma from collisions and falls and tremendous stress placed on the body from acceleration, deceleration, pivoting and explosive movements as basketball is a fast aggressive sport. This demands good physical fitness such as equilibrium, strength, stamina, flexibility, power and reaction time. Since this sport is gaining popularity in India the purpose of this study is to study the injury profile in basketball players.

Objective: To identify the most common injury, site of injury, nature of injury and recommend exercise guidelines for prevention of injuries in basketball players.

Study Design: Cross sectional survey.

Methodology: 80 basketball players were interviewed using a validated questionnaire. The data obtained was analysed using simple percentage.

Result: The commonest site of injury in the lower extremity is ankle(56%) followed by knee(18%). The most common nature of injury was the ligament injury with the lateral ligament complex being commonly involved followed by ACL.

Conclusion: Ankle sprains were the commonest injuries occurring in basketball players and ankle was the most common site of injury.

Keywords: *Basketball, injuries, training session.*

INTRODUCTION

Basketball was developed in 1891 by Dr. James Naismith for Y.M.C.A . Basketball is a popular team sport worldwide played in professional leagues, school teams, college teams, recreational leagues ,etc[1].

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It is the highest contributor to sports and recreation related injuries. National and provincial statistics show that more youngsters are injured playing basketball.1 in 7 of all sport and recreation related injuries at this age occur due to basketball[2].

The risk factors predisposing a player to an injury are classified as extrinsic and intrinsic factors.

Extrinsic factors for injury are level of competition , skill level, shoe type, brace, etc and intrinsic factors are age, sex, previous injury, inadequate rehabilitation, body size, strength, reaction time ,biomechanical factors,etc[4]. The

biomechanical factors are:

Movement analysis of the basketball shots[9]

The movement is divided into 4 phases:

Phase 1- Elevation from Triple threat to shot threat (starting position for clear to go)

Phase 2 – Arm push From Shot threat to end of arm push

Phase 3 – Hand push From arm push to End of hand push

Phase 4 – Follow through From hand push to follow through

Phases of jump-landing activity[10]:

Ground contact phase: Also known as landing phase.

Pre- loading flight phase

Initial landing phase

Pre-landing flight phase

Landing stance phase

Basketball injuries can be categorized into overuse and traumatic injuries although overuse injuries aren't very common.

OVERUSE INJURIES

Injuries caused by stressing an area over and over until it is damaged and begins to hurt are described as overuse injuries. One such injury is patellar tendinitis, or "jumper's knee," which is characterized by pain in the tendon just below the kneecap. Achilles tendinitis is another common overuse injury in basketball players. This injury of the tendon connecting the muscles in the back of the calf to the heel bone causes pain in the back of the leg just above the heel. Occasionally, the Achilles tendon can tear. Some basketball players overuse the tendons in their shoulders. The rotator cuff of the shoulder is composed of four muscles. The tendons that attach these muscles to the shoulder bones can become inflamed and painful, particularly when you do repetitive overhead activities, such as shooting the basketball.

Traumatic injuries are those caused by a sudden forceful injury. Some of the more common traumatic injuries in basketball are jammed fingers. In basketball players, these injuries occur primarily in the large muscles of the legs.

Although basketball is considered as a limited contact sport, athletes are at a risk for acute injuries as a result of trauma from collisions and falls and tremendous stress placed on the body from the sudden acceleration , deceleration , pivoting and explosive movements as basketball is a fast aggressive sport[3].This demands good physical fitness such as equilibrium , strength, power , stamina, flexibility and reaction time.

Thus, basketball players are at a tremendous risk of injury and the aim of this study is to study the injury profile in basketball players.

AIMS

To study the injury profile in basketball players

OBJECTIVES

- ❖ Identify the most common injury taking place in basketball players
- ❖ Identify the most common site of injury in basketball players
- ❖ Identify the most common nature of injury in basketball players
- ❖ Identify the percentage of individuals injured in a game or training session
- ❖ Identify the time of injury whether the first half or second half of the game
- ❖ Recommend exercise guidelines for prevention of injuries and its recurrence in basketball players

MATERIAL AND METHODOLOGY

- **Research approach:** Cross sectional survey
- **Study setting:** Mumbai, V.J.T.I college(Matunga),Fr Agnel's college(Vashi), Thadomal Sahani college(Bandra), Don Bosco high school(Matunga), Indian Gymkhana(Matynga).
- **Sample Size** : The study was carried out on80 subjects

- **Materials used** : Validated questionnaire
- **Inclusion Criteria:** The study includes injured players between the age of 18 to 26yrs.
- **Exclusion Criteria:** This study does not include the players who had no injuries while playing or practicing
- **Duration of study :** 3 months

RESULT AND OBSERVATION:

Table 1:

Demographic readings	Average	Standard deviation
Age	20.53	2.11
No of years	7.37	2.74
No of days	4.15	1.59
No of hours	2.7	0.83

Demographic data: Table 2:

INJURED DURING	Percentage
Game	56%
Training session	44%
1st Half	45%
2nd Half	55%

Table 3:

UPPER EXTREMITY	LOWER EXTREMITY
30%	70%

COMMONLY INVOLVED EXTREMITY

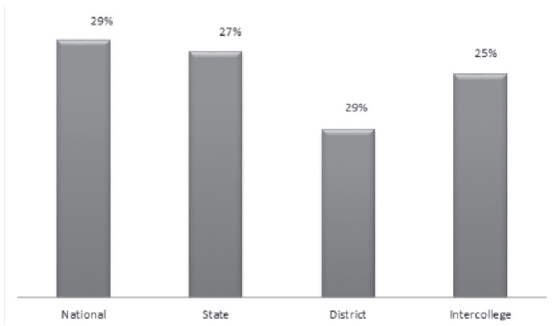
	YES (percentage%)
Protective gear use	57%
Awareness of specific shoes	100%
Use of specific shoes	92%

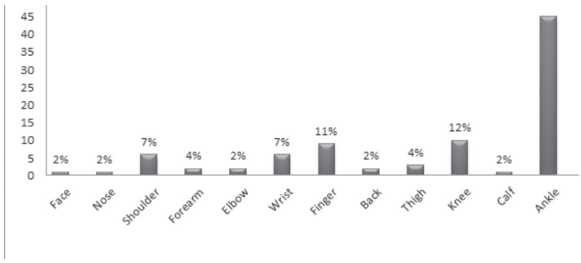
Table 4:

PREVENTIVE MEASURES

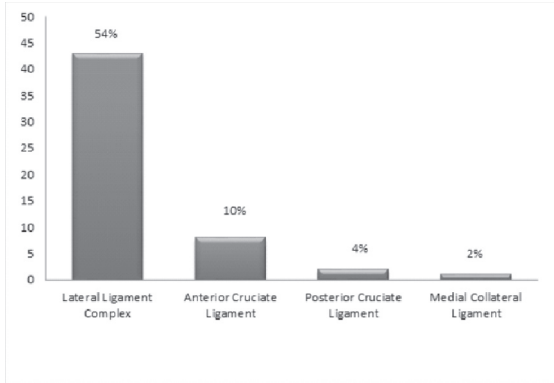
❖ PROTECTIVE GEAR USAGE

Graph 1) Different levels of participation

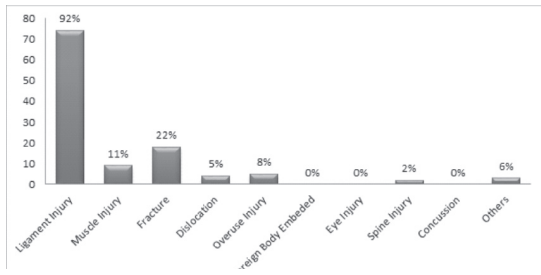




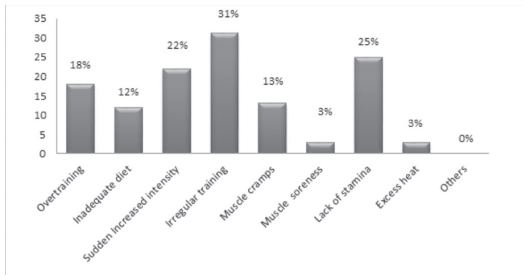
Graph2) Site of injury



Graph 3) Commonly Involved Ligament



Graph 4) Nature Of Injury



Graph 5) Causes of fatigue

DISCUSSION

According to graph 2, it is seen that the most common site of injury is in the following order:

Ankle> Knee> Wrist> Finger and shoulder> forearm and thigh> Calf, elbow, face, nose and Back. According to Table 3, it is seen that lower extremity is more commonly involved than the upper extremity. According to Graph 4, it is seen that the most common nature of injury is in the following order:

Ligament injury> fractures> muscle injury> overuse injury> dislocation> others> spine injury> eye injury> concussion> foreign body embedded.

According to Graph 3, the most commonly injured ligament is the lateral ligament complex of the ankle followed by anterior cruciate ligament followed by the posterior cruciate ligament followed by medial collateral ligament.

LIGAMENT INJURIES

Ankle: According to Graph 2 and Graph 4, ligament injury is the commonest and ankle is the most common site of injury.

Ligament injury is the most common injury occuring in the ankle joint. Ankle sprains are the most common of all basketball injuries. Most ankle sprains are noncontact injuries and the highest incidence occurs when rebounding during practice i.e. collecting the ball and landing[1].

Also the incidence of ankle sprain is higher in in athletes who have had a prior injury with no proper rehabilitation[1].

The most common mechanism of injury is landing with the foot plantarflexed and inverted and twisting of the ankle when the foot is in contact with the floor. Because of the anatomy of the ankle joint, the talar dome is held more tightly between the distal tibia and fibula when the ankle is dorsiflexed , for this reason ankle sprains are more likely to occur with plantarflexion and also because of the strength of the medial ligament the lateral ligament complex is more likely to be injured[1].

The anterior talofibular lgament is the most commonly involved ligament , the next most commonly involved ligament is the posterior talofibular ligament and last to be injured is calcaneofibular ligament[1.]

Knee: According to Graph 2 and Graph 3, knee is also commonly involved and ligament injury is the most common nature of injury.

The most commonly injured ligament is the anterior cruciate ligament. There are two mechanisms of injury contact and noncontact mechanisms. The most common noncontact mechanisms were landing and twisting while the foot is still in contact with the floor. This is a rotational mechanism in which there is lateral rotation of the tibia over a planted foot with internal rotation at the hip and valgus at knee[5]. ACL injuries occur shortly after foot strike with the knee near full extension[5]. The most common contact mechanism was a blow to the lateral aspect of the knee causing a valgus force to the knee. Contact was classified into the following: direct blow to the knee, collision of other kind, pushing, foot-foot contact, holding, or other[5].

The most common mechanism for posterior cruciate ligament was a blow on the anterior aspect of the tibia. The medial collateral ligament was injured in association with the anterior cruciate ligament. In general the most common mechanism of injury for the medial collateral ligament is a valgus force to the knee joint that stretches the ligament.

MUSCLE INJURIES

According to Graph 4, 16% of the subjects experienced a muscle injury. The most commonly strained muscles were hamstring, gastrocsoleus, rotator cuff. The mechanism of injury for rotator cuff was repetitive throwing at shoulder level and overhead.

The mechanism of injury for hamstring and gastrocsoleus strain is running :

The most common mechanism of injury for hamstrings is ballistic hip flexion during eccentric knee extension. The hamstrings function primarily by eccentric contraction to decelerate forward

progression of the tibia during the swing phase of gait. Eccentric contraction is more efficient than concentric contraction. It requires less oxygen but the tension generated during eccentric contraction is much higher than with concentric, generating higher intrinsic forces within the muscle and hence predisposing to injury. Disruption results in loss of normal eccentric control[6].

Gastrocsoleous strain occurs when there is sudden extension of knee with the foot in dorsiflexion[6].

FRACTURES AND DISLOCATION

According to graph 4, 24% of the subjects suffered from fractures and 6% suffered from dislo cations.

The most common sites of fracture are ankle, wrist, hand/finger, forearm and facial fractures involving the nose and jaw and zygomatic arch.

The most common mechanism of injury for ankle was forceful twisting.

For wrist and forearm the most common mechanism is a fall on an outstretched arm. For facial fractures there is a contact mechanism. For the fingers the injury is caused by a direct hit on the fingers by the ball.

OVERUSE INJURIES

According to Graph 4, 8% suffered overuse injuries

Overuse injuries are relatively less common in basketball. But there are certain injuries which occur, they are shin splints i.e. medial tibial stress syndrome .

It is usually caused from overuse of the soleus muscle during eccentric loading[1].

OTHERS

According to Graph 4, 6% suffered from these injuries listed below.

These injuries include meniscal injuries. The most common mechanism of injury was landing. The medial meniscus is more commonly injured than lateral meniscus and occurs when the foot is fixed on the ground and the femur is internally rotated as in pivoting[5].

❖ According to Table4, 63% of the subjects used ankle braces or knee braces while remaining did not wear.

Use of lace-up ankle braces reduced the incidence but not the severity of acute ankle injuries in male and female high school basketball athletes both with and without a previous history of an ankle injury[7].

Also the use of knee brace reduces the incidence of injuries.

❖ According to Table 2, majority of the injuries took place during the game and majority occurred during 2nd half.

This is because in games the level of competition is higher which makes the player more vulnerable[3].

And in the 2nd half fatigue sets in and also there may be insufficient cardiovascular or muscular fitness and inadequate warm up[3].

❖ According to Table 4, all the subjects were aware of specific shoes for playing and most of them used these shoes. These are high ankle level shoes. At 0 degree plantarflexion the high level shoes offered maximum resistance to inversion movement. At 16 degrees of plantarflexion also it gives considerable resistance to the inversion movement. Hence these shoes reduce the amount and rate of inversion and prevent some ankle sprains[8].

❖ According to graph 5, most of the players experienced fatigue due to lack of stamina. This is because most of them have played state level and are currently just playing at college level with varied hours or days of practice.

❖ Recommendations:

Prevention strategies:

- Adequate warm up and cool down exercises
- Adequate stretching.
- Appropriate shoes ie sports specific.

- Adequate rehabilitation for specific injury.
- Core stability exercises.
- Improve cardiovascular fitness: ACSM guidelines.
- Proprioceptive training[11].
- Agility drills[12].
- Plyometrics.

CONCLUSION

1. In this study it is found that ankle sprains were the most common injuries occurring in basketball players.
2. Ankle was the commonest site of injury in basketball players.
3. Ligament injury was the most common nature of injury
4. In this study it is found that most of the injuries took place in the game as compared to training session.
5. Most number of injuries occurred in the 2nd half of the game as compared to the 1st half.

Conflict of Interest: None

Ethics Committee Approval: Taken

Source of Support: Nil

Acknowledgement: Nil

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Coagulase Negative Staphylococcus Isolates from Clinical Specimens

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ABSTRACT

Coagulase Negative Staphylococcus (ConS) hitherto considered as non-pathogenic are increasingly encountered in clinical material. 102 ConS were isolated from 500 clinical samples, which included wound swabs (184), blood (108), pus (94), sputum(33), transthoracic aspirations(14). Predominant organism isolated was Staph. epidermidis followed by Staph.saprophyticus, Staph. Saccharolyticus, Staph.intermedius, Staph.capitis, Staph.schleiferi, Staph.cohnii were less extent.

Keyword: *coagulase, Staphylococcus.*

INTRODUCTION

Coagulase negative staphylococcus (ConS) belonging to the normal human flora, cause a wide range of hospital acquired infections with increasing mortality and morbidity. Originally considered to be insignificant contaminants in clinical specimens, in recent years ConS have been recognized as important agents of hospital acquired infection.Because of ecological distribution of ConS in human, the cut skin surface, hair follicles, sweat glands, lymph nodes and lymph channels are all potential sites of microbial contamination / infection. Foreign body infections by ConS are and important and growing problem in hospitals.Coagulase negative staphylococci are commonly encountered in clinical microbiology laboratories and the major problem faced is to distinguish between clinically significant strains from those of non-pathogenic strains. And attempt has been made to isolate coagulase negative staphylococci from different clinical samples and to study their properties in establishing them as pathogens.

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MATERIAL AND METHOD

The present study was conducted on various clinical samples obtained from patients from Basaveshwar Teaching & General Hospital attached to M.R.Medical college, Gulbarga, during the period of January 2009 to December 2009.

A total of 500 samples, which included blood, sputum, pus, wound swab, urine and transthoracic aspirations. From these samples strains of ConS grown in pure culture were included in the study, whereas those isolated along with other bacteria (mixed growth) were excluded. Following the isolation of ConS, Gram's stain and coagulase tests were conducted for confirmation. Important biochemical tests and culture techniques were carried out for further speciation, as per standard methods [1].

RESULTS

102 pure cultures of ConS were isolated out of 500 samples studies, percent isolation of ConS from different samples are shown in table-1. majorities of

the isolates were from wound swabs (43) followed by blood (25), pus (16), urine (14), sputum (3) and transthoracic aspiration (1).

Incidence of ConS from clinical samples were more from females (50.98%) than from males (49.01%).

The ConS infections were most commonly seen in the age groups between 16 to 30 years (39%).

Incidence of species of ConS among the clinical samples is shown in Table-1. Out of 102 isolates, 55 were S.epidermidis, 12 were S.saprophyticus,10 were S.saccharolyticus,7 were S.intermedius,6 were S.capitis,5 were S.haemolyticus, 3 were S.lugdunensis and S.caseolyticus, S.schleiferi, S.hycius, S.cohnii were one each.

Table 1: Table showing Species isolated and number of species isolated

Species isolated	Number
S.epidermidis	55
S.saprophyticus	12
S.saccharolyticus	10
S.intermedius	7
S.capitis	6
S.haemolyticus	5
S.lugdunensis	3
S.caseolyticus	1
S.schleiferi	1
S.hycius	1
S.cohnii	1

Table 2: Table showing the Staphylococcal species and from where they are isolated.

Species	Wound swab	Blood	pus	Urine	sputum	transthoracic aspiration
S.epidermidis	22	21	9		2	1
S.saprophyticus				12		
S.saccharolyticus	6		3	1		
S.intermedius	5		2			
S.capitis	4		1		1	
S.haemolyticus	2	2	1			
S.lugdunensis	1	2				
S.caseolyticus,				1		
S.schleiferi,	1					
S.hycius,	1					
S.cohnii	1					

Out of 43 samples of wound swabs 22 isolates were S.epidermidis, S.saccharolyticus 6, S.intermedius 5, S.capitis 4, S.haemolyticus 2. S.lugdunensis, S.schleiferi, S.hycicus, S.cohnii one each.

Out of 25 samples of blood 21 isolates were

S.epidermidis and 2 S.haemolyticus and 2 S.lugdunensis.

Out of 16 samples of pus, 9 isolates were S.epidermidis, S.saccharolyticus 3, S.intermedius 2. S.capitis and S.haemolyticus were one each.

Out of 14 samples of urine, majority of the isolates (12) were S.saprophyticus followed by S.saccharolyticus (1) and S.caeolyticus (1).

The 3 sputum samples yielded 2 S.epidermidis and 1 S.capitis. transthoracic aspiration yielded 1 S.epidermidis.

In this study Beta lactamase production was noticed more among S.epidermidis (39%). Other species producing beta lactamase were S.saccharolyticus (50%), S.intermedius (28%), S.haemolyticus (40%) and S.lugdunensis (33%), S.capitis (16%), S.Schleiferi (10%). However betalactmase production was absent among S.saprophyticus.

The antibiotic profile of ConS showed high degree of resistance to penicillin 51.96%, Ampicillin 50.98%, Gentamycin 47.05% and Cotrimoxazole 41.17% followed by Cephalexin 38.23%, Tetracycline 35.29%, Oxacillin 29.41%, Chloramphenicol 24.50%, Erythromycin 23.52%, Ciprofloxacin 21.56% and Norfloxacin 1.96%.

DISCUSSION

Coagulase negative staphylococcus are often considered as commensals on skin and mucosa, hence are considered as nonpathogenic. During past 10 years, ConS have been recognized as major cause of septicemia in patients with various implanted medical devices[2].

Variety of clinical conditions have been attributed to ConS such as bacterial endocarditis, osteomyelitis, mastitis, CAPD, peritonitis, septicemia, wound infection and UTI.

We have studied 102 isolabes of ConS from different clinical samples during January 2004 to December 2004. In our study, prevalence of ConS among wound swab is 43 out of 184 (23.36%), in blood 25 out 108 (23.14%). Our study correlates with the study of Seema Bansal et al[3] who reported prevalence of ConS between 22.7% to 24.3%. Incidence of ConS in samples from late neonatal septicemia and urine were reported by Zaide et al[4] as 24% to 28% and 18.91% respectively. These reports are in consistent with our findings (table-1). Our study also correlates with the findings of Mabeck[5] with reference to 9.09% isolation from sputum samples and 7.14% isolation from transthoracic aspiration. S.epidermidis 22 out of 55 (40%) was predominant from wound material. S.epidermidis from blood was 21 out of 55 (38%), from pus 9 out of 55 (16%), sputum 2 out of 55% (3.6%), transthoracic aspiration 1 out of 55 (1.88%).

Studies by Vijaylaxmi et al[6] reported isolation of S.epidermidis 24% from pyogenic lesions, 24% from blood, 12% from urine. Our findings with regards to isolation of ConS from pyogenic lesions and blood are moderately higher compared to the findings of Vijaylaxmi et al[6] . However, S.epidermidis from urine in our study was not isolated which is in contrast to their findings. S.epidermidis as the principle cause of bacteremia (26%) was reported by Martin et al[7] whereas our study revealed a higher incidence (38%) of S.epidermidis in bacteremia. S.saprophyticus were 12 isolates out of 12 urine samples (100%) in our study. Peggy et al[8] reported 28% incidence to their findings. Reports regarding the study on other species are scanty.

We observed that ConS were isolated more frequently among the age group of 16-30 years (40%) in both sexes. And among this group the incidence was high in females 27 (69%) than males 12 (30.7%). Out of 102 ConS isolates 52 were from females and 50 were from males. There are hardly any other studies in this regard for comparison.

102 ConS isolated were subjected for antibiogram using 12 antibiotics. Maximum isolates (51.96%) produced Betalactamase, These pencillin resistant strains were subjected to Methicillin sensitivity using Oxacillin disc. 29.41% of strains showed resistance to Oxacillin. These were followed by resistance to Ampicillin 50.98%, Gentamycin 47.05%, Co-trimoxazole 41.17%, Cephalexin 38.23% and Tetracyclin 35.29%. However 75% strains were sensitive to Chloramphenicol, 78.9% to Ciprofloxacin and 76%

to Erythromycin. Our study corroborates with the study of Richardson JF and Marples[9]; Vee G Gill et al[10].

CONCLUSION

The present study was done on 102 clinical isolates of Coagulase negative staphylococcus which were studied base on various biochemical test, and antibiogram with special reference to Methicillin. Following conclusions were drawn.

1. Majority of the solates were from wound swab (43), blood (25), pus (16), urine (14), sputum (3) and transthoracic aspiration (1) samples yielded small number of ConS.
2. The common age group observed was 16-30 years (39%).
3. Major species was S.epidermidis which was isolated from wound material (22), blood (21), pus (9), sputum (2), Transthoracic aspiration (1). S.saprophyticus (12) was soley isolated from urine, from both sexes.
4. 31% produced Betalactamase. Major species producing Betalactamase was S.epidermidis (36%) majority being from wound swabs. Betalactamase production was not seen among urine isolates.
5. 16% were Novobiocin resistant and maximum isolates were from urine (39%).
6. Gentamycin (47%) Ampicillin (50%) and Cotrimoxazole (41%) resistance were seen among majority of the isolates. Methicillin resistance was 29.41% and majority isolates were from wound material and blood.

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Assessment of Functional Status among the Elderly in Rural Kaiwara of Southern India

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ABSTRACT

Functional ability among elderly is one of the important components of well being and its impairment will reduce the quality of life. Functional assessment will help to objectively measure the level at which a geriatric person functions in day to day living and to identify the medical needs which can improve their functional ability. **Study objective:** To assess the functional status among the rural elderly population. **Study Design**: Cross sectional study. **Study Area:** Kaiwara, Rural field practice area of Department of community medicine, M.S. Ramaiah medical college, Bangalore. **Study Population**: People who had completed 60 years of age at the time of interview. **Results:** A total of 432 geriatric patients were assessed for functional status of which 168 were males and 264 were females. Three fourth of the study population were not literates, around 44% were totally dependent financially, 48 % were either widow or widower. Visual impairment was seen in 65.8%, Cataract was found in 67 % of the study population. Around 29% had hearing impairment. Mobility impairment was found in 20.4% and balance impairment in 25 % of the study population. Mean Barthel index was found to be 86.44.

Keywords: *Functional status, Elderly, Rural.*

INTRODUCTION AND NEED FOR THE STUDY

India is in a phase of demographic transition. There has been a sharp increase in the number of elderly people between 1991 and 2001 and it has been projected that by the year 2050, the number of elderly people would rise to about 324 million.[1] According to 2001 census, the elderly comprised 7.8% of the population. Aging an integral part of living, typically is accompanied by gradual but progressive physiological changes and an increased prevalence of acute and chronic illness. Although neither a disease nor disability per se, ageing nonetheless is associated with a high incidence of physical impairment and functional disability.[2]

Functional ability is the ability to function in the arena of everyday living. Functional status is usually conceptualized as the ability to perform self care, self maintenance and physical activities.[3] The evaluation of functional ability is often referred as functional assessment which is any systematic attempt to measure objectively the level at which a person is functioning in a variety of daily living tasks.[4] Functional assessment is very important because, medical conditions may present first as functional disturbances, functional loss highly impacts quality of life, functional losses may lead to further disability and institutionalization, impacts patient and the caregiver. The consequences of functional disability can seriously affect the economic, social and psychological aspect of life of older persons, thus it is found to be a major health concern among elderly.[5] One form of disability concerns with activities of daily living (ADL) and when people are unable to perform these basic personal care tasks they need help for living, which may be not organized or supported.[2]

Since 75% of the elderly reside in rural areas, factors such as functional disability impede them from accessing the available health services. Health care services should be based on the "felt needs"

of the elderly population. This would involve baseline functional assessment in health areas which will help us to prioritize interventions and allocate resources accordingly. In this view the present study was undertaken.

MATERIALS AND METHOD

STUDY DESIGN: Cross sectional study.

STUDY AREA: Kaiwara, Rural field practice area of Department of community medicine, M.S. Ramaiah medical college, Bangalore

STUDY POPULATION: People who had completed 60 years of age at the time of interview.

SAMPLING METHOD AND SAMPLE SIZE

Sampling: Out of the 5 subcentres in Kaiwara PHC, 2 subcentres were randomly selected and within each subcentre two villages were randomly selected. From the centre of the village, the first house was selected randomly and subsequently the consecutive houses were surveyed till the required sample size was obtained.

This sample size was based on the previous study done in rural elderly population in North India, where the functional impairment was found to be 48%. The sample size was calculated with 5% alpha error and 10% precision.

Sample size, $n = 4pq / e^2$ where,
$= 432$
p= prevalence of functional disability
q= 1-p
e= precision

METHOD OF DATA COLLECTION

A pretested and semi-structured questionnaire was used for interviewing the study subjects. Detailed information was collected regarding the basic demographic characteristics. Vision was tested by using Snellen's chart. For assessing hearing, Tuning fork test was used. Mobility was tested by Get up and go test. Mobility is often described as the ability to transfer and ambulate safely. One of the well known and reliable techniques is Get up and Go test. As the name implies person is asked to get up from the chair ambulate fifteen feet then turn around and sit down again. The time required to do this maneuver is considered. Taking more than 20 seconds to complete the maneuver is considered abnormal.

Activities of daily living was assessed by using Barthel's index. The Barthel's index is widely used evaluation instrument. It is simple to administer and focuses on physical limitation. The activities of daily living in Barthel's index includes personal care tasks like feeding, bathing, grooming, bowels, bladder, toilet use, transfers, mobility on level surfaces as well as stairs. The total score may vary between 0 – 100. [6]

STATISTICAL ANALYSIS

Descriptive statistical methods, calculation of Mean and Standard deviation

RESULTS

Table 1. Socio demographic details of the study population.

AGE GROUP (YEARS)	Males No. (%)	Females No. (%)	Total No. (%)
60- 74	108 (64.3)	152 (57.6)	260 (60.2)
75 – 85	40 (23.8)	104 (39.4)	144 (33.3)
>85	20 (11.9)	8 (3.0)	28 (6.5)
EDUCATION STATUS			
Not literate	76 (45.2)	248 (93.9)	324 (75.0)
Primary school	36 (21.4)	8 (3.0)	44 (10.1)
Middle School	20 (11.9)	4 (1.5)	24 (5.5)
High School and above	36 (21.4)	4 (1.5)	40 (9.2)
MARITAL STATUS			
Married	132 (78.6)	92 (34.8)	224 (51.9)
Widow/ Widower	36 (21.4)	172 (65.1)	208 (48.1)
LIVING STATUS			
Alone	4 (2.4)	32 (12.1)	36 (8.3)
With Family	164 (97.6)	232 (87.9)	396 (91.7)
TOTAL	**168 (100)**	**264 (100)**	**432 (100)**

Table 1 depicts that 60.2 % i.e. maximum no. of study population belonged to the age group of 60 - 74 yrs (young old). About three fourth of the population were not literates, 48.1 % were widow/ widower and 8.3 % of the elderly were living alone.

Table 2: Financial Dependency and working status among study population

FINANCIAL DEPENDENCY	Males No. (%)	Females No. (%)	Total
Independent	44 (26.2)	44 (16.7)	88 (20.4)
Partially dependant	88 (52.4)	68 (25.8)	156 (36.1)
Totally dependant	36 (21.4)	152 (57.6)	188 (43.5)
WORKING STATUS			
Not working	72 (42.9)	188 (71.2)	260 (60.2)
Working	96 (57.1)	76 (28.8)	172 (39.8)
TOTAL	**168 (100)**	**264 (100)**	**432 (100)**

Table 2 depicts that 79.6% of the study population were financially dependent among which 43.5% of them were totally dependent. Around 60.2 % of the study population were not working at present.

Table 3: Visual impairment among the study population (as per WHO classification)

Categories of visual impairment		Left eye No. (%)	Right eye No. (%)	Total
No impairment		156 (36.1)	140 (32.4)	296 (34.2)
Low vision	1	88 (20.4)	96 (22.2)	184 (21.2)
	2	60 (13.9)	92 (21.3)	152 (17.5)
Blindness	3	60 (13.9)	60 (13.9)	120 (13.9)
	4	56 (13.0)	44 (10.2)	100 (11.5)
	5	12 (2.8)	0	312(1.3)
Total		432 (100)	432 (100)	864 (100)

Table 3 depicts that 65.8 % of the study population had visual impairment of which 38.7 % had low vision and 26. 7 % had blindness. People with visual impairment have increased risk of fall and may be socially isolated. There are changes in vision with normal ageing, Glare tolerance is reduced, dark adaptation is lessened. Disease states which affect vision include Diabetes, macular degeneration, Glaucoma and Cataracts.

Table 4: Cataract among the study population

Cataract	Left eye No. (%)	Right eye No. (%)	Total
Not present	68 (15.7)	68 (15.7)	136 (15.7)
Present	300 (69.4)	280 (64.8)	580 (67.1)
Operated	64 (14.8)	84 (19.4)	148 (17.1)
Total	**432 (100)**	**432 (100)**	**864 (100)**

Table 4 depicts that 67.1 % of the study population had cataract at present among which 17.1 % were operated for cataract.

Table 5: Hearing impairment among the study population

Hearing Impairment	Left ear No. (%)	Right ear No. (%)	Total
No Impairment	300 (69.4)	316 (73.1)	616 (71.2)
Conductive deafness	60 (13.9)	56 (13.0)	116 (13.4)
Sensory neural hearing loss	72 (16.7)	60 (13.9)	132 (15.2)
Total	**432 (100)**	**432 (100)**	**864 (100.0)**

Table 5 depicts that 28.6 % of the study population were suffering from hearing impairment among which 13.4 % had conductive deafness and 15.2 % had sensory neural hearing loss. Hearing loss is very common among elderly. High frequency hearing loss or Presbycusis can result in discriminating spoken words. The consequences of impaired hearing can include social isolation and depression in the elderly.

Table 6: Mobility and Balance impairment among the study population

Impairment	Mobility **No. (%)**	Balance **No. (%)**	**Total**
No impairment	344 (79.6)	324 (75.0)	668 (77.3)
Impairment	88 (20.4)	108 (25.0)	196 (22.6)
Total	**432 (100)**	**432 (100)**	**864 (100)**

Table 6 depicts that 20.4 % had mobility impairment and 25% had balance impairment. When mobility becomes impaired, fall risk goes up as does the ability to function independently. Impaired mobility leads to falls, injuries, hospitalization, loss of independence. They are more at risk for being incontinent, getting skin breakdown, being socially isolated and depressed.

Activities of daily living (ADL)

Barthel's index for activities of daily living ranges from 0 – 100. The mean Barthel's index score in the present study was found to be 86.44 with a standard deviation of 14.83. People with impaired ADL function are at higher risk for needing home care services and nursing home placement. Loss of ability to care for personal needs leads to loss of self esteem, deep sense of dependence and feeling of infantilism sets in. Identifying people with impaired ADL will help in interventions that may reduce the risk of further deterioration, maintain or improve function in a home setting.

DISCUSSION

In the Nation-wide survey (NSSO 52nd round 1995-96) the prevalence of various types of physical disabilities in rural area was found to be high (40%) amongst elderly. Problems of eyes are one of the most common health problems in the elderly. Visual impairment was found to be most prevalent (27%). Hearing disability was found to be 15%.According to the findings of the 60th NSSO Round, the proportion of aged persons who cannot move and are confined to their bed or home, ranges from 77 per 1000 in urban areas to 84 per 1000 in rural areas.[7]

An Indian Council of Medical Research (ICMR) report on the chronic morbidity profile in the elderly states that hearing impairment is the most common morbidity followed by visual impairment. [8]

In a study conducted by Anil Goswami et al, in north India, it was found that, Forty-eight percent of the elderly had at least one impairment. Impairment increased with age and was more common among females. Visual impairment was the most frequently observed. In the functional assessment, 23.6% of the subjects were blind in one eye and 16.4% were blind in both eyes, 11% were observed to have hearing impairment. About 9 % had impairments of arm functions. When tested for leg function, 1.5% of the aged were not able to move, mostly both legs. It was concluded from the study that Impairment is an important health problem among elderly in rural area of northern India. There is a need to provide appropriate and comprehensive service; so as to enable the elders to realize their full potential and lead a healthy and happy life.[9]

In a study conducted by Shanthibala Konjengbam et al, Manipur, Disability in ADL,age, marital status, gender, educational status, occupation, chronic disease and perceived health status were studied. It was found that 38 (12.2%) elders were disabled in ADL. Elderly males with poor perceived health status and having one or more chronic diseases have significantly higher risk of being disabled in ADL. It was concluded that identified risk factors need to be addressed in prevention and control strategies in this area. [2]

A study conducted in the rural area of Pondicherry reported decreased visual acuity due to cataract and refractory errors in 57% of the elderly.[10] In a community based study conducted in Delhi among elderly people, it was found that problems related to vision and hearing topped the list.[11] Many surveys have shown that retired elderly people are confronted with the problems of financial insecurity and lonliness.[12, 13]

A study conducted by vilai Kuptniratsaikul, in Thailand, showed that out of 155 patients with mean age of 68 years most patients possessed ADL and IADL and 64% of the study population were

able to ambulate without any walking aid and only one percent were bed ridden.[14]

Functional deterioration is a significant, yet often overlooked health care issue in geriatric practice. Chronic functional impairment increases with age, and thus persons over 65 years carry a disproportionate burden of disability compared with younger persons. Fifty percent of community-dwelling elders have ADL limitations, and more than three-quarters have at least one chronic illness. More than a third cannot perform their major activity independently, and 5 percent are confined to home.

CONCLUSION AND RECOMMENDATIONS

Among the functional status assessed, visual impairment was most frequently observed followed by hearing impairment. Early detection and early intervention can improve the functional ability among elderly. There is need for basic and primary geriatric health care services including rehabilitation involving the family and community. There is a need to provide appropriate and comprehensive services so as to enable the elders to realize their full potential and lead a healthy and happy life.

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A Study of Cardiovascular Autonomic Nervous functions in Apparently Healthy Middle aged Individuals

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ABSTRACT

Objectives: This study was conducted to evaluate cardiovascular autonomic functions in apparently healthy middle aged subjects and to make a comparison between middle aged and young adults. The study also aimed to compare the cardiovascular autonomic functions between men and women to detect the possible gender differences in aging associated changes in autonomic nervous functions.

Materials and Methods: 152 healthy subjects were evaluated. The study sample was divided into two groups according to age.

Group I: Young adults (18-35 years) (n=88)

Group II: Middle aged subjects (36-55 years) (n=64).

Studies included recording of anthropometric and physiological parameters, and cardiovascular autonomic functions. Classical Ewing tests were used to assess cardiovascular autonomic functions.

Results: The values of Valsalva ratio, I-E, 30:15, Blood pressure responses to sustained handgrip were significantly lower in Group II (middle aged) compared to Group I (young adults). A greater fall in systolic blood pressure on standing was observed in Group II compared to Group I. Negative correlation was observed between aging and Valsalva ratio, I-E, 30:15 and blood pressure response to sustained handgrip and positive correlation between aging and blood pressure response to standing.

Conclusions: 1. Healthy aging is associated with significant gradual decline in autonomic nervous functions. 2. Even apparently healthy middle aged subjects show significant decline in cardiovascular autonomic nervous functions. 3. Varying effects of aging on cardiovascular autonomic functions in middle aged men and women with greater decline in middle aged women.

Key-words: *Aging; Gender; Middle age; Autonomic function tests.*

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INTRODUCTION

Cardiovascular diseases such as coronary heart disease (CHD) are among the leading causes of mortality. In developing countries like India mortality rates due to Cardiovascular diseases are high in middle aged subjects[1]. Among middle aged people CHD is more common in men than in women[2].

Conventional risk factors for cardiovascular diseases are family history, sedentary life style, low fruit and vegetable intake, high fat consumption, overweight and obesity, hypertension, diabetes, metabolic syndrome, smoking and tobacco consumption, lipid levels, psychosocial stress[3]. Besides these aging is an independent risk factor for cardiovascular diseases.

Aging is a physiological process. With aging there is a gradual decline of bodily functions including autonomic nervous functions [5]. The autonomic nervous system via its two subdivisions i.e. sympathetic and parasympathetic regulates the cardiovascular functions including heart rate and rhythm, blood pressure and cardiac contractility both under physiological and pathological conditions [6.] Hence aging associated changes in autonomic nervous functions may be partly responsible for cardiovascular complications associated with aging [5].

Various studies demonstrated significant correlation between cardiovascular autonomic neuropathy (CAN) and cardiovascular disease [7].

Important manifestations of CAN are high risk of sudden death, probably due to silent myocardial ischemia/infarction, cardiac arrhythmias and hypoxia [6].

The present study was designed to evaluate cardiovascular autonomic functions in apparently healthy middle aged subjects and to compare the same with apparently healthy young adults. We also compared the cardiovascular autonomic functions between men and women to detect the possible gender differences in aging associated changes in autonomic nervous functions.

MATERIALS AND METHOD

152 healthy subjects of Indian origin randomly selected among the staff and students of the institution. Institutional ethical clearance was obtained. Informed consent was taken from the participants.

Study Sample was divided into two groups according to age.

Group I: Young adults aged 18-35 years.

Group II: Middle aged subjects in age range 36-55 years.

Exclusion criteria: Patients with cardio respiratory diseases, endocrine disorders, obesity, history of alcohol intake, tobacco consumption in any form, taking medications interfering with vascular reactivity, Athletes.

COLLECTION OF DATA

Recording of data was done in the morning hours. The participant should not have exercised in the preceding 24 hrs, abstained from coffee, tea for 2 hrs before testing [9]. After 20 min of rest in a supine position, ECG was recorded using single channel student physiograph (Medicaid systems, Chandigarh, India) and systolic and diastolic blood pressure recorded using mercury sphygmomanometer (Diamond). Anthropometric parameters like height (cm), weight (Kg) were recorded. Body Mass Index (BMI) and Body Surface Area (BSA) were calculated.

Recording of Cardiovascular autonomic function tests:

Classical Ewing tests were used to evaluate cardiovascular autonomic functions [9].

1. Heart Rate Response to Valsalva manoeuvre: In sitting posture the subject strained into mouth piece at a pressure of 40 mm Hg for 15 seconds. The Lead II ECG was continuously recorded during the manoeuvre and for the following 30 seconds. The ratio between longest RR interval after straining to the shortest RR interval during straining was calculated (Valsalva Ratio). The test was carried out thrice and the average value from the three results was calculated.

Valsalva ratio of ≥1.21 was considered normal, 1.11-1.20 as borderline

and ≤ 1.10 as abnormal

2. Heart Rate variation during deep breathing (I-E): In sitting posture the subject was asked to breath deeply and evenly at 6 breaths/min. The ECG was recorded continuously. Difference between the highest HR recorded during deep inspiration and lowest HR recorded during deep expiration (i.e. I-E) was measured per cycle. The average value for six cycles was calculated.

I-E of ≥ 15 beats per minute (bpm) was taken as normal, 11-14 bpm as

Borderline and ≤10 bpm as abnormal.

3. Heart rate response to standing (30:15): The subject rests in lying position for 5min and stands up unaided. ECG was recorded immediately as the patient got up from lying position and continued over a period of 60s. The 30:15 ratio (the ratio between the RR interval of 30th beat and the l5th beat) was calculated.

30:15 of ≥1.04 was considered as normal, 1.01-1.03 as borderline, ≤ 1.00 as abnormal.

4. Blood pressure response to standing: The blood pressure is measured in lying down posture, and immediately after standing up. The difference in systolic blood pressure (SBP) between the two postures is calculated.

Fall in SBP ≤10 mm Hg was considered normal, 11-29 mm Hg as borderline, ≥30

mm Hg as abnormal.

5. Blood pressure response to sustained handgrip: Handgrip is maintained at 30% of maximum voluntary contraction using a handgrip dynamometer for 5 min, and the blood pressure measured every minute. The difference in the diastolic blood pressure (DBP) just before release of handgrip, and before starting maximal voluntary contraction, is taken as the measure of response. A rise in DBP (mm Hg) of ≥ 16 mm Hg was taken as normal, 11-15 mm Hg as borderline, ≤10 mm Hg as abnormal.

Statistical Analysis: Statistical analysis was done using SPSS version 9.0. Results expressed as Mean ± Standard Deviation. Unpaired t-test used to compare mean values of parameters between group I and II and between men and women. Correlation between Autonomic Function Tests (AFTs) and aging was done by Pearson's correlation.

P-value <0.05 was taken as significant.

Observation & Results: Table 1. Baseline characteristics of subjects in Group I.

	Male	Female	P- value
n	56	32	-
Age (years)	22.80± 5.57	22.09 ± 5.78	0.577
Height (cm)	170.25 ± 6.26	157.56 ± 4.02	0.000***
Weight (Kg)	62.39 ± 12.05	57.85 ± 9.04	0.049*
BSA (m^2)	1.72 ± 0.15	1.57 ± 0.11	0.000***
BMI (Kg/m^2)	21.49 ± 3.79	23.33 ± 3.74	0.031*
Heart Rate (Beats/min)	82.32 ± 11.83	88.79 ± 7.76	0.003**
SBP(mm Hg)	113.39 ± 13.41	111.18 ± 12.16	0.434
DBP(mm Hg)	76.96 ± 9.00	75.56 ± 7.91	0.450

Data presented as mean ± SD. *p value<0.05, ** p value<0.01, *** p value<0.001. SBP- Systolic Blood Pressure, DBP- Diastolic Blood Pressure.

Table 1 shows baseline characteristics of Group I subjects. Mean ages were same in men and women. Gender differences were significant for Height, weight, BSA, BMI and heart rate. No gender related differences were observed for SBP, DBP.

Table 2. Baseline Characteristics of subjects in Group II

	Male	Female	P- value
n	35	29	-
Age (years)	49.88± 6.406	47.96 ± 11.00	0.411
Height (cm)	161.94 ± 10.16	153.00 ± 4.92	0.000***
Weight (Kg)	60.31 ± 10.86	58.58 ± 13.26	0.57
BSA (m^2)	1.64 ± 0.16	1.55 ± 0.18	0.03*
BMI (Kg/m^2)	22.50 ± 3.29	24.88 ± 4.82	0.028*
Heart Rate (Beats/min)	74.41 ± 9.22	76.62 ± 11.17	0.39
SBP(mm Hg)	117.31 ± 13.20	122.06 ± 13.15	0.156
DBP(mm Hg)	79.25 ± 10.35	81.65 ± 9.22	0.33

Data presented as mean ± SD. * p value<0.05, ** p value<0.01, *** p value<0.001. SBP- Systolic Blood Pressure, DBP- Diastolic Blood Pressure.

Table 2 shows baseline characters of Group II subjects. Men and women were age matched. Significant gender differences were noted for Height, BSA and BMI. No significant difference in Heart rate, SBP, DBP between men and women.

Table 3: Age wise Comparison of AFTs in men and women of Groups I and II.

	Men			Women		
	Group I	Group II	P	Group I	Group II	P
Valsalva Ratio	1.53± 0.38	1.36 ± 0.26	0.016*	1.42 ± 0.35	1.21 ± 0.15	0.006**
I-E	24.23± 7.43	16.14 ± 8.92	0.000***	22.35 ± 6.88	10.31 ± 5.94	0.000***
30:15	1.32 ±0.18	1.17 ± 0.17	0.000***	1.28 ± 0.21	1.13 ± 0.13	0.002**
BP response to standing	10.64 ± 4.36	10.85 ±6.17	0.859	8.87 ± 4.33	12.44 ± 7.39	0.028*
BPre sponse to sustained handgrip	25.42 ± 9.22	19.60 ±11.79	0.016*	24.12 ± 8.9	13.86 ± 5.34	0.000***

Data presented as mean ± SD. * p value<0.05, ** p value<0.01, *** p value<0.001.

BP- Blood Pressure

All the AFTs excepting BP response to standing were significantly lower in group II compared to group I. A greater fall in systolic blood pressure on standing was seen in Group II women compared to Group I women (Table 3).

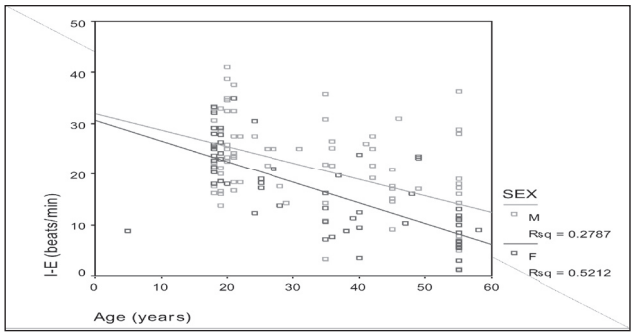
Table 4: Gender wise comparison of Autonomic Function tests.

	Group I	Group II				
	Men	Women	P	Men	Women	P
Valsalva Ratio	1.53 ± 0.38	1.42 ± 0.35	0.163	1.36 ± 0.26	1.21 ± 0.15	0.007**

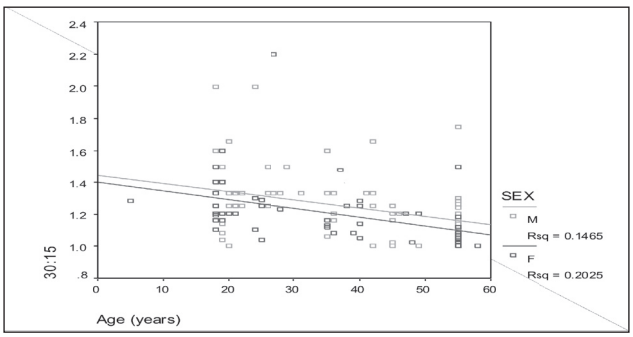
I-E (beats/min)	24.23 ± 7.43	22.35 ± 6.88	0.237	16.14 ± 8.92	10.31 ± 5.94	0.003**
30:15	1.32 ± 0.18	1.28 ± 0.21	0.292	1.17 ± 0.17	1.13 ± 0.13	0.248
BP response to standing (mm Hg)	10.64 ± 4.3z6	8.87 ± 4.33	0.071	10.85 ± 6.17	12.44 ± 7.39	0.36
BP response to sustained handgrip (mm Hg)	25.42 ± 9.22	24.12 ± 8.9	0.516	19.60±11.79	13.86 ± 5.34	0.013*

Data presented as mean ± SD. * p value<0.05, ** p value<0.01, *** p value<0.001. BP- Blood Pressure.

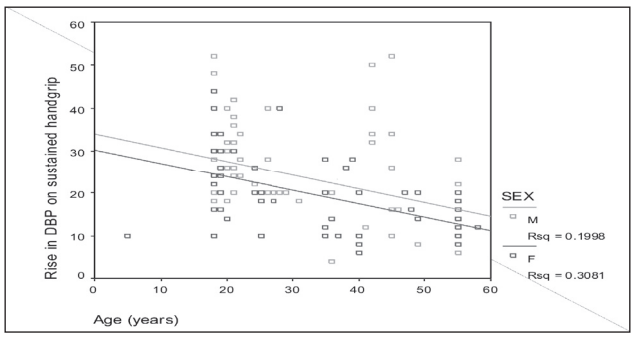
In Group I no significant gender difference was observed for AFTs. In Group II Valsalva ratio, I-E (beats/min), and BP response to sustained hand grip were significantly lower in women compared to men.



Graph 1: Correlation between aging & heart rate variation during deep breathing



Graph 2: Correlation between aging & heart rate response to standing



Graph 3: Correlation between aging & BP response to sustained handgrip

Table 5: Pearson's Correlation Coefficients between aging and autonomic function tests in men and women.

	Men	Women		
	r	P	r	P
Valsalva Ratio	-0.180	0.87	-0.390	0.002**
I-E	-0.528	0.000***	-0.722	0.000***
30:15	-0.383	0.000***	-0.450	0.000***
BP response to standing	0.035	0.739	0.273	0.034*
BP response to sustained handgrip	-0.447	0.000***	-0.555	0.000***

In men we observed highly significant negative correlation between aging and Heart rate variation during deep breathing, heart rate response to standing, and BP response to sustained handgrip (Table 5)

In women we observed highly significant negative correlation between aging and valsalva ratio, heart variation during deep breathing, heart rate response to standing, and BP response to sustained handgrip. Significant positive correlation was observed between aging and BP response to standing (Table 5).

DISCUSSION

The present study was undertaken to evaluate the cardiovascular autonomic functions in middle aged individuals. We also evaluated for any gender

difference in the autonomic nervous functions.

Heart rate response to Valsalva manoeuvre, heart rate variation during deep breathing, and heart rate response to standing are tests reflecting predominantly parasympathetic functions. BP responses to standing and to sustained handgrip are tests reflecting predominantly sympathetic functions[6].

The results of the tests reflecting predominantly cardiovascular parasympathetic functions demonstrate decline in parasympathetic cardiac control. This may be attributed to age related impairment of the neural portion of the vagal system due to alterations in efferent (vagal nerve traffic), afferent (sensory input) and/or integration of information at the cardio respiratory centre in brain [10]. In their study Alberto U Ferrari et al., demonstrated cardiac muscarinic receptor hyper responsiveness as an up regulatory adjustment to the aging associated decrease in vagal neural drive [11].

The age related decline in sympathetic control of the heart as demonstrated by blood pressure response to standing and sustained handgrip have been attributed primarily to down regulation of beta-adrenergic receptors & an alteration in the post-receptor activity, namely a lower G-protein activity[12]

In young adults no gender differences in autonomic functions were observed. In middle aged individuals significant gender differences were observed with greater impairment of autonomic functions among middle aged women. The underlying mechanisms for these differing effects of aging are not clear. It may be due to differences in the prevailing levels of male and/ or female sex hormones. Differences in the autonomic system may be due to differences in afferent receptor stimulation, in central reflex transmission, in the efferent nervous system, and in postsynaptic signalling. At each of these potential sites of difference, there may be effects due to different size or number of neurons, variations in receptors, differences in neurotransmitter content or metabolism, as well as functional differences in the various components of the reflex arc [13].

T Yukishita in their study demonstrated overall decline in ANS activity in both men and women [14].

Chu TS et al evaluated cardiovascular autonomic functions in subjects aged 20-80 years and concluded that age and sex have an influence on autonomic function tests. Age influences both sympathetic and parasympathetic functions while gender is more related to sympathetic function [15].

The results of our study demonstrate that autonomic nervous functions have significantly declined in apparently healthy middle aged men and women compared to young adults. No gender differences for AFTs were observed in young adults. Varying effects of aging were noted in middle aged subjects with greater impairment in women compared to men.

Evaluation of Cardiovascular autonomic functions may prove to be an important tool to assess risk of coronary artery disease due to frequent association of CAN with micro vascular disease leading to myocardial hypoperfusion [16]. Heart rate variation during deep breathing which can be easily recorded with an electrographic apparatus can be used as a simple test for bedside assessment of autonomic function and also as a prognostic screen for autonomic neuropathy.

Further studies can be undertaken to know the role yoga and antioxidants in reducing the aging associated changes in cardiovascular autonomic functions.

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Under Nutrition and Childhood Mortality: A Public Health Problem among Rural Under Five Children of South Karnataka, India

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ABSTRACT

Infant and under five mortality rates are reliable indicators of health status of the children. Despite accelerated growth, prevalence of hunger, under nutrition and mortality in rural part of the country is still persists. While under nutrition among children is very pervasive child mortality is rather high in rural India. The current study is conducted in Two remote villages of Hassan and Kodagu districts of South Karnataka-India. Study was conducted on (Boys 160, Girls 140) preschool children, selected through stratified sampling design technique. This study was found that stunting in 75.0 %, wasting in 81.7% and underweight in 87.6% of both Boys and Girls of pre-school children. In case of Anemia, 48% of Girls and 56% of Boys were severely affected while 47 % of Girls and 41% of Boys were modestly affected. 10% of Boys and 28% Girls were observed mildly affected. It is also found that clinical sign of Anemia among 62% of the studied children. Next, 21% children found Vitamin A deficiency and 22% children found vitamin B complex deficiency. Study also found that only 67% children were put on breast feeding within Three hours after the birth. It is also noted that income poverty, bad personal habits, changing health seeking behavior, cultural practices regarding delivery, childrearing and breast feeding also plays a vital role in case of mortality problem where Government and NGO should focus on these issues immediately.

Keywords: *Mortality, Nutrition, Health, Rural , Children*

INTRODUCTION

Under nutrition and childhood mortality have became a serious problem among rural children. It is found that their social-cultural background, health, behavior and health culture dynamics plays a significant role as vital determinants of the health status of a particular community. Hence, under nutrition and childhood mortality are more common in rural areas. WHO report (1985) has found that 57% of death of under Five children in developing countries are accompanied by under-nutrition thereby low weight for their age. Anthropologists have revealed that the development of health culture of the rural environment should be examined as a sub cultural complex of the entire way of life[6]. There are a number of forces percolated from the larger socio-economic environment and directed through the attributer of historical, social and political dimension to the development of the pattern of their health culture in the given rural settings. A good health required a balanced diet. Under Five children need good nutritional diet which is scanty in many rural settings in the country and this causes mortality and morbidity among rural population. [1]

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It is found that Nearly Thirty (30) lakhs children in India die before the age of Five due to various health issues. Infant mortality rate and under Five mortality rates are the finest indicators of health and quality of life of any given community. Reports shows that various child health indicators of the country have shown considerable improvement and infant mortality has declined from 78 to 57 deaths per 1000 live births and under-five mortality from 109 to 74 deaths per 1000 live births. However, under-five mortality levels among rural children are still shockingly high (at 97 deaths per 1000 live births). Rural's constitutes 60 to 62 percent of the total population, but accounts for about 19 percent of all under-five deaths, and 23 percent of deaths in the 1-5 age group.[3]

Studies have shown that poverty, illiteracy, malnutrition, scarcity of potable water , sanitary conditions, poor mother child health services, problems in covering national health and nutritional services, etc. have been found most vital causative factors for the prevalence of sever childhood mortality and morbidity amongst the rural communities in the country. Despite marvelous development focusing preventive and curative medicine, the child healthcare delivery services in several rural communities are still poor and unscientific and need to be further strengthened in order to achieve the goal of health for all in the country. [6]

Further, experts opined that poor health outcome of the rural community and their children need to be read within in the context of rapid urbanization, focusing poor health infrastructure, costly treatment. However, in a multicultural society rural childhood mortality in India cannot be analyzed in a contextual vacuum. Instead, they need to be looked at in the light of larger socio economic changes experienced by the rural community over the period of time. Till now various Governments have implemented many programmes to improve the nutritional status of the pre-school children through various innovative schemes. Corers of money have been spent. Still country experiences sever rural child mortality issue. Health experts opined that lack of good primary health care, perceived and personal risks, lack of awareness have lead in failing health improvements programmes[4]. This present study is to assess the extent and prevalence rate of mortality among under Five rural children in the Two districts of south Karnataka, India.

MATERIALS AND METHOD

This current study conducted in two remote villages of Hassan and Kodagu districts of south Karnataka. Study had 300 (Boys 160, Girls 140) preschool children, selected using stratified sampling design technique. Household survey was carried out in Two villages covered by two primary health centers(PHC). Anthropometric measurements were taken using standard techniques. Infant meter was also used to measure below 1 year old children. Date of birth were obtained from the village directory for cross checking. The indices of nutritional status have been mentioned in Standard Deviation(SD). Household socio-economic data were collected through survey & analyzed using SPSS software and NSIUD data base. Nutritional deficiency and morbidities were recorded under the supervision of the dieticians. Children have been classified after simple clinical test for Anemia and mean anthropometric measurements.

FINDINGS

Tab-1 **Mean Anthropometric Measurement of Studied Free School Children**

Age	NUMBER	SEX	HEIGHT (cm)	WEIGHT (cm)
0-1	60	M- 35	5.1 + 1.38	56.9+1.7
		F- 25	5.3 + 1.61	51.3 + 1.5
1-2	60	M – 30	7.5 +1.38	68.2 +20
		F – 30	7.1 + 1.03	65.3 +1.0
2-3	60	M -38	8.5 + 1.13	70.5 +2.1
		F- 22	8.1 + 0.71	71.3 +1.8

3-4	60	M-32	11.5 + 1.81	82.1 +1.7
		F-28	10.3 +1.70	79 +1.3
4-5	60	M-37	12.5 + 1.60	82 +1.0
		F-23	11.3 +1.50	81 +1.1

Tab-2 **Distribution of Pre-School Children according to SD (standard deviation) Classification of Pre-School Children.**

Parameter	-3S D to -250	-2S D to -1SD	- Median
Weight/ age	106 (35.3%)	96(32.0%)	114(38.0%)
Height/ age	102 (34.0%)	103(34.3%)	108(36.0%)
Weight/Height	92 (30.6%)	101(33.3%)	78(26.0%)

Tab-3 **Nutritional Status of Pre-school Children**

Sex	**Stunting**	**Wasting**	**Underweight**
Girls	107 (35.6%)	137 (45.6%)	141 (47.0%)
Boys	118 (39.3%)	106(35.3%)	122(40.6%)
Total	225 (75.0%)	243(81.0%)	263(87.6%)

Tab-4 **Occurrence of Anemia in Pre-school Children**

Level	**Girls**	**Boys**
Severe	77(48.12%)	84(56.75%)
Modesty	47(29.3%)	41 (27.70%)
Mild	28 (17.5%)	15(10.13%)
Total	160	140

DISCUSSION

A Total of 300 rural pre-school children (Boys 160, Girls 140) were examined through this study. It is found that Boys were slightly taller and heavier than Girls for their ages (Tab-1). In case of distribution of pre-school children according to standard deviation, 33% (average) of children are between -2SD to – 3SD and 30% (average) of children are between -2SD to -1.5SD (Table 2). This is about weight and height according to their age. In case of nutritional status of pre-school children, stunting in 75.0 %, wasting in 81.7 and under weight 87.6 were observed in both Boys and Girls (Tab-3). Further, in case of Anemia ,48% of Girls and 56% of Boys were severely affected; while 47 % of Girls and 41% of Boys were modestly affected (Tab-4). However 10% of Boys and 28% Girls observed mildly affected in this study. Further, it is also found that clinical sign of Anemia among 62% of studied children. Next, vitamin A deficiency was found in 21% children while vitamin B complex deficiency found in 22% children. In depth study found that only 87% children were put on breast feeding within 3 hours after the birth. Our study also found majority of the children did not receive pre-local feeds. It is found that supplementary feeding started after 8 months in majority of the studied children. The socio-economic data reveals that majority of them are living in poverty and illiteracy. Still they are depending on traditional healers to solve their various health problems. Normally they will not visit PHCs. Local PHCs lack infrastructure facilities. Doctors rarely visit the Hospitals. Absence of the lady physicians also one of the reason why rural women's don't like to visit PHCs. Availability of clean potable water is very rare. It is found that age old traditional health seeking behavior towards certain diseases severally hampering their health status. We learn that high mortality of the children is causing due to various types of infectious diseases. Morbidity rate (32.5%) is considerably high in the studied children it is due

to poor and unhygienic conditions. It is found that prevalence of respiratory tract infection, anemia, typhoid, and deficiency of vitamin A &B are more common and it might be due to their food habits. Poor household ecology, personal habits, cultural practices regarding delivery, childrearing and breast feeding also place a vital role. Our study has found that more than 4.5% children are dying (under 5) due to severe malnutrition and 11% of under 5 children's are loosing their life due to various other infectious diseases. It is established that even though Government , NGOs and other developmental agencies are working for the health issues of the rural people mortality rate is still high in the rural part of the country. Strong awareness about this issue needs to be created among our rural folk and rural PHC s are upgraded ina war foot manner.

CONCLUSION

This study has found that causes of mortality are related to malnutrition and lack of timely access to an adequate primary health care service. Also it is noted that availability of pure water, sanitation, traditional beliefs plays a vital role in shaping health behaviors of the rural folks. In partnership with the NGOs and civil society, Govt. should try to provides high-impact, cost-effective health and nutrition interventions to decrease the number of neonatal and child mortality from various infectious diseases. Govt. should frame programmes to create awareness about importance of nutritious foods and breast feedings amongst rural folk. Media can also play a vital role in the success of the various immunization programmes. Geographically and cultural specific programmes for the speedy development of the socio economic conditions of the rural community is most necessary for the hour.

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Study of Forced Vital Capacity using Computerized Automated flow Spirometry in Auto rickshaw Drivers

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ABSTRACT

Objective : Professional drivers e.g. auto rickshaw drivers who spend a lot of time in the traffic are at higher risk to develop respiratory diseases. Present study is designed to evaluate important ventilatory lung functions i.e Forced Vital Capacity in auto rickshaw drivers of Pune city.

Method: The study group were 100 auto rickshaw drivers who had been driving auto rickshaws of open cabin type for more than 8 hr/day in Pune city. Out of 100 study subjects 33 were driving for the period of 3 - 5 years (Group Ia) and 67 were driving more than 5 years (Group Ib) A group of another 100 individuals who were normal citizens, not auto rickshaw drivers, working in offices etc. and minimally exposed to traffic pollution was also selected as a control group. Forced vital capacity (FVC) was recorded of all the subjects on the automated flow Spirometer .

Result: The FVC of the subjects in Group Ib when compared with the Control group showed very highly significant reduction ($p < 0.001$) suggestive of a restrictive type of lung function impairment.

Conclusion: Vehicular fuel exhaust pollution as a whole namely PM, SO_2, NO_2, O_3 etc. act in tandem and cause structural damage to the lung there by causing reduced compliance and various other tissue changes leading to a restrictive pattern of pulmonary dysfunction.

Key words : *Forced Vital Capacity, Autorikshaw drivers , Pulmonary Functions*

INTRODUCTION

Air pollution is a chemical, particulate matter, or biological agent that modifies the natural characteristics of the atmosphere. The complex, dynamic, natural gaseous system of the atmosphere is essential to support life on Earth[1] .Number of deaths and cases of respiratory diseases attributed to air pollution are increasing worldwide and is a major concern of the developed world and the developing nations [2,3]. Pollutants are substances which are not naturally found in air or substances at greater concentrations or in different locations other than the usual .

The contribution of motorized traffic to air pollution is widely recognized. Pollutants include particulate matters < 10 μm in size, sulfur dioxide, nitrogen dioxide, ozone, lead and carbon monoxide[3].

The World Health Organization states that 2.4 million people die each year from causes

directly attributable to air pollution [4]. Worldwide more deaths per year are linked to air pollution than to automobile accidents. Direct causes of air pollution related deaths include aggravated asthma, bronchitis, emphysema, lung and heart diseases and respiratory allergies.

Drivers of non air conditioned vehicles are affected more than air conditioned vehicle drivers [5]. Several studies have shown a deterioration of Ventilatory lung function in people who are constantly exposed to air pollution[6,7]. Professional drivers e.g. auto rickshaw drivers, taxi drivers etc, who spend a lot of time in the traffic are at higher risk to respiratory and cardiovascular diseases.

Pune is one of the most rapidly growing metropolitan cities of the country. The growth is associated with about 300 new motor vehicles being added per day in Pune district and also the increased industrial growth in and around the city. An increase in the migrant population that uses fossil fuel for the domestic use also adds to already rising pollution in the city.

In restrictive lung disease, both forced expiratory volume in one second (FEV1) and forced vital capacity (FVC) are reduced, however, the decline in FVC is more than that of FEV1, resulting in a higher than 80% FEV1/FVC ratio. In obstructive lung disease however, FEV1 is reduced while FVC remains stable, consequentially depicting a lower FEV1/FVC ratio [8]

As forced vital capacity is important to study for both restrictive as well as obstructive lung diseases the present study has been designed to study forced vital capacity in a selected group of auto rickshaw drivers of Pune city.

MATERIALS AND METHOD

The study was carried out in the Department of Physiology, of Bharati Vidyapeeth Medical College in Pune. The subjects selected were 100 auto rickshaw drivers (Group I) who had been driving auto rickshaws of open cabin type for more than 5 years and for more than 8 hours daily in Pune city. A group of another 100 individuals (Group II) who were normal citizens, not auto rickshaw drivers, working in offices for 8 hours or more and minimally exposed to traffic pollution was also selected as a control group. The height, weight and age of the study group were well matched with the control group. Both the study group and control group were non smokers, not suffering from any cardio respiratory ailments and between the age group of 25-45 years.

All the subjects were explained the experimental protocol before the start of study. The data including a detailed history, standing height of each individual was measured and expressed in centimeters to the nearest 1 centimeter, weight in kilograms was recorded. Although the procedure of spirometry does not involve any invasive procedure nor any life threatening risk, written consent was however taken before the procedure and it was a fully voluntary study.

Forced vital capacity (FVC) was recorded on a Computerized portable "Schiller SP-1" lung function unit, the automated flow Spirometer with a sensor, converts the air flow into digital signals and gives direct readings of all parameters recorded. Test readings were recorded at noon time[9], as expiratory flow rate is highest at noon. All the readings were taken in standing position. Subjects were properly instructed regarding the test prior to the actual performance. Properly fitting disposable mouthpieces and nose-clips were provided. Three readings were taken and best of three readings was selected.

The parameters selected on Spirometer for the study were ,Forced vital capacity (FVC) (in Liters). Forced expiratory volume in one second (FEV1) (in Liters). The percentage of forced expiratory volume in one second to forced vital capacity (FEV1/FVC%) .

The readings were automatically compared by the inbuilt predicted pulmonary function norms in the spirometer for the Indian population depending upon the age, sex, height and weight The standard Algorithm and Miller's Diagnostic Quadrant was used for categorizing

spirometric results [13]. Statistical analysis was done by using SPSS software for statistical analysis. The significance was calculated by 'Z' test where the 'Z' value more than 1.96 was considered to be significant. The 'p' value <0.01 was considered to be highly significant and <0.05 was considered to be just significant. The 'p' value >0.05 was considered to be not significant.

FINDINGS

The age in years, weight in kilograms and height in centimeters in mean ± SD of groups were: Group I (auto rickshaw drivers) age 35.93 ± 5.83, height 166.51 ± 5.41 and weight70.21 ± 10.69 where in Group II (non auto rickshaw drivers) age 33.8 ± 6.15, height 163.25 ± 9.34 and weight 67.4 ± 9.12.

Table I shows the mean FVC of the group I (2.94 ± 0.58 L) when compared with the mean FVC of the group II (3.27 ± 0.33 L) showed highly significant reduction ($p < 0.01$). The mean FEV_1 recorded in group I was 2.67 ± 0.51 L which showed statistically significant reduction but for p value at < 0.05 as compared to control group whose mean FEV_1 was 2.91 ± 0.34 L however the FEV_1/FVC % did not show statistically significant change.

DISCUSSION

In the present study we recorded FVC, FEV_1, & FEV_1/FVC %, of 100 auto rickshaw drivers and compared with the control of 100 individuals (non auto rickshaw drivers) from the general public who were height, weight and age matched with the auto rickshaw drivers. FVC reduction was highly significant in the study Group I where as FEV_1 showed slight statistically significant reduction, but FEV_1/FVC% did not show reduction. On the contrary, FEV_1/FVC% in study group depicted in Table I showed slight increase in Group I. This could be because the numerator FEV_1, was not significantly reduced as compared to denominator FVC which was significantly reduced.

The auto rickshaw drivers are exposed to motor vehicle exhaust both from diesel and petrol machines along with other pollutants already existing on roads. Long term exposure to pollutants have been associated with decrease in lung function and increase in respiratory symptoms [10].

Sources of air pollution especially in urban areas are industrial complexes, power plants and automobiles. The pollutants present in the

Table – 1: Comparison of pulmonary functions between Study group I and Control group II.

Parameters	Group II (Control)	Group I (Study Group)	P Value	Significance
	Mean ± SD (n=100) (n=100)	Mean ± SD (n=100) (n=100)		
FVC (L)	3.27 ± 0.33	2.94 ± 0.58	< 0.01	HS
FEV_1 (L)	2.91 ± 0.34	2.67 ± 0.51	< 0.05	S
FEV_1 /FVC %	89.93 ± 7.09	90.47 ± 4.89	> 0.05	NS

HS : Highly significant S : Significant NS : Not significant

ambient air which are harmful to human health have been identified by numerous studies. Particulate matter less than 10 μm in size (PM10), Particulate matter less than 2.5 μm in size (PM2.5), Oxides of sulfur (SOx), Oxides of nitrogen (NOx),Ozone (O_3), Lead (Pb),Carbon monoxide (CO) comprise bulk of the traffic pollution [1,3].

Oxides of nitrogen present in the ambient air cause injury in the terminal bronchioles, decrease the pulmonary compliance and reduce the vital capacity [11]. The extremely high ambient concentration of coarse particulate matter less than 10μm in size (PM10) was strongly associated with significant reduction in pulmonary function [12]. The study of effect of ozone on rat lungs, showed strong association between long term exposure to ozone and restrictive type of lung disease and appeared to have occurred due to stiffened lung without overt fibrosis [13]. Tropospheric ozone is an oxidant air pollutant formed from oxides of nitrogen and volatile organic compounds in the presence of sunlight [14]. Long term exposure to ozone produces mainly pulmonary fibrosis[15] which could be associated with decrease in FVC.

Carbon monoxide (CO) is one of the major pollutants and the toxic effects of CO[16] on respiratory muscles cause muscle weakness in both expiratory muscles and inspiratory muscles leading to restrictive as well as obstructive lung diseases.

Unleaded fuel has reduced the level of lead in the ambient air. Lead causes structural damage and impairs the functions of the lung [17]. Many studies [18, 19] have reported that airborne iron was possibly associated with a decline in PEFR as iron in airborne particles was known to cause oxidative damage.

Ultra fine particles with diameters 0.005-1μm get deposited on alveolar walls and in the nuclei of the cells by diffusion and retained in lung parenchyma. These small sized particles are responsible for oxidative stress and mitochondrial damage probably because of their smaller size, larger surface to volume ratio and ability to penetrate into the cell interior and localize near mitochondria [20]. The oxidative stress mediated by particles may arise from direct generation of Reactive Oxygen Species (ROS) from the surface of the particles or from soluble compounds carried by these particles such as polyaromatic hydrocarbons. Oxidative stress might up regulate redox sensitive transcription factor via nuclear factor kappa - B (NF-κB) in airway epithelial cells thus increasing the synthesis of pro inflammatory cytokines and resulting in cell and tissue injury [21]

In our study we dealt with the vehicular fuel exhaust pollution as a whole and no attempt was made to identify individual pollutants and feel that all the pollutants namely PM, SO_2, NO_x, O_3 etc. act in tandem and cause structural damage to the lung there by causing reduced compliance and various other tissue changes leading to a restrictive pattern of pulmonary dysfunction.

In conclusion the findings of the study suggest that air pollution does adversely affect the Ventilatory lung function on chronic long term exposure to traffic air pollution with prevalence of restrictive type of lung disorder. Although some of the parameters were significantly altered in some subjects, suggesting a restrictive type of disorder were apparently asymptomatic. The lungs have large functional reserve and the person will become symptomatic only when the lung functions are diminished markedly. A large sample and longitudinal study in this field will definitely be of a greater value in predicting the relationship between traffic pollution and ventilator lung function .

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A Study on the Awareness Regarding Infant and Young Child Feeding (IYCF) Practices among Anganwadi Workers (AWWs) attending Anganwadi Training Centre, Davangere

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ABSTRACT

Title of the article: A study on the awareness regarding infant and young child feeding (IYCF) practices among Anganwadi workers (AWWs) attending Anganwadi training centre, Davangere**.**

Context: Breast feeding promotion is a significant child survival strategy. Interventions to improve early and correct infant feeding practices can result in 22% reduction in neonatal morbidity and mortality. In India, studies have shown that 17.3% of the babies are bottle fed. 56% receive complementary feeds from 6 months. The time and type of complementary foods introduced to an infant also have a significant effect on the child's nutritional status.

Anganwadi workers are the first level health care providers responsible for promotion of maternal and child health care. Hence Anganwadi workers should have adequate scientific knowledge about infant and young child feeding practices so that they can impart the right knowledge to mother beneficiaries.

Objective: 1. To assess the knowledge regarding infant and young child feeding practices among Anganwadi workers.

Settings and Design: ***Study Design*:** Cross sectional descriptive study ***Duration of study:*** 3months (1st June 2012 to 31st August 2012) ***Participants:*** 234 Anganwadi workers attending Anganwadi training centre at Davangere. **Methods and Material:** A predesigned, pretested, semi structured questionnaire was given to all Anganwadi workers which included the various components of infant and young child feeding practices. **Statistical analysis used**: Done using SPSS with frequency distribution.

RESULTS: 85-91% AWWs had **correct knowledge** regarding initiation of breastfeeding (91%), continuation of breastfeeding during diarrhoea and other illness (90%), EBF and initiation of complementary feeding (88%), pre-lacteal feeds and colostrum feeding to the newborn (87%) , continued breastfeeding for 2yrs, bottle feeding, artificial teats and pacifiers given to the babies (85%).

AWWs had **poor knowledge** regarding correct duration of storage of expressed milk at room temperature (95%), breastfeeding patterns among working mothers (72%), breastfeeding patterns

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among premature babies (54%), breastfeeding on demand (25%), farex and cerelac given as complementary feeds (23%).

Conclusions: The present study concludes that the knowledge of Anganwadi workers is not consistent. Though they have got good knowledge about some aspects of breast feeding, in some aspects their knowledge is poor which can be detrimental to the health of the babies.

Keywords*: Anganwadi workers, infant and young child feeding practices, breast feeding, complementary feeding.*

INTRODUCTION

Breast feeding promotion is a significant child survival strategy. Interventions to improve early and correct infant feeding practices can result in 22% reduction in neonatal morbidity and mortality.[1] In India, studies have shown that 17.3% of the babies are bottle fed.[2] 56% receive complementary feeds from 6 months.[3] The time and type of complementary foods introduced to an infant also have a significant effect on the child's nutritional status.[4]

The global strategy for infant and young child feeding states that "even though breast feeding is a natural act, it is also a learned behaviour. Virtually all mothers can breastfeed provided they have accurate information and support within their families and communities and from the health care system".[5]

Anganwadi workers are the first level health care providers responsible for promotion of maternal and child health care. Hence Anganwadi workers should have adequate scientific knowledge about infant and young child feeding practices so that they can impart the right knowledge to mother beneficiaries.[6]

MATERIALS AND METHOD

Study design- A Cross sectional descriptive study.

Duration of the study: 3months (1st June 2012 to 31st August 2012)**.**

Participants: 234 Anganwadi workers attending Anganwadi training centre at Davangere.

Statistical analysis used: Done using SPSS with frequency distribution.

Methodology: This study was conducted among Anganwadi workers attending Anganwadi training centre, Davangere which trains Anganwadi workers from Davangere, Haveri and Chitradurga districts. The participants were explained about the objective of the study. A predesigned, pretested, semi structured questionnaire was given to all Anganwadi workers which included the various components of infant and young child feeding practices. Over a period of 3 months 234 Anganwadi workers were included in the study.

ETHICAL CLEARANCE

The study was approved by ethical committee of JJM Medical College Davangere

RESULTS: **Table1:** Distribution of AWWs according to work experience and training status.

Years of experience	No. of AWWs (%)	Trained (%)	Untrained (%)
<1yr	27 (11.5%)	0	27 (100%)
1-5yrs	69 (29.5%)	61 (88%)	8 (12%)
6-10yrs	22 (9.5%)	22 (100%)	0
11-15yrs	14 (6%)	14 (100%)	0
>15yrs	102 (43.5%)	102 (100%)	0
Total	**234**	**199**	**35**

Table 1 shows about 60% of the AWWs had more than 5yrs of experience and all were trained. 40% had less than 5years experience, out of which 36% were untrained in IYCF.

Table2: Distribution of AWWs according to district and previous IYCF training status.

Districts	**No. of AWWs(%)**	**Trained**		**Un trained**	
		Number	**%**	**Number**	**%**
Davangere	90 (38%)	80	89	10	11
Haveri	105 (45%)	80	76	25	24
Chitradurga	39 (17%)	39	100	0	0
Total	**234**	**199**		**35**	

Table 2 shows 38% were from Davangere district out of which 89% were trained, 45% were from Haveri district out of which 76% were trained and 17% were from Chitradurga and all were trained.

Table 3: Knowledge of AWWs related to Breast feeding

Sl.no		Desired answer	Correct response		Wrong response	
			Number (Trained+Untrained)	%	Number (Trained+ Untrained)	%
1.	Pre-lacteal feeds should be given to the baby	No	204 (192+ 12)	87	30 (7+ 23)	13
2.	Colostrum should be given to the baby	Yes	203 (199+ 4)	87	31(0+ 31)	13
3.	Initiation of Breast feeding - normal delivery - caesarean section	Within →½ hr →4hrs	212 (198+ 14)	91	22 (1+ 21)	9
4.	Breast feeding is done	On demand	175 (163+ 12)	75	59 (36+ 23)	25
5.	EBF	6months	204 (191+ 13)	87	30 (8+ 22)	13
6.	Farex and cerelac should be given as complementary feeds	No	181 (179+2)	77	53 (20+33)	23
7.	BF should be continued when child is having diarrhoea and other illness	Yes	210 (198+ 12)	90	24 (1+ 23)	10
8.	Top feeds to be given within 6 months	No	220 (199+21)	94	14 (0+ 14)	6
9.	Bottle feeding should be totally avoided	Yes	199 (191+ 8)	85	35 (8+ 27)	15
10.	Breast feeding should be continued for	2yrs	200 (189+ 11)	85	34 (10+ 24)	15
11.	Gripe water should be given to the baby	No	165 (157+ 8)	71	69 (42+ 27)	29
12.	Artificial teats and pacifiers should be given to the baby	No	200 (194+ 6)	85	34 (5+ 29)	15

Table 3 shows

(i) 13% were of the opinion that pre-lacteal feeds should be given to the newborn. Among these, majority of them 63% were in favour of giving honey, 27% sugar water and 10% cow's milk as pre-lacteal feed to the newborn.

(ii) 87% AWWs gave correct response that colostrum should be given out of this 8% did not know the benefits of colostrums to the newborn. 13% were of the opinion that colostrum should be discarded.

(iii) 91% gave correct response about the time of initiation of breast feeding which is within half an hour in normal delivery and within 4 hrs after caesarean section.

(iv) 75% gave the correct response regarding breastfeeding on demand and 25% told it has to be done as time based feeding.

(v) 87% gave correct response that EBF should be given for 6months and complementary feeding should be started at 6months. 6% were of the opinion that EBF can be done more than 8mths also. And 3% each were of the opinion that EBF can be done for 4mths and 8 months.

(vi) 23% did not know what constituted complementary food and were of the opinion that farex/cerelac can be given as complementary feeds.

(vii) 90% gave the correct response that breast feeding should be continued during diarrhoea and other illness like fever. 10% were of the opinion that breast feeding should be withheld during diarrhoea and other illness.

(viii) 6% were of the opinion that top feeds should be started. Among these 79% were of the opinion that the mode of top feeding should be cup feeding and 21% were in favour of bottle feeding.

(ix) 85% were of the opinion that bottle feeding should be totally avoided. 15% were in favour of bottle feeding.

(x) 85% of the AWWs gave correct response that breast feeding should be continued for 2ys. 10% were of the opinion that breast feeding can be continued for 3yrs. 5% were of the opinion that breastfeeding can be continued for 1yr.

(xi) 29% were in favour of giving gripe water.

(xii) 15% AWWs told artificial teats and pacifiers should be given to the babies. Everyone knew that breast milk was superior to other commercial preparations and also rooming in of the baby.

Table 4: Knowledge of AWWs about breastfeeding patterns among working mothers.

Breastfeeding patterns among working mothers.	**No. of responses**	**%**
Expressed milk	66	28
Cow's milk	72	31
Don't know	90	38
Others can feed	6	3
Total	**234**	**100**

Table 4 shows 28% gave correct response that expressed milk can be used to feed the babies where as 3% were of the opinion that other lactating women in the house can feed the baby. 38% did not know how to feed the baby in this situation and 31% of the AWWs told cow's milk can be used to feed the baby.

Table 5 : Knowledge of AWWs about breastfeeding patterns among premature babies

Breastfeeding patterns among premature babies	**No. of responses**	**%**
Expressed milk	108	46
Cow's milk	8	3
Don't know	118	51
Total	**234**	**100**

Table 5 shows 51% did not know how to feed the premature babies and 46% gave correct response that expressed milk can be used. 3% were of the opinion that cow's milk can be given with dilution.

Table 6 : Knowledge of AWWs about storage of expressed milk at room temperature.

Storage of expressed milk at room temperature	**No. of responses**	**Percentage**
6-8hrs	11	5
Few minutes to hrs	47	20
Don't know	176	75
Total	**234**	**100**

Table 6 shows 75% were not aware of how long expressed milk could be stored at room temperature. Only 5% were aware of the correct response that expressed milk can be stored for 6-8hrs. 20% were of the opinion that it can be kept for few minutes to hrs.

DISCUSSION

In this study 87% knew that the newborn should receive colostrum, 90% knew that bottle feeding should be totally avoided and only 48% knew that top milk should not be diluted when compared to 92.7%, 50.5% and 56.6% respectively in a study conducted by Bhasin S K et.al.[6]

Successful breast feeding not only depends upon a willing mother but it has also been influenced by the advice of health care workers. About 90% of the AWWs thought that breast feeding should not be stopped during diarrhoea which was high when compared to 60% in the study conducted by Singh BM and Vashist S.[7]

In this study 87% had correct knowledge about Pre-lacteal feeds and 71% had knowledge that gripe water was harmful to baby when compared to 94.4% and 55.5% respectively in the study conducted by Taksande A, Tiwari S and Kuthe A.[8]

In this study 87% had correct knowledge about duration of exclusive breast feeding when compared to 17.6% in the study conducted by Chattopadhyay D.[9]

The incorrect knowledge delivered and practiced by these peripheral workers has been very much detrimental to the community.

CONCLUSION

The present study reveals that the knowledge of Anganwadi workers is not consistent. Though they have got good knowledge about some aspects of breast feeding, in some aspects their knowledge is poor which can be detrimental to the health of the babies. Adequate knowledge on all aspects of breastfeeding is essential. Hence periodic and proper training of Anganwadi workers is necessary.

RECOMMENDATIONS

Anganwadi workers have been more readily accepted by the mothers because they share the same socio-cultural environment as that of their beneficiaries. There is a need for early and periodic training of Anganwadi workers about infant and young child feeding practices for updating their knowledge.

LIMITATIONS

Small sample size and limited study period are the limitations of this study.

Source of Support: Nil

Conflict of Interest: Nil

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A Study of Substance Abuse among Doctors in Andhra Pradesh

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ABSTRACT

Objective – This study is conducted to predict the misuse of alcohol and other drugs by doctors, their intervention and treatment.

Method - From various parts of Andhra Pradesh total 1,192 doctor's data on substance abuse was collected. Out of which, 155 doctors have substance abuse.

Result –Majority of doctors abuse alcohol and other drugs. Alcohol is identified as the drug of choice.

Conclusion – Chemical impairment has been shown a major risk factor for medical malpractice, negligence and development of physical, psychological illness and finally death. Early recognization and intervention will cause to recover and return to practice.

Keywords: *Substance abuse, Doctors, Alcohol, Drugs.*

INTRODUCTION

The misuse of alcohol and other drugs by doctors forms the major component of any concern about the conduct, performance and heath of the medical profession. The occasions when these concerns arise may attract widespread publicity, especially when the circumstances are linked to less than satisfactory patient assessment and management. When substance misuse is evident, there is every indication that early intervention is therapeutic and would be preventive, but equally there is a pervasive uncertainly among doctors about how to intervene.

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Education of the profession by increasing awareness of the risks and prevalence of substance misuse and knowledge about assessment treatment were important to overcome this problem.

METHOD

The present study is conducted on the doctors present in both rural and urban areas of Andhra Pradesh. A data of total 1,192 doctors were collected out of which 155 doctors with substance abuse was concluded.

RESULTS

Date reveal 43.87 percent of doctors in monitored list take alcohol as their drug of choice.32.90 percent were dependent upon opioids as their drug of choice, 6.45 percent used cocaine,7.10 percent sedatives and hypnotic drugs and the remaining 9.68 percent include a variety of other drugs, such as cannabis , solvents and

anaesthetic agents(Table-1).Table - 1

Drug	No. of physicians	percentage
Alcohol	68	43.87
Opioids	51	32.90
Cocaine	10	6.45
Sedatives and hypnotics	11	7.10
Other drugs e.g. cannabis, solvents, anaesthetic drugs	15	9.68
Total	155	100.00

DISCUSSION

Most doctors are not surprised when told that more than 10% of the people have a substance abuse problem at sometime during their lives[1]. Any one who has rotated through on emergency department is aware of the magnitude of the problem. However many are unaware that doctors themselves develop substance abuse problems at least as frequently and perhaps more frequently, than the population in general[2,3].

Although the exact rate of substance abuse among doctors is uncertain even the most conservative estimates are that 8% to 12% of doctors will develop a substance abuse problem at some point during their career [4, 5]. At any given time, as many as 7% of practicing doctors – roughly 1 out of every 14 are active substance abusers [3, 5]. No group of doctors is immune. The numbers are similar for every specialty, every region of the country, every age range, in urban or rural areas and in academic medicine versus private practice.

Definition:

Substance abuse is characterized by the repeated inappropriate use of a mood – altering substance which in some way, interferes with heath and / or quality of life. This diagnosis can be made if substance dependence diagnostic criteria are not met. Substance abuse may progress to dependence if unaddressed.

Regardless, if a doctors is impaired due to a substance use disorders, patient care can be affected, and the physician risks serious personal morbidity or even death.

Prevalence:

The prevalence of drug and alcohol problems within the medical profession has been the subject of speculation and misconception. In 1992, Hughes etal reported in a survey of more than 9,000 in all specialties, almost 8% reported substance abuse or dependence problems at sometime in their lives [6]. In our study total 1,192 doctors were studied in all specialties, almost 13% (155) reported substance abuse or dependence. This increase may be due to the stress in the profession and personal problems.

Commonly abused substances:

It is prudent to regard substance dependence as a single entity, rather than a collection of addictions. The majority of doctors treated for addiction acknowledge abusing many drugs and alcohol. Still, alcohol is most identified as the drug of choice.

The OMA physician health program (PHP) conducted by Michael etal reveal that 47 percent of doctors monitored by the program list alcohol as their drug of choice. 35 percent of PHP participants were dependent upon opioids as their drug of choice, 7% used cocaine, 5% sedatives and hypnotic drugs and remaining 6% include a variety of other drugs such as cannabis, solvents and anesthetic agents.

In comparison our present study shows almost equal percentages of the substance abuse stated above.

Risk factors:

Although data tend to suggest that substance dependence affects doctors in ways similar to the general population, there are some considerations pertinent to medical professionals that merit discussion. Few physician specific factors associated with substance abuse are unique stresses of medical career like long hours, family pressures, lack of sleep, poor nutrition, history of multiple affairs and / or multiple marriages, exposure to disease, lack of exercise plus the easy access to

pure drugs due to practice in emergency medicine, anesthesiology, psychiatry, self – medicating or self prescribing behavior[3, 5, 7, 8]. Example anesthetists self administer potent opioids such as fentanyl due to easy access which leads to drug dependency.

Identification

In the vast majority of cases, symptoms of substance abuse are minimal at first and only become evident over time. When symptoms first became evident, they can often be explained by a number of other possible causes. Substance abuse is even more difficult to detect in a physician because he or she is aware of the possible symptoms of abuse and makes every effort to conceal them.

Doctors with substance abuse problems rarely exhibit the obvious symptoms of intoxication such as slurred speech, pinpoint pupils or bizarre behavior somnolence occurs with certain drugs but is easily explained as exhaustion from being on call or working long hours. Because they access to sterile, small bone needles, doctors who are intravenous substance abusers will rarely have obvious needle marks or tracks.

The most consistent initial symptoms of substance abuse problems in doctors tend to involve changes in personal relationships and community activities. Increasing isolation is often the most noticeable early sign. Many of these observations have been previously described in the Ontario medical review [9].

Intervention

It is not unusual for doctors in a community to be aware that one of their colleagues is struggling personally in some way. In the earlier stages, the nature of a problem might not be clear. Caring individuals will offers help. One or two friendly colleagues can approach the doctor and share their observations and concerns.

Intervention should be carried out as early as possible when impaired due to substance abuse is suspected. The intervention which must be properly planned and rehearsed is conducted by at least two individuals in a position of importance in the affected doctor's life, such as a partner, department head or chief of staff. Sometimes, family members are also involved.

Treatment of doctor with substance abuse problems differs significantly from the treatment experienced by the general public for several reasons. Routine substance abuse treatment is usually short term and often takes place in an out patient setting. Such programs are known to have high relapse rates (greater than 60%) for any given treatment[10, 11]. Because motivated individuals will return to treatment - often several times - the eventual success rate is reasonably high.

In patient treatment is followed by formal after care that lasts several months to several years. Treatment centers experienced in working with doctors report long term success rates of greater than 70%, but when a structured after care program is undertaken, the success rate increase to approximately 90% [1,10,11,12] .

After successfully completing treatment, the vast majority of doctors return to practice but they have to be monitored.

Substance dependence is nevertheless, a disease of relapse, when it occurs, should be treated seriously and promptly. Breaks in abstinence can be minor or life threatening. Once again, careful monitoring goes a long way toward prevention and early defection of relapse events.

CONCLUSION

Substance use disorders affect doctors just as they affect members of the general population. The central fact to remember concerning treatment of doctors with substance abuse is that, it is usually successful, treatment centers experience in working with physicians report long term success rate of 90% or higher.

So it falls to each of us as doctors to care about the well-being of our colleagues, to be watchful for signs of drug or alcohol problems and to be prepared to respond.

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Factors Associated with Outcome of Acute Exacerbation of Chronic Obstructive Pulmonary Disease – a Prospective Study

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ABSTRACT

Chronic obstructive pulmonary disease (COPD) is a common and preventable disease, presently it is the fifth leading cause of death globally. The estimate in 2002 suggested worldwide prevalence of COPD was 11.6/1000 in men and 8.7/1000 in women. According, Global Burden of Disease Study, by the year 2020, COPD is likely to become the fifth leading cause of disability adjusted life years (DALYS), moving ahead from twelfth position it occupied in 1990.

An institutional based prospective study was conducted during the period of Jan -2007 to July -2007 to know the outcome of patients with acute exacerbation of COPD and also to analyse the factors responsible for repeated admissions and study the prognostic factors in patients with COPD. Detailed clinical examination and investigations was carried out according to the proforma that was predesigned and pretested. In the present study we observed that 65% of patients were aged 65 years and above and 90% were male. Smoking was commonly associated with COPD and infection was one of the common cause for exacerbations. Presence of hospital admission in 1 year, number of pack years smoked, less use of inhaled short acting B2 agonists, hypoprotenemia and hypoalbuminemia were factors associated with hospital readmission.

Key words : *COPD, exacerbation, pack years smoked, B2 agonists, hypoprotenemia.*

INTRODUCTION

Chronic obstructive pulmonary disease (COPD) is a common and preventable disease, presently it is the fifth leading cause of death globally. The estimate in 2002 suggested worldwide prevalence of COPD was 11.6/1000 in men and 8.7/1000 in women. According, Global Burden of Disease COPD is likely to become the fifth leading cause of disability adjusted life years (DALYS), moving ahead from twelfth position it occupied in 1990.[1]

COPD is more in countries where smoking is highly prevalent. Sadly smoking is turning out to be a menace on the rise in India. It has been estimated that 2,500 Indians die every day from smoking related diseases one in every 40 seconds.[1]

Acute exacerbation of COPD (AECOPD) is a common cause of emergency room visits and is a major cause of morbidity and mortality, majority of patients experience a temporary or permanent decrease in the quality of life. More than half of patients discharged with AECOPD often require

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readmission in the subsequent six months.[2]

Hence the present study is designed with an objective to know the outcome of patients with AECOPD and also to analyze the factors responsible for repeated admissions and study the prognostic factors in patients with COPD.

METHODOLOGY

Source of Data

An institutional based prospective study was conducted during the period of Jan to July -2007. Total of 40 adults, male and female inpatients diagnosed to have AECOPD and admitted in KLES Hospital and Medical Research Center, Belgaum were included in the study.

Inclusion Criteria

1. All patients with AECOPD. COPD was diagnosed by premorbid pulmonary function test. In the absence of documented airflow obstruction we used clinical history with compatible physical findings and/or evidence of hyperinflation on chest radiograph to diagnose COPD.[3]

2. In patients with COPD, acute exacerbation was diagnosed if the following criteria[4,5] were present:

a) Worsening of dyspnoea.
b) Increase in sputum purulence.
c) Increase in sputum volume.

Exclusion Criteria

1. Patients with asthma, bronchiectasis and interstitial lung disease.
2. Patients not willing to participate.

Procedure:

Patients were interviewed and selected based on baseline clinical characteristics. They were briefed about the study and consent taken. Complete history was taken from all the subjects and followed in the hospital on admission and on readmission. Examination and investigations were done according to proforma that was predesigned and pretested.

History of smoking, environmental exposure, presence or absence of co-morbid factors, number of exacerbations in the last one year, lifestyle and occupation were taken. Outpatient medical history including home oxygen, theophylline, immunization, oral and inhaled steroids, inhaled long and short acting β2 agonists and anticholinergics were collected.

Pack year was computed in smokers from the average number of cigarettes smoked per day. In beedi smokers, "Cigarette equivalent pack years" were computed.[6,7] History of exposure to domestic fuel was recorded in females who were non smokers.

Sputum, bronchoscopic aspirate and blood culture examination were performed to identify the etiology. Sputum smear was subjected for gram staining and evaluating adequacy by Bartlett's criteria.[8] Cor-pulmonale was diagnosed by ECG and echocardiography.

The heart rate, respiratory rate, ECG, non-invasive blood pressure (NiBP), arterial oxygen saturation (SpO_2) were monitored. Oxygen was delivered depending upon SpO_2. β_2 agonists and Anticholinergic agents administered every hourly through the nebuliser. If the aerosol therapy proved inadequate, intravenous methylxanthines were administered. Empirical antibiotic treatment was initiated as appropriate further antibiotic choice was modified based on the culture and sensitivity report.

Despite "optimal" medical therapy and oxygen administration, Intubation and mechanical ventilation was considered in patients with acute respiratory failure, severe acidosis, hypercapnia, Life-threatening hypoxaemia.[9] Patients who symptomatically improved were discharged and followed up during exacerbations.

The readmitted patients were clinically assessed, examination and investigations carried according to the proforma and were followed during the hospital stay and on subsequent readmissions.

Statistical Analysis

Mean, standard deviation and comparisons

of mean was done for the groups of expired and survived, readmitted and non readmitted cases separately. To confirm the association for a qualitative variable chi-square test was used, for comparing means students unpaired 't' test was used.

RESULTS

Among the 40 patients studied, majority of them 26 (65%) > 65 years and 14 (35%) < 65 years of age. Mean age was 67.9 ± 7.8 years. Male constituted 90% of total patients. 25 (62.5%) patients had a history of COPD of 10–19 years, 8 (20%) had COPD ≥ 20 years and 7 (17.5%) ≤10 years. Mean duration of the disease was 13 ± 5.6 years.

Out of 40 patients 36 (90%) were smokers and all were males. Among them 25 (69.4%) patients were ex-smokers, remaining 11 (30.55%) current smokers. Out of 36 smokers, 13 were beedi and 23 cigarette smokers. A total of 15 (60%) patients were admitted for ≥ 1 times in the previous one year. All patients presented with cough and recent worsening of dyspnea. 27 (67%) patients had increased sputum volume or purulence. Fever, altered sensorium and gastroesophphageal reflex symptoms were present in 19 (47.5%), 6 (15%) and 14 (35%) of patients respectively. Other predominant signs present were ronchi 28 (70%), tachypnea 26 (65%), tachycardia 15 (37.5%), cyanosis 8 (20%), pedal edema 8 (20%).

Study showed 25 (62.5%) on inhaled short acting B2 agonists, 20 (50%) patients on oral theophylline, 20 (50%) on inhaled Ipratropium, 7 (17.5%) on inhaled steroids, 6 (15%) on inhaled long acting B2 agonists and Tiotropium and 2 (5%) patients on oral bronchodilators.

Co morbid illness was seen in 15(37.5%) patients. 13 (32.5%) had Hypertension, Diabetes 6 (15%), Coronary Artery Disease 4 (10%) and Chronic Renal Failure 2 (5%). 25 (62.5%) did not have co-morbid illness.

Laboratory abnormalities included polycythemia in 8 patients (20%), Leukocytosis 29(72.5%), Neutrophilia 34 (85%), Hypoalbuminemia 12 (30%), Hyponatraemia 0 (0%), Hypokalaemia 3 (7.5%), Hyperbilirubinemia 2(5%), Elevated Blood Urea 10 (25%) and Elevated serum Creatinine in 7 (17.5%) patients at the time of admission.

7(17.5%) patients presented with Respiratory failure. X-ray screening showed abnormal X-ray findings apart from COPD changes in 16 patients. 15 patients had evidence of new infiltrates and one patient showed pulmonary edema at the time of admission.

ECG and ECHO evidence of cor pulmonale was present in 9 patients (22.5%). Spirometry was done in 30 patients, 3 patients (10%) had FEV1 >= 80%, 13 (43.33) had FEV1 50 – 80%, another 13 (43.33%) had FEV1 30 – 50% and one had FEV1<30% predicted.

In the present study, most common organism isolated was streptococcus from 9 patients, Staphylococus 3 and Klebsiella 1 patient. In 27 (67.5%) of the patients no organism was isolated.

36 patients received antibiotics, systemic steroids, bronchodilator nebulisations, theophylline, and controlled oxygen. 35 patients symptomatically improved and were discharged, one patient expired. 4 patients required invasive mechanical ventilation and out of these 3 (75%) died. Overall mortality of the patient with AECOPD was 10%. Out of 40 patients, 4 (10%) were readmitted during the study period. The mean duration of hospital stay was 8.53 days as compared to 8.21 days in expired.

Out of 40 patients, 12 (30%) were not on medication at admission and their mean duration of hospital stay was 11.41 days. Among the remaining 1 (2.5%) was on theophylline and oral bronchodilator, 2 (5.00%) on theophylline only, 5 (12.5%) on inhaled SABA and ipratropium, 6 (15%) on LABA/tiotropium, SABA, Ipratropium and theophylline, 7 (17.5%) on SABA, Ipratropium and theophylline, 3 (7.5%) patients on LABA/ tiotropium, SABA and ipratropium, 3 (7.5%) patients were on inhaled steroids, LABA/ tiotropium, SABA, ipratropium, theophylline and one patient had received immunization. Their mean duration of hospital stay was 10, 7, 9.2, 7.67, 5.43, 6.5, 8.75 and 10 days respectively.

DISCUSSION

In the present study the mean age of the patient was 67.9 ± 7.8 years, 26 (65%) > 65 years old, and 36 (90%) were male. All smokers 36 (90%) were males; females gave history of exposure to domestic fuel. Among smokers 25 (69.4%) were ex-smokers and 11 (30.5%) current smokers. Gunen et al[10] studied 205 patients, among them 86.82% had smoking history and 13.17% were nonsmokers.

Antenolli et al[11] showed, hypertension (28%) as most common co morbid illness followed by Diabetes and coronary artery disease in COPD. Similar findings were observed in our study.

Connor's et al[12] studied 1016 patients and observed similar clinical and laboratory findings as in our study. Arora et al[13] isolated - streptococci, pseudomonas, klebsiella, staphylococci in 58 patients. Bott et al[14] observed 21% of patients with respiratory failure. Mohan et al[15] observed presence of infiltrates in 41.4% patients with AECOPD which is similar to our study.

In the present study, 4 (10%) patients were readmitted. Kim et al[16] observed readmission rate of 21%. Robert's et al[17] and Garcia et al[18] observed lowest FEV1 as a risk factor for repeated admission. Cao et al[19] observed, FEV1<50% predicted and disease duration of >5 years as risk factors for readmission. Roberts et al[17] observed that 5 or more medications and previous hospital admissions as the best predictors for readmission and exacerbation. Kim et al[16] observed increased number of emergency department visits for COPD exacerbation in the past year as a risk factor for readmissions. Tsai et al[20] observed increased pack years of smoking to be a good predictor for readmission.

Roberts et al[17] observed, pedal edema as one of the significant predictor of death. Soler et al[21] observed older age and previous acute exacerbations as significant predictors of increased mortality. Connor's et al[12] observed that hypoalbuminemia, leukocytosis, altered sensorium and hypoproteinemia, as independent predictors for mortality. Gunnen et al[10] observed hypoxemia as good predictor of mortality and studies by Portier et al[22] and Burk et al[23] observed that need for mechanical ventilation as predictor of mortality. Jefferey et al[24] observed raised blood urea and serum creatinine as the predictors of mortality. They also observed older age and hypercapnia as significant predictors of mortality but in the present study these parameters had no significant association. Mohan et al[15] observed presence of co morbid illness and hypercapnia as predictors of death, however the association was not significant in our study. In the present study overall mortality of the patients with AECOPD was 10%.

Calverly et al[25] observed reduction in annual rate of exacerbation and improved health status with inhaled bronchodilators and steroids. Soriana et al[26] observed reduction in hospitalization, who were on inhaled bronchodilators and corticosteroids. Garcia et al[19] observed reduction in readmissions who were on anticholinergic medications.

Kim et al[16] observed that increased respiratory rate and self-reported activity limitation during the past 24 hours as the factors associated with readmissions. Aaron et al[27] observed reduction in readmissions in patients taking prednisolone as compared to patients on placebo.

CONCLUSION

In the present study we concluded that 65% of patients were aged 65 years and above reiterating that COPD is a disease of the aged. Among them 90% were males indicating male preponderance, may be due to a greater prevalence of smoking. Infections considered to be the commonest cause for exacerbations and hypertension was commonly seen as co morbid illness. Presence of hospital admission in 1 year, number of pack years smoked, less use of inhaled short acting B2 agonists, hypoprotenemia and hypoalbuminemia were factors associated with hospital readmission.

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An Interventional Study on Anaemia in Women of Reproductive Age Group

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ABSTRACT

Objectives:

1. To study the prevalence of anaemia in women of reproductive age group.
2. To determine change in haemoglobin levels after health education and supplementation of iron and folic acid tablets among women who are anaemic during the study period.
3. To suggest recommendations for improvement of health status in women of reproductive age.

Method: A c ross-sectional study with intervention was done among women of reproductive age group 15-44 years from November 2005 to October 2006. Sample size of 203 was calculated and systematic random sampling done to select the study women. The women were interviewed using pretested proformas and Sahli's method used to estimate haemoglobin. Health education and iron and folic acid tablets were given to women who were anaemic. Repeat haemoglobin was done for those on therapy after 100 days.

Statistical analysis was done using percentages, mean and standard deviation, chi-square, paired and unpaired t tests.

Results: Prevalence of anaemia was 59.61% and decreased to 46.80% after intervention. There was a significant association between occupation and BMI with anaemia. Association between parity and anaemia was highly significant. The mean increase in haemoglobin levels was 1.10 gm/dl in mild anaemia and 1.15 gm/dl in moderate anaemia after intervention.

Key Words: *Prevalence; Anaemia; Iron and folic acid supplementation.*

INTRODUCTION

Iron deficiency is one of the most prevalent nutritional problems in the world today. According to data from WHO, the prevalence of anaemia in women world-wide is around 35% with 11% in developed and 47% in developing countries[1]. Nearly 1.5 billion people all over the world are affected by iron deficiency anaemia (IDA). In India, depending on age and sex, IDA has been reported to range from 38-72 per cent[2].

The diminished iron levels can cause lassitude, fatigue and reduced efficiency at work place and thus affect work capacity and reduce productivity. It can also impair the immune system thereby increasing the risk of developing infections. Maternal and perinatal mortality or morbidity, preterm births and low birth weight babies are more commonly seen in iron deficiency states. The physical and mental growth of children is also adversely affected[3].

Iron and folic acid supplementation have been used mostly in pregnancy, leaving non-pregnant women unprotected. This means that the supplements end up being "too little, too

late". A high prevalence of anaemia is seen during adolescence period, when reproductive age begins, especially in developing countries[4].

Since women constitute a vulnerable group, it is vital therefore, that studies should focus on health problems related to women like iron deficiency anaemia. This will help in formulating effective strategies and allocating resources for the betterment of women's health.

MATERIALS & METHOD

The present study was carried out an urban slum, Rajapur which comes under the field practice area of Department of Community Medicine, M.R. Medical College, Gulbarga.

Study period: The study was conducted from 1st November 2005 to 31st October 2006.

Study design: A cross-sectional study with intervention was carried out to determine the prevalence of anemia in women of reproductive age group 15-44 years.

Inclusion Criteria: All women in the reproductive age group 15-44 years.

Exclusion Criteria: Women less than 15 years and more than 44 years were excluded from the study.

Sample size: The size of the sample was calculated to be 203 based on the prevalence rate of general morbidity of 33% as reported in similar studies[5].

Sampling technique: The study subjects were selected based on systematic random sampling method. The population of Rajapur being 3000, the total number of women in reproductive age group 15-44 years was estimated to be 570 (taking 19% as percentage of women aged 15-44 years in total population[6]). Assuming on an average that there is one woman of reproductive age group per family, the sampling interval was calculated and every 3rd woman was included in the study sample.

If there were more than one woman in the age group of 15-44 years in the particular family, then lottery method was used to choose the woman for study purpose.

METHODS: House to house survey was made in the selected area. The women were interviewed using pre-tested questionnaires after explaining the purpose and objectives of study. A general physical examination was also done. If the woman was still not available or the house found locked after repeated visits, the adjacent house was taken for the study.

Haemoglobin estimation using Sahli's method was done for those women who were willing. According to the diagnostic criteria defined by WHO Expert group[7] anemia was diagnosed when haemoglobin was

1. <12gm/dl in non-pregnant adult females
2. <11gm/dl in pregnant adult females

Anaemia was graded as follows[8]:

Mild anaemia: 10.0-11.9gm% in non-pregnant women

10.0-10.9gm% in pregnant women

Moderate anaemia: 7.0-9.9gm%

Severe anaemia: <7.0gm%.

After the blood test was performed, the women were informed about their haemoglobin status and given health education regarding intake of dietary sources of iron like green leafy vegetables, jaggery, etc.

For those women found to be anaemic, health education and supplementation with iron and folic acid tablets was given. Oral discussions with the women and posters on anaemia and iron rich foods were used to impart education. The women were also motivated to take iron and folic acid tablets. Informed oral consent was taken for those women who were willing to take iron tablets after explaining the pros and cons of taking iron therapy.

Among the women found to be anaemic, 23 women were unwilling for iron and folic acid therapy. One woman was severely anaemic and was on blood transfusion. The remaining women except pregnant women in the first trimester were dewormed with tablet mebendazole 400mg prior

to initiation of iron and folic acid therapy.

The iron and folic acid tablets containing 100mg of elemental iron and 0.5 mg of folic acid were initially distributed for two weeks. Follow up visits were done fortnightly during which further iron tablets were distributed upon return of empty blister strips. During follow up visits, the women were asked to swallow the iron tablet in the presence of the investigator in order to ensure compliance.

Non-pregnant anaemic adolescent girls were told to take one iron tablet per week for a total duration of 12 weeks. Non-pregnant anaemic adult women were instructed to take one iron tablet per day. Pregnant women who were anaemic were instructed to take two iron tablets per day. The total duration of therapy was for 100 days[9].

12 women dropped out during the course of therapy. The reasons were due to side-effects of iron like nausea, gastritis, etc. After follow up period of 100 days, repeat haemoglobin estimation was done on remaining 85 women to determine their anaemia status.

Data analysis: The data was analysed and tabulated. Statistical analysis included percentages, mean and standard deviation, chi-square test, paired t test and unpaired t-test.

Ethical clearance was obtained from the medical college for conducting the study.

FINDINGS

It was observed that 121 (59.61%) out of 203 women were anaemic. 82 (40.39%) did not have anaemia.

NFHS II data[10] revealed that the prevalence of anaemia in married women aged 15 to 49 years was 52%. Kotecha et al[11] in their study on anaemia in adolescent girls reported prevalence of 74.70%.

Majority i.e. 37 (30.58%) were in age group 15 to 19 years followed by 35 (28.93%) in 20 to 24 year age group and 19 (15.70%) in 25 to 29 year age group. 13 (10.74 %) each belonged to age groups of 30 to 34 years and 35 to 39 years. 4 (3.31%) were between 40 and 44 years of age. There was no significant association between age and anaemia.

Ahmad Shah SN[12] et al observed in their study that the highest incidence of iron deficiency anaemia among women was 50.80% in the age group of 30 to 45 years. The findings differ from the present study probably because of the rural background of their study.

Kaur S et al[13] in their study reported that age was not significantly related with anaemia.

Majority of anaemic women i.e. 42 (34.71%) were illiterate. 29 (23.97%) had high school education, 24 (19.83%) had middle school education and 14 (11.57%) were graduates. 8 (6.61%) and 4 (3.31%) had secondary and primary education respectively. There was no significant association between education and anaemia.

NFHS II[10] data revealed that 55.80% of illiterate women were anaemic.

Kaur S[13] et al in their study reported that education did not contribute significantly to anaemia which is in agreement with the present study.

Table-1 : Relation between occupation and anaemia

Occupation	Anaemia		No Anaemia		Total	
	No.	%	No.	%	No.	%
Student	27	22.31	12	14.63	39	19.21
House-wife	50	41.32	45	54.88	95	46.79
Unskilled worker	40	33.06	15	18.29	55	27.10
Skilled worker	3	2.48	8	9.76	11	5.42
Professional	1	0.83	2	2.44	3	1.48
Total	**121**	**100.0**	**82**	**100.0**	**203**	**100.0**

χ^2=12.95; df=3; p<0.01

The distribution of the women with anaemia against occupation of the women revealed that majority of anaemic women were housewives i.e. 50 (41.32%), followed by 40 (33.06%) of unskilled workers. 27 (22.31%) were students, 3 (2.48%) were skilled workers and 1 (0.83%) was professional. Statistically, a significant association was observed between occupation and anaemia ($p<0.01$).

Johnson A.A et al[14] reported that there is a strong association between occupational status and anaemia. Prevalence of anaemia was found to be higher among unemployed, homemakers as compared to women who were doing skilled and semi-skilled work. These findings are comparable to the present study.

60 (49.59%) of anaemic women belonged to socioeconomic class IV, 29 (23.97%) to class V, 22 (18.18%) to class III and 10 (8.26%) to class II. No significant association was observed between socioeconomic status and anaemia.

Kaur S[13] et al in their study observed that socioeconomic status did not contribute significantly to anaemia. This finding is similar to the findings from the present study.

75 (61.98%) of anaemic women belonged to nuclear families compared to 46 (38.02%) from joint families. There was no significant association between type of family and anaemia.

Table-2 : Relation between parity of the women and anaemia

Parity	Anaemia		No Anaemia		Total	
	No.	%	No.	%	No.	%
Nulliparous	0	0.00	3	6.25	3	2.75
Primiparous	3	4.92	11	22.92	14	12.85
Multiparous	58	95.08	34	70.83	92	84.40
Total	**61**	**100.0**	**48**	**100.0**	**109**	**100.0**

$\chi^2=11.99$; df=1; $p<0.001$

Out of 109 parous women in the study group, 58 (95.08%) who were anaemic were multiparas and 3 (4.92%) were primiparas. None of the nulliparous women were anaemic. There was a highly significant association between parity of the woman and anaemia ($p<0.001$).

Singh K et al[15] observed in their study that multiparous women had highest risk of anaemia. The prevalence of anaemia was found to increase markedly with increasing parity.

Table-3 : Relation between body mass index and anaemia

Body mass index	Anaemia		No Anaemia		Total	
	No.	%	No.	%	No.	%
<18.50	48	75.00	16	25.00	64	100.0
18.50 – 24.99	65	53.72	56	46.28	121	100.0
≥25.00	8	44.44	10	55.56	18	100.0
Total	121	59.61	82	40.39	203	100.0

$\chi^2=9.76$; df=2; $p<0.01$

48 (75.00%) of women with BMI < 18.50, and 65 (53.72%) with BMI between 18.50 and 24.99 were anaemic. 8 (44.44%) with BMI ≥ 25.00 were anaemic. There was a significant association between BMI and anaemia ($p<0.01$).

NFHS II[10] data showed that 56.80% of women with BMI < 18.50 were anaemic compared to 49.10% with BMI ≥ 18.50. In the present study also, 48 (75%) of women with BMI < 18.50 were anaemic compared to 73 (52.52%) with BMI ≥ 18.50.

Sharma A et al[16] in their study observed that BMI showed a positive correlation with haemoglobin values.

Table-4 : Comparison of haemoglobin levels among the women

Group	Mean±SD Hb (gm/dl)	't' value	'p' value
Pregnant women (n=15)	10.12±1.58	2.09	<0.05
Non-pregnant women (n=188)	11.05±1.69		

Table-4 shows that the mean haemoglobin level in pregnant women and non-pregnant women was 10.12gm/dl (SD 1.58gm/dl) and 11.05gm/dl (SD 1.69gm/dl) respectively. The difference between the two groups was found to be statistically significant. (p<0.05).

Massawe SN[17] in her study on women in Tanzania found that the median haemoglobin in pregnancy was 9.80gm/dl compared to 12.00gm/dl in non-pregnant women. The difference between the two groups was found to be highly significant.

Table-5 : Degree of anaemia among the anaemic women

Degree of anaemia	Pregnant women		Non-pregnant women		Total	
	No.	%	No.	%	No.	%
Mild	3	30.00	73	65.77	76	62.81
Moderate	7	70.00	37	33.33	44	36.36
Severe	0	0.00	1	0.90	1	0.83
Total	10	100.0	111	100.0	121	100.0

Among pregnant women with anaemia, 3 (30.00%) had mild anaemia, 7 (70.00%) had moderate anaemia and none had severe anaemia. Among non-pregnant women with anaemia, 73 (65.77%) had mild anaemia, 37 (33.33%) had moderate anaemia and 1 (0.90%) had severe anaemia.

Table-6 : Changes in haemoglobin levels of the women after intervention

Degree of anaemia	Mean±SD Pre-intervention Hb gm/dl)	Mean±SD Post-intervention (Hb gm/dl)	't' value	'p' value
Mild (n=57)	10.60±0.50	11.70±0.52	27.56	<0.001
Moderate (n=28)	8.80±0.80	9.95±0.76	49.54	<0.001

Table-6 shows that the pre-intervention mean haemoglobin levels were 10.60gm/dl (SD 0.50gm/dl) and 8.80gm/dl (SD 0.80gm/dl) for mild and moderate anaemia respectively. The post-intervention mean haemoglobin levels were 11.70gm/dl (SD 0.52gm/dl) and 9.95gm/dl (SD 0.76gm/dl) for mild and moderate anaemia respectively. A highly significant improvement in haemoglobin levels in both mild and moderate cases of anaemia was observed after intervention (p<0.001). The mean increase in haemoglobin levels was 1.10gm/dl in mild anaemia and 1.15 gm/dl in moderate anaemia. The prevalence of anaemia after intervention was 46.80%.

Mehnaz S[18] et al in their study reported an increase of 2.72gm/dl in mean haemoglobin levels after iron supplementation for 100 days. The findings differ from the present study since 200 mg iron was given for supplementation in their study.

Sharma A et al[16] in their study showed that daily supplementation with iron and folic acid tablets was more effective than once weekly supplementation, the mean increase being 0.99gm/dl and 0.71gm/dl respectively at 3 months.

CONCLUSION

- 59.61% of women were diagnosed to have anaemia.
- Association between occupation and anaemia was found to be significant.
- Association between parity and anaemia was highly significant.

- Association between body mass index and anaemia was significant.
- The difference in the haemoglobin levels between pregnant women and non-pregnant women was found to be significant.
- The prevalence of anaemia decreased to 46.80% after intervention.
- The increase in haemoglobin levels post-intervention in mild and moderate anaemia was highly significant.
- The mean increase in haemoglobin levels was 1.10 gm/dl in mild anaemia and 1.15 gm/dl in moderate anaemia after intervention.

Despite nutritional programmes and anaemia prophylaxis programs catering to adolescent girls and pregnant women, the prevalence of anaemia is still high among women. The beneficial effects of supplementation with iron and folic acid tablets should be emphasized in order to improve haemoglobin levels. There is also a pressing need to increase awareness regarding anaemia among the women.

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Overweight and Obesity among Children of Affluent Public School in Allahabad, Uttar Pradesh

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ABSTRACT

In developing countries such as India, especially in urban population and affluent children , obesity is emerging as a major health problem. The magnitude of overweight ranges from 9% to 27.5% and obesity ranges from 1% to 12.9% among Indian children .To know the prevalence of overweight & obesity in affluent school children aged between 11-16 years and to analyze the association between overweight/obesity with physical activity. A cross sectional study was carried out in 2 affluent schools of Allahabad city –Maharshi Patanjali Vidya Mandir and Tagore Public School. A total of 1146 ,school children studying between 6th and 11th standard aged between 11 to 16 years were studied and data regarding time spent on television viewing ,sleeping, playing computer/video games, indoor games, outdoor games and physical exercises was recorded in a pre designed and pre tested questionnaire. Out of 1146 school children 223 (19.5%) and 119 (10.4%) were overweight and obese respectively. The overall prevalence of overweight and obesity in affluent school children of 11-16 years was estimated to be 29.9%. Proportion of overweight and obesity was more in boys (20.7 % and 12.2%) than girls (17.8% and 8.0%).

Prevalence of overweight/obesity was found significantly higher among children who watched television >20hrs/week ($p<0.0001$), playing computer/video games>10hrs/week ($p=0.005$) On the other hand regular participation in outdoor games>30 min/day ($p=0.001$) and physical exercises >30min/day($p=0.01$) significantly lowers the prevalence of overweight/obesity. Spending long hours on television viewing and playing computer/video games was found to be positively associated with overweight/obesity whereas participation in physical exercises and outdoor games was negatively associated with overweight/obesity.

Keywords: *Body Mass Index, School children, Overweight, Obesity, Physical Activity*

INTRODUCTION

The rate of overweight and obesity among children worldwide have been increasing dramatically in the last few years among children and adolescents from developing countries [1,2]. In developing countries such as India, especially in urban population and affluent children , obesity is emerging as a major health problem [3,4,5].The magnitude of overweight ranges from 9% to 27.5% and obesity ranges from 1% to 12.9% among Indian children [6,7,8,9,10,11]. Childhood obesity is increasing being observed with the changing life style of families with increased purchasing power, increasing hours of inactivity due to addiction to television, videogames and computer, which have replaced outdoor games and other social activities[12] .

It is observed that 30% of obesity begins in childhood and out of that 50% to 80% become obese adults[13]. In the Harvard study, morbidity from cardiovascular disease , diabetes, obesity related cancers and arthritis was 50-100% higher in obese individuals who were also obese as children[14]. Similarly a study exploring the trends of disease and economic burden of obesity in youth from 1979-1999 with use of a national representative population sample of hospital discharges, the National Hospital Discharge Survey (NHDS)

conducted by the National Center for Health Statistics had shown that in last two decades of the previous century have witnessed dramatic increase in health care cost due to obesity and related issues among children and adolescents[15] . Due to the difficulty of curing obesity and overweight in adults and many long term adverse effects of childhood obesity, the prevention of child obesity has been recognized as a public health priority [16]. Evidences also revealed prevention and management of childhood obesity is one of the effective way to prevent obesity in adult life [17].

Relevant study in this area, in Allahabad has not been done. Therefore, the present study was undertaken with objective to determine the prevalence of overweight & obesity and its association with physical activity among affluent school children aged between 11 to 16 years in Allahabad city.

MATERIALS AND METHOD

Two affluent co educational public school (where the annual fees is more than 22,000) of Allahabad city were selected by the simple random technique. Children of class 6th to 11thwere selected as study unit.2 sections were randomly selected from each class. From each school, It was assumed at least 100 children would be studied from every class 6-11.After taken the consent from the principal of schools height and weight of children were measured by adopting standard procedures and Body Mass Index was calculated. Standard charts for age and sex were used as reference standards [18]. Children with BMI above the 95th percentile were considered as obese and those between 85th and 95th percentile as overweight and those with BMI below the 5th percentile were considered as underweight [18] . BMI percentile for boys and girls is given in Table-1. Children were interviewed to collect information regarding their physical activities like time spent on T.V. Watching <20hrs/week or >20hrs/week, playing computer/ video games <10 hrs/week or >10 hrs/week , indoor games <10 hrs/week or >10 hrs/week , sleeping <10hrs/day or >10 hrs/day, participation in outdoor games <30min/day or >30min/day, physical exercises/cycling <30min/day or >30min/day, in a pre designed and pre-tested questionnaire.

Children below 11years and above 16 years were excluded from the study. Prevalence of overweight and obesity is presented as percentages. Chi-square test and Odds ratio (OR) were done to analyze the results statistically. P<0.05 was considered as statistically significant.

Table 1: BMI percentile for boys and girls

Age in (years)	Boys			Girls		
	5th	85th	95th	5th	85th	95th
11	13.3	19.1	23.4	13.5	20.6	24.5
12	13.6	19.8	23.8	13.9	21.9	25.7
13	14.0	20.4	25.3	14.6	22.6	27.1
14	14.5	21.1	25.3	15.4	23.0	27.4
15	15.4	22.0	27.3	15.9	23.6	27.7
16	15.8	22.7	27.6	15.9	23.7	27.4

RESULTS

A total of 1146 school children in the age group of 11-16 years were participated in the study. Out of them 657 (57.3%) were boys and 489 (42.7%) were girls.

Among the total boys 136 (20.7%) were overweight and 80 (12.2%) were obese. Similarly among the girls 87(17.8%) were overweight and 39(8.0%) were obese. Overall, 223(19.5%) children were overweight while 119(10.4%) were obese. Therefore 342 (29.9%) children were either overweight or obese (Table-2).

Table 2: Prevalence of overweight and obesity by sex

Grade	Boys (657)	Girls (489)	Total (1146)
Overweight	136 (20.7%)	87 (17.8%)	223 (19.5%)
Obesity	80 (12.2%)	39 (8.0%)	119 (10.4%)
Underweight	13 (2.0%)	1 (0.2%)	14 (1.2%)
Normal	428 (65.1%)	362 (74.0%)	790 (68.9%)

There was a higher prevalence of overweight and obesity in boys (32.9%) compared with girls (25.8%),

and the difference was found statistically significant (p=0.009) (Table-4).

Table 3: Prevalence of overweight and obesity by age

Age(yrs)	Total children	Overweight	Obesity	Underweight	normal
11	112	22(19.6%)	16(14.3%)	-	74(66.1%)
12	224	48(21.4%)	25(11.2%)	3(1.3%)	148(66.1%)
13	219	48(21.9%)	22(9.6%)	3(1.4%)	146(66.6%)
14	214	35(16.4%)	28(13.1%)	1(0.5%)	150(70.1%)
15	174	27(15.5%)	12(6.8%)	1(0.5%)	134(77.0%)
16	203	43(21.2%)	16(7.8%)	6(3.1%)	138(70.0%)
Total	1146	223(19.5%)	119(10.4%)	14(1.2%)	790(68.9%)

555 (48.4%) children belong to 11-13 years age group while the 591(51.6%) children belong to 14-16 years age group .The proportion of overweight/ obesity was significantly higher (32.6%) in 11-13 years age group than (27.2%) in 14-16 years age group and the difference was found statistically significant (p=0.047) (Table 4).

Higher prevalence of overweight and obesity was observed in children watching television >20hrs/week (40.5%), playing computer/video games >10 hrs/week (36.1%), participated in outdoor games <30 min/day (34.6%), performing physical exercises <30 min/day (33.1%). The prevalence of overweight and obesity was found significantly higher in children watching television >20hrs/week (p=<0.0001) and playing computer/ video games >10 hrs/week (p=0.005) whereas participation in outdoor games >30 min/day (p=0.001) and doing physical exercises >30 min/ day (p=0.01) significantly lowers the prevalence of overweight and obesity .Other factors like playing indoor games and sleeping were not found to be statistically significant. (Table 4)

Table- 4 : Associated factors of overweight/ obesity

Factors	Total num ber (1146)	Overweight/obesity (342)	OR (95%CI)	X^2	P value
sex					
Boys	657(57.3%)	216(32.9%)	0.709(0.547-0.919)	6.77	0.009
Girls	489(42.7%)	126(25.8%)			
Age group					
11-13yrs	555(48.4%)	181(32.6%)	0.774(0.600-0.997)	3.94	0.047
14-16yrs	591(51.6%)	161(27.2%)			
Physical exercise					
<30 min/day	597(52.1%)	198(33.1%)	0.717(0.555-0.925)	6.57	0.01
>30 min/day	549(47.9%)	144(26.2%)			
Outdoor games					

Table- 4 : Associated factors of overweight/obesity (Contd.)

Factors	Total num ber (1146)	Overweight/obesity (342)	OR (95%CI)	X^2	P value
<30 min/day	529(46.2%)	183(34.6%)	0.656(0.509-0.846)	10.59	0.001
>30 min/day	617(53.8%)	159(25.8%)			
Television Watching					
<20hrs/week	608(53.1%)	124(20.4%)	2.659(2.047-3.455)	55.21	<0.0001
>20hrs/week	538(46.9%)	218(40.5%)			
Playing computer/video games					
<10hrs/week	511(44.6%)	113(22.1%)	1.987(1.525-2.588)	7.79	0.005
>10hrs/week	635(55.4%)	229(36.1%)			
Indoor games					
<10hrs/week	613(53.5%)	185(30.2%)	0.966(0.749-1.245)	0.07	0.789
>10hrs/week	533(46.5%)	157(29.5%)			
sleeping					
<10hrs/day	720(62.8%)	214(29.7%)	1.016(0.781-1.319)	0.01	0.908
>10hrs/day	426(37.2%)	128(30.0%)			

DISCUSSION

The overall prevalence of overweight and obesity was found to be 29.9% among affluent school children (overweight-19.5% and obesity-10.4%) in Allahabad .

Ramachandran et al[7] reported the prevalence of overweight (including obese)in adolescent was 22% in better off schools in Chennai and Kapil U et al[6] reported prevalence of overweight was 31% of which 7.5% were obese in a Delhi school with tuition fees more than Rs.2,500 per month. Similarly ,Sharma et al[19] reported prevalence of overweight and obesity to be 22% and 6% respectively from Delhi.) whereas 10.95% and 5.63% of overweight and obesity was found in Amritsar, Punjab by Sidhu et al[9]while Aggarwal et al[5] reported 12.7 and 3.4% prevalence of overweight and obesity from Ludhiana. Wide variations were observed in the prevalence of overweight and obesity among affluent school children in different parts of the country could be due to different definition being used to define overweight and obesity and differences in age group included in these studies.

In the present study prevalence of overweight and obesity was observed higher among boys compared to girls consistent with the results of earlier studies done by Kapil et al[6]; Valen C et al[20] and Patnaik et al[21] On the other hand Kumar S et al[22] reported higher prevalence in girls than boys. All these studies therefore indicate that the sex of the child has an affects on prevalence of overweight and obesity. In our study, tendency for overweight and obesity was observed significantly higher in the age group of 11-13years probably due to increased adipose tissue and overall body weight during puberty.

Physical inactivity like spending long hours on Television Watching and playing computer or video games were found to be significantly associated with overweight and obesity similar as shown by earlier studies [23,24,25,26,27] .The results clearly revealed that regular participation in physical activities like outdoor games and physical exercises is an important factor in reducing prevalence of overweight and obesity as observed by other studies [7,26].

CONCLUSION

The present study shows a high prevalence of overweight and obesity among affluent school children in Allahabad City. Greater time spent on television watching , playing computer/video games and less involvement in physical activities are found to be associated with higher prevalence of overweight/obesity. As a preventive strategy there is an urgent need to counsel children and their parents about consequences related to overweight/ obesity as well as to encourage children to adopt healthy lifestyle.

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Assessment of Visual Function Outcomes and Vision Related Quality of Life following Cataract Surgery in Patients Visiting a Tertiary Hospital in Andhra Pradesh

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ABSTRACT

Background: The aim of this study was to assess the improvement in Visual Acuity (VA), Visual Functions (VF) and Vision Related Quality Of Life (VRQOL) after cataract surgery at a tertiary hospital. **Methods**: In this hospital based prospective, observational study, a total of 60 patients, who were scheduled to undergo cataract surgery at this centre were included. Pre operative VA (recorded using Illuminated Snellen's or Illiterate E Chart) and VFQ 25 Score (with NEI VFQ 25 Questionnaire) was obtained. Extra Capsular Cataract Extraction (ECCE) and Posterior Chamber Intra Ocular Lens (PCIOL) implantation by Manual Small Incision Cataract Surgery (MSICS) was performed on these patients. **Results:** Out of the 60 patients, 51(mean age 60.9years, 68.6%female) attended follow up visits till 6 weeks. These patients were re-evaluated and the postoperative parameters of VA, VFQ 25 Score were obtained. **Conclusions:** We conclude that visual acuity testing alone is not a reliable measure of success of cataract surgeries and assessment of visual functions, vision related quality of life by a suitable and valid questionnaire provides better analysis of patient perceived outcomes and thus helps in the improvement of interventions for visual rehabilitation.

Keywords: *cataract surgery, visual acuity, visual functions, vision related quality life*

INTRODUCTION

Cataract is a major cause of avoidable blindness in India as well as the world. In India, an estimated 9-12 million people are blind, half of them due to cataract. [1],& the burden is expected to rise further with the proportion of elderly (60 years and above) constituting 7.2% of the total population of our country by the year 2015. These people are likely to develop cataract and other age related ocular morbidities.[1, 2.]

Currently, surgical extraction of the opacified lens is the only treatment of choice for cataract and substantial resources are being committed towards it, worldwide.[3, 4] The 'National Programme for Control of Blindness is now working in conjunction with `Vision 2020 – the Global Right to Sight Initiative' launched by the WHO, is striving to reduce the prevalence of blindness from 1.49% to 0.3% by the year 2020. [5, 6] The state of Andhra Pradesh reports a prevalence of 1.84% for blindness, about 60% of which is due to cataract.[7]

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It is documented that visual impairment due to cataract causes not just difficulties in physical functions related to vision but also brings about emotional distress, social function impairment and decreased quality of life of an individual as a whole.[8] Hence it would be pertinent to assess the visual outcomes of patients after cataract surgery with reference to Visual Acuity, Visual Functions and Vision related quality of life of an individual.

MATERIALS AND METHOD

Study Design : Prospective, longitudinal, hospital based observational study.

Study Period : 1st April 2012 to 31st May 2012 and a follow up period of 2 months thereafter.

Sample Population : Among the 85 patients consecutively enrolled for cataract surgery in the months of April, May 2012, at Ophthalmology department of G.S.L. Medical College & General Hospital, Andhra Pradesh, a total of 64 patients who were willing to participate and residing within 40 kilometers radius from the hospital were included in the study.

Study variables: socio-demographic profile, visual acuity, visual functions etc.

Statistical analysis: All statistical analyses were performed by SPSS Software trial version-16 and MS Excel 2007. Values were presented as mean and Standard Deviation. Variables were expressed as percentages. Student t – test was used for comparing the groups. Karl-Pearson Correlation Co efficient was used to explore the relationship between variables. For all statistical analyses, $p<0.01$ was considered statistically significant

Methodology: Among these, after initial general examination, comprehensive ophthalmic evaluation by an experienced ophthalmologist and investigations, 60 patients with operable cataracts were included in the study. Patients with serious systemic illnesses like uncontrolled hypertension, Diabetes mellitus or significant ocular co-morbidities like long standing glaucoma, advanced diabetic eye disease were excluded..

At the preoperative visit, socio demographic, medical and disease history was collected. At the preoperative visit visual acuity in the designated surgical eye was measured using illuminated Snellen's or illiterate tumbling E charts. VFQ-25 (Visual Functioning Questionnaire version 2000), rated by the "National Eye Institute".[7] was administered individually to each subject which has a score from 0 to 100 and the responses were recorded by the same observer for all the subjects. Higher scores represent better functioning. All these patients were operated by the same surgeon during the months of April and May 2012. The type of cataract surgery performed was standardised Manual Small Incision Cataract Surgery with Extra Capsular Cataract Extraction and Posterior Chamber Intra Ocular Lens implantation. All the patients were prescribed the required medication for a minimum of 6 weeks following the surgery. They were advised to attend follow up at 1st, 2nd, 4th and 6th week after the surgery. The Visual Acuity was measured and the questionnaire was then re-administered to the study subjects who came for follow up at 6 weeks as it is most likely to be the best final vision attained by the patient, by the same investigator. The data collected was analyzed with the help of SPSS Software trial version-16 and MS Excel 2007..

RESULTS

A total of 51(85%) patients (mean age 60.9 years) among the 60 who were enrolled in the study completed all the required post operative visits. Of the 51 patients, 69% were female. Nine (15%) patients (mean age 65 years) did not turn up for post operative assessment. Among the female patients 83% attended the required post operative visits while 89% of the male patients were present for all the post operative examinations which is observed in table 1. It can be observed that the follow up rate was lesser in the female patients than their male counterparts. Factors like distance, relatively poor general health status,dependency on other family members and lesser health seeking behaviour among the female population in this region might have brought this difference.

The mean age of the participants in our study was 60.98 years. The youngest patient was a 24 year

female while the eldest was an 84 year male.Most of the patients(66.7%) were aged between 56 and 70 years.The highest percentage (23.5%) were aged between 56 and 60 years.

Only about 15.7% (8/51) of the sample population is literate. This might be the reason for late presentation for surgical intervention in about 67% of the patients who were blind in the presenting eye when they appeared for surgery & most of them agreed for surgery by counselling.This strongly suggests the need to improve the basic literacy and health awareness among these populations.

Table 2 shows that prior to the surgery, all the patients had only poor to fair vision in the presenting eye. About 67% of them were blind (presenting acuity <6/60) in the presenting eye. That is these patients had mature cataracts and presented late for surgical intervention. Following the surgery 98% of patients had good to fair vision at 6 weeks after the surgery. About 55% of the patients obtained an uncorrected visual acuity of ≥6/12. Only a single (1.9%) patient had no significant improvement in vision.

Regarding VFQ 25 Score as shown in table 3, prior to the surgery only 11% of the patients had composite visual function score in the range of 76-100 while following the surgery 92% of the patients had visual function scores in this range.

The mean pre operative composite score was 54.2. It increased to 89.8 postoperatively. The maximum improvement was observed for the subscale of distance activities (43.8) followed by peripheral vision (43.1) which is shown in table 4. Among the vision targeted subscales the least improvement was seen in ocular pain. This might be because the post operative score was obtained at just 6 weeks after the surgery.

TABLES:

Table 1: Sex wise distribution and follow up rates among male and female participants

Follow up	Male	Female	Total
Included in the study	18(30%)	42(70%)	60
Completed post operative follow up	16(88.88%)	35(83.33%)	51
Absent for follow up	2(11.12%)	7(16.67%)	9

Table 2: Visual Acuity of the sample population pre and post operatively

Visual Acuity	PRE OP	POST OP (6^{th} wk)
≥6/12 (Good Vision)	0(0%)	28(54.9%)
6/18-6/60 (Fair Vision)	17(33.3%)	22(43.1%)
<6/60 (Poor Vision)	34(66.7%)	1(1.9%)

Table 3: Distribution of Composite Visual Function Scores Pre and Post operatively

Scores	**Pre op**	**Post op (6^{th} wk)**
0-25	**2 (3.9%)**	**0 (0%)**
26-50	**19 (37.3%)**	0 (0%)
51-75	24 (47.1%)	4 (7.8%)
76-100	6 (11.7%)	47(92.2%)
Total	51	51

Table 4: Subscale wise improvement in Visual Function Scores

SL. No.	Subscale	Pre operative Score	Post operative Score	Improvement in Score
1	General Health(GH)	44.6078	57.8431	13.2353
2	General Vision(GV)	43.9216	77.6471	33.7255
3	Ocular Pain(OP)	75.7353	87.0098	11.2745
4	Near Activities(NA)	44.7708	85.2937	40.5229
5	Distance Activities(DA)	49.3463	93.2196	43.8733
6	Social Functions(SF)	54.6569	95.3431	40.6862
7	Mental Health(MH)	54.1667	89.2157	35.049
8	Role Difficulties(RD)	43.3824	84.0686	40.6862
9	Dependency(Dep)	52.418	91.5041	39.0861
10	Driving(Dr)	44.6157	67.8263	23.2106
11	Colour Vision(CV)	73.5294	100	26.4706
12	Peripheral Vision(PV)	54.4118	97.549	43.1372
13	Composite Score(CS)	54.2329	89.8233	35.5904

DISCUSSION

India is a signatory to the World Health Organization resolution on Vision 2020, the right to sight initiative which aims to reduce the global prevalence of blindness especially the avoidable blindness. Cataract is one of such blinding conditions where immediate action can result in improved work potential, patient satisfaction, and visual functioning. Hence it continues to occupy the first priority in the State funded blindness control programmes [17]. In recent times, elimination of avoidable blindness translates not only to the restoration of sight to those who are blind with cataract but also includes prevention from going blind by operating at a better visual acuity , by ensuring a better surgical outcome and overall in providing a better quality of life to the individual. It is being increasingly recognized that visual acuity alone may not be sensitive enough to measure the functional disability caused by visual impairment.[16] Measurement of subjective aspects of visual function and quality of life provides information that cannot be obtained with simple measurement of Snellen visual acuity.[17, 18] We thus focused on comprehensive evaluation of surgical outcome in terms of betterment in Visual Acuity, Visual Functions and Vision related quality of life. A similar study conducted in Pakistan during 2004-2007 by Mir Jaman et al[19] observed that 88% of patients were blind (VA<6/60) in the presenting eye at the time of surgery. In our study 67% of the patients were blind (VA<6/60) in the presenting eye at the time of surgery. This relatively lesser percentage of patients with late presentation for surgical intervention in our study might represent improved awareness in the community in recent times and the success of rural outreach cataract screening programmes.

Previous studies documented that illiterates had a higher risk than those who are educated. Females, rural residents and those not engaged in any work also had a marginally higher prevalence and risks of cataract blindness. Our study also made similar observations as more number of women were found to suffer from cataract blindness than men of the same age. Most of the patients were illiterate and this might have caused significant delay in seeking medical aid. Certain studies reported poor visual outcome in 15-20% of the operated eyes while the Cataract Surgical Rates in those regions has been reasonably good[20] In our study about 1.9% of the patients had poor surgical outcome when improvement in visual acuity alone at 6 weeks was considered. When composite visual function score was considered 7.8% had relatively poor

outcome at 6 weeks after the surgery. However the improvement in all the sub scales (except driving) included in the VFQ 25 was statistically significant at 6 weeks post operatively.

It was reported that in India usually around 10 %[20] of the cataract surgeries are performed in patients less than 50 years. However in our study we observed this percentage to be 17%. This higher percentage of cataract surgeries in relatively young persons was mainly a result of increased awareness among the population, improved health seeking behaviour together with early diagnosis, extensive screening and outreach programmes and better surgical techniques which offer cure at an early stage of cataract.

CONCLUSION AND RECOMMENDATIONS

Assessment of Visual Functions together with Visual Acuity by a suitable pre validated questionnaire pre and post operatively will help in better assessment of improvement in the Vision related quality of life of an individual with cataract surgery. As it is difficult to objectively analyze the visual functions by testing for contrast sensitivity, depth perception, peripheral vision etc for all patients undergoing cataract surgery in low resource settings the use of suitable Visual Function questionnaires will provide an approximate subjective estimate of visual functions. It will also facilitate to assess the influence of visual disabilities and visual symptoms on generic health domains such as emotional well-being and social functioning as well, in addition to task oriented domains related to daily visual functioning & will help in attaining the goal of elimination of avoidable blindness due to cataract by means of high quality, high volume cataract surgeries.

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Sub Typing of Breast Cancer (Er, Pr and Her2 Expression) and their Relation with Clinicopathological Parameters

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ABSTRACT

Role of hormone receptors as a prognostic and therapeutic tool in breast cancer is widely accepted. The aim of this study was to analyze the role of steroid receptor in breast cancer subtyping with clinicopathological factors. In the present study, immunohistochemical assay of two hundred patients of breast carcinoma was performed to know the hormone receptor status as well as pathological examination. Breast cancer patients were classified into different groups based on IHC profile (ER/PR and Her2/neu expression) and their relation with traditional prognostic parameters. Frequency of ER-PR- Her- subtype found to be maximum in all subtypes. The frequency of patients with ER-PR-Her+ were observed second in sub typing, only a few patients were observed with subtype ER+PR-Her-, ER-PR+ Her+, ER-PR+ Her-. Maximum patients were observed with the grade I (59%) and infiltrate ductal carcinoma type (59.7%) whereas a few were lobular carcinoma type (40.3%). Majority of the breast cancer patients (43%) had tumor size 2-4.9cm. A large proportion of patients (58.5%) had <4 positive lymph nodes status. In conclusion further efforts are needed to be focused the standardization of different therapies responses on biological subtypes and development of further reproducible testing.

***Keywords**: Breast cancer subtypes, IHC, Hormonal receptor expression, Estrogen, Progesterone, Her-2/neu receptor.*

INTRODUCTION

Breast cancer is most common carcinoma among women which is more than twice the prevalence of cancers in women at any other site[1]. Breast cancer occurs commonly in middle and elder age group people. Breast cancer is controlled by both genetic and epigenetic changes, like many other types of cancers. The traditional prognostic factors like nodal status, tumor size, grade, histological type of breast cancer influence the prognosis and management of disease[2, 3-5]. The importance of several markers especially the steroid receptors estrogen receptor (ER), progesterone receptor (PR) and Her2/neu in breast cancer has been of considerable interest, not only as prognostic markers, but also as predictors of response to therapy[6, 7].

These receptors are indicator of over expression of receptors, loss of differentiation and alteration of angiogenesis. Expression of Estrogen, Progesterone and Her2/neu receptor is reported with immunohistochemistry staining technique[8].

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It is well known that strong ER positive cases benefit from endocrine therapy alone in contrast to those with low to moderate ER positivity[8, 9]. More positive expression of ER, PR demonstrates a better outcome with addition of chemotherapy[10].

Recent attention has been directed singularly at molecular classifications of breast cancer[11-17]. Classification based on molecular and genetic testing is very elegant, prognostic and predictive but it is expensive and not yet widely available. Despite the prognostic information provided by the molecular test, current reports of assay results impart little guidance of response to targeted therapy. That is why IHC based classification is widely used in prognostic and therapeutic implications and also is inexpensive and readily available[18]. In this study breast cancer is classified into different groups based on IHC profile ER/PR and Her2/neu expression, positive (+ve) and/or negative (-ve). The groups are:

ER+PR+HER2+, ER+PR+HER2- ER-PR-HER2+, ER-PR-HER2-

ER+PR-HER2+, ER+PR-HER2- ER-PR+HER2+, ER-PR+HER2-

Our study includes the distribution of breast cancer subtypes based on expression prognostic biomarkers (ER, PR and Her2) and their correlation with traditional prognostic parameters.

MATERIAL AND METHOD

Sample collection: Tumor block of two hundred patients ranging in age from <40 to ≥60 years were collected from Pt. B. D. Sharma University of Heath Sciences Rohtak, Haryana for this study.

Histological analysis : Histological assessment of tumor grade (low, intermediate, and high), tumor size (<2 cm, 2–4.9 cm, ≥5 cm) and node status (positive or negative) were performed. Diagnosis age was categorized as <40, 40–49, 50–59, and ≥60 years. The histological parameters of all cases were reviewed by pathologist and histological grade will be determined for each case according to Nottingham modification of the Bloom and Richardson Grading System.

Immunohistochemical Scoring : The ER and PR results were screened manually and interpreted as positive or negative on the basis of scores for proportion as well as intensity. The expression of ER and PR were scored between 0 and 8 and expression of HER2/neu scored from 0 to 3.

Nottingham Prognostic Index (NPI) score:

The Nottingham Prognostic Index (NPI) was used to determine the prognosis status of patients. The value was calculated for prediction of survival using three pathological characteristics: tumor size, lymph node and grade of the tumor. NPI was calculated by using the formula[19]:

NPI = [0.2 x S] + N + G

Where, S is the tumor size in centimeters; N is the number of lymph node involved: 0=1, 1-3 =2, >3 = 3; G is the tumor grade: Grade I =1, Grade II = 2, Grade III =3

RESULTS

In the present study, immunohistochemical assay of two hundred patients of breast carcinoma was performed to know the hormone receptor status as well as pathological examination. 75% patients were grouped to study hormonal status & their relation with clinicopathological factors whereas 25% patients showed other than hormone receptors subtypes. IHC score was used for sub typing of the breast cancer in different categories. Maximum frequency of patients was observed with ER-PR-Her- subtype in all of the clinicopathological parameters. The frequency of patients with ER-PR-Her+ were observed second in sub typing, only a few patients were observed with other subtypes ER+PR-Her-, ER-PR+ Her+, ER-PR+ Her-.

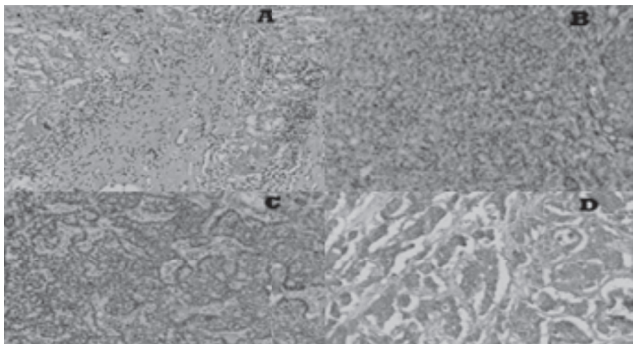
Age: Breast carcinoma patients were categorized in different age group from less than 40 years to greater than 60 years Maximum number of patients (37%) were found in age group of <40 years and minimum number of patients (17.5%) were found in the age group 50-59 years. In ER-PR-Her- subtype, maximum patients observed with age group <40 years and minimum were with age >60 years Majority of the patients with ER-PR-Her+ subtype were observed with >60 years and minimum with age group 50-59 years.

Grade

The grading was based on cellular and nuclear pleomorphism; ductular differentiation, necrosis and infiltration of surrounding adipose tissue. Three grade types were considered for the study, low grade (grade I), intermediate grade (grade II) and high grade (grade III). Maximum patients were observed with the grade I (59%). Patients with grade II were 30% whereas 11% patients were observed with grade III. Maximum patients (32.4%) were observed with grade II in ER-PR-Her- subtype and only 6.3% patients were with grade I. In case of ER-PR-Her+ subtype maximum patients were with grade I and minimum were observed with grade III.

Tumor size

The size of tumor ranged from 0.1cm to 12cm with mean size of 6.05cm (SD 3.4). Majority of the breast cancer patients (43%) had tumor size 2-4.9cm. The tumor size (<2cm) was found in 38.5% patients, whereas 18.5% patients were observed with >5cm tumor size. Majority of the patients (31.6%) with subtype ER-PR-Her2/neu- were observed with tumor size 2-4.9cm tumor size. In case of ER-PR-Her+ subtype, maximum frequency of patients was with <2cm tumor size and only 4% patients observed to have >5cm tumor size.



Lymph node status

Two parameters of metastasis were counted, less than 4 and more than 4 positive lymph nodes. Positive lymph node status was found 65% patients. A large proportion (58.5%) patients had <4 positive status of lymph nodes whereas >4 positive lymph nodes were found in 41.5% patients. Patients(32.5%) with ER-PR-Her- subtype and patients (29.6%) with ER-PR-Her+ subtype were found with <4 positive lymph nodes.

Histological type

In histological types i.e. infiltrate ductal carcinoma and lobular carcinoma was found in present study. Majority of the patients (59.7%) showed infiltrate ductal carcinoma type and only a few (40.3%) were lobular carcinoma type.

NPI was calculated to classify the patients into different prognostic groups. NPI helps to predict their survival and define them in three subsets to know their prognostic groups. The result showed that 15.8% patients were having NPI >2.4 to 3.4; 42.1% patients were having NPI >3.4 to 5.4 and same number of patients were having NPI >5.4. Patients with good prognosis (>2.4 to 3.4) were low. More patients with moderate prognosis (3.4 -5.4) and poor prognosis score.

Figure 1: Microscopic images of IHC staining in breast carcinoma. (A) Negative expression of receptors (ER, PR & Her2/neu) (B) Nuclear stain of ER (C) Nuclear stain of PR (D) Cytoplasmic stains of Her2/neu.

DISCUSSION

Breast cancer comprises of distinct biological subtypes having varied spectrum of clinical and pathological with different prognostic and therapeutic implications[20]. Present study reveals the significant difference between different subtypes of breast cancer having clinical and pathological features. The features age factor, tumor size, tumor grade, node status, histological type were studied along with immunohistochemical expression of estrogen and progesterone receptors status. The ER and/or PR receptor status was found to be lower in pre-menopause patients than the post-menopause patients. Our result provides proportion of ER and PR positivity increase with age higher in post-menopausal women as compared to pre-menopausal women and the same observations reported in other studies[21, 22].

In our study, ER, PR and Her2 positivity was found to be 55.5%, 56.5% and 56% respectively which correlates well with other studies conducted

in India[22, 23]. Studies also has shown the overall positivity rate for ER and PR was lower in India than that reported in Western literature, Europe and America studies (60–80% patients were receptor positive)[24,25]. Various Indian studies have shown receptor positivity as 32.6%, 43.9%, 50.5%, 53% and 57%[22,23,26,27]. This difference may be due to lower average age at time of diagnosis or real racial differences. Her-2-neu positivity has been found to be 56% in contrast to that other reported between 20 and 30%[28]. Similarly, Kaul et al., has shown positive status of ER (34.5%) and PR (36.4%) [29]. In the present study, three biomarkers ER-PR-Her- observed with maximum frequency followed by ER-PR-Her+. In contrast to this study, maximum subtype ER+PR+ Her2+ followed by ER+PR+ Her2- [18].

The histological grade II tumors were more common followed by grade I in Indian study[29]. In contrast, reports from developed countries have documented that well differentiated breast cancers are more common than poorly differentiated cancer types[30, 31]. In study of Lakhani et al., 49% patients were with grade III and only 14.6% patients were reported with grade I[32]. However our findings showed only few patients with grade III (11%). The histological grades I and II tumors were more as compared with grade III tumors [26]. On correlation of ER/PR status with grading was observed that non reactivity of the receptors increased with high grade tumors as compared with low grade tumors.

Tumor size showed maximum occurrence of tumor size 2-4.9cm (43.6%) and a very less count of patients were found with tumor size above 5cm (18.3%). This study is in close relation with Lakhani et al., who reported maximum patients (74%) with tumor size 2-4.9cm [32]. In contrast, Raina et al., reported majority of the patients (86.4%) with tumor size > 2 cm[23].

In our study, majority of the patients were with <4 positive node (55.7%) for metastasis whereas 44.3% patients was found with more than 4 positive lymph node status. In contrast to our study, Raina et al., reported , 53.13% patients were lymph node negative, 32.61% had 1–3 lymph nodes positive and 14.25% had >4 lymph nodes positive[23]. Similarly other study reported, 51% patients were node negative, 32% had 1–3 lymph nodes positive and 17% had 4 or more lymph nodes positive for metastasis[27]. Correlation of ER, PR and Her2 status with lymph nodes status, it was observed that involvement of >4 lymph node non reactivity of receptors more than <4 lymph node status which correlates well with Col et al., study [33]. The majority of patients included in the present study had NPI value between 3.4 and 5.4 which is similar to the study on African American women[34].

CONCLUSION

Breast cancers classified into eight subtypes by using IHC technique, out of four are widely used. This classification is practical, simple, informative, clinically useful and discriminative between the subtypes. We support the IHC classification as a clinical/diagnostic tool. It is widely available at reasonable cost and found therapeutically informative. The ongoing efforts should focus at standardization of different therapies responses on biological subtypes and development of further reproducible testing.

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A Study on Factors Determining Penetration of Optional Paediatric Vaccines in Urban India

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ABSTRACT

This research was undertaken to determine the penetration of Optional Vaccines in Urban India and the factors thereof.The research survey was carried out in 148 mothers (208 Children) belonging to Socioeconomic Class A&B through a face to face interview in an upmarket locality of Gurgaon. The awareness levels for Hepatitis A and Chickenpox was at 100% of the respondents surveyed whereas the awareness dropped to 64.3 % for Rotavirus and 60.8% for Pneumococcal Meningitis. The coverage of Chickenpox and Hepatitis A vaccine was the highest in all the 3 age groups of children (1-2 years, 3-5 yrs. and >6 yrs.). The coverage of Pneumococcal Vaccine increased as the age increased whereas the coverage for Rotavirus reduced as the age group increased.

Conclusion: Affordability and Availability are not the barriers to penetration of optional vaccines in Urban India. The main influencer is the recommendation of the Paediatrician for vaccination.

Keywords—*Vaccination, penetration, children, urban India, chickenpox, Hepatitis A, Rotavirus*

INTRODUCTION

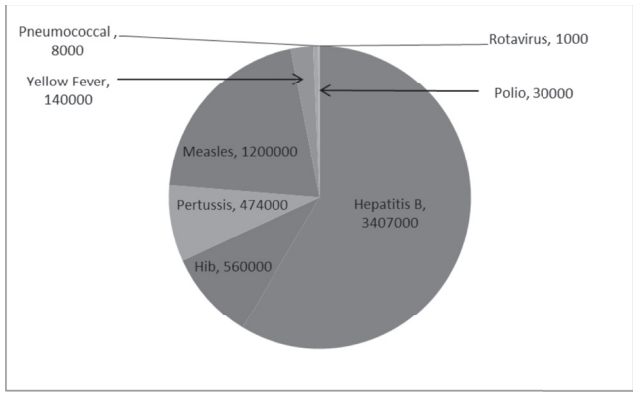
It is agreed that a nation's future are its children. The immunization of children against vaccine preventable diseases is a critical step to secure the future of any country. Immunization penetration should be treated as a metric of development at par with infrastructure and GDP growth.

The development , production and distribution of vaccines at an affordable cost is a major challenge for vaccine manufacturers.

In 2000, a new public–private global health initiative was taken with the creation of the Global Alliance for Vaccines and Immunisation (GAVI).

GAVI's efforts are already showing encouraging results. For the first time, 4/5 children[1] are protected by the essential vaccines. From its inception in 2000 till 2010 GAVI has disbursed £1.75bn (US$2.9bn) to 72 countries for vaccine purchase and delivery[2]. In its first decade it has vaccinated 288 million children and averted 5 million deaths[3].

Fig. 1: Number of Deaths (5 MN) averted by GAVI: Results from Routine Immunisation and one-off tactical investments, by vaccine[4]



Ref: 1,2,3,4 Owens, B (2011) 'Vaccines for All: Help save 4 Million children's lives by 2015 Pg. 5, vii.

Though encouraging, the fact remains that 1/5[5] children across the world misses out on the routine immunizations.

The coverage of high income countries is 95% as against 79% of the low income countries[6]. Moreover, more than 3/4 of the unvaccinated children live in just 10 countries characterised by low immunization rates and large population.

Table I: COUNTRIES WITH THE HIGHEST NUMBER OF UNVACCINATED CHILDREN[7]

Country	Number of Children unvaccinated with DPT3
India	9,107,580
Nigeria	3,526,980
Pakistan	810,450
Indonesia	751,320
Democratic Republic of the Congo	673,900
Ethiopia	657,720
China	548,820
Uganda	540,720
Chad	391,160
Kenya	382,500
Total in top ten countries	**17,391,150**

In India the first immunization was started in 1948 for Bacillus Calmette Guerin (Tuberculosis) later adopted on a mass scale in 1951 to cover all below 25 years[8] of age.

In 1985-86, the government started a special program called the Universal Immunization Program (UIP)[9] to achieve at least 85% coverage in Infants against the 6 immunizable diseases (tuberculosis, diphtheria, polio, whooping cough, measles and tetanus) by 1990.

This objective of the UIP has not been achieved as per the National Family Health Survey (NFHS 3) 2005-6.

This report showed the difference in Vaccination coverage between urban (58%)and rural areas (39%)[10] and between male children (45 %) and female children[11] (42%).

As per the survey younger women are more likely to utilize maternal and child health care services[12].

Coverage in children with mothers with no education was 26% of children compared to 75%[13] in children whose mothers had completed 12 yrs or more of education. The coverage in scheduled tribe children was only 31%[14]. It was 24% in children from the lowest wealth quintile and 71% in children in the highest wealth quintile[15].

Thus to summarize, the NFHS -3 report showed a strong positive correlation between vaccination coverage and place of residence, mother's education, ethnicity and household income.

Ref : 10,11,12,13,14,15 National Family Health Survey III (2006) Pg xxxix, 229, 230

OBJECTIVE

Mark Johnson lists four main barriers to consumption namely wealth , skills , access and time.[16]

Normally all vaccines research highlight Affordability & Access as the main barriers Vaccine penetration in India, implying that if these barriers do not exist then the penetration of vaccines would be higher.

In India vaccine marketers undertake disease awareness programs for the lay public in attempt to create the 'pull' at the Paediatrician. Simultaneously, the medical community is educated about the disease and the vaccine through the field force with scientific research papers on disease epidemiology and vaccine safety and effectiveness. A combination of this 'push' and 'pull' strategies are used to create awareness as well as penetration.

This study has the following objectives

1. Awareness of the mothers on the diseases covered by the optional vaccines

2. Penetration of the optional vaccines in the Sec A / B urban segment.

3. Understand the key influencers in the Vaccine Purchase decision

RESEARCH METHODOLOGY

A. Selection and Description of Sample

The sample frame was a residential locality on Gurgaon. The target group comprised mothers in the age group of 20 – 45 years in the socio economic class A B. The sample was selected at random from observation at public places like shopping complexes. Observation of appearance was done to estimate the socio economic class. Only women accompanying children were targeted for interview under the assumption that the women were mothers accompanying their children.

148 women covering 218 children were surveyed .

B. Survey Methodology

The survey methodology was through a questionnaire involving collection of the household income , age and education status of the mother along with the number of children and their respective ages.

The mothers' awareness for the diseases covered under the 4 optional vaccines was checked followed by the vaccination coverage in each child. For disease the child had been vaccinated for , an attempt was made to check the recall of the Vaccine Brand name or the Vaccine Manufacturer Brand name , point of purchase and the source of information on the disease and vaccination through a multiple choice question. For the disease not vaccinated against , an attempt was make to find out the perceived reasons of cost , availability , doctor recommendation (or the lack of) and disease awareness ,for not vaccinating.

The pilot questionnaire was prepared and run on 10 mothers followed by extension to entire sample. The questionnaire was administered through a face to face interview and the responses were filled by the surveyor. Under no circumstance was the questionnaire was given to the respondent to fill up.

C. Statistical Analysis

Proportion and percentages were used to analyse the results

RESULTS

143 out of 148 mothers were either graduates or post graduates. 85 out 148 mothers were homemakers the rest being either in service, self – employed or working part time. 130 out of 148 had house hold incomes more than Rs.40000/- pm. 83 out of 148 had one child whereas 60 out of 148 had 2 children.

The complete demographic profile of the respondents is given in Table II (A) and II (B)

TABLE II (A) : AGE, EDUCATION, AND OCCUPATION PROFILE OF THE RESPONDENTS

Age (Yrs.)	No.	%	Education	No	%	Occupation	No	%
20-25	3	2.0	School Pass	1	0.7	Service	43	29.1
26-30	30	20.3	Graduate	65	43.9	Self Employed	15	10.1
31-35	69	46.6	Post Graduate	78	52.7	Home Maker	85	57.4
36-40	38	25.7	Doctorate	2	1.4	NGO / Part-time	5	3.4
>40	8	5.4	Professional	2	1.4			
Total	148	100.0		148	100.0		148	100.0

TABLE II (B): INCOME AND NUMBER OF CHILDREN PROFILE OF THE RESPONDENTS

Monthly Income	No	%	No of Children	No	%
<10000/-	2	1.4	One	83	56.1
10000-20000/-	0	0.0	Two	60	40.5
20000-40000/-	16	10.8	Three	5	3.4
40000-75000/-	48	32.4			
>75000/-	82	55.4			
	148	100.0		148	100.0

When looking at the awareness of the diseases we find that 100% of the respondents (Graduate + Post Graduate) are aware of Hepatitis A and Chickenpox. The awareness drops less than two thirds for Pneumococcal Meningitis (60.8%) and Rotavirus (64.3%) as shown in Table III.

TABLE III: AWARENESS OF DISEASE IN RESPONDENTS (GRADUATES + POST GRADUATES)

Disease	Aware		Not Aware	
	No.	%	No.	%
Pneumococcal Meningitis	87	60.8	56	39.2
Rotavirus	92	64.3	51	35.7
Chickenpox	143	100.0	0	0.0
Hepatitis A	143	100.0	0	0.0

Analysing the data we find penetration for chickenpox and hepatitis A vaccine remains the highest across all age groups. The low penetration rates for Rotavirus vaccine in the age 3 -5 and 6 yrs. and above is expected as the vaccine was launched in India in 2008 and also it is not recommended above the age of 32 weeks or 6 months.

Therefore the age of 1-2 years would be the right class to analyse the penetration of Rotavirus vaccine. The vaccine penetration for all the 4 diseases across the age groups is given in Table IV. It is also interesting to note the lower penetration of the Pneumococcal vaccine (37.9%) compared to the Rotavirus vaccine (48.3%) in the 1-2 yr. children age group. The situation seems to reverse when we look at the 3-5 yr. age group where the penetration of the pneumococcal vaccine is higher (50.8%) compared to the Rotavirus vaccine penetration (30.2). This difference of percentage can be attributed to the shorter vaccination window for the Rotavirus vaccine as well as the fact that Rotavirus Vaccine is a relatively newer launch. If the penetration in 1-2 yr. age group is an indication then we can see the percentages increasing for the penetration of Rotavirus vaccine across all age groups in the coming years.

TABLE IV: VACCINE PENETRATION FOR THE 4 OPTIONAL VACCINES IN CHILDREN

	Age 1-2 yrs. (n : 29)				Age 3-5 yrs. (n : 63)				Age 6+yrs (n : 116)			
Disease	Vaccinated		Non Vaccinated		Vaccinated		Non Vaccinated		Vaccinated		Non Vaccinated	
	No	%	No	%	No	%	No	%	No	%	No	%
Pneumococcal Meningitis	11	37.9	18	62.1	32	50.8	31	49.2	60	51.7	56	48.3
Rotavirus	14	48.3	15	51.7	19	30.2	44	69.8	7	6.0	109	94.0
Chickenpox	26	89.7	3	10.3	59	93.7	4	6.3	116	100.0	0	0.0
Hepatitis A	23	79.3	6	20.7	61	96.8	2	3.2	114	98.3	2	1.7

The relationship between vaccination status and awareness for Rotavirus Vaccine in the 1-2 years age is given in Table V.

TABLE V: VACCINATION STATUS AND AWARENESS FOR ROTAVIRUS IN CHILDREN AGED 1-2 YEARS.

	Age 1-2 yrs. (n: 29)	
	No	**%**
Aware	23	79.3
Not Aware	6	20.7
Vaccinated	14	48.3
Not Vaccinated	15	51.7

DISCUSSION

While evaluating the 4 barriers to consumption namely, affordability, access awareness and time in relation to the penetration of optional vaccines in urban India, based on the survey it can be mentioned that affordability and access are not the critical barriers to consumption.

This can be documented by the fact that not a single observation where there was awareness of the disease and the child not vaccinated did the respondent cite affordability as one of the reasons. This was also substantiated by the fact that the Hepatitis A & Chickenpox vaccination penetration rates are higher than 93% in children aged 3 years and above. Both these vaccines cost more than Rs.1100/- dose which is comparable to the cost of Rotavirus vaccine.

Also barring one case of non-availability of a vaccine, none of the respondents mentioned the chemist as a purchase point for the vaccines. In almost all the cases the vaccines were purchased directly from the doctor. Thus, the availability as a barrier can also be ruled out.

Awareness of the disease was predominantly from the doctor, followed by the posters and material on the disease put in the clinic by the vaccine companies. Very few of the respondents (3/148) recalled television ads for Rotavirus. The doctor's recommendation emerged as the number one factor in the decision to go for vaccination. None of the respondents recalled the brand name of the vaccine administered. Only 4 respondents could recall the name of a company whose vaccine had been administered to their child. The lack of involvement in the vaccination and vaccine highlights the implicit trust parents have on the paediatrician.

Another factor which emerged in the reason for non-vaccination was the lack of the vaccine mentioned in the immunization cards of the

children. The changeover process to a new immunization card for a child whose vaccination has been already initiated can possibly emerge as a barrier to vaccine penetration.

An emerging trend which came out during the study was the pasting part of the carton containing the brand name on the vaccination card post vaccination. This serves as a reference on the vaccination done.

CONCLUSION

By the findings of the study it emerged

1. The doctor is the biggest source of information and the gate keeper to the vaccination decision. Thus, awareness and doctor endorsement is the biggest barrier in optional vaccine penetration in India in the SEC A, B category and not the affordability nor the access to vaccination.
2. The doctor is the also the purchase point for the vaccination in most of the cases
3. There is absolutely no recall of the company name or brand name of the vaccine. The predominant reason seems to be the lack of need to know as the decision is the doctor's.
4. The effort of the vaccine marketers on creating the 'pull' for the vaccine does not seem to reflect in this study.
5. In case of the Rotavirus vaccine, the study underlines a significant gap in vaccine penetration and awareness in the 1-2 yr. age group. This gap can be attributed on the lack of emphatic endorsement of the doctor's to the vaccine. The reason for this can be looked at depth by the biological companies by surveying paediatricians on the same.
6. There is a huge opportunity for biological companies to create a pull for the vaccines as well create a corporate identity in the consumer's mind. An identity like this can be a source of competitive advantage for the vaccine company and create high entry barriers to competition.

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A Study on Awareness Regarding Pre and Post Exposure Prophylaxis of Human Immunodeficiency Virus /Acquired Immuno Deficiency Syndrome among Nursing Students

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ABSTRACT

Introduction: One of the serious problems of health care workers today is the risk of occupational exposure to blood-borne pathogens. WHO has estimated that about 4.4% of HIV cases among health service providers worldwide are result of occupational exposure. According to WHO nurses are the group most at risk in any health care establishment.

Objectives: 1) To assess the awareness about Post Exposure Prophylaxis among nursing students. 2) To make necessary recommendations.

Methodology: Study Design: Questionnaire based cross-sectional study. **Duration of study:** September 1st to 30th, 2009. **Participants:** 208 Bsc nursing students of Bapuji College of nursing, Davangere. **Statistical test**: Proportions. **Materials & methods**: A pre-designed and pre-tested, multiple response type questionnaire was used to collect the data for the study.

Results: Only 56% of nursing students were aware of all infectious fluids. 36% of 2nd year students, 56% of 3rd year students, 43% of 4th year students knew the common mode of accidental exposure. 53% of nursing students knew when post exposure prophylaxis should start. 52% of nursing students were aware of what measure should be taken after an accidental exposure.

Conclusion: The awareness about pre and post exposure prophylaxis is less among study subjects. Because of this low level of awareness these young nurses are at increased risk of occupational exposure to deadly infection like HIV/AIDS.

Keywords: *Post exposure prophylaxis, nursing students, awareness*

INTRODUCTION

One of the serious problems of health care workers today, is the risk of occupational exposure to blood-borne pathogens such as HIV, HBV & HCV.[1] Each day, thousands of people around the world experience accidental exposure to blood and other body fluids or tissues while performing their work duties. Health care workers are especially vulnerable.[2] One of the WHO's health care report estimates that 2.5% of HIV, 40% of hepatitis B (HBV) and hepatitis C (HCV) virus infections amongst health care providers worldwide result from occupational exposure.[3]-Ever since the first detection of acquired human deficiency syndrome

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in commercial sex worker in 1986 in Tamil Nadu, the HIV/AIDS case seeking health care in various hospitals have been steadily increasing. So, the health care providers are at increasing risk of exposure to HIV/ AIDS.[4] The risk of occupational exposure to HIV is highest in developing countries like India, where there is a paucity of standard reporting protocol. The prevalence is more in south Indian states like Karnataka, Maharashtra, Tamil Nadu and Andhra Pradesh. [5,6] By virtue of its more prevalence in Karnataka, the frequency of contact of any health care provider with PLHIV (People Living with HIV/AIDS) is more and it put them at increased risk of occupational exposure for this life threatening disease.[3] According to WHO nurses are the group most at risk in any health care establishment, as they play major role in caring for patients and, moreover, are exposed to accidental needle stick or sharp injuries while collecting blood, administration of injectable drugs and assisting at surgery (major and minor).[7] It is important that nurses should have thorough knowledge of measures for prevention of accidental exposure to HIV and the procedures to be followed in case of accidental exposure; they must be aware about post exposure chemo prophylaxis to be taken too. As there is no effective vaccine available yet, hence there is a need to improve the knowledge of the nursing staff regarding the risk and Universal precaution and appropriate response to accidental injuries early in the course.[4] with this back ground we felt there is absolute need for the caring of health of real care-takers of our community. So, we under took this cross sectional study on awareness regarding pre (Standard precautions) and post exposure prophylaxis of HIV/ AIDS among Bsc nursing students Bapuji teaching Hospital attached to JJMM Medical college Davangere, with intention of understanding their knowledge about pre (Standard precautions) and post exposure prophylaxis, and to give necessary recommendation and education to improve their knowledge regarding the same, if it is found not up to the mark.

OBJECTIVES

- To assess the awareness about Pre (Standard precautions) and Post Exposure Prophylaxis of HIV/ AIDS among nursing students
- To make necessary recommendations

METHODOLOGY

A descriptive cross sectional study was conducted among BSc nursing students in Bapuji Hospital attached to JJMM, Medical college Davangere during the month of September to November 2009 (Duration 3months). After taking permission of the Institutional head and medical and nursing superintendent, all the students of nursing who attend the clinical postings during morning 9am to 1pm were interviewed to collect the information regarding awareness about pre (Standard precautions) and post exposure prophylaxis of HIV/AIDS. A pre-designed and pre-tested, multiple response type, semi-structured questionnaire was used. Consent of all the participants was taken before administering the questionnaire. Ethical clearance was taken from institutional ethical committee. Totally 208 participants were interviewed during the 3months study period and we had under taken all the necessary steps to avoid duplication. Data collected was analyzed in excel and by using percentage proportions. Ethical clearance for the study was taken from the Institutional ethical clearance committee.

RESULTS

Fig 1 : PIE CHART SHOWING NUMBER OF STUDENTS PARTICIPATED

Totally 208 BSc nursing students were participated in the study, among them 60, 88 and 60 students were belong to 2nd year, 3rd year and 4th year respectively. Most of the participants (48%) were belong to 3rd year of BSc nursing.

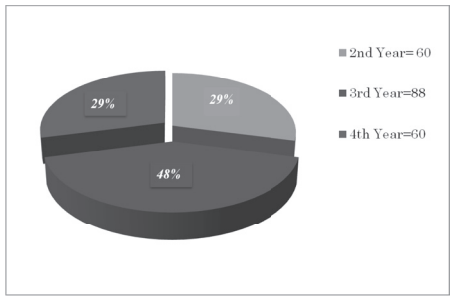

TABLE 1: AWARENESS ABOUT HIV/AIDS

Question	Current Answer							
	2nd Year		3rd Year		4th Year		Total	
	Number	%	Number	%	Number	%	Number	%
What is AIDS	56	93.3%	84	95.4%	58	96.6%	198	95.1%
Organism Causing AIDS	54	90%	83	94.3%	55	91.6%	192	92.3%

A good number of nursing students were aware about the term AIIDS (n=198, 95.1%) and the organism causing it (n=192, 92.3%). Just more than half (56%) nursing students were aware about all the infective materials of the HIV/ AIDS like blood, semen, vaginal secretion and contaminated instrument. Most of the subjects did not know that contaminated instrument is one of the important very important infective materials having capability of transmitting HIV/AIDS. Comparatively third year students have better knowledge about all the materials transmitting the disease than 4th and 2nd year students.

TABLE 2: AWARENESS ABOUT MODES OF TRANSMISSION OF HIV/AIDS

Question		Current Answer							
		2nd Year		3rd Year		4th Year		Total	
		Number	%	Number	%	Number	%	Number	%
All are Modes of Transmission	Correct	12	20%	20	22.7%	24	40%	56	27%
	Wrong	48	80%	68	77.3%	36	60%	152	73%
	Total	60	100%	88	100%	60	100%	208	100%

Our study reported that, near 3/4th (73%) of the nursing students were not aware about all the modes of transmission of HIV/AIDS. Most of the students did not know that surgical and dental procedures and mother child transmission are two of important modes of transmission of HIV/AIDS. Awareness was more in the higher class students compare to their immediate lower ones.

TABLE 3: AWARENESS ABOUT COMMON MODE OF ACCIDENTAL EXPOSURE

Question		Current Answer							
		2nd Year		3rd Year		4th Year		Total	
		Number	%	Number	%	Number	%	Number	%
All modes of accidental exposure	Correct	22	56.6%	49	56%	26	43%	97	46.6%
	Wrong	38	63.4%	39	44%	34	57%	103	53.4%
	Total	60	100%	88	100%	60	100%	208	100%

It is interesting to know that only 46.6% of the subjects had the knowledge about all the common modes of accidental exposure to HIV/AIDS, eg., needle stick injury, splashing of blood, cut skin and mucous membrane. Most of the students thought that cut skin and mucous membrane are not common modes of accidental exposure.

TABLE 4: AWARENESS REGARDING DEALING WITH SHARP ITEMS

Question	Correct Answer							
	2nd Year		3rd Year		4th Year		Total	
	Number	%	Number	%	Number	%	Number	%
Disposal in *puncture resistance* container	30	50%	64	72%	32	53.3%	132	64.4%
Recap needle after usage	48%	80%	67	67.2%	35	59.4%	150	72.1%

When asked about the *universal precaution/ standard precaution*, only around 32% of the students answered that they have heard about this term.

It is clear from the table that 72% of the students still believe that they should recap the needle after use. Knowledge was more in lower class students compare to higher class. But interestingly around 65% of the students knew that needle should be thrown in puncture resistance container after recapping.

From the bar diagram it is clear that just more than a half (54%) of the students have heard the term *post exposure prophylaxis (PEP*). In higher class students it is around 60%, indicates that near half of the students do not know, what they supposed to do, if there is an accidental exposure contaminated material.

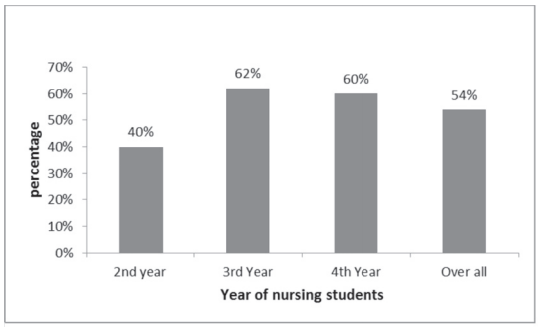

FIG2: ASSESSMENT OF FAMILIARITY WITH TERM PEP (POST EXPOSURE PROPHYLAXIS)

TABLE 5: AWARENESS REGARDING 'POST EXPOSURE PROPHYLAXIS'

Question	Correct Answer							
	2nd Year		3rd Year		4th Year		Total	
	Number	%	Number	%	Number	%	Number	%
First thing to do after accidental contact	14	23.3%	50	56.8%	44	73.3%	108	52%
Risk of transmission by needle stick injury	14	23.3%	26	29.5%	20	33.3%	60	28.8%
When to start PEP	21	35%	36	40.9%	32	53.3%	89	42.7%
Duration of PEP	18	30%	29	32.9%	28	46.6%	75	36.05%

Only about 52% of the students knew about what measures supposed to be taken after accidental exposure to needle stick injury or splashing of blood. It was very surprising to hear that some students told, they would squeeze and remove the blood if there is any needle stick injury to hand while injection or drawing blood for investigations from the patient.

28.8% of the students correctly knew the percentage of transmission of HIV/AIDS in case of accidental needle prick injury. The knowledge of final year students was more, compared to their junior students, regarding the same.

Even though the knowledge regarding time of starting of *post exposure prophylaxis (PEP*) was

better among all the students who had heard or read about it, but the same was only 42.7% i.e. less than fifty percentage when over all students are taken for account.

When we considered duration of *post exposure prophylaxis (PEP*), the knowledge regarding this was seen only among 36% of the subjects. Knowledge was more among higher class students compared to lower class students. It was very tragic to know that no student had knowledge regarding regimens and drugs given under *post exposure prophylaxis (PEP*).

DISCUSSION

HIV/ AIDS like blood borne diseases imposes lots of stress on nurses and other healthcare professionals because of professional and personal inadequacy, along with fear of infection.[7] The present study documents that the highest number of nursing students i.e. near half of the nursing students do not know all the materials through which the HIV/AIDS transmits and also near 3/4th of the students (73%) do not have complete knowledge regarding all the modes of transmission of HIV/AIDS. Our results are consistent with results of study conducted by

Avachat S et al. [4] A study conducted by Saraswathi V et al in Manipal, Karnataka, India, among post graduate Medical students also shown that only 50% of the participants are able to find all the materials transmitting HIV/AIDS. [8] It is interesting to know that more than 50% of the subjects do not have the knowledge about all the common modes of accidental exposure to HIV/AIDS, eg., needle stick injury, splashing of blood, cut skin and mucous membrane. Most of the nursing students think that HIV/AIDS do not transmits through dental procedures and cut mucous membrane and skin. This lack of complete knowledge regarding the different modes of transmission put them under the great risk of exposer to this life threatening disease. The awareness regarding what they suppose to do immediately after accidental exposure (first aid procedure) was also low with only 52% of the students answering correctly. For percutaneous exposures NACO recommends immediate washing and rinsing the wound and surrounding area with soap and water without scrubbing. Squeezing, bleeding or sucking the wound is not recommended.[9] Study conducted in Manimpal reported only 23% of students were able to mark correct answer for first aid after accidental exposure. [8] It is very clear from our data that still 2/3rd of the nursing students have not heard the term Universal precautions/ Standard precautions, in fact by virtue of their clinical posting they are more prone to accidental injuries in hospitals, by this time they would have understood some important aspects of Universal precautions/ Standard precautions, which helps them to protect themselves from risks of blood born infections. Our results shown that, majority (72%) of the students still believe that they should recap the needle before disposal. In contrast to our observation, study conducted by Bhat G et al shown that only 3.7% of the nursing students practiced recapping of needles after use. [7] But recent guidelines WHO tell that needle should never be recapped, bent or broken and should throw directly in to the puncture proof container, as this procedures increases the risk of needle stick injuries.[7] When students were asked to show the procedure of recapping the needle, most of the students did it wrongly. Because of this unawareness they are at increased risk for needle stick injuries. When questions were asked about Post Exposure Prophylaxis (PEP), near 50% of the students told they have not heard this term. Among the students who had heard the term PEP, most of them did not know the drugs used in PEP, duration and time starting of the PEP. The study conducted by Avachat et al and Bairy K L et al also came to the same conclusion that only around 50% of the nursing students are aware about term PEP and about time of starting and duration of PEP. [4, 10] A study conducted by Saraswathi V et al in Manipal India, reported that only 30% medical post graduate students knew the exact duration of the PEP and 42% of the students were aware of the drugs given under PEP. [8] As there is no vaccine available yet for HIV/AIDS, chemoprophylaxis is recommended by international AIDS society and NACO (National Aids Control Organisation).[11] Our health care providers should be made aware about such information as early as possible, during their early course. As the junior students lack of

the necessary skills they may be at more risks of accidental injuries.

CONCUSIONS

- The awareness about Pre and PEP among the study subjects was good in some aspects but not satisfactory in many others.
- This low level of awareness may be due to the fact that the concept had not been stressed upon in classroom & clinical teaching.
- These young nurses are at increased risk of occupational exposure to deadly infection like HIV/AIDS because of their low awareness & desire to do practical procedures.

RECOMMENDATIONS

- There is a great need to enhance the knowledge about Pre and PEP of nurses by orientation programs from the beginning only.
- The topic should be included in recommended text books of under graduate teaching & taught with the help of audio-visual aids.
- Further studies need to be done among the nurses to assess their knowledge and practice regarding the same.

Acknowledgement:

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Conflict of Interest: None at present

Source of Support: Self

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A Study of Prevalence and Contributory Factors of Acute Stress Disorder in a Train Accident in India

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ABSTRACT

Aims and objective: Acute Stress Disorder is common after a major life threatening condition. It varies in different countries and over different cultures. Our aim is to study the prevalence of Acute Stress Disorder (ASD) and prediction of Posttraumatic Stress Disorder (PTSD) in victims of a major train accident in India.

Design: Cross-sectional study.

Methods and Material: 38 patients were interviewed from both sex group, 19 –57 years old who were admitted in an emergency department after a train accident , simultaneously on the 3 rd day after the accident to assess acute stress disorder..

Results: 47.37% were found to be suffering from Acute Stress Disorder, of them 30% and 15.7% of total victims were predicted to suffer from Post Traumatic Stress Disorder (PTSD).

Conclusions: The rate of Acute Stress Disorder is higher in India.

Declaration of interest – None.

Keywords: *Acute Stress Disorder, PTSD.*

INTRODUCTION

The Anxiety disorders are the most prevalent of the psychiatric disorders in both the developed and developing world [1, 2]. ASD is unique among the anxiety disorders in that it is the only disorder that requires a specific triggering event before the onset of symptoms. The diagnosis of acute stress disorder was introduced in DSM-IV. Acute stress disorder is defined in DSM-IV as a disorder that follows experiencing, witnessing, or being confronted with events involving actual or threatened death, physical injury, or other threats to the physical integrity of the self or others. In addition, to meet the definition of an appropriate stressor (criterion A) [3], the person's response has to involve intense fear, helplessness, or horror. The essential feature of Posttraumatic Stress Disorder according to DSM IV TR is the development of characteristic symptoms following exposure to an extreme traumatic stressor involving direct personal experience of an event that involves actual or threatened death or serious injury, or other

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threat to one's physical integrity ; or witnessing an event that involves death, injury , or a threat to the physical integrity of another person; or learning about unexpected or violent death, serious harm, or threat of death or injury experienced by a family member or other close associate (Criterion AI) [3]. The person's response to the event must involve intense fear, helplessness, or horror (or in children, the response must involve disorganized or agitated behavior) (Criterion A2)[3].The characteristic symptoms resulting from the exposure to the extreme trauma include persistent re-experiencing of the traumatic event (Criterion B) [3], persistent avoidance of stimuli associated with the trauma and numbing of general responsiveness(Criterion C) [3], and persistent symptoms of increased arousal (Criterion D) [3]. The full symptom picture must be present for more than 1 month (Criterion E) [3], and the disturbance must cause clinically significant distress or impairment in social, occupational or other important areas of functioning (Criterion F) [3]. An Important public health marker of the utility of acute stress disorder is its ability to predict later PTSD, thus allowing clinicians to focus resources on susceptible individual. In adults, acute stress disorder is a good predictor of later PTSD, but the dissociative symptoms appear to add little [4].

Several studies were conducted previously on Acute Stress Disorder and respective prevalence rates were also published. Several possible risk factors, according to psycho socio demographic point of view were also suggested. Considerable work on risk factors has shown repeatedly that trauma severity, previous psychiatric history, female gender, poor peri-traummatic psychosocial support are among the most robust indicators of higher risk for developing PTSD following trauma [5]. But few studies were conducted in India in the past, so there is a lack of information in this field of Acute Stress Disorder, its prevalence pattern and about the risk factors of ASD. This study was conducted to fill the lack of information and to study prevalence of Acute Stress Disorder, prediction of PTSD from ASD and assessing risk factors of ASD in India.

SUBJECTS AND METHOD

The train accident was in West Bengal's Birbhum district on July 19th , 2010 in which at least 60 people were killed was the sixth major accident in the past one year and the second in less than two months in the state. 60 people were killed and over 90 passengers injured when a train in high speed tore through the rear of another at the Sainthia station in Birbhum district of West Bengal, India. Two days after the disaster we visited the admitted patient in the department of Surgery and Orthopedics, who were referred from the contact medical team and first referral center to a State Medical College and Hospital. Inclusion criterion for this study were- 1) Patients, who were conscious, alert and cooperative, 2) had negative history for Head Injury, 3) aged above 18 years and were 4) willing to give valid written consent were included in this study. Exclusion criterions for this study were- 1) unconscious or seriously ill who were unable to give valid consent, 2) patients under 18 years of age. 38 patients from both sex groups were subjects in this Cross- sectional study. Acute Stress Disorder Scale (ASDS) [6] was used to measure ASD in those patients.

Procedure – The nature and aims of the study was fully explained to the patient and their attendant. Written informed consent was taken before the interview. The victims of the rail accident were interviewed, socio demographic data were collected and self report inventory of Acute Stress Disorder Scale were applied. The collected data were then statistically analyzed and Acute Stress Disorder prevalence was measured.

RESULT

Total number of subject was 38, of age 19-57 years (median 23 years), of them 32 were male (84.21%) and 6 were female(15.79%), according to religion 34 were Hindu (89.47%) and 4 were from Muslim (10.53%) population, 10 each had completed primary, high school, college education (26.31%) and 8 had education of middle school (21.05%). Of the total subjects, 14 were married (36.84%) and 24 were of single marital status (63.15%), 6 were from urban background (15.79%) and 32 had rural background (84.21%), 14 belonged to nuclear family (36.84%) and 24 to joint family (63.16%). When Acute Stress Disorder Scale were applied to them, 18 subjects (47.37%) were diagnosed to be suffering

from acute stress disorder on ASDS (using a cutoff for the dissociative cluster of a ≥9 combined with a cutoff of a ≥28 for the cumulative scores on the re experiencing, avoidance, and arousal clusters), and 6 subjects (15.79%) were predicted to suffer from Post Traumatic Stress Disorder according to ASDS (Total score ≥ 56 on ASDS) (Table-1).

TABLE - 1

Patient No.	Dissociative Score	Reexperince +Avoidance+ Arousal Score	Total
1	16	41	57
2	16	33	49
3	13	38	51
4	12	38	50
5	5	30	35
6	16	55	71
7	19	16	35
8	9	25	34
9	16	39	55
10	5	19	26
11	10	28	38
12	15	52	67
13	10	20	30
14	13	35	48
15	13	20	33
16	7	20	27
17	16	27	43
18	6	25	31
19	9	28	37
20	17	48	65
21	16	22	38
22	15	33	48
23	14	41	55
24	12	50	62
25	8	33	41
26	15	29	44
27	18	32	40
28	11	19	30
29	16	42	58
30	7	20	27
31	12	30	42
32	12	25	37
33	10	23	33
34	17	27	44
35	5	18	23
36	12	22	34
37	5	28	33
38	9	26	35

Table – 1: showing dissociative score, re-experience + avoidance + arousal score and total score of the respective patient according to ASDS.

DISCUSSION

According to previous literature of the substantial proportion of the general population who experience trauma in their life time, only a minority of 1-12 % will acutely develop PTSD [7, 2]. Women develop PTSD more frequently in the same situation [8]. Traumatic events able to cause PTSD may vary considerably among eastern and western population, but the core symptom domains remain remarkable consistent across populations. Brewin and Andrewsin one of their study relating to 'Acute Stress Disorder and Posttraumatic Stress Disorder in Victims of Violent Crime' in the UK noted that the rate of acute stress disorder was 19%, and the rate of subsequent PTSD was 20% [5]. In another study in the USA Carol and Robert found rate of ASD in exposed rescue workers of events of 'September 9, 2001', was 25.6% [9]. We in this study found that the rate of ASD was 47.37%, which is significantly higher (47.37% versus 19%, 25.6%) than previous reports. When we looked into the incidence and the events after the train accident, we found that the train accident happened in the middle of the night when most of the victims were sleeping, so they were in a state of emotional numbness after sudden accident and due to the paucity of rescue workers many of the victims were unattended in the place of accident. Most of the victims also could not contact with their family members, as usually happened in the first few days after any accident, and in this case the victims were most from the neighbor state of West Bengal, like Jharkhand & Bihar, having different in language and culture and for that also had problem in communication with the rescue and helping workers. So besides the factors contributing to ASD, as mentioned in 'Kaplan and Sadock's Comprehensive Text Book of Psychiatry'[10] and DSM IV-TR[3] , the other unnoticed factors or contributors in this case might be the followings which led to a higher rate of ASD in this case.

1) Availability of rescue workers and medical team after the accident.

2) Communication facility with the rescue workers.

3) Presence or closeness of family members during and after the rescue and stay in hospital.

4) Cultural familiarity with the new place or helper and rescue worker.

5) Expertisation and professional qualification of rescue workers. Further study will be needed to establish these suggested factors of ASD and to find causes of higher rate of ASD in India.

Fallacy of the study- there were some gap in conducting the study, those were

1) PTSD was not assessed in this study after one month of the accident and PTSD predictivity would not for that reason was evaluated.

2) Successive ASD score were not assessed at successive weeks, so progression of ASD was not evaluated.

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A Study of Thyroid Swellings in a Tertiary Care Hospital in India

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ABSTRACT

The worldwide prevalence of goitre in the general population is estimated 4 to 7 percent and the incidence of malignancy in goitrous thyroid is about ten percent. Thyroid cancer is the most common among all endocrine malignancies. It is postulated that goitrous thyroid is a precursor lesion to the development of malignant thyroid diseases. As Chhattisgarh is a state well known for endemic goitre, this study focused on establishing the incidence of thyroid malignancy among goitrous thyroid swellings. With this view a retrospective study was carried out in a Tertiary Care Hospital of Bilaspur district of Chhattisgarh State. The present study was carried out among patients with thyroid swellings attending OPD in the Hospital. Total 316 thyroid swelling cases were examined for cytological examination during January 2004 to December 2009 i.e. 6 years duration. All thyroid neck swelling was examined for cytopathology. The maximum 70(22.15%) cases were presented and examined during year 2006. Out of total 316 cases 250(79.11%) were females and 92 (29.11%) cases were belonging to age interval 21-30 years. The mean age of total cases is 34.5±14.4. The majority of cases of thyroid swelling were diagnosed as goiter i.e. 111(35.13%). Based on these observations, although thyroid swelling is quite a common problem among patients attending medicine OPD in the hospital and among these cases goitrous thyroid is more common but thyroid malignancy is not a major issue as observed in the present study. However among thyroid malignancies, papillary thyroid carcinoma (PTC) is the most common histological type of malignancy.

Key words: *Thyroid swellings, Goitre, Thyroid cancer*

INTRODUCTION

The worldwide prevalence of goitre in the general population is estimated 4 to 7 percent and the incidence of malignancy in goitrous thyroid is about ten percent[1]. It was estimated in the United States in 2004 that there will be approximately 20,000 new cases, and 1,460 thyroid cancer deaths[2].

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Among thyroid malignancies, papillary thyroid carcinoma (PTC) is the most common malignant tumour of the thyroid gland, accounting for 85% of all thyroid cancers[3]. An increased incidence of thyroid carcinoma has been noted in endemic goitre regions such as Columbia and Austria as well as in non-endemic goitre regions such as Iceland and Germany. It was also noted that follicular thyroid carcinoma (FCA) and anaplastic thyroid carcinoma (ANA) occurred more frequently in endemic goitre regions than in goitre-free areas. This implies that highly aggressive thyroid cancer prevails in countries with endemic goitre [4,5].

According to the World Health Organization (WHO), at least 1.6 billion people are at risk of iodine deficiency disorders (IDD). Among these,

655 million are affected by goitre, 27% of whom are in Southeast Asia, followed by the Western Pacific countries[6]. Based on the certain studies it can be postulated here that goitrous thyroid is a precursor lesion to the development of malignant thyroid diseases[7-9]. In the present study we will study the cases with thyroid swelling attending the OPD of a tertiary care hospital for six year duration with following aims and objectives

1. To find out the annual frequency of cases with thyroid swellings among OPD attending patients in the tertiary care hospital.

2. To find out the age and gender preferences of thyroid swellings.

3. To study the cyto-pathology of thyroid swellings and malignancies of thyroid.

MATERIALS AND METHOD

A retrospective study was carried out on 316 cases of thyroid swelling attending the OPD of Tertiary Care Hospital of Bilaspur district of Chhattisgarh State. Confirmatory diagnosis by cytological examination made in the Department of Pathology of Tertiary Care Hospital of Bilaspur district of Chhattisgarh State during the period of January 2004 to December 2009. All data was analyzed by SPSS 11.5 version software.

RESULTS

Total 316 thyroid swelling cases were examined for cytological examination during 6 years from January 2004 to December 2009. All thyroid neck swellings was examined for cyto-pathology in the department of Pathology. Out of total cases during 6 years of study period the maximum 70 (22.15%) cases with thyroid swellings were attended OPD during year 2006 followed by 57 (18.04%), 50 (15.82%), 48 (15.19%), 47 (14.87%) and 44 (13.92%) during year 2007, 2004, 2008, 2009 and 2005 respectively [Table1].

Table1: Annual distribution of cases of thyroid swellings confirmed by Cyto-pathology

YEAR	Frequency	Percentages
2004	50	15.82
2005	44	13.92
2006	70	22.15
2007	57	18.04
2008	47	14.87
2009	48	15.19
Total	316	100

Majority of cases i.e. 92 (29.11%) cases were belonging age interval of 21 to 30 years. The mean age of total cases was 34.5±14.4. Followed by age groups of 31-40 years with 78 (24.68%), 41-50 years with 58 (18.35%), 11-20 years with 43 (13.61%), 51-60 years with 23 (7.28%), 61-70 years with 11 (3.48%), 0-10 years with 9 (2.85%) and 71-80 years with 2(0.63%). Therefore it was concluded that the highest prevalence of thyroid swelling cases occurred in the age group 21-30 years while the lowest prevalence occurred in the age group 71-80 years [Table2].

Table2: Age Group distribution of confirmed cases of thyroid swellings

Age interval	Frequency	Percentages
0-10 years	9	2.85
11-20 years	43	13.61
21-30 years	92	29.11
31-40 years	78	24.68
41-50 years	58	18.35
51-60 years	23	7.28
61-70 years	11	3.48
71-80 years	2	0.63
Total	316	100

On Cyto-Pathological diagnosis of total cases of thyroid swellings in majority of cases goiter was confirmed in 111 (35.13%) cases in which 96 (86.49%) were females and 15 (13.51%) were males. Thyroiditis was the next common pathology in 72 (22.78%) cases with 66 (91.67%) females and 6 (8.33%) males distribution. In the third common pathology 60 (18.99%) cases were confirmed having Cystic lesions out of which 27 (45.00%) were males and 33 (55.00%) were females ,followed by Suspicious pathology, Malignancies, Secondaries and inadequate sample material with female and male distribution of the cases respectively [Table3].

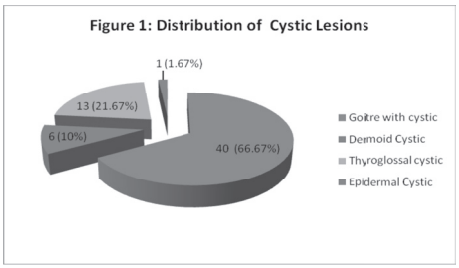
Out of all the 316 thyroid cases records retrieved and analyzed of during years 2004 to 2009, sixty six cases (20.89 percent) were male and

250 (79.11percent) were female. During six years of study period out of total cases 250 (79.11%) cases were females hence thyroid swellings were more frequent in females [Table3].

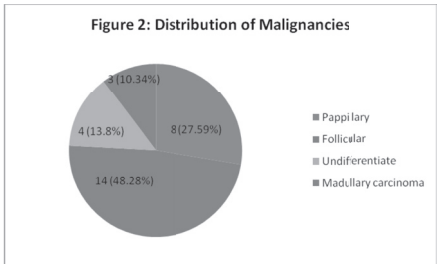
Table 3: Cyto Pathology and Gender distribution of thyroid swellings

TYPE OF DIAGNOSIS	SEX				Total	
	Male		Female			
	No.	Percentage	No.	Percentage	No.	Percentage
Cystic lesion	27	45.00	33	55.00	60	18.99
Goitre	15	13.51	96	86.49	111	35.13
Malignancy	8	27.59	21	72.41	29	9.18
Suspicious	8	22.22	28	77.78	36	11.39
Thyroiditis	6	8.33	66	91.67	72	22.78
Secondaries	2	40.00	3	60.00	5	1.58
Inadequate	0	0.00	3	100.00	3	0.95
Total	66	20.89	250	79.11	316	100.00

Out of total 60 cases with cystic lesion after cyto-pathological examinations further group into their pathological types i.e. Goitre awith cystic 40 (66.67%), Thyroglossal cystic 13 (21.67%), Dermoid Cystic 6 (10.00%), Epidermal Cystic 1 (1.67%) cases **[Figure1].**



Similarly out of total 29 cases of malignancies grouped into Follicular 14 (48.28%), Pappillary 8 cases (27.59%), Undifferentiate 4(13.8%), Madullary carcinoma 3 (10.34%) **[Figure2].**



DISCUSSION

The problem of iodine-deficiency induced goitrous thyroid swelling is one of the world's most important health problem. The Universal Salt Iodization programme was meant to be a major slogan to solve this problem. While focusing on this issue, it is the duty and responsibility of healthcare professionals to be aware of the consequences of increased iodine intake which could probably result in either iodine-induced thyrotoxicosis or thyroid cancers[10]. Thyrotoxicosis is transient and of less significance, while thyroid cancer requires early detection and treatment[10].

From our observation in this six-year study, only 21(6.7%) cancer cases were detected out of the 316 goitrous thyroid cases. This figure is lower than that noted by Pacini and DeGroot in 2001, where they observed the incidence of thyroid malignancy among goitrous thyroid cases to be as high as 10%[1]. A higher incidence of cancer at 26.4% was also observed in a three-year study done in Myanmar[11]. Thus, although Sarawak (Singapore) has a high prevalence of goitrous enlargement, the incidence of thyroid malignancy is not as high as the other comparative studies[12].

From the Myanmese study, it was observed that there was a high incidence of thyroid cancer in the age range between 21 and 60 years, in both follicular and papillary patterns[11]. For the study in Sarawak, it was found that a high prevalence of IDD was present among women of child-bearing age, i.e. 15–44 years, and the prevalence of the disorder ranged from 60%–90% depending on the area of study[12-14].

In our study, the prevalence of goitrous thyroid swelling was 53.79% and 25.63% in the age range 21–40 years and 41–60 years, respectively. However, the incidence of cancer was observed to be highest for the > 60 years, compared to that for age groups 21–40 years and 41–60 years. Although this finding is not statistically significant, a further study in age prevalence would be interesting in terms of explaining the immunity against malignancy in the elderly age group.

CONCLUSION

Based on our observations, although goitrous thyroid swelling is quite a common problem in the region but thyroid malignancy is not a major issue. Among thyroid malignancies, papillary thyroid carcinoma (PTC) is the most common histological type of malignancy.

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A Study on Prevalence of Meningitis in Children in Medical College & Hospital, Kolkata

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ABSTRACT

Background: Meningitis in children constitutes a formidable illness due to its high morbidity and mortality. The etiological agents and other associated epidemiological factors contributing to its occurrence and prognosis varies from place to place. Identification of these factors is crucial for the control of this important

health problem. This record-based observational study was conducted in Medical College & Hospital Kolkata, India. The objectives of the study were to identify the socio-demographic profiles, etiological types and nutritional status of the meningitis cases admitted in Pediatric Medicine department of Medical College & Hospital, Kolkata during the last three years; and to find out the duration of hospital stay, case fatality rates and seasonal variations in different types of those cases.

Materials and Method: The available records of all the meningitis cases admitted in pediatric medicine department of the Institution from January 2009 to December 2011 were studied. The variables included were age, sex, religion, residence, nutritional status, etiological type, duration of hospital stay, case fatality rate (CFR) and seasonal variation. The collected data were analyzed with appropriate statistical methods.

Results: A total of 326 meningitis cases in the age group below twelve years comprised the study population. Among the cases 27.91% were infants and 44.17% were below three years of age. The majority of the cases were male (60.43%), Hindu (64.42%) by religion and rural (74.23%) by residence. Regarding the etiology 57.37% of the cases were tubercular and 34.66% were pyogenic. Among those who survived (224), the overall prevalence of undernutrition was 66.52%; a significantly higher proportion of undernutrition was observed in tuberculous meningitis (75.59%) compared to that among pyogenic meningitis (54.16%). For 59.06% of tuberculous and 57.32% of pyogenic cases the hospital stay was between 1-2 weeks. The overall case fatality rate (CFR) was 31.29%. Compared to viral meningitis, the CFR was significantly higher both in pyogenic and tuberculous meningitis. Some seasonal variation was also observed with two peaks in case of pyogenic and four peaks in case of tuberculous meningitis.

Conclusion: It can be concluded that case fatality rate was quite high in pyogenic and tuberculous meningitis even in this era of modern medicine. Higher proportion of patients from rural locations and a high proportion of undernutrition among the cases point to socio-economic impacts on the disease.

Keywords: *Meningitis, Undernutrition, Case fatality rate, Seasonal variation.*

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INTRODUCTION

The word 'meningitis' usually describes inflammation of the meninges owing to infection with agents like bacteria, virus, fungi or protozoa.

Acute meningitis may be caused by bacteria or virus; whereas, sub-acute or chronic meningitis are usually caused by mycobacterium tuberculosis, fungi or parasites. Viral meningitis is rarely severe and children tend to make a complete recovery, whereas bacterial meningitis can have a rapid onset, leading to death and serious neurological sequelae[1]. The global burden of the disease is high. Apart from epidemic, at least 1.2 million cases of meningitis are estimated to occur every year with 135000 deaths.[2] Incidence of bacterial meningitis is quite high despite improvement of treatment[3] with the great majority of cases occuring under the age of 5 years, and infants being particularly vulnerable [4]. Lack of proper diagnostic facilities, difficulties in culturing the organism, lack of awareness among the people and indiscriminate use of antibiotics may lead to wrong estimation of the true incidence of the actual disease burden. Various factors that determine the outcome of the disease are age, time taken in diagnosis & initiation of treatment, duration of treatment and type of microorganism.[5]

Incidence of meningitis may vary from place to place and from country to country due to population susceptibility, introduction of new strains and different environmental, socio demographic and immunological factors. Understanding the relationship between these factors and the disease is the key for identification of high risk groups/ areas and thus in taking specific strategies to prevent its occurrence and reduce morbidity and mortality. So the present study was undertaken with the following objectives:

(1) To identify the socio-demographic profiles, etiological types and nutritional status of the meningitis cases admitted in Pediatric Medicine department of Medical College & Hospital, Kolkata during the last three years (January 2009 to December 2011); and

(2) To find out the duration of hospital stay, case fatality rates and seasonal variations in different types of those cases.

MATERIALS AND METHOD

This observational record based study was conducted in Medical College & Hospital, a tertiary care hospital located in Kolkata. The total number of beds in the pediatric medicine department is 85; and the average number of yearly admissions in the department of pediatric medicine is 5,250.

The techniques used for data collection was study of records of the diagnosed meningitis cases admitted in the Pediatric Medicine department, from January 2009 to December 2011 (preserved in the records section). The records of all such cases were included in the study. Tools used were pre-designed and pre-tested schedule and weight for age chart for Indian children [6,7]. The variables included were age, sex, religion, area of residence (rural / urban), nutritional status, etiological types of meningitis, duration of hospital stay, case fatality rate and seasonal variation. After obtaining ethical clearance from the institutional ethics committee, the registrar of the hospital record section was communicated and all the available records of the meningitis cases were studied. The cases that were admitted and discharged from the hospital as cured or discharged on risk bonds were recorded in a set of registers; whereas, the information about the cases that died after admission were recorded in separate death registers. Nutritional status of the children was assessed by using the weight for age criterion. In this study undernutrition was defined as weight for age of a child less than 3rd percentile of the sex specific weight for age of Indian children[6,7,8]. As because the bed head tickets of the death cases were not retrievable from the record section their body weight could not be studied and assessed for nutritional status. So the analysis of nutritional status was restricted to only those meningitis patients who survived the attack. The data collected were analyzed and tabulated using frequency distribution tables as proportions/ percentages and suitable diagrams. Suitable statistical tests were applied wherever applicable.

RESULTS

The records of 326 meningitis cases, in the age group from 0 to 12 years (admitted in the last three years) were studied.

Table 1 shows that out of 326 cases 197 (60.43%) are male; 91 (27.91%) are infants; 184 (56.44%) belongs to age group under five years; 144 (44.17%)

belongs to under three years; and 110 (33.74%) belongs to 5-9 years. By religion, 210 (64.42%) are Hindu; and by residence 242 (74.23%) are residents from rural areas.

Table 2 reveals that among all the meningitis cases in the last three years, the majority (57.37%) are tuberculous and 34.66% are pyogenic by etiological type. The viral/aseptic type of meningitis comprises only 7.97% of cases. Among all cases in last three years, the proportion of tuberculous cases is more than the other types in all the years. The total number of cases admitted (all types) is much more (154) in the year 2008 compared to 2009 (114) and 2010 (58).

Out of 326 cases of meningitis, 102 children died after admission and the record of their body weights was not available. So, the nutritional status was assessed for the 224 survivors.

Table 3 shows that among the tuberculous meningitis cases, as high as 75.59% cases are undernourished. Among the other types, undernutrition is present in 54.16% of the pyogenic and 56.00% of the viral/aseptic cases. It is revealed that proportion of undernutrition among tuberculous meningitis (TBM) cases is significantly higher than that among pyogenic meningitis cases ($p<0.01$). Study of undernutrition among the cases shows that the majority (149 out of 224) of the cases are undernourished (overall prevalence 66.52%).

Table 4 reveals that for 59.06% of the tuberculous and 57.32% of pyogenic meningitis cases, duration of hospital stay is between 1 – 2 weeks. Hospital stay for more than two weeks is proportionately much higher in Tuberculous type (26.77%) compared to pyogenic (14.63%) and viral/aseptic type (4%).

Table 5 shows that the overall case fatality rate (CFR) in meningitis is 31.29%. However, by etiological types the CFR is the highest in pyogenic meningitis (36.28%), closely followed by tuberculous type (32.08%). CFR is only 3.85% in case of viral/aseptic meningitis. Compared to viral meningitis, the CFR was significantly higher both in pyogenic ($p<0.001$) and tuberculous meningitis ($p<0.001$).

Figure 1 shows that some seasonal variation is there in different types of meningitis. For the pyogenic type two peaks are observed - in June and in September; for the tuberculous type (TBM) multiple peaks are observed - in January, March, May and August; whereas for viral/aseptic type peaks are less conspicuous.

DISCUSSION

The present study revealed that 44.17% of meningitis cases were below three years of age and the majority were males which is consistent with the study done by Amir et.al [9]. However, no sex difference in the attack rate of bacterial meningitis among children was observed in two other studies [10, 11].

Considering etiological type, 57.37% of the meningitis cases were tuberculous meningitis, 34.66% were of pyogenic and 7.97% were viral/aseptic type. Contrary to this observation, in a hospital based study from 5 administrative areas of an Indian district (Vellore, Tamil Nadu) smaller proportion of bacterial meningitis (18.56%) [12] were reported. Smaller proportion of bacterial meningitis was also reported in another study [13]. These differences in proportions of different etiological types might be due to the differences in the age group of the study population, their race, ethnicity, case definition, nutritional status, health care seeking behavior, immunization coverage against the important bacterial agents, difference in hospital admission etc.

The present study found that overall 66.51% of the meningitis patients were undernourished. Elizabeth R. Reyes[14] reported similar proportion of under nutrition among meningitis patients. In the present study undernutrition was found significantly higher in children with tuberculous meningitis compared to pyogenic cases ($p<0.01$). Similar to our study Mitra et. al [15] also observed significant association between undernutrition and meningitis in Bangladesh. It suggests that under nutrition might be a contributory factor of meningitis, though in another study no association between meningitis and malnutrition was noted[16].

In the present study the overall Case Fatality Rate (CFR) was found to be 31.29%. The CFR

observed was highest among pyogenic meningitis (36.28%), closely followed by Tuberculous meningitis (32.08%); and only 3.85% in Viral/ Aseptic meningitis. In a study in Pondicherry, South India, Sahai et.al[17] found that case fatality rate was 25% among Bacterial meningitis cases. Contrary to our study, case fatality for bacterial meningitis varied between 2.2% to 9% as observed in different studies[18,19,20] This differences might be due to differences in the study population, virulence of the infecting organisms, severity of cases, the time of initiation of treatment and the quality of care.

We observed four seasonal peaks spread over the year in the incidence of tuberculous meningitis. However in case of pyogenic meningitis there were two peaks; one in summer and other in post monsoon months. Such seasonal variation was unapparent in case of viral/aseptic meningitis. Amir et.al [9] noted seasonal variation in pyogenic meningitis with the peak in winter months; whereas for viral meningitis peak in the summer months were reported in different studies[21,22]. This reflects that different pattern of seasonal variation of meningitis was observed in different studies. The reasons might be the differences of environmental conditions in different study areas.

Some variables could not be studied due to non-availability of some records in this record based study. As it is hospital based study, the information obtained may not reflect the actual situation in the community settings. So more studies (preferably community based studies or prospective studies in hospital settings) need to be conducted. This will enrich our knowledge and understanding on many areas, and thus help in reducing this important disease burden.

Figure 1: Seasonal variation of meningitis cases (monthly cumulative numbers) (n=326)

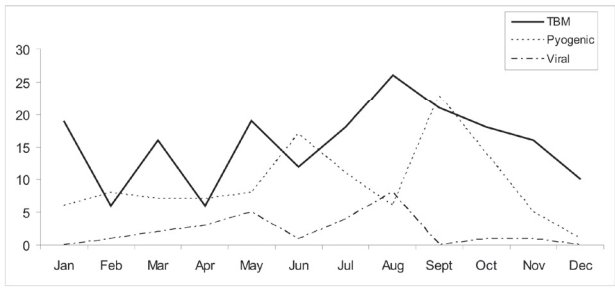

Table No.1: Socio-demographic profiles of the study population: (n=326)

A. Distribution by age and sex				
Age	Sex			
	Male (n=197)		Female (n=129)	
	No	%	No	%
0-11 months (n=91)	56	17.18	35	10.74
12-23 months (n=32)	16	4.91	16	4.91
24-35 months (n=21)	14	4.29	7	2.15
36-47 months (n=31)	22	6.75	9	2.76
48-59 months (n=9)	4	1.23	5	1.53
5-9 years (n=110)	66	20.24	44	13.49
10-12 years (n=32)	19	5.83	13	3.99

B. Distribution by religion		
Religion	No	%
Hindu	210	64.42
Muslim	116	35.58

C. Distribution by residence		
Residence	No	%
Rural	242	74.23
Urban	84	25.77

Table-2: Etiological types and year wise distribution of meningitis cases (n=326)

Etiological Types of meningitis cases	Years			
	2008	2009	2010	Total
	No. (%)	No. (%)	No. (%)	No. (%)
Tuberculous	82 (53.25)	78 (68.42)	27 (46.55)	187 (57.37)
Pyogenic	58 (37.66)	33 (28.95)	22 (37.93)	113 (34.66)
Viral/ Aseptic	14 (9.09)	3 (2.63)	9 (15.52)	26 (7.97)
Total	154 (100)	114 (100)	58 (100)	326 (100)

Table- 3: Distribution of the study population according to types of meningitis and nutritional status of the cases [n=224].

Types of meningitis	Undernutrition		Difference of Undernutrition
	Present	Absent	Z / p
(a) Tuberculous meningitis (n=127)	96(75.59%)	31(24.41%)	(a) vs. (b): 3.06/<0.01
(b) Pyogenic Meningitis (n=72)	39(54.16%)	33(45.83%)	(b) vs. (c): 0.16/0.8728
(c) Viral/Aseptic Meningitis (n=25)	14(56.00%)	11(44.00%)	(c) Vs. (a): 1.84/0.0658

Table-4: Duration of hospital stay of meningitis cases (n=224)

Duration of hospital stay (Weeks)	Tuberculous meningitis (n=127)	Pyogenic meningitis (n=72)	Viral/Aseptic meningitis (n=25)
	No. (%)	No. (%)	No. (%)
< 1	18(14.17%)	23(28.05%)	12(48.00%)
1 to 2	75(59.06%)	47(57.32%)	12(48.00%)
2 to 3	27(21.26%)	07(8.54%)	1(4.00%)
≥3	7(5.51%)	05(6.09%)	0(0.00%)

Table- 5: Distribution of the meningitis cases by etiological type and Case Fatality Rate (CFR) (n=326).

Etiological Types admitted	Died	CFR	Difference of CFR Z / p
(a) Tuberculous meningitis(n=187)	60	32.08%	(a) vs (b): 0.743/ 0.4592
(b) Pyogenic meningitis (n=113)	41	36.28%	(b) vs (c): 5.534/ <0.001
(c) Viral/aseptic meningitis (n=26)	1	3.85%	
Total (n=326)	102	31.29%	(c) vs (a): 5.546/ <0.001

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Conflict of Interest: Nil

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National Rural Health Mission (NRHM) & Health Status of Odisha:

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ABSTRACT

To improve the prevailing situation, the Government of Odisha launched the National Rural Health Mission (NRHM) programme through the state on 17th June 2005. NRHM has completed its six years of journey in Odisha. It becomes necessary to assess the impact of NRHM on the health infrastructure and on the health indicators and to analyze the determinants of health status in the health development of Odisha. The study is only based on the secondary data. The collected data are analyzed with the help of MS-WORD and Excel. The study shows that the health status of study area is very poor and is gradually increasing as a result of the implementation of NRHM and the staple reasons for this tendency are: low income, illiteracy, shortage of doctors, unwillingness doctors to go to remote areas and lack of health care facilities and lack of production of laboratory technicians and radiographers.

Keywords: *Health Infrastructure, Health Indicators, Health Status & NRHM*

INTRODUCTION

From a social point of view, good health is a pre-requisite for human productivity and the development process. It is essential to economic and technological development. Individually, health is a man's greatest possession, for it lays a solid foundation for his happiness.

Improvement in health would make a positive impact on economic development. Better health can increase the number of potential man hours for production by reducing morbidity and disability as well as by reducing mortality. Therefore, promotion of good health must be a prime objective of every country's development programmes. It is a precursor to improve the quality of life for major portion of mankind. The preamble to the WHO constitution also states that the enjoyment of highest attainable standard of health is a fundamental right of every human being and those governments are responsible for the health of their people and that they can fulfill that responsibility of taking appropriate and social welfare measure. Health has found an important place in the constitutions of all nations of the world.

Therefore, both developed and developing countries have started paying adequate attention on improving the health status of people in the last three decades or so. A considerable portion of the Gross Domestic Product (GNP) has been earmarked for health promoting activities and health care represented by the number of medical institutions, medical personnel and availability of medicines. Governments everywhere formulated and implemented a variety of policies in the sphere of health promotion.

Taking into account the above facotors, **National Rural Health Mission**[1] was launched by the Hon'ble Prime Minister Dr Manmohan Singh in New Delhi on 12th April 2005 in the country, with a special focus on 18 states including Odisha. It seeks to provide universal access to equitable, affordable and quality health care which is accountable and responsive to the need of the people, reduction of child and maternal deaths as well as population

stabilization, gender and demographic balance.

1.1 Statement of the problem

Odisha, the poorest states of the country is vulnerable to repeated natural calamities like droughts, floods and cyclones. The recurring natural calamities further exacerbate distress of the people, particularly small and marginal farmers and landless laborers. The agrarian structure predominated by small and marginal farmers whose capacity to invest is limited. The poor agricultural productivity resulted in virtually stagnant agricultural growth and employment generation. That, further, has an adverse effect on the health status of the people. Deficient in infrastructure- railways, paved roads, ports and telecommunication-limits the optimal exploitation of its vast natural resources and the followed industrial growth. On the other hand poor infrastructural development in hilly terrains of western and southern Odisha, many rural communities are physically excluded from the rest of the state and denied access to essential socio-economic amenities like schools and hospitals. As a result of which birth rate, death rate, infant mortality rate, life expectancy rate, maternal mortality ratio, total fertility ratio etc. lags behind the national average. To improve the prevailing situation, the Government of Odisha launched the National Rural Health Mission (NRHM) programme through the state on 17th June 2005.

NRHM has completed its six years of journey in Odisha. It becomes necessary to assess the impact of NRHM on the health indicators, to know how the schemes under NRHM are working in Odisha and to assess the transition in the health status of Odisha. This dissertation is an attempt in this broad direction of evaluation of NRHM.

1.2 Objectives of the Study

In the light of the above problem setting, the following objectives are framed for the present study.

1. To analyze the impact of NRHM in terms of health infrastructure in Odisha.
2. To analyze the trends in the health indicators in Odisha after the implementation of NRHM
3. Determinants of health status in the health development of Odisha

1.3 Methodology

The study is purely based on the secondary data. The data are analyzed through Ms-word and Excel. The data are obtained from Economic Survey of Odisha, Ministry of Statistics and Program Implementation and Economic Survey of India.

1.4 Scope of the Study

The study only takes into account the secondary data. Primary data are ignored for the present study.

REVIEW OF LITERATURE

This section provides a review of related studies and these are reviewed in the light of the objectives of the study spelt out earlier.

Rani Gopal (1987)[2] examined the paramount role played by human capital in a country's economic development. she emphasizes that human resource development particularly in developing countries like India, goes a long way in both accelerating the tempo of economic activity and in promoting the welfare of the people the author has attempted to access the health status and nutritional status of two important indicator of human resource development of the people in Andhra Pradesh during the study period(1961-1974) using time series data .her analysis reveals that there has been no improvement in the health status but only a decline as pointed out by a substantial status of health and nutrition.

Ramesh Bhat and Maheswari (2004)[3] concluded that the health facilities provided by any private company depends on its profit and its financial status. Like the private company, the facilities provided by the government also depend on its budget allocation which further depends on the financial soundness of the government.

Debabar Banerji (2005)[4] revealed that MOHFW has used some catchy terms such as "Accredited Social Health Activist, Rogi Kalyana Samiti, Public Private Partnership, and Health Planning starting

at the village and district levels, state and national levels and so on." He also explained that the government should learn from the past experience. In the past, Community Health Volunteer Employment showed a gloomy picture as per the ICHI report. Similarly the introduction of ASHA will be fruitless unless and until they would come up with an aim to make a healthy and prosperous India.

3. Impact of NRHM in terms of health infrastructure in Odisha

3.1 Number of Sub Centers, PHCs and CHCs Functioning:

Table-1

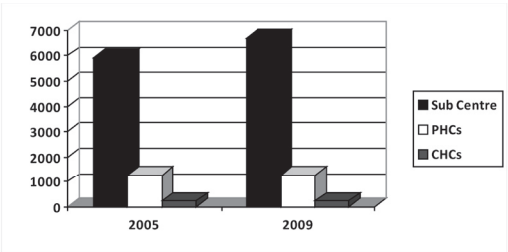
Year	Odisha			All India		
	Sub Centre	PHCs	CHCs	Sub Centre	PHCs	CHCs
2005	5927	1282	231	146026	23236	3346
2009	6688	1279	231	147894	23391	4510

Source- Sample Registration System by GOI

From the above table, it is clear that in the year 2005 when NRHM launched, there were 5927 sub-centres, 1282 PHCs and 231 CHCs operated in Odisha. In the year 2009, the number of sub –centre and PHCs increased to 6688 and 1279 respectively and there is no increase in CHC in Odisha during the period 2005-2009. At all India level the PHCs, CHCs and Sub-centre also increased during the year 2005-2009.

3.2 Sub-Centres, PHCs and CHCs in Odisha

Chart-1

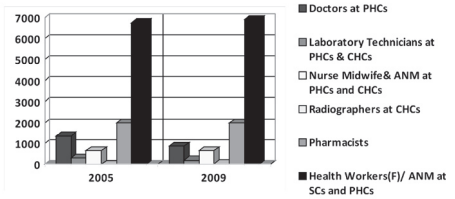


In the above chart it is found that Sub-Centres, PHCs and CHCs have been increased from the year 2005 to the year 2009 after the implementation of NRHM in Odisha.

Similarly, appointment of Doctors at PHCs, Laboratory Technicians at PHCs and CHCs, Radiographers at CHCs, Pharmacists and Health Workers (F)/ANM at SCs and PHCs after the implementation of NRHM in Odisha is shown in the following graph.

3.3 Doctors, MPHW (F), Laboratory Technicians, Pharmacists, Radiographers, Pharmacists and Nurse Midwife & ANM at PHCs and CHCs

Chart-2



In the above chart, it is seen that the appointment of Health Worker (F)/ANM, Nurse Midwife, Radiographers and pharmacists at SCs and PHCs have increased from 2005 to 2009 after the implementation of NRHM in Odisha. But, there is a reduction in the presence of lab technicians

and doctors from 2005 to 2009 because of the standardization of health system in Odisha.

3.4 Increase in Hospital Bed Strength in Government Institutions 2005to 2009 at CHC level (PHC beds are not included):

Table-2

Sl. No	State/year	2005	2009
1.	**Odisha**	13,146	14,763
2.	**India**	4,69,559	5,40,328

Source: National Health Profile 2008 and 2009, Progress under NRHM (As on 31.01.2010

From the above table, it is found that Hospital Bed Strength in Government Institutions over the period 2005 to 2009 at CHC level (PHC beds are not included) has been increased from 13,146 in 2005 to 14,763 in the year 2009 in Odisha. At national

level in total, the number of Hospital Bed Strength in Government Institutions over the period 2005 to 2009 at CHC level (PHC beds are not included) has also been increased from 4,69,559 in 2005 to 5,40,328 in the year 2009.

3.5 State wise Funds Released and Expenditure under NRHM Programme Flexi- pool in India from 2005-2010:

Table-3

Years	Odisha		India	
	Released Rs. In crores	Expenditure Rs. In crores	Released Rs. In crores	Expenditure Rs. In crores
2005-2006	59.32	6.98	961.74	41.35
2006-2007	66.91	41.31	2069.12	475.49
2007-2008	107.43	36.5	3149.97	1526.85
2008-2009	123.44	65.7	2597	3256.08
2009-2010	151.2	257.7	3378.37	4658.12

Source- Sample Registration System by GOI

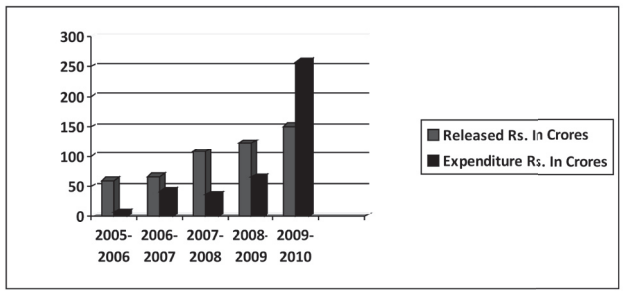
In the above table, it is seen that as the state wise released funds increases under NRHM Flexi-pool in India from 2005-2010, so also the expenditure in Odisha and at all India level also have been increased for the improvement of the health status of the people in terms of reducing IMR, TFR, MMR, crude birth rate and crude death rate. In the year 2005-06, Rs.59.32 crores was released under NRHM Flexi-pool in India for Odisha but because of the inefficiency of the governmental body, the Odisha government was able to spend only RS.6.98 crores. But in the year 2009-2010, the case was just opposite, the total released funds (Rs.151.2 crores) under NRHM Flexi-pool in Odisha falls short of the actual expenditure (Rs.257.7crores) in Odisha. In case of all India level the same case is found.

In the year 2005-06, Rs.961.74 crores was released under NRHM Flexi-pool in India for all states (18) but because of the inefficiency of the governmental body, the government was able to spend only RS.41.35 crores. But in the year 2009-2010, the case was just opposite, the total released funds (Rs.3378.37crores) under NRHM Flexi-pool in Odisha falls short of the actual expenditure (Rs.4658.12 crores) in India.

3.6 Released Rs in crores and Expenditure in Rs crores in Odisha over the Period 2005-2010

In the above chart it is clear that over the period 2005-2010, substantial amount of money is being released by the government and the expenditure out of the released amount is also incurred for the development of the health status of the people of Odisha.

Chart-3



INDICATORS OF HEALTH IN ODISHA

Table-4

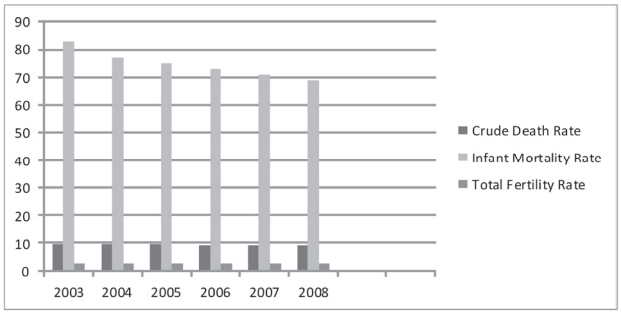
S L . No	Indicators of Health Progress	2003	2004	2005	2006	2007	2008
1.	Crude Death Rate	9.7	9.6	9.5	9.3	9.2	9.0
2.	Infant Mortality Rate	83	77	75	73	71	69
3.	Total Fertility Rate	2.6	2.7	2.6	2.5	2.4	2.4

Source- Sample Registration System by GOI

From the table-4, it is clear that the crude death rate, infant mortality rate has been reducing over the period 2003 to 2008. The CDR was 9.7 in the year 2003 which reduced to 9.6, 9.5, 9.3, 9.2 and 9.0 in the year 2004, 2005, 2006, 2007and 2008 respectively in Odisha Similarly, the IMR was 83 per 1000 live birth which reduced to 75 and further to 69 in the year 2005 and 2009 respectively in Odisha. The TFR is also reducing over the periods. In the year 2003, the TFR was 2.6 which reduced to 2.5 in the year 2005 and further reduced to 2.4 in the year 2008 in Odisha.

4.1 Indicators of Health Status in Odisha during the period 2003-2008

Chart-4



In the above graph (chart-4), it is clear that CDR, IMR & TFR are declining over the period 2003-2008. This shows the impact of NRHM in the development of the health status of the people of Odisha in terms of the reduction in CDR and IMR.

5. Determinants of Health Status in the Health Development in Odisha:

There are mainly three determinants in the health development in Odisha. These are discussed below:

6.1 Shortage of Doctors

The problem of shortage of doctors in Odisha is very acute. It is because of the reason that in Odisha, there are only three medical colleges and they are not producing pediatricians, obstetricians, and anesthesia. Thus, there is a shortage of doctors in the field of pediatrics, obstetrics and anesthesia. Therefore, shortage of doctor is one of the determinants of health status in the health development of Odisha.

6.2 Unwillingness of Doctors to work in rural and tribal areas

The physical and social infrastructure of rural and tribal area is very poor. Roads, housing, telecommunications, schools are not well developed in the rural and tribal area of the state. As a result of which doctors are less interested to go to rural and tribal area of Odisha.

6.3 Lack of employment of Radiographers and Laboratory technicians

The number of students opting radiographers and laboratory technicians is very less in Odisha. As a result of which the government of Odisha is facing man power shortage which creates problems in the health status improvement of the people of Odisha.

Thus, the Government of Odisha should keep

a keen observation towards the above stated determinants in the development of health status of the people of Odisha.

MAJOR FINDINGS OF THE STUDY

The major findings of the study are as follows:

Major Findings of the Study:

The major findings of the study are as follows:

1. NRHM is working smoothly in these study areas. But, more funds are needed for the successful implementation of the program. Paucity of fund is the main obstacle in the successful operation of the program.

2. Rogi Kalyana Samiti (RKS) and Janani Suraksha Yojana (JSY) are also successfully operating in these study areas.

3. After the implementation of NRHM, the health indicators are also showing good trend.

4. In Odisha, 314 CHCs are required for the existing population. But only 231 CHCs are now running in Odisha.

5. The appointments of Health Worker (F)/ANM, Nurse Midwife, Radiographers and pharmacists at SCs and PHCs have increased from 2005 to 2009 after the implementation of NRHM in Odisha. But, there is a reduction in the presence of lab technicians and doctors from 2005 to 2009 because of the standardization of health system in Odisha.

CONCLUSION

The study shows that the health status of study area is very poor and is gradually increasing as a result of the implementation of NRHM and the staple reasons for this tendency are: low income, illiteracy, shortage of doctors, unwillingness doctors to go to remote areas and lack of health care facilities and lack of production of laboratory technicians and radiographers.

POLICY RECOMMENDATIONS:

Though there has been a significant improvement in the health status of the people, some possible strategies for adoption by the state to improve the health status further have been suggested below.

- Both the government organizations and non-government organization should put their combined effort to bring reforms in the health system in the rural areas of Odisha.
- Free education up to higher secondary level should be given to SC and ST people.
- NGOs along with ASHAs and AWWs should spread the health awareness among the illiterate people of the region.
- The procedure of selection of ASHA in each village should be strictly undertaken by the district level persons.

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Peripartum Cardiomyopathy in Active Labour: a Case Report

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ABSTRACT

Peripartum Cardiomyopathy (PPCM) is a rare form of cardiac disease presenting in a gravid women in the last month of pregnancy or in the first five months of delivery. In this case report we describe a young second gravida with full term pregnancy with previous lower segment caesarean section, in active stage of labour that was evaluated and considered for trial of normal labour. As the patient developed sudden onset of hemodynamic instability with foetal distress, she was shifted for emergency LSCS with the provisional diagnosis of Rupture uterus. Surprisingly this patient was eventually diagnosed as PPCM and not rupture uterus. The chest x ray showed marked cardiomegaly and echocardiography following this established the diagnosis of PPCM. Patient was on hemodynamic support with ionotrophes and ventilator support. Patient responded well and was discharged with no morbidity.

Keywords: *Active labour, Echocardiography, Peripartum Cardiomyopathy.*

INTRODUCTION

The incidence of Peripartum Cardiomyopathy [PPCM] ranges from 1:3000 to 1:15000[1].The mortality rate ranges from 25-50%[1].PPCM is defined on the basis of four criteria's:[1] development of cardiac failure in the last month of pregnancy or within five months of delivery,[2]absence of any identifiable cause of heart failure,[3]absence of recognisable heart disease prior to last month of pregnancy,[4] left ventricular systolic dysfunction demonstrated by classic echocardiography finding of left ventricular ejection fraction of less than 45%,fractional shortening of less than 30%on M-mode echocardiography ,or both,& left ventricular end diastolic volume of more than2.7cm/square metre of body surface area [2-3].

Case report

A 28yr lady G2P1L1 with term gestation, with previous LSCS, complained of labour pains of 2hrs duration, with no H/o draining or bleeding P/V. Her LMP is 25/4/11, her cycles were regular and EDD was on 2/2/12.She was married 9yrs ago, and was non consanguineous.She conceived 1st time spontaneously at 2yrs of married life, all trimesters were uneventful .She delivered by emergency LSCS for premature rupture of membranes with failed induction a alive female baby of average weight with good apgar, immunised and healthy. Post operative period was uneventful. The present pregnancy, 3yrs after previous delivery, was confirmed by urine pregnancy test She had an uneventful antenatal period without any co-morbidities .ON EXAMINATION: Patient was conscious, coherent and co-operative, moderately built &nourished, with body mass index of 21.3KG/M^2.No pallor, cyanosis, clubbing, koilonychias, pedal oedema lymphaedenopathy, & examination of breast and thyroid was normal. Vitals-pulse rate was 80/min, regular, normal volume, no radio-radial delay or radio-femoral delay. Blood pressure was 110/80 mm hg .Cardiovascular system-1st and 2nd heart sounds heard with no murmurs. Bilateral air entry present in both lung fields .P/A-uterus term gestation with 2-3contractions lasting for

30-40secs in 10mins,foetus had longitudinal lie with cephalic presentation.FHR-142/min, liquor clinically adequate, estimated foetal weight-2.5-2.8kg,suprapubic transverse scar was present with no scar tenderness. On Per vaginal examination-cervix was fully effaced, Internal os was 6-7cms dilated, bag of membranes were present, presenting part vertex at -1 station, pelvis-gynaecoid and adequate. Artificial rupture of membranes was done, clear liquor draining with no cord prolapsed, FHR-138/min. As all the criteria for Vaginal birth after caesarean- section (VBAC) was met ,she was decided for vaginal delivery. But half an hour later patient complained of uneasiness and giddiness. PR was 92/min, low volume, regular, BP-90/60mmhg, Per- abdomen-uterus acting 3-4contractions/45secs/10mins, FHR-90/min. P/V-cervix fully effaced, os-8cms, presenting part vertex at 0/ station. The patient was shifted to operation theatre for foetal distress and suspecting scar dehiscence/scar rupture to reason out for sudden hemodynamic instability and foetal distress. In O.T Oxygen[O2] saturation was82%,PR-110/min,BP-80/50mmhg.Patient was preloaded with 2 units of fluids and pre-oxygenation with100%O2 for 15 minutes then O2 saturation improved to 95%,PR-100/min, BP-100/80mmhg.Emergency LSCS was done under general anaesthesia with arrangements for blood transfusion. Per-operatively lower uterine segment was normal with no scar rupture or dehiscence, delivered an alive female of wt-3.1kg, and with good apgar on 31/1/12.There was no PPH or any other intra-operative complications. Patient was stable and O2 saturation was 96% at room air so she was extubated and shifted to ICU for closer observation. Half an hour later patients O2 saturation deteriorated to 84%, PR-116/min, BP-90/60mmhg, RR-24/min lungs-B/L crepitations were present. Even after nebulisation and other supportive measures, patient was unable to maintain saturation at room air and oxygen. So patient was re-intubated and connected to ventilator on SIMV mode with FiO2 100%. INVESTIGATIONS:ABG-respiratory acidosis, ECG-NAD .chest X-Ray-cardiomegaly with cardiothoracic ratio 70%,PT,APPT,Fibrinogen –Within normal limits,D-Dimer-3.1(N-<0.2),Serum electrolytes -normal,RFT-N,CBP-N,Platelets-1.2lakh/ml.

2D ECHO-Dilatation of all chambers, global hypo-kinesis, LVED dimension-3.2cm/m^2 mild MR, mild PAH, severe LV systolic dysfunction, ejection fraction-25% and fractional shortening of 24%.Pt was diagnosed as PPCM. Doppler USG of both lower limbs was negative for deep vein thrombosis(DVT) Patient was managed with dobutamine (5μgm/kg/ml), diuretics, levosimeda, carvedilol (3.125gmtwice daily) DVT prophylaxis(Low molecular weight heparin 40μgm/sc/twice daily and other supportive measures.

On second post op day pt was not febrile, PR-104/min, BP-90/60,heart-S1S2 +,lungs- Clear and air entry good. P/A-Uterus was involuting well, P/V-Lochia healthy, SPO2-99% at room air. Patient was extubated on 3rd postoperative day. Investigations-ABG-normal, 2D ECHO-global hypo kinesis, mildly dilated RV/LA/LV, moderate LV systolic dysfunction, mild MR /TR/PAH, Ejection fractionimproved-40%.Ionotrophs and heparin was being continued for 7days.Patient was discharged on 10th post operative day on digitalis and carvedilol .she is advised to avoid future pregnancies and to continue medical follow-up.

X-ray– gross cardiomegaly seen immediate postoperatively.

DISCUSSION

Diagnosing a rare possibility of PPCM in a patient with previous c-section in active stage who has been absolutely asymptomatic till then is difficult as generally such women presenting with

sudden onset of haemodynamic instability and foetal distress with little or no symptoms or signs of respiratory distress going in favour of rupture uterus. Since this sequence of events did occur after artificial rupture of membranes and if the respiratory distress was dominant one could also consider amniotic fluid embolism. The patient was under general anaesthesia. She was stable during the complete surgical procedure with all vitals and pulse oximetry being 95%.This apparent shift to normalcy was not understandable. The patient was extubated and was shifted to ICU for observation, then arrived the need to re-intubate as the patient was again going into similar sequence of events. The chest x-ray showed gross cardiomegaly .echo confirmed the diagnosis of PPCM. Patient improved clinically after the treatment with ionotrophes, levosimenda, carvidilol .There was improved ejection fraction and improved cardiac shadows on chest x-ray.

A number of causes have been proposed for PPCM including myocarditis, abnormal immune response to pregnancy, maladaptive response to hemodynamic stresses of pregnancy, stress activated cytokines [2]. There are reports of familial PPCM [4].The prognosis of disease can not be accurately predicted but normalisation of left ventricular size and function of the heart within 6 months has good prognosis [2 5].Digitalis, diuretics and sodium restriction, beta blockers and after load reduction is the main stay of treatment [6].Intravenous immunoglobulin may be of some benefit [7]].Persistence of disease after six months indicates irreversible damage and poor survival. Patient dies because of progressive cardiac failure arrhythmias or thrombo-embolic phenomena [1 8].Cardiac transplantation is the option in failed medical management[9]If the patient fails to recover within 6-12 months of the diagnosis then subsequent pregnancy is an absolute contraindication.

CONCLUSION

High degree of suspicion is required clinically to consider an echocardiography early and aid in the diagnosis .Timely support by medical line of drugs and ventilator support is essential. A regular follow up till the cardiac functional normalcy and structural recovery of the left ventricle is imperative within 6-12 months or else patient needs to be counselled against pregnancy to save her from grave risk of mortality.

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A Study of Anthropometric Parameters as Determinants of Birth Weight in Newborns

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ABSTRACT

Background: Birth weight and combination of different anthropometric measurements have been suggested as yardstick in evaluation of the newborns. Any data of these measurements of newborns at one place may not be applicable to other regions due to different food habits, socio-economic and environmental factors. Therefore in the present study, an attempt has been made to find out the co-relation of anthropometric measurements with birth weight. **Objectives:** On this background, the study is carried out with the objectives, 1. To find out the relationship between birth weight and other anthropometric measurements in newborns and 2. To determine whether any other anthropometric measurements can be used as a substitute for Birth Weight in identifying LBW. **Place of study:** Department of Obstetrics and Gynecology, S.C.B. Medical College, Cuttack, Orissa. **Period of study:** January 2007–June 2008. **Type of study:** Cross-sectional. **Study Population:** 200 live born babies delivered in the labor room (within 48hrs). **Results:** During 1&1/2 years study period a total of 200 live born babies were studied which comprised of 104(52%) males and 96(48%) females. The mean birth weight of males is 2679.32 ± 353.25gms and females are 2601.56 ± 347.35gms respectively. It has been found that incidence of babies weighing less than 2500gms was 32.68% and 43.74% respectively for male and female. The average mean crown heel length is 46.86 ± 2.08cms, crown rump length is 31.2 ± 2.00cms, skull circumference is 32.57± 2.05cms, chest circumference is 30.32 ± 1.83cms, abdominal circumference is 27.24 ± 2.07cms, mid arm circumference is 8.83 ± 0.71cms. **Conclusions:** The data obtained is tabulated, statistically analyzed and a positive correlation is found between them. The highest correlation of birth weight is found with Chest Circumference (r=0.93). Measurement of Chest Circumference (a simple, easy, cheap and reliable method) can be utilized to screen out high risk group (LBW) newborns in the community.

Keywords: *Birth weight, LBW, CC, SC, MAC, CRL, CHL, etc.*

INTRODUCTION

Neonatal mortality is most important health problem in developing countries. Worldwide out of 134 million Live Births per year, 23million are LBW[1]. In India the prevalence of LBW is 33%[2].

Perinatal mortality among LBW is 8 times higher than in normal wt baby[3]. 9 million neonatal deaths occur across the globe, 2% in developed & 98%in developing countries. 60% of neonatal death occurs in India alone, in which Odisha is second highest next to Madhya Pradesh.

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Birth Weight is a reliable indicator of child survival, physical growth and future mental development. Also it's a good predictor of mortality and morbidity. Three quarter of deliveries occur at home and are attended by dais and relatives. Birth Weight could not be measured due to logistic problem and paucity of weighing scales in the community set up. Early identification of LBW babies for extra essential newborn care is vital in preventing neonatal deaths. Therefore, there is a need to develop simple, inexpensive and practical methods to identify LBW newborns soon after birth. One such method may be the use of anthropometric surrogates to identify LBW babies. Studies carried out in different populations have suggested that the use of newborn anthropometric surrogates of birth weight may be a simple and reliable method to identify LBW babies in a home setting. Any data of these measurements of newborns at one place may not be applicable to other regions due to different food habits, socio-economic and environmental factors. Therefore, our study is an attempt to find out the relationship between birth weight and other anthropometric measurements in newborns in this region.

MATERIAL & METHOD

The present study entitled "Study of Anthropometric Parameters As Determinants of Birth Weight in Newborns" was designed in the Department of Anatomy, S.C.B. Medical College, Hospital, Cuttack, Odisha. The study design was Hospital based cross sectional and conducted during the period from January 2007-June 2008.

During the period of study, labor room of O&G Department, S.C.B. Medical College, Hospital, Cuttack has been visited for the purpose of research as well as the collection of data. The data were analyzed in the department of Anatomy to draw different conclusions. During the preparatory phase i.e. before going for data collection, finalization of study protocol along with the study instruments was taken up.

In this study all the full-term, singleton, live born babies with good gestational history and mothers having proper antenatal checkups and records were included. The newborns with Congenital malformation, Still born babies, Babies with multiple pregnancy, Haemolytic diseases of the newborn, maternal medical and obstetric condition likely to influence the size of the fetus such as infections, hydramnios, toxemia of pregnancy, UTI, heart disease, hypertension, diabetes mellitus, severe anemia, etc. were excluded. To ensure reliability and avoid inter-observer bias, one of the trained investigators weighed all the newborns and carried out all anthropometric measurements within 48 hours after birth. The investigator obtained informed consent from the mothers to examine their newborn. Gestational age of the newborns was obtained from the medical case file.

The ward visits were conducted twice in a week. During a single visit about 1 to 2 newborn babies were examined, those fulfilling the inclusion criteria. The data thus collected was analyzed by using SPSS soft ware package, version 12.0 and www.graphpad.ccom.

For collection of the data, a questionnaire was prepared during the preparatory phase and pre-tested on 10 study subjects in order to test the feasibility, reliability & validity of the questions while obtaining the required information. Keeping these things in mind, the questionnaire was corrected and modified till the same was finalized.

Between-gender comparisons of continuous variables were performed using student's unpaired *t*-test. Pearson's product-moment correlation coefficient was used to assess the association between anthropometric measurements.

A total 200 babies were included as study population. Birth Weight and the various anthropometric surrogates were measured to draw inference.

RESULTS: Table-I: Birth weight and Anthropometric measurements in relation to sex of babies.

Measurements	Males(104 cases)		Female (96cases)		Total (200 cases)		'p' value male vs. female
	Mean	S.D.	Mean	S.D.	Mean	S.D.	
Birth Weight(BW) (in gm)	2679.32	353.25	2601.56	347.35	2642.00	351.71	<0.001
Crown-Heel Length(CHL) (in cm)	47.17	2.18	46.53	1.92	46.86	2.08	<0.001
Crown-Rump Length(CRL) (in cm)	31.41	2.03	30.98	1.94	31.2	2.00	<0.001
Skull-Circumference (SC) (in cm)	32.81	2.10	32.32	1.98	32.57	2.05	<0.001
Chest-Circumference (CC) (in cm)	30.58	1.81	29.74	1.82	30.32	1.83	<0.001
Abdominal Circumference (AC) (in cm)	27.63	2.05	26.82	2.03	27.24	2.07	<0.001
Mid-Arm Circumference (MAC) (in cm)	8.94	0.76	8.71	0.72	8.83	0.71	<0.001

Table–I shows that the mean birth weight taking all the cases together is 2642gms (S.D.351.71) with means of 2679.32gms (S.D.353.25) and 2601.56gms (S.D.347.35) respectively for male and female infants. The study revealed that male babies have higher mean values of birth weight and other anthropometric measurements than females.

The observation of present study has been in agreement with the findings of various previous studies[5, 7&8], however different observations have been made by few other studies[9&10], who reported higher values of mean birth weight. Lower mean birth weights were also reported by some studies[11, 12, 13&14]. These variations may account for variations in socio-economical and environmental factors prevalent in different regions. The mean birth weight in the present study show much lower value than the western standards[16&17]. The high standard of living, better socio-economic status, literacy, adequate and proper care of the mother's health and nutrition, adequacy of physical and mental rest, and environmental and racial factors may account for such high values in developed countries. The incidence of LBW infants in the present series by taking the international criteria of 2500gms and less of birth weight is 38.0%. This finding is quite consistent with the findings of various workers from India and reported the incidence ranging from 23-33%[14&18]. However, this LBW rate is very high in comparison to western standard[22], who reported the incidence ranging from 3.2-7.4%. It has been also stated that the incidence of LBW babies in the present series by taking 2000gms of birth weight as criterion is similar to the western standard if their criteria of LBW would have been fixed on international standard of 2500gms or less.

The mean CHL for male and female newborn infants is 47.17cms (SD 2.18) and 46.53cms (SD 1.92) respectively. The average mean of the total is 46.86cms (SD 2.08). Various workers[11&23] from India have reported mean CHL varying from 46.03cms to 48.5cms. The present study is in conformity with them. The western standard[4] of birth length is substantially high in comparison to the present series.

The mean CRL for male and female newborn infants is 31.41cms (SD 2.03) and 30.98cms (SD 1.94) respectively. The average mean of the total is 31.2cms (SD 2.00). The result of present study

corresponds with the findings of various previous studies[11&19]. However, few studies[7&9] found higher values than this present study. Data from western countries[20] shows higher value than the present study.

The mean SC for male and female newborn infants is 32.81cms (SD 2.10) and 32.32cms (SD 1.98) respectively. The average mean of the total is 32.57cms (SD 2.05). The finding of present study corresponds well with the findings of other Indian workers[12&19], but lower than western countries[21].

The mean CC for male and female newborn infants is 30.58cms (SD 1.81) and 29.74cms (SD 1.82) respectively. The average mean of the total is 30.32cms (SD 1.83). This finding is in accordance with the findings of other Indian workers[7&12], who reported to the values ranging from 29.6cms to 32.55cms. Data from western countries[17] shows higher value.

The mean AC for male and female newborn infants is 27.63cms (SD 2.05) and 26.82cms (SD 2.03) respectively. The average mean of the total is 27.24cms (SD 2.07). This is in consistent with Indian studies[5&6]. Data from western countries[4] shows higher value than the present study.

The mean MAC for male and female newborn infants are 8.94cms (SD 0.76) and 8.71cms (SD 0.72) respectively. The average mean of the total is 8.83cms (SD 0.71). This finding is in agreement with various previous studies[5&14]. However, higher value has been reported by few previous studies[4].

Table-II: Mean anthropometric measurements according to birth weight

Birth weight(gm)	No.	CHL	CRL	SC	CC	AC	MAC
1500&less	2	38.50	25.00	27.00	23.80	21.00	7.00
1501-2000	12	42.20	28.13	28.88	26.19	22.82	7.30
2001-2500	62	45.79	29.13	30.52	29.08	25.29	8.20
2501-3000	91	47.50	32.28	33.60	30.90	28.60	9.24
3001-3500	28	49.09	33.46	35.06	32.75	29.07	9.48
3501& above	5	50.54	34.40	36.02	33.90	29.60	9.90
Total	200	46.86	31.19	32.57	30.32	27.24	8.83
'r'		0.86	0.86	0.87	0.93	0.83	0.81
'p'		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

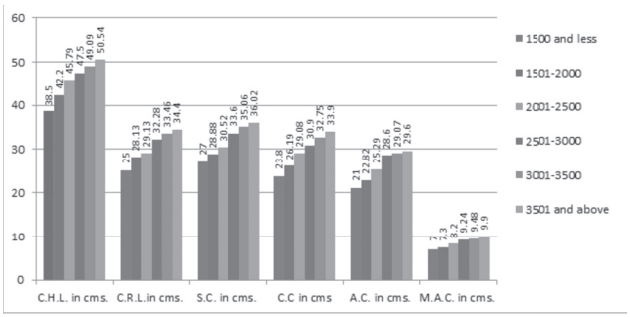
It has been observed (Table–II and Fig-1) that the anthropometric measurements were highest in the birth weight group "3501 & above"(CHL, CRL, SC, CC, AC and MAC are 50.54cm, 34.40cm, 36.02cm, 33.90cm, 29.60cm and 9.90cm respectively) and lowest in "1500 & less" group (CHL, CRL, SC, CC, AC and MAC are 38.5cm, 25.0cm, 27.0cm, 23.8cm, 21.0cm and 7.0cm respectively). This means the higher the birth weight, more the values of anthropometric measurements.

The value of r for CHL is 0.86, CRL is 0.86, SC is 0.87, CC is 0.93, AC is 0.83 and MAC is 0.81. So it can be inferred that all anthropometric measurements have a strong positive association with birth weight of the newborns.

It shows that with increase in the birth weight, the CRL increases. The simple correlation

Fig-1: Relationship between anthropometric measurements and birth weight of newborns

coefficient has been significantly positive ($p<0.001$). This corroborates well to the finding of previous similar studies[6, 18&20].



The findings of the present study reveal that the CRL is directly proportional to the birth weight of the infants. The simple correlation coefficient is significantly positive being of the order of r =0.86 ($p<0.001$). The observation in the present study is in agreement with previous similar studies[7&13].

It has been noted that SC is directly proportional to the birth weight. The correlation matrix shows significantly simple correlation for SC and birth weight ($p<0.001$). This observation is in agreement with the findings of Chopdar et al. (1981)[7].

CC shows a significant correlation with birth weight ($p<0.001$). This is in accordance with the findings of previous study[15].

AC has significant relationship with birth weight ($p<0.001$), like in a previous similar study[6].

It also reveals that MAC has significant relationship with birth weight ($p<0.001$). This finding correlates well with previous similar studies[14&15].

CONCLUSION

The present study was undertaken on 200 consecutive single live born babies of whom 104 were males and 96 females. A set of 7 anthropometric parameters of the newborns such as weight, crown-heel and crown-rump length; skull, chest, abdominal and mid-arm circumferences were recorded within 48 hours of the birth. We have drawn the following inferences in this study.

1. Our study shows significant correlation of anthropometric measurements to Birth Weight.
2. Chest Circumference has the highest (r=0.93) correlation with birth weight.

RECOMMENDATION

Measurement of Chest Circumference (a simple, easy, cheap and reliable method) can be utilized to screen out high risk group (LBW) newborns in the community.

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Prevalence of Various Gallbladder lesions in Central Karnataka Region – a Four Year Prospective Study

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ABSTRACT:

Choloecystectomy specimens are commonly encountered in surgical pathology practice. There is a wide variation in the prevalence of gall bladder diseases in various parts of India. The present study was undertaken on a prospective basis to evaluate the prevalence of gall bladder disease and to study the histomorphology of these lesions in central parts of Karnataka. A total of 200 cases of cholecystectomy were studied .Majority of the patients were in the fifth decade of life with females outnumbering the males.cholelithiasis was seen in 90% of patients and 76% of the patients on histopathological examination showed chronic cholecystitis. Overall prevalence of gallbladder diseases in hospitalized patients in the geographic area of study (central Karnataka) appears to be low. Careful histopathological study of gall bladder specimens can aid in the early diagnosis of premalignant lesions

Keywords: *Gallbladder, Cholelithiasis, Cholecystitis, Cholecystectomy.*

INTRODUCTION

Gallbladder is one of the common surgical pathology specimens, cholelithiasis and cholecystitis being the commonest causes for cholecystectomy. [1,2] Prevalence of gall bladder disease varies greatly in the published studies and is attributed to variation of the disease incidence in different populations due to dietary, environmental and genetic factors.

Gallbladder diseases are extremely common in France, Germany, Scandinavian countries and in Pima Indians (USA) whereas it is rare among Indonesians, Chinese, Japanese and the Masai tribes (Africa).[3] Gallbladder diseases have a varying prevalence in different regions of India with an increased frequency of gallstones & gallbladder diseases in North India when compared to South India.[4]

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Diverse histopathological lesions and verity of changes in the gallbladder mucosa due to cholelithiasis, ranging from acute inflammation to dysplasia and carcinoma are encountered in routine histopathology practice. This study conducted at a tertiary care institution located in central Karnataka region aims to evaluate in detail, various types of lesions encountered in gallbladder specimens and to determine prevalence of individual lesions in that area.

MATERIAL AND METHOD

Present study is a prospective study undertaken at Department of pathology, JJM Medical College, Davangere, over a period of 4 years from 2008 to 2011. This study included 200 cholecystectomy specimens received at the Department of Pathology. All these specimens were from patients who underwent cholecystectomy at Chigateri General Hospital and Bapuji Hospital, Davangere.

Resected gallbladders received were examined for any gross pathology, presence of stones, type of stones and the findings were recorded. Tissue bits were sampled for histopathological examination according to the protocol described in Ackerman's textbook of surgical pathology.[6]

Tissue bits were processed and paraffin blocks were cut at 4 to 5μ thickness. All the sections were stained with hematoxyllin and eosin stain routinely for microscopic examination, special histochemical stains were applied wherever necessary.

FINDINGS

The current study is an attempt to study the prevalence and histomorphology of various gallbladder lesions among the cholecystectomy specimens received at Department of Pathology, JJM Medical College, Davangere situated in central Karnataka region.

Age of the patients in this study ranged from 15 years to 75 years with a mean of 43.5 years. Out of the 200 cholecystectomy cases included in the study, 70% were females and 30% were males (M: F =1:2.33). Hundred and twenty eight cases (74%) were seen to fall within the age group of 31 to 50 years with peak frequency for female patients in the fourth decade (56 cases i.e. 40%) and for male patients in the fifth decade of life (20 cases i.e. 33.3%). (Table 1)

Table 1: Sex specific age distribution of the gallbladder disease

Age groups (Years)	Males	Female
10-20	4	4
21-30	0	16
31-40	16	56
41-50	20	36
51-60	8	12
> 60	12	16

Cholelithiasis was seen in 180 (90%) of 200 cases studied, 126 of these were female patients and only 54 were male patients, male to female ratio being 1:2.3. Majority of cases i.e. 123 out of 180 cases (68.3%) of cholelithiasis were seen in the fifth decade of life with only 10 cases of cholelithiasis occurring below 20 years of age (5.5%) (Table 2). Of the various types of gallstones encountered, mixed type stones were the commonest type, seen in 87 cases (48.3%) and followed by Pigment stones in 66 cases (36.6%) and cholesterol stones in 27 cases (15%).

On histopathologic examination 152 (76%) specimens out of 200 specimens studied showed chronic cholecystitis of which 8 cases were of follicular cholecystitis. Rokitansky Aschoff sinuses were seen in 111(55%) of these cases with adenomatoid hyperplasia in 4 cases. Metaplastic changes in mucosa – pyloric and intestinal metaplasia were also noted in association with gallstones. Acalculous chronic cholecystitis associated with thick slimy sludge was present in 12 cases.

Acute cholecystitis showing presence of a predominant neutrophilic inflammation, edema, congestion and ulceration of the mucosa was observed in 16 cases, four of these cases showed microabscess formation throughout the wall. Only one of these case was not associated with gallstones (acute acalculous cholecystitis). Empyema of the gallbladder, a grossly inflamed gallbladder filled with pus was seen in 4 cases, three of these had associated cholelithiasis.

Overall acalculous cholecystitis was observed in 14 cases which included 12 cases of chronic cholecystitis, 1 case of acute cholecystitis and one cases of empyema gallbladder.

Seven cases of mucocele and one case of hydrops of the gallbladder were encountered in this study. All the mucocele cases had multiple mixed types of stones with obstruction of the outlet.

Eight cases showed cholesterolosis and were associated with cholesterol and mixed gallstones.

One case of diffuse papillary hyperplasia was encountered and was not associated with gallstones, histopathology of which showed villous hyperplasia of mucosa.

Eight primary gallbladder neoplasms were encountered. Four were benign adenomas of which three were tubular adenomas and one papillary adenoma. Papillary adenoma case did not have cholelithiasis and on microscopy showed tubulopapillary architecture with intestinal lining.

Four specimens showed carcinoma of the gallbladder, all of which were moderately differentiated adenocarcinomas histologically and all cases had associated gallstones. All cases of carcinomas showed serosal involvement with involved surgical margins, vascular tumor emboli suggesting regional and possibly distant spread.

One case of metasatic adenocarcinoma, primary tumour being located in stomach and infiltrating gallbladder serosa and outer muscle layer was encountered (Table 3).

Table 2:Distribution of individual lesions by gender

Lesion	Males	Females	Total
Chronic cholecystitis	49	103	152
Acute cholecystitis	4	12	16
Empyema	1	3	4
Mucocele	1	6	7
Hydrops	0	1	1
Cholesterolosis	2	6	8
Diffuse mucosal papillary Hyperplasia	1	0	1
Adenoma	1	3	4
Adenocarcinoma	0	4	4
Metastatic adenocarcinoma	1	0	1
Unremarkable	0	2	2

Table 3: Histopathological lesions associated with gallstones.

Sl. No.	Lesion	Number of cases	%
1.	Chronic cholecystitis (includes follicular cholecystitis)	140	77.7
2.	Acute cholecystitis	15	8.3
3.	Cholesterolosis	8	4.4
4.	Mucocele	7	3.9
5.	Adenocarcinoma	4	2.2
6.	Adenoma	3	1.7
7.	Empyema	3	1.6
8.	**Mucosal changes**		
	RA sinus	111	61.7
	Adenomatoid hyperplasia	4	2.2
	Pyloric metaplasia	18	10
	Intestinal metaplasia	3	1.7
	Pyloric+intestinal metaplasia	1	0.6

DISCUSSSION

Cholecystectomy is one of the most frequently performed abdominal operations, Cholelithiasis and chronic cholecystitis being the commonest causes for it. [1] Incidence of gallbladder disease in India shows significant regional variations and is much lower than in western countries.[5,7] Overall incidence of cholelithiasis in India is 0.55% in hospitalized patients.[8] Choecystectomy specimens comprised 0.5% of total surgical pathology workload in our institution, highlighting the overall low incidence of gallbladder diseases in this region also.

Many studies have noted highest incidence of gallbladder disease in third through fifth decades of life, in our study the maximum number of cases were seen in the age group of 31-50 years. This finding correlates well with many of the earlier studies. [9, 810, 11, 12]

It is a well established fact that the gallbladder disease is more prevalent in females, same was reflected in the present study with a male to female ratio of 1:2.33, this was also true for cholelithiasis. [9,13, 14]

Mohan et al and Singh et al have documented the highest incidence of gall stones in the age group of 31 to 50 years, similar age distribution was encountered in our study also. [15] In our study mixed stones were the commonest type of stones encountered in 48.3% of cases. Second commonest were black pigment stones, seen in 36.6% of cases followed by cholesterol stones in 15% of cases. Most of the studies in the literature have reported mixed stones to be the commonest type and our study gives a similar observation. (Table-4)[9,10, 16] Most frequent association of gallstones was seen with chronic cholecystitis (77.7%), followed by acute cholecystitis (8.3%), cholesterolosis (4.4%), mucocele (3.9%), adenocarcinoma (2.2%), adenomas (1.7%) and empyema (1.6%), which correlates with the previous works.

Table 4: Type of gallstones stones found in various studies - a comparison.

Year of Study	Cholesterol stone	Mixed stone	Pigmented stone
Pal et al [10]	4.08%	89.79%	6.12%
Shenoy et al [16]	9.09%	77.2%	13.63%
Singh et al [15]	7.55%	83.8%	8.65%
Jayanthi et al [17]	1.9%	34.8%	63.8%
Mohan et al [9]	17.3%	79.6%	3.2%

Cholecystitis was the commonest pathology observed which was present in 168 out of 200 cases studied (84%), chronic cholecystitis (62%) being the commonest type of inflammation.[9,10] Acute cholecystitis was encountered in 16 specimens (8%) in our study, all had a chronic inflammatory component as well. Occurrence pattern of cholecystitisis with gallstones our study is in accordance with with previous studies. [15,18] Prevalence of empyema, a condition with a high mortality rate (15-25%) was more in comparison with existing literature.[20]

Rokitansky Aschoff Sinuses were seen in 111 cases (55.5%) and all of these were chronic cholecystitis case. A previous study gives similar incidence of Rokitansky Aschoff sinuses and adenomatoid hyperplasia in cases of chronic cholecystitis, it also noted increasing incidence with increased degree of inflammation.[14] The mucosal metaplastic changes observed (Table 3) in our study conform to previous studies.

Chronic follicular Cholecystitis with formation of lymphoid follicles and active germinal centers was seen in eight (4%) of the specimens in our study. Previous study by Tyagi et al observed chronic follicular cholecystitis in 6.2% of specimens while study by Mohan et al gave an incidence of 2.3%.[9,14] Our study correlates well with these findings. Cholesterolosis was seen in eight specimens (4%) in the present study this is in accordance with a recent study by Mohan et al.[85] Seven cases of mucocele and a case of hydrops of the gallbladder and associated cholelithiasis. compared well with the 3% incidence mentioned in the literature.

Albores Saavedra et al mention wide variation in the incidence of adenomas in their literature, ranging from 0.5% in some studies to up to 10 to 20% in others.[21] Kozuka S et al included 1605 cholecystitis specimens in their work and noted 11 benign adenomas, 7 adenomas with malignant change.[22] They also noted adenomas more than 12mm in size were more likely to harbor cancerous change. One villous adenoma encountered in our study and one of the three tubular adenoma were more than 12mm in size and they showed focal dysplasia on extensive sampling and careful histological analysis.

Incidence of gallbladder carcinoma varies in different parts of the world. Considerable variation is also present in different ethnic groups.[9,10,15,23] All the previous studies have found adenocarcinoma as the commonest malignancy of the gallbladder. Carcinoma gallbladder was found to be more common in females with increased incidence from fourth decade of life and above. There is upto 85 to 90% association of gallbladder malignancy with gallstones.9,[14] Four cases of adenocarcinoma gallbladder all occurring in female patients encountered in our study is in accordance with these previous works.

CONCLUSION

Overall prevalence of gallbladder diseases in hospitalized patients in the geographic area of study (central Karnataka) appears to be low .Increased occurrence of complications of longstanding cholelithiasis like mucocele, acute severe conditions like acute cholecystitis with suppuration, empyema of gallbladder and cases of carcinoma of gallbladder presenting in advanced stages suggest delayed diagnosis of those cholelithiasis cases. High degree of clinical suspicion in upper abdominal cases, ultrasonographic screening of suspected cases to pick up gallstones early and prompt medical & surgical management as necessary brings down morbidity and mortality due to gallbladder diseases. Thorough histopathological examination of the cholecystectomy specimen will help identify possible precursor lesions of carcinoma like metaplasia, dysplasia and adenoma. Detailed histopathological examination will also throw light on causal factors and the natural history of disease. Also prompt reporting of severity of conditions as

evidenced by histopathological examination will help surgeons to initiate appropriate treatment at the earliest and follow up wherever necessary.

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A Community Study on Prevalence and Knowledge Regarding Anaemia among Adolescent Girls in a Rural Area of Rajahmundry, Andhra Pradesh.

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ABSTRACT

Introduction: - "Adolescence" is a transitional stage of physical and mental development between childhood and adulthood i.e. between 11-18 years[1]. The most prominent health issues in developing countries like India are anaemia and malnutrition. The causes are poverty, inadequate diet, acute and chronic diseases, pregnancy/lactation and poor access to health services. Adolescents comprise about 22% of India's population. An estimated 27% & 6% of adolescents are anaemic in developing and developed countries respectively[2]. According to National Family Health Survey-3, adolescent girls (11-18years) constitute 17% of total female population i.e. 8.3 crores and the prevalence of anemia among adolescent girls is around 65-75%.

Objectives: 1. To estimate the prevalence of anemia among the adolescent girls in a rural area of Rajahmundry.

2. To assess the knowledge regarding the causes and clinical symptoms of it among adolescent girls and to suggest measures for prevention of anaemia.

Materials&method: The field practice area of Rural Health and Training Centre of a Medical College consists of 3 Primary Health Centre's . Out of these 3 PHC's, 1 PHC selected by lottery method. It comprises of 10 revenue villages, two revenue villages selected randomly. A pre-tested and pre-designed questionnaire used to collect information on socio demographic characteristics like age, educational status, family size, monthly family income, diet, age of menarche, worm infestations, excessive menstrual bleeding in past 3 months. Height, weight and BMI will be recorded. Hb% estimated using 'Sahli's Haemoglobinometer.

Results: The prevalence of anemia was found to be 63.75%. Highest among late adolescents(17-18years), illiterates, vegetarian, and the association was found to be significant knowledge regarding causes, only 64.65% heard term anaemia,16.27% had knowledge that menstrual related problems cause anaemia, 18.13% still practice draining rice water.

Keywords: Anaemia, Adolescents', prevalence, knowledge.

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INTRODUCTION

"Adolescence" is a transitional stage of physical and mental development between childhood and adulthood i.e. between 11-18 years[1]. The most prominent health issues in developing countries like India are anaemia and malnutrition. The

causes are poverty, inadequate diet, acute and chronic diseases, pregnancy/lactation and poor access to health services. Adolescents comprise about 22% of India's population. An estimated 27% & 6% of adolescents are anemic in developing and developed countries respectively[2]. According to National Family Health Survey-3, adolescent girls (11-18years) constitute 17% of total female population i.e. 8.3 crores and the prevalence of anemia among adolescent girls is around 65-75%.

Adolescence is the right time to address anemia because it is the time of increased iron needs due to increase in muscle mass. Hence a good monitoring of health during this vital period of adolescence will make the individual healthy during her adulthood[3]. It is a transgenerational public health issue which needs to be addressed to create a safe and better future of the nation.

"Adolescent anemia" is like the tip of an iceberg, major part of iron deficiency is latent as most adolescents with anemia are asymptomatic. In rural India a high number of pregnant women are in their adolescence, making them more vulnerable to complications during menstruation, pregnancy and childbirth. Girls need iron during adolescence as they have a continuing need to replace iron lost during menstruation[5, 6]. Girls often enter their reproductive years in late adolescence with poor iron. Malaria and hookworms also worsen the iron status[8].

The etiology of anaemia among adolescent girls is not only medical but also a combination of socio-economic-cultural aspects. Its prevention is tagged with the health education and nutritional awareness[9, 10]. The present study would help us to focus on the integrated approach to tackle this public health issue.

OBJECTIVES

1. To estimate the prevalence of anaemia among the adolescent girls in a rural area of Rajahmundry.

2. To assess the knowledge regarding the causes and clinical symptoms of it among adolescent girls and to suggest measures for prevention of anaemia.

METHODOLOGY

Study hypothesis: - In the settings of rural Rajahmundry, where the levels of literacy, knowledge about healthcare, nutrition and socio-economic status of girls are low, an expected gap in their dietary intake and health education could result in anaemia.

Study type: - Community based cross-sectional study.

Study setting: - The field practice area of Rural Health and Training Centre (RHTC) of GSL Medical College consists of 3 Primary Health Centre's (PHC's). Out of these 3 PHC's, 1 PHC will be selected by lottery method. It comprises of 10 revenue villages. Out of those 10, two revenue villages will again be selected randomly.

Study subjects: - unmarried, non-pregnant, non-lactating adolescent girls in the age group 11-18years will be selected by house to house visits.

Sample size: - Sample size is calculated by the formula $n=4pq/L^2$, where 'p' is the prevalence of anaemia among rural adolescent girls is 65 % (NFHS-3, 2008), q=(100-p) and 'L' is 10% of p. Hence sample size is 215.

Study tool :- A pre-tested and pre-designed questionnaire will be used to collect information on socio demographic characteristics like age, educational status, family size, monthly family income, percapita income will be calculated (B.G.PRASADS classification applied), diet, medical history like age of menarche, history of worm infestations, excessive menstrual bleeding in past 3 months. Anthropometric measurements like height, weight and BMI will be recorded. Hb% will be estimated using 'Sahli's Haemoglobinometer'. According to WHO expert group, the cut-off points for diagnosis of anaemia among adolescent non-pregnant, non-lactating girls is <12gm/dl.The severity of anaemia will be graded as mild (10-12gm/dl), moderate (7-10gm/dl) and severe (<7gm/dl).

Confidentiality:

The filled up interview schedules were kept in custody of the project guide.

While computerizing the data, the patients were identified by an Identification number.

Study period: - May-June 201I.

Data analysis:- Data was analyzed with excel-2007.data is represented as percentages in the form of tables and figures. Significance test such as chi-square test was used to examine difference with categorical variables.

Ethical considerations: The proposal was forwarded to and subsequently cleared by the institutional ethical committee.

IMPLICATIONS

In the rural areas due to low economic status, illiteracy, lack of awareness among adolescents, the problem of anaemia in rural set up will be very high and this project will help us to strengthen the community nutrition programs by knowing the [1]lacunae in the programs.

TABLE 1: Prevalence of anaemia in study population ;

Anaemia	Hb%	No of girls	prevalence %
MILD	10-12	30	13.96
MODERATE	7-10	70	32.56
SEVERE	<7	37	17.20
NORMAL	>12	78	36.28
TOTAL		215	100

In the present study, overall prevalence of anaemia was 63.73%, out of which

13.96% were mild anaemic, 32.56% were moderately anaemic and 17.20%

Were severely anaemic.

Table 2: AGEWISE DISTRIBUTION OF ANAEMIA:

Adolescents age in years	Anaemia absent No %	Anaemia present No %	Total No %	P value
Early (11-13yrs)	23 (40.35)	34 (59.65)	57 (100)	0.993
Middle (14-16yrs)	49 (39.51)	75 (60.49)	24 (100)	
Late (17-18yrs)	6 (17.64)	28 (82.36)	34 (100)	
Total	78 (36.27)	137 (63.73)	215 (100)	

The table2; shows the age wise distribution of anaemia. Over all prevalence of anaemia was 63.73%, of which 59.65% were in 11-13yrs age group.60.49% were in 14-16yrs age group, 82.36% were in 17-18yrs age group.

Highest prevalence of anaemia was found in 17-18yrs age group (82.36%).

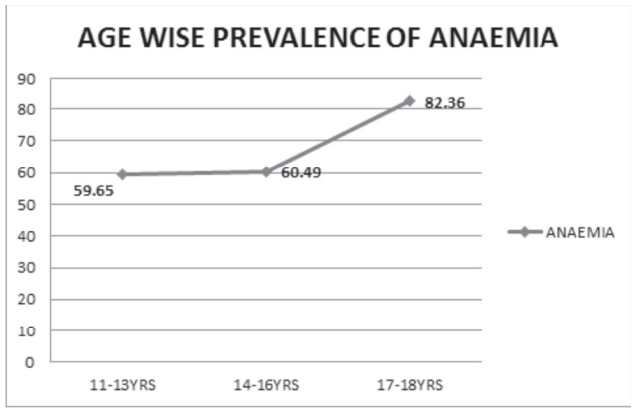

figure 1; As the age increases ,prevalence of anaemia also increases.

Highest prevalence (82.36%) was found in 17-18yrs age group.

TABLE 3: EDUCATION WISE DISTRIBUTION OF ANAEMIA

Education level	Anaemia absent No %	Anaemia present No %	Total No %	P value
illiterate	0 (0)	4 (100)	4 (100)	0.025
Primary	18 (34.61)	34 (65.39)	52 (100)	
secondary	54 (42.85)	72 (57.15)	126 (100)	
Inter	6 (18.18)	27 (81.82)	3 (100)	
Total	78 (36.27)	137 (63.73)	215 (100)	

Table3; the prevalence of anaemia was 65.39% in primary educational level, 57.15% in secondary educational level, 81.82% in intermediate level and was 100% in illiterates. Highest prevalence of anaemia was found in illiterates (100%). The association between educational level and anaemia was found to be statistically significant.

Table 4: INCOME WISE DISTRIBUTION OF ANAEMIA;

Percapita income in rupees	Anaemia absent No %	Anaemia present No %	Total No %	P value
3056&ABOVE	1 (50)	1 (50)	2 (100)	0.476
3055 to 1528	6 (37.05)	10 (60.05)	16 (100)	
1529to 917	33 (44)	42 (56)	75 (100)	
916 to 458	32 (31.37)	70 (68.63)	102 (100)	
<458	6 (30)	14 (70)	20 (100)	
Total	78 (36.27)	137 (63.37)	215 (100)	

Table 4; Highest prevalence of anaemia (70%) was found in families having percapita income of rupees<458.fallowed by families having percapita income of rupees 916 to 458.

Table 5: Dietary pattern and distribution of anaemia;

Dietary pattern	Anaemia absent No %	Anaemia present No %	Total No %	P value
Vegetarian	14 (25)	42 (75)	56 (100)	0.041
Non vegetarian	64 (40.25)	95 (59.75)	159 (100)	
Total	78 (36.27)	137 (63.73)	215 (100)	

Table 5: reveals that 75% of vegetarians had anaemia compared to non vegetarians 59.75%. The association between vegetarian diet and anaemia was found to be statistically significant._

Table 6.. Knowledge regarding causes, practices & clinical symptoms ofAnaemia

CAUSES	Yes	No	TOTAL
Heard term anaemia	139 (64.65)	76 (35.35)	215 (100)
Improvement of food can prevent	141 (65.58)	74 (34.42)	215 (100)
Menstrual related problems	35 (16.27)	180 (83.73)	215 (100)
Worms infestation	182 (84.65)	33 (15.35)	215 (100)
PRACTICES			
Rice water draining	39 (18.13)	176 (81.87)	215 (100)
Prolonged boiling	130 (60.46)	85 (39.54)	215 (100)
Deep frying	100 (46.51)	115 (53.49)	215 (100)
Clinical symptoms			
Pallor	107 (49.76)	108 (50.24)	215 (100)
Weakness	120 (55.81)	95 (44.19)	215 (100)
Headache	24 (11.16)	191 (88.84)	215 (100)

Table 6. Out of 215 adolescent girls 64.65% of them had heard the term anaemia,.

Out of 215 adolescent girls 65.58% of them had knowledge that improvement of food can prevent anaemia. Out of 215 adolescent girls 16.27% of them had the knowledge that menstrual related problems causes anaemia.

Among 215 subjects, 84.26% had knowledge that worm infestation causes anaemia.

Among 215 subjects, 18.13% practices draining rice water after boiling of rice,

Among 215 subjects, 60.46% practices boiling vegetables for a prolonged period of time. Among 215 subjects, 46.51% practices deep frying of vegetables

Among 215 adolescent girls, 47.76% had knowledge that pallor was clinical symptom, Among 215 adolescent girls, 55.81% had knowledge that weakness was clinical symptom.Among 215 adolescents girl, 11.16% had knowledge that headache was symptom.

DISCUSSION

In the present study, the prevalence of anaemia was found to be 63.72%. Seshadri etal[17] reported similar prevalence of 63%, but the study conducted by Chaturvedi S etal[11] reported 73.7% and the study conducted by C.M.S Rawat etal[12] reported 34.5%. These differences in the prevalence of anaemia may be due to difference in study area and selection of study subjects. Chaturvedi S etal[11] selected sample from a poor socio economic status so the prevalence was high.

Age wise distribution of anaemia in the present study: The prevalence of anaemia according to age shows highest prevalence among late adolescents (17-18years) is 82.36%.Similar findings were found by Sampath kumar etal[13] in Tamil Nadu state.

The prevalence of anaemia according to subject education reports highest prevalence among illiterates (100%).Similar findings were reported by Bharati etal[15].

Prevalence of anaemia according to dietary pattern was found to be very high among vegetarians. This result correlates with the study conducted by S.Kaur etal[16].

Preventive measures / Recommendations:

1. Strengthening of school health services.

2. Periodical check ups and deworming of children and adolescents.

3. Dietary modifications.

4. Scaling up of literacy level.

5. Enhancement of the economic status of families by welfare programs.

6. Need for intensive IEC campaigns.

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Effect and Determination of Obesity and Smoking as Risk Factor for Periodontal Disease : a Cross Sectional Study

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ABSTRACT

The association of lifestyle related factors,such as obesity and smoking status has been proposed for the etiology of periodontal diseases. However a definite relationship among lifestyle related factors remains unclear.

The association of obesity and smoking status with periodontitis was assessed in outpatient department of Periodontology and Implantology at I.T.S-CDSR Murad Nagar,Ghaziabad. 225 Adult Participants (45 in each group) were asked to complete a self adminstered questionnaire related to their lifestyle related factors and oral health behaviours. Obesity and Smoking status were evaluated in terms of body mass index (B.M.I) and pack years respectively. Clinical periodontal examination included Plaque index, Russel's periodontal index, and pocket probing depth. The effective impact on periodontitis risk was analyzed through statistical methods. Hence the present study aims to determine the impact of obesity and smoking (life style related factors) on periodontitis risk.

Key Words: *Obesity, Smoking, Body mass index, risk factors, Lifestyle related factors, Periodontitis, Risk factors .*

INTRODUCTION

Periodontitis is defined as "an inflammatory disease of the supporting tissues of the teeth caused by specific microorganisms resulting in progressive destruction of periodontal ligament and alveolar bone with pocket formation, recession or both".[1] The characteristics of individuals that place them at increased risk for getting a disease are called as risk factors. Several lifestyle related factors such as obesity, smoking, diabetes, alcohol consumption etc, contribute to the various local and systemic diseases such as cancers, circulatory diseases and other chronic diseases.[2]

Smoking is recognized to be a potent risk factor for periodontitis,[3] moreover several researches have documented a significant correlation between obesity and prevalence of periodontitis.[4] Numerous investigations have linked individual lifestyle related factors to periodontitis risk, but a definite relationship among lifestyle related factors remain unclear.[5]

Obesity is defined as abnormal or excessive fat accumulation that may impair health.[6](WHO). Body mass index (BMI) is a simple index of weight-for-height that is commonly used to classify overweight and obesity in adults. It is defined as a person's weight in kilograms divided by the square of his height in meters (kg/m^2). Rates of obesity are increasing in both developed and developing countries.[7] In European countries,[8] the prevalence of obese people was as high as 61% in the United Kingdom,59.7% in Germany, 41.7% in Denmark, 43.8% in Sweden,and 51.3% in Finland according

to 2003 statistics.

Smoking is the inhalation of the smoke of burning tobacco encased in cigarettes, pipes, bidis and cigars. Smoking is accepted as an important risk factor and smokers are 2to 7 times more likely to present periodontal breakdown.[9] The prevalence of smoking is higher in males (30.9%)compared with females.(25.1%), with the highest prevalence seen in non Hispanic black individuals.[10] The Odds ratio for periodontitis in current smokers ranges from as low as 1.5 to as high as 7.3 depending on the observed severity of periodontitis.[11] The detrimental impact of long term smoking on the periodontal and dentate status of older age group has been clearly demonstrated. Older adult smokers are approximately three times more likely to have severe periodontal diseases, and no. of years of tobacco use is a significant factor in tooth loss, coronal root caries and periodontal diseases.[12]

The objective of present study was to determine and establish the impact of obesity and smoking status on the periodontitis risk among a representative sample of Indian population.

MATERIALS AND METHOD

STUDY POPULATION : The study was conducted in outpatient department of periodontology and oral implantology. 225 patients were taken in study (45 in each group), and were grouped as :underweight ,normal weight and obese according to their body mass index and smokers and nonsmokers . Body mass index was calculated by dividing weight of a person in kilograms divided by height in Metres sqare.. We followed the guidelines from World Health Organisation criteria[13] in categorizing the subjects into three groups. The range of BMI < 18.5 kg/m^2 was categorized as underweight, 18.5to 24.9 kg/m^2 as normal weight , and above or equal to 25kg/m^2 were considered under obese category. Among smokers only heavy smokers [14] (pack years>10) were considered.

Adult patients with age more than 18 years and who were willing to participate in the study were included in the study. And pregnant patients, lactating mothers, patients with any systemic diseases were excluded from the study.

ASSESMENT OF LIFESTYLE AND ORAL HEALTH BEHAVIOR

A self administered questionnaire was filled in by every participant ,for the purpose of selecting the patients for the groups defined. The questionnaire was multiple choice in format (from two to six possible answers) the questions were related to eating habits .(frequency of eating fried food, outside meals, frequency of eating sweets etc.) oral health behaviours (frequency of brushing , visiting dentist, method of brushing, use of interdental brush etc.)smoking habits (no. of bidis smoked/ day, years of smoking , ever tried to quit smoking) etc.

ASSESMENT OF PERIODONTITIS

Clinical parameters which were undertaken were 1). Turskey &Gillmore modification of Quigley Hein plaque index . 2). Russel's periodontal index 3). Mean probing depth. These parameters were recorded for all the categories previously defined.

STATISTICAL ANALYSES

Data were analysed with a statistical package . The associations between periodontitis and lifestyle variables which included smoking status and obesity were examined using simpe Anova test measures. The periodontitis risk were evaluated using mean values for each category of Smoking status and BMI respectively. All reported p values are two tailed ; p values less than 0.05 were considered to be statistically significant.

RESULTS

Table -1 represents the frequency distribution of subjects in each category and it shows an equal percentage distribution in each group . Table -2 represents mean values of height, weight, and body mass index and the p values were found to be statistically significant for weight and BMI. Table- 3 shows the mean values of plaque index in all the categories and the p value was found to be statistically insignificant. Similarly Table 4 represents mean values of russel's periodontal index in all the categories and the p-value was found to be statistically significant. Table- 5

represents mean values of mean probing depth in all the categories and it was found to be statistically significant

The highest mean scores were found to be higher in Obese group followed by Smokers group in Russel's periodontal scores and mean probing depth was highest in Smokers followed by Obese which were found to be statistically significant.

DISCUSSION

The current study revealed a meaningful correlation between periodontitis with body mass index and smoking status via utility of Anova test measures.

Smoking and BMI were found to be displaying independent effects on periodontal status. Smoking and obesity are known to affect host immunity,[15] Both factors may also decrease blood flow in periodontal tissues of subjects, which promotes the development of periodontitis.[15] (Kinane et al,2000) . These immunological disorders or inflammation might be the reason that obese and smokers tend to exhibit escalating poor periodontal status relative to non-obese and nonsmoking individuals.

The world health organization (WHO) BMI cut off of 25 kg/m2 for overweight should be retained as an international classification.[16] However Asians are reported to have more body fat than the white people.[17]

Several recent studies also have a positive correlation between obesity and periodontitis; however others have not found this correlation.

In a study in Jordan , Khader et al [18]showed that BMI and WC were highly correlated with periodontitis . Ekuni et al who assessed BMI and many more several studies have found a positive correlation between obesity and periodontitis. [19] However Linden et al in northern Ireland did not find any significant correlation between BMI and high threshold periodontitis.[20] It seems that distribution between obesity and periodontitis differ by region and race. Ylostalo et al [21] did not find any positive correlation between body weight and periodontal infection in 2.841 dentate non diabetic people aged 30 to 49 years. Kongstad et al.[22] found B.M.I to be invariably related to clinical attachment loss among 1.504 subjects who took part in Copenhegan city heart study in 2007.

Few studies exist on the possible mechanism linking obesity to periodontal diseases. However a recent review postulates that adipose tissue secretes a bioactive substance known as adipocytokine which may directly injure periodontal tissues. [23] Plasminogen activator inhibitor -1 expressed in visceral fat induces the agglutination of visceral blood and raising the risk of ischemic vascular disease may also decrease blood flow in the periodontium of obese subjects thus promoting the development of periodontal diseases.

Another mechanism by Goodson etal [24] was related to oral bacteria and he proposed that obese people might have different kinds of oral bacteria from normal weight people , which might lead to periodontal diseases.

Grossi et al, [25] 2003 demonstrated the dose response relationship between pack-years of smoking and periodontitis employing attachment loss or bone loss. These data which are supporting our findings suggest that smoking exerts cumulative detrimental effects on periodontal health. The increased prevalence and severity of periodontal destruction associated with smoking suggests that the host bacterial interactions [26] normally seen in chronic periodontitis are altered, resulting in more aggressive periodontal breakdown. The imbalance between bacterial challenge and host response may be caused by changes in composition of subgingival plaque, with increase in the number and virulence of pathologic organisms, changes in the host response to the bacterial challenge, or a combination of both. Macfarlane et al.[27] reported that greater than 90% of refractory periodontitis patients were smokers compared with approximately 30% of general population being smokers. Periodontal maintenance patients who smoke are more likely to lose teeth over a five year period compared with periodontal patients who do not smoke.[28] Smoking has been identified as a significant variable to predict the response of periodontal treatment.[29] most investigations that have evaluated effect of smoking on nonsurgical therapy have demonsrated

less reduction in probing depth and smaller gain in attachment levels in smokers with non smokers. [30] Nicotine is known to decrease gingival blood flow [31] and periodontal wound healing is also adversely affected as it impairs revascularization in soft tissues.[32]

In our study periodontitis was seen associated with smokers and obese in smoking status and BMI category respectively . we have seen in our results that mean probing depth was found to be higher in smokers group followed by obese group and Russel's periodontal index was higher in obese group followed by smokers. Plaque index has higher scores with obese group but it was found to be statistically insignificant. Both lifestyle related factors can be attributed to be independent risk factors.

CONCLUSION

Despite the primary limitation of our findings obtained from a cross-sectional study these data reveal that both Smoking and Obesity, are potential independent risk factors for periodontitis . More interventional studies with larger sample size are needed in order to establish association of periodontitis with smokers and obese people.

Acknowledgement

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Table 1: Frequency distribution of subjects for each group

	Frequency	Percent
Normal	45	20
Obese	45	20
Underweight	45	20
Non-smokers	45	20
Smokers	45	20
Total	225	100

Table 2: Mean values and Standard deviation of normal, obese and underweight group according to their weight, height and body mass index

		N	Mean	S. D.	p - value
WEIGHT	normal	45	54.70	7.12	0.000*
	obese	45	71.63	9.64	
	underweight	45	43.34	5.64	
HEIGHT	normal	45	1.61	0.08	0.091
	obese	45	1.57	0.08	
	underweight	45	1.59	0.07	
B.M.I	normal	45	21.13	1.77	0.000*
	obese	45	29.31	2.86	
	underweight	45	17.06	1.06	

*** The p-value is significant at 5% value.**

Table 3: Mean plaque index scores

	PLAQUE INDEX		p-value
	Mean	S. D.	
Normal	2.48	0.63	0.073
Obese	2.75	0.65	
Underweight	2.42	0.64	
Non-smokers	2.50	0.67	
Smokers	2.34	0.74	

Table 4: Mean Russel's periodontal index scores

	RUSSEL'S PERIODONTAL INDEX		p-value
	Mean	S. D.	
Normal	2.51	1.08	0.004*
Obese	3.01	1.08	
Underweight	2.29	1.06	
Non-smokers	2.59	1.06	
Smokers	2.99	1.03	

* The p-value is significant at 5% value.

Table 5: Mean probing depth scores

	MEAN PROBING DEPTH		p - value
	Mean	S. D.	
Normal	4.58	1.61	0.022*
Obese	5.02	1.02	
Underweight	4.35	1.55	
Non-smokers	4.96	1.22	
Smokers	5.23	1.12	

* The p-value is significant at 5% value.

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Primary Tuberculosis of Appendix - a Rare Case Report

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ABSTRACT

Tuberculosis is endemic in developing countries but it remains challenging with a variety of presentations or complications. One such rarity being primary TB of appendix manifesting as acute appendicitis, reported incidence is only 0.1-0.6%. We report one such rare case that presented at Sri Devaraj Urs medical college and Teaching Hospital (SDUMC).

Keywords: *Tuberculosis, Appendicitis, Tuberculous appendicitis*

INTRODUCTION

Tuberculosis remains a world-wide public health problem despite the fact that the causative organism was discovered more than 100 years ago and highly effective drugs and vaccines are available for its treatment.GI complications have been observed with TB secondary to primary pulmonary, extrapulmonary and disseminated forms but primary TB of appendix presenting with acute appendicitis is a rarity. This rare occurrence poses a diagnostic challenge and often results in delayed diagnosis and treatment.

CASE REPORT

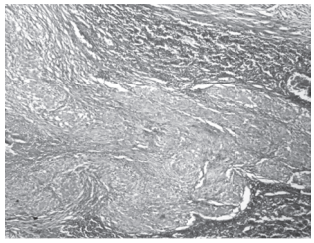
A 8yr old girl from low socioeconomic status presented to casualty block at SDUMC hospital on 14-12-2011, acute abdominal pain, burning micturition, fever & vomiting since 1day. She was moderately built & poorly nourished, pulse rate of 90/min, BP-90/60mmHg & temperature of 101 F. Abdomen was soft, tenderness at McBurney's point, rebound tenderness and Rovsing's sign positive. No mass or organomegaly felt, bowel sounds were normal. Cardiovascular, respiratory systems were normal.

Clinically diagnosis of acute appendicitis made and evaluated. USG abdomen showed an ill defined lesion in right iliac fossa with calcification & minimal collection, hyperechoic mesentry and localised RIF lymphadenopathy -suggestive of appendicular etiology. Haemoglobin was 12.4gms/100ml. Leukocytosis of 18,200/Cumm with left shift of neutrophils. ESR was 65mm/1st hr.

Suspecting TB Mantoux test was done. With an Alvarado score of 8 for appendicitis, emergency laparotomy was done with right mid paramedian incision. Intra-operatively: Appendix was inflamed, mesenteric edema noted & bowels were plastered with omentum.

Microscopy: Gram staining of peritoneal fluid showed few G+ve cocci in chains & small clusters. ZN staining showed Acid Fast Bacilli. **Histopathology**: features of tuberculous appendix, with characteristic well formed tubercles with epitheloid cells, Langhans giant cells, lymphocytes, plasma cells, mononuclear cells and central caseation (Fig.1 and 2).

Fig.1: Section showing Langhans giant cell surrounded by histiocytes and lymphocytes. H&E 100x



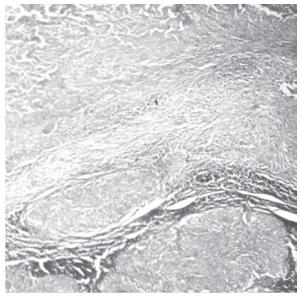


Fig.2: Section studied shows necrosis above and well defined epithelioid cell granulomas below. H&E 400x

Post-operative chest X-ray and sputum examination ruled out pulmonary focus and no other primary focus found. Mantoux test read after 72 hours was negative. Post-operative recovery was uneventful and patient discharged on 7th day with initiation of anti-tuberculous treatment as per WHO guidelines after taking RNTCP consultation and instructed to follow up monthly regularly. At present patient is fine and has completed four months of anti tuberculosis therapy (ATT).

DISCUSSION

Mycobacterial tuberculosis bacilli are aerobic, non-spore forming, non-motile, acid-fast bacilli. It infects about one-third of world's population and kills about 3 million patients each year and so is the single most infectious cause of death on earth [1]. India accounts for nearly one-third of global burden of disease. Every year approximately 1.8million people develop tuberculosis and about 4.17 lakh people die every year, one person dies every minute and about 1000 people die every day[2]. with introduction of effective antibiotics, the incidence seen to be declining is again on rise especially in association with AIDS. A further grim aspect of this resurgence is emergence of highly multiple drug-resistant strains [3]. Tuberculosis can present as pulmonary, extra-pulmonary and disseminated form. Any portion of gastrointestinal tract may be affected by tuberculosis, various mechanisms are involved as swallowing of sputum with direct seeding, haematogenous spread or ingestion of infected milk. Intestinal tuberculosis is a known entity. The terminal ileum and caecum are sites most commonly involved, which can present as abdominal pain, malabsorption, stricture, perforation, fistulas, haemorrhage. Inspite of the above, the tuberculosis of appendix is rare may be due to the fact that the contact between appendicular mucosa and intestinal contents is minimal[4]. Primary tuberculosis of appendix which is still more rare, the incidence is 0.1%-0.6%[5,6]. It is considered when no other focus is noted on investigation. Appendicular tuberculosis can manifest in three ways, the acute form presenting as appendicitis is rarer, has to be differentiated from pyogenic causes. The chronic form is more common, presenting as chronic abdominal pain, vomiting and diarrhoea and may be associated with intestinal obstruction. The third is the latent type, discovered only incidentally.

CONCLUSION

Primary tuberculosis of appendix presenting with acute appendicitis is a rarity, which can be confirmed only post surgically with histopathology. As tuberculosis is endemic in this region all appendix specimens should be submitted for histopathology to rule out tuberculosis, so as to prevent missed diagnosis, avoid complications and ensure complete care for the patient.

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Prevalence of Complications of Diabetes Mellitus Type II in Patients aged more than 30 Years in Kanyakumari District

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ABSTRACT

Introduction - The world today faces the crisis of a twin epidemic of diabetes and obesity together termed as diabesity which indeed is the biggest challenge for this century. Permanent disability is the most common outcome of Diabetes.

Objective- To estimate the prevalence of complications of diabetes type II among patients aged more than 30 years attending medical OP who are diabetic for more than 3 years.

Materials & Method- A cross sectional hospital based study was conducted in the department of general medicine of our college from May 27th 2011 to August 23rd 2011 among 400 diabetics aged greater than 30 years. This was followed by clinical examination, anthropometry, fundoscopy, lab investigation collected from records. Diabetes mellitus was defined as per American Diabetic Association. Statistical data analysis was done using the SPSS software (PASW 18.0 version). RESULT: The prevalence of complication of diabetes type II in the study group was neuropathy (40%), CAD (23%), PVD (23%), Retinopathy (11%) and Stroke (8%). Prevalence of DKA, CAD, stroke, PVD and retinopathy were seen more in uncontrolled diabetics. Prevalence of stroke, DKA and CAD were found more in non-exercising and sedentary workers. Majority of CAD patients were hypertensive. Incidence of CAD and retinopathy increases with increase in duration of diabetes mellitus. Diabetics with family history of diabetes mellitus were more prone to develop retinopathy.

Conclusion: In our study, prevalence of micro vascular complications (neuropathy) was found to be higher when compared to macro vascular complication. Age, physical inactivity, strong family history of diabetes and history of hypertension were considered to be strong risk factors.

Keywords: *Diabetes mellitus, prevalence, complication, neuropathy, stroke.*

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INTRODUCTION

One of the major health challenges to global development in 21st century is non-communicable diseases. Three most prominent of them are cardiovascular disease, Diabetes &Cancer[1].Diabetes has now become a global pandemic & unfortunately the prevalence is

increasing rapidly in the developing countries.[2,3] .80% of the 246 million people with Diabetes live in developing countries[4]. India leads the world with the maximum number of diabetics (42 million) & it is estimated that the number will swell to 69.9 million by 2025[5]. With high genetic predisposition, high susceptibility to environmental insult the Indian population faces a higher risk of Diabetes & its associated complications [6] .Diabetes is associated with significant vascular disease contributing to both micro as well as macro vascular complications such as CAD, Neuropathy, Nephropathy, PVD, Retinopathy &CVA.Diabetes accounts for about 6% of total mortality in the world and about 50% of deaths due to it are attributed to cardiovascular causes[7]. Diabetic retinopathy has become major cause of blindness throughout the world. Poor control of diabetes is associated with earlier onset of diabetic retinopathy as well as progression of previously controlled diabetes [8].Up to 85% of amputations among diabetic patients are preceded by foot ulcer [9] .Over the recent few decades, traditional societies in many developing countries have experienced rapid and unplanned urbanization, which has led to lifestyles characterized by unhealthy nutrition, reduced physical activity and tobacco consumption [10]. These unhealthy lifestyles are associated with common modifiable risk factors for chronic diseases such as diabetes, hypertension, dyslipidemia, obesity [11]. In this study we have tried to evaluate the complications of diabetes in our study group.

OBJECTIVE

1) To estimate the prevalence of complications of diabetes type II among patients aged more than 30 years attending medical OP who are diabetic for more than 3 years.

2) To study the socio-demographic correlates and factors related with it.

MATERIALS AND METHOD

A cross Sectional Hospital based study was conducted in Dept. Of General Medicine OPD of our college from May 27- August 23 2011 among 400 diabetic patients attending OPD. Our sample size was four hundred. **IEC clearances** were obtained. Informed consent was taken from all subjects. The subjects were interviewed face to face using a pretested questionnaire to collect information on demographics, disease presentation &complications. Height was measured by stadiometer.Subjects were requested to stand upright without shoes with their back against the wall, heels together and looking forward. Weight was measured using a standard weighing machine that was kept on a firm horizontal surface. Weight was recorded to the nearest 500 gm.BMI was calculated using formula, weight (kg)/height(m2).Waist circumference was measured at the midpoint between costal margin and iliac crest using a non-stretchable measuring tape, at the end of normal expiration with the subject standing erect in a relaxed position, feet 25-30 cm apart[12] . .Blood Pressure was measured with sphygmomanometer in the left arm in sitting position. The first appearance of sound was taken as systolic BP (PHASE 1 of korotkoff).Disappearance of sound (phase 5) was taken as diastolic BP.A person was considered hypertensive if he/she was already a diagnosed case of hypertension or a current SBP ≥ 140 mm of Hg or DBP ≥90 mm of Hg (JNC 7) criteria [13] .Peripheral neuropathy assessed with tuning fork test (128 Hz).Patients were asked to tell whether they felt the vibration. Retina (fundus) was assessed by Direct Ophthalmoscopy. The fasting & random blood glucose levels, Urine albumin & urine sugar, ECG were collected from patient record. A person was considered to be having diabetes if he/she was an already diagnosed case of diabetes and or on treatment or current fasting blood glucose ≥110mg/dl [14, 15]. Repolarization abnormalities in ECG – ST segment and T wave changes as well as LV hypertrophy and intraventricular conduction disturbances which suggest ischemic heart disease were taken into consideration [16]. The data collected was entered in Microsoft Excel. Data analysis was done by Predictive Analysis Software (PASW 18.0)

RESULTS: Table 1) CHRONIC COMPLICATIONS OF DIABETES MELLITUS TYPE II

	CASES	%
Coronary Artery Disease	92	23
Neuropathy	160	40
Stroke	32	8
Peripheral Vascular Disease	92	23
Retinopathy	44	11

Prevalence of complication of diabetes in study group is as follows

1. Neuropathy- 40% 2.CAD -23% 3.P.V.D -23% 4.Retinopathy-11% 5.Stroke -8%.

Table 2) PREVALENCE OF DIABETIC KETO ACIDOSIS

Factors	Dka Yes	Dka No	Chi Sq	P Value
Age <60 >60	56 52	128 164	0.510	0.475
Sedentary Non- Sedentary	72 36	212 80	0.337	0.561
Obese Non Obese	28 80	144 148	4.399	0.03
Controlled Dm Un Contolled Dm	100 8	208 84	5.078	0.024

51.9% of DKA patients are <60yrs.66.7% of DKA patients are sedentary workers. Prevalence of DKA is higher in non-exercising individuals. DKA is less common in obese individual. Among the DKA patients 92.8% are controlled diabetic and have positive association. (0.024).

Table 3) PREVALANCE OF STROKE

Factors	Stroke Yes	Stroke No	Chi Sq	P Value
Sedentary Non Sedentary	24 8	260 108	0.068	0.795
Exercise Yes No	4 28	88 280	0.541	0.462
Diabetes: Uncontrolled Controlled	20 12	288 80	1.032	0.310
H/o Htn Yes No	28 4	224 144	2.239	0.135
Aspirin Yes No	20 12	80 288	6.522	0.022
Statin: Yes No	20 12	104 264	4.034	0.045

Among the stroke patients 75% are sedentary workers.87.5% of diabetic who develop stroke are not in habit of doing exercise .Prevalence of stroke has been found to be higher in uncontrolled diabetic patient. Hypertensive patient are found to have more incidence of stroke and all of them use antihypertensive. Aspirin and statin has been found to be related to stroke and has significant association (0.022 and 0.045 respectively.)

Table 4) CORONARY ARTERY DISEASE

Factors	Cad Yes	Cad No	Chi Sq	P Value
Age <60 Yrs >60 Yrs	36 56	148 160	0.567	0.451
Sedentary Non Sedentary	60 32	224 84	0.485	0.486
Diabetes Controlled Uncontrolled	76 16	232 76	0.531	0.466
H/o Hypertension Yes No	76 16	256 132	4.927	0.026
Aspirin Yes No	84 8	16 292	70.036	0.000
Clopidogrel Yes No	72 20	4 304	68.16	0.000

CAD IS more seen in elderly age group. 65.2% of the patients having ischemic changes in the ECG are sedentary workers. Furthermore 82.6% of those who had never done exercise had significant ischemic changes. Prevalence of CAD is more seen in uncontrolled DM.82.6% of those who had ischemic changes gave a positive history of hypertension and had significant association on analysis. (0.026).87% of CAD patients are taking antihypertensive regularly .Interestingly only 8.7% of those who had been diagnosed with ischemia was not taking aspirin. Among the CAD patients 78.3% are taking clopidogrel and it has been found to have significant association.(0.000) Incidence of ischemic changes in ECG is found more in those who are diabetic for more than 10yrs (27%)when compared to less than 10 years (19%)

Table 5) PREVALENCE OF RETINOPATHY

Factors	Retinopathy Yes	Retinopathy No	Chi Sq	P Value
Age <60 Yrs >60 Yrs	12 32	92 184	1.74	0.187
Sedentary Non Sedentary	28 16	256 100	0.568	0.3999
Family H/o Diabetes Yes No	28 16	180 256	0.670	0.413
Diabetes Uncontrolled Controlled	36 8	272 84	0.162	0.687
Duration >10 Y <10 Y	36 8	140 216	7.174	0.099

Retinopathy is more prevalent in higher age group and less educated (<9th).Out of 44 retinopathy patients 28 are sedentary workers.(63.66%).Prevalence of retinopathy is more in lower income groups. Those who are having positive family history of diabetes are more prone to develop retinopathy.81.8% of the retinopathy patient were found to have uncontrolled diabetes .81.8% of diabetic retinopathy cases occurred in patients who had diabetes for more than 10 yrs. and has a significant association. (0.009).

Table 6) PREVALANCE OF PERIPHERAL VASCULAR DISEASE

Factors	Pvd Yes	Pvd No	Chi Sq	P Values
Family H/o Diabetis				
Yes	64	144	3.69	0.045
No	28	164		
Obese	32	140	0.823	0.254
Non Obese	60	168		
Exercise				
Yes	28	64	0.932	0.334
No	64	244		
Diabetes				
Uncontrolled	76	232	0.531	0.466
Controlled	16	76		
Insulin Ever				
Yes	64	128	5.565	0.018
No	28	180		
Aspirin				
Yes	36	64	3.181	0.075
No	56	246		
Clopidogrel				
Yes	36	40	7.865	0.005
No	56	268		

There is association between peripheral vascular disease & insulin. Also Clopidogrel taking patients have significant association with peripheral vascular disease.

DISCUSSION

Epidemiological data from different parts of India show a rising prevalence of diabetes type II and its complication. The burden of diabetes and its related complications is now more than ever, a worldwide problem with enormous consequences in term of human suffering and economic loss. Our study was planned as feasibility study in Kanyakumari district to determine community based prevalence of rising problem of diabetes. We considered fasting BGL as a reliable test for diabetic control.

Study done by zhao lan liu et Showed the prevalence of CAD was 30% ,stroke 7%, retinopathy15% which closely agrees with our findings (CAD 23%,stroke8%,retinopathy11%) .Prevalence of neuropathy in our study (40%) is exceedingly higher when compared to their study (17.8%).Prevalence of PVD in their study was negligible but our study reveals that prevalence of PVD is 23%.The present study revealed the risk of developing diabetic complication was more among individuals with positive family history. This has been observed in many studies indicating a strong genetic predisposition and its inheritance.

Our data suggest that the prevalence of neuropathy increases with age, poverty and poor glycemic control and by duration of diabetes and family history of diabetes which is in accordance with diabetes study done by liaquat ali et al.

CONCLUSION

Present study shows that Risk factors were age, physical inactivity, strong family history and hypertension.

In our study prevalence of micro vascular complication was found to be higher (neuropathy) when compared to macro vascular complication (CAD, stroke, PVD).

Conflict of Interest: None

IEC clearances were obtained.

LIMITATION

Purposive sampling was applied instead of random sampling

The findings are valid for patients managed by hospital rather than the general diabetic population

Technical errors may have occurred in the interpretation of laboratory values

Since the accuracy of results is based on the reliability of the patient information errors may have occurred due to incorrect information

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Prevalence of Psycho-Social Problems among Elderly in Urban Population of Mysore City, Karnataka, India

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ABSTRACT

Background: The reduction in fertility level, reinforced by steady increase in the life expectancy has produced fundamental changes in the age structure of the population, which in turn leads to the ageing population.

Objectives: To know the psycho-social problems of the elderly in urban population of Mysore. To determine the extent of functional impairment among the elderly. To know the psychological distress of the elderly using GHQ score.

Material and Method: This community based Cross sectional study was carried out at the field practice area of Urban Health Centre**,** JSS medical college, Mysore**.** The study population comprises of all geriatric population aged 60 years or above who were residing in the study area for atleast one year. 526 study subjects were recruited for the study. Data collection was done from May 2011 to December 2011 using a preformed semi-structured schedule. Data was entered into Microsoft excel and Statistical analysis is carried out using SPSS 17 Version.

Results: Most of elderly men (78.3%) were more functional than elderly women (75.2%). Severe functional impairment was almost same in both gender (4%) while moderate imparement was noted more among aged women. The functional score was significantly higher for young old, for literates, for middle class and for employed. Anxiety & Insomnia were found in 3.4% of the aged (males 2.4% and females 4.1%) followed by somatic symptoms (2.9%), social dysfunction (1.5%) and severe depression (1.1%). overall psychological distress was more among elderly women. The prevalence of mental illnesses were found to be significantly higher for old old.

Conclusions: Awareness among the elderly population should be created for regular medical check-ups to ensure prevention and early detection of the chronic diseases. There is a need to have geriatric wards having specialised professionals with psychiatric and medical social workers along with subsidized health care services.

Keywords: *Psychological Distress, Functional Impairment, Elderly.*

INTRODUCTION

Elderly or old age consists of ages nearing or surpassing the average life span of human beings. The boundary of old age cannot be defined exactly because it does not have the same meaning in all societies. Government of India adopted 'National Policy on Older Persons' in January, 1999. The

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policy defines 'senior citizen' or 'elderly' as a person who is of age 60 years or above. The elderly population (aged 60 years or above) account for 7.4% of total population in 2001. Both the share and size of elderly population is increasing over time. From 5.6% in 1961 it is projected to rise to 12.4% of population by the year 2026.

The reduction in fertility level, reinforced by steady increase in the life expectancy has produced fundamental changes in the age structure of the population, which in turn leads to the ageing population. The needs and problems of the elderly vary significantly according to their age, socio-economic status, health, living status and other such background characteristics. Various studies have been conducted to analyse the health and related issues associated with old age which needs further exploration, so the present study was focussed on various socio-demographic profile and its association with psycho-social problems.

OBJECTIVES OF THE STUDY

1) To know the psycho-social problems of the elderly in urban population of Mysore.
2) To determine the extent of functional impairment among the elderly.
3) To know the psychological distress of the elderly using GHQ score.

METHODOLOGY

This community based Cross sectional study was carried out at the field practice area of Urban Health Centre, located at Medar's block of Mysore city and it was covering a population of 8000. The study population comprises of all geriatric population aged 60 years or above in the study area, who were residing in the study area for atleast one year. The survey was done by house to house visit. After excluding the non-respondents and locked homes after atleast 3 visits, 526 respondents were recruited for the study. Approval from the institutional Human Ethical Committee was obtained to conduct the study. The study subjects were subjected for personal interview using a pre-tested and semi-structured proforma and clinical examinations and checking of individual records were also used as study tools in order to collect data on demographic, socio-economic, environmental and morbidity conditions. Informed consent was taken from the study subjects.

Data collection was done from May 2011 to December 2011. Contents of proforma were as follows: general outline (age, sex, marital status, occupation, education, religion, type of family, duration of stay at the present address , family composition etc), medical information (chief complaint, past history, personal history and family history), general physical examination (built, nutrition, general mental status, height, weight, pulse rate, respiratory rate, BP, pallor, pedal oedema etc), systemic examination (RS, CVS, CNS, GI, Musculoskeletal, renal, skin, oral and special senses), personal hygiene, functional status, social problems and activities, environmental data, questionnaire on non psychotic psychiatric disorders.

The study subjects were divided into young old and old old as elderly ≤ 75 and > 75 respectively. Socio-Economic status of the family was assessed using Modified Kuppuswamy's method of socio-economic scale. Katz Index of Independence in activities of daily living scoring method was used in order to assess functional status of the elderly. Assessment of Non psychotic psychiatric disorders were based on questionnaire of GHQ 28 (General Health Questionnaire).

Data was entered into Microsoft Excel software. To estimate the prevalence of various health conditions of geriatric population, appropriate proportion (%) is worked out and to test the association of morbidity conditions with socio-economic parameters, statistical tests such as chi-square test, t-test is applied at 5% level of significance. Statistical analysis is carried out using SPSS 17 Version.

RESULTS

Table 1 shows that a maximum of the elderly (34.6%) belongs to age group of 60-64 years followed by age group 75 years and above (25.9%). The majority of study population belonged to Hindu religion (94.7%). About half of the elderly were illiterate, nearly two out five (39.7%) elderly

were widow and 5.7% were widower. Nuclear family was found in 48.9% of the elderly followed by three generation 34.8% and joint family 16.3%. About 48.6% of the elderly were receiving pension (16.9% male and 29.8% female).

Half of the elderly were illiterate whereas only 2% of the elderly have studied till graduation or above. Nearly seven out of ten (68.8%) respondents were unemployed and none of the elderly belonged to professional occupation. About 1/3rd of the female and more than half of the (58%) male population were unemployed. A maximum of the elderly (64.8%) belonged to socio-economic class IV. None of the elderly belongs to upper socio-economic group. (Table 2)

Table 3 shows that more than 4/5th (81.7%) of the family were sympathetic and helpful at the time of illness of the elderly whereas 1/10th (10.6%) of the family were apathetic & negative. Half of the elderly (50.8%) had financial problems. Intra familial relation was found to be cordial in about 3/4th (77.6%) of the elderly family and 10.6% reported conflict in the family. The psychological impact of health problems of the elderly on the family found were: anxiety (33.5%), worry (18.4%), stress (15.6%) and fear (5.3%).

Majority of the elderly men (78.3%) were functional than aged women (75.2%). Severe functional impairment was almost same in both gender (4%) while moderate imparement was more among elderly women (Table 4). The functional score was significantly higher for young old, literates, elderly belonging to middle class and for employed as per Katz index of independence of activities of daily living scoring method (Table 5).

Based on general health questionnaire 28, overall prevalence of mental illness among elderly was 1.3%, which was seen more among elderly females (1.9%) (Table 6). Anxiety & Insomnia were found in 3.4% of the aged (males 2.4% and females 4.1%) followed by somatic symptoms (2.9%), social dysfunction (1.5%) and severe depression (1.1%). Overall psychological distress was found more among elderly women (Table 7). The symptoms of psychological distress (somatic symptoms, anxiety & insomnia, social dysfunction and severe depression) were found to be significantly higher for old old than ypung old as evident from Table 8.

DISCUSSION

In the present study, 1/10th of the family were found to have apathy & negative reaction towards illness of elderly, half of the elderly had financial burden, 1/10th of the elderly had family conflicts. Sonar B.G.et al[12] found significant association between geriatric depression and marital status, type of family, feeling isolation, feeling insecure. Living with children (56.8%) is the most preferred arrangement in the present study. A similar finding was reported by Reeta Kumar et al.[6]

In the present study, moderate and severe functional impairment found amomg elderly in 19% and 4.6% respectively. Male elderly were more functional than female. Functional score was observed significantly higher for younger old, illiterates, middle class and employed. A similar finding was reported by Kammar et al.[8]

Symptoms of psychological distress among elderly population observed in the present study were somatic symptoms (2.9%), Anxiety & insomnia (3.4%), social dysfunction (1.5%) and severe depression (1.1%). Study done by Gurvinder Pal Singh et al[13], revealed that 48% of the elderly had mood disorders, 15.4% had neurotic stress & somatoform disorders, 14.3% had organic including symptomatic, mental disorders.

CONCLUSION

Awareness among the elderly population should be created for regular medical check-ups to ensure prevention and early detection of the chronic diseases. There is a need to have geriatric wards having specialised professionals with psychiatric and medical social workers along with subsidized health care services. Programme focussing on the elderly women and poor need to be formulated and implemented. There is need for an appropriate insurance scheme for enabling the elderly to meet their medical expenses. Health problems of elderly should be tackled with psycho-social intervention. Healthy traditions and values of Indian culture should be protected and promoted by developing good intra-familial and social relationships.

Table 1: Distribution of the Elderly by their Bio-Social Characteristics

Characteristic	Males (N=207) (%)	Females (N=319) (%)	Total (N=526) (%)
Age group (yrs)			
60-64	66 (31.9)	116 (36.4)	182 (34.6)
65-69	41 (19.8)	73 (22.9)	114 (21.7)
70-74	30 (14.5)	64 (20.1)	94 (17.9)
75 and above	70 (33.8)	66 (20.7)	136 (25.9)
Religion			
Hindu	191 (92.3)	307 (96.2)	498 (94.7)
Muslim	8 (3.9)	7 (2.2)	15 (2.9)
Christian	8 (3.9)	5 (1.6)	13 (2.5)
Education			
Illiterate	59 (28.5)	206 (64.6)	265 (50.4)
Literate	148 (71.5)	113 (35.4)	261 (49.6)
Marital status			
Single	0 (0.0)	7 (2.2)	7 (1.3)
Married	177 (85.5)	103 (32.3)	280 (53.2)
Widow	0 (0.0)	209 (65.5)	209 (39.7)
Widower	30 (14.5)	0 (0.0)	30 (5.7)
Type of family			
Nuclear	108 (52.2)	149 (46.7)	257 (48.9)
Joint	30 (14.5)	56 (17.6)	86 (16.3)
3 Generation	69 (33.3)	114 (35.7)	183 (34.8)
Pension status			
Receiving	89 (36.2)	157 (63.8)	246 (46.8)
Not receiving	118 (42.1)	162 (57.9)	280 (53.2)

Table 2: Distribution of Elderly According to their Socio-Economic Position

Characteristics	Males (N=207) (%)	Females (N=319) (%)	Total (N=526) (%)
Literacy Status			
Illiterates	59 (28.5)	206 (64.6)	265 (51.4)
Primary	46 (22.2)	53 (16.6)	99 (19.2)
Middle	34 (16.4)	31 (9.7)	65 (12.6)
High	44 (21.3)	17 (5.3)	61 (11.8)
Intermediate/PUC	21 (10.1)	6 (1.9)	27 (5.2)
Graduate/ PG	3 (1.4)	6 (1.9)	9 (1.7)

Occupational status			
Unemployed	120 (58.0)	242 (75.9)	362 (70.2)
Unskilled worker	41 (19.8)	44 (13.8)	85 (16.5)
Semi skilled worker	21 (10.1)	10 (3.1)	31 (6.0)
Skilled worker	10 (4.7)	8 (4.7)	18 (3.5)
Semi professional	15 (7.2)	15 (4.7)	30 (5.8)
Socio-economic status			
Upper middle(II)	0 (0.0)	3 (0.9)	3 (0.6)
Lower middle (III)	38 (18.4)	38 (11.9)	76 (14.7)
Upper lower (IV)	147 (71.0)	190 (59.6)	337 (65.3)
Lower (V)	22 (10.6)	88 (27.6)	110 (21.3)

Table 3: Distribution of Psycho-Social Problems among Elderly

Psycho-social problems		Frequency	Percent
Family reaction on illness	Sympathetic & helpful	430	81.7
	Apathy & negative	56	10.6
	Non-response	40	7.6
Financial burden on family	Yes	267	50.8
	No	240	45.6
	Non response	19	3.6
Intra familial relation	Cordial	406	77.6
	Conflict	56	10.6
	Non response	61	11.7
Psychological impact on family	Anxious	176	33.5
	Fear	28	5.3
	Stress	82	15.6
	Worried	97	18.4
	Non-response	143	27.2
Total		526	100

Table 4: Distribution of Study Population based on Functional Status

Distribution of aged based on Functional status	**Males (n=207)**		**Females (n=319)**		**Total (n=516)**
	No.	**%**	**No.**	**%**	**No. (%)**
Full functional	162	78.3	240	75.2	402(76.4%)
Moderate impairment	36	17.4	64	20.1	100 (19%)
Severe impairment	9	4.3	15	4.7	24(4.6%)

Table 5: Association of Functional Impairment among Elderly with their Bio-Social Factors

Bio-social factors	Functionality Score		
Age group	Mean	SD	Total subjects
<75 years	5.66	0.84	390
>75 years	4.98	1.66	136
p-value < 0.001 T-statistic – 6.14			526
Education	Mean	SD	Total subjects
Illiterate	5.35	1.29	265
Literate	5.62	0.97	261
p-value =0.008 T-statistic – 2.66			526
Socioeconomic status	Mean	**SD**	**Total subjects**
Middle class	5.7	1.00	79
Lower class	5.4	1.17	447
p-value =0.041 T-statistic – 2.04			526
Occupation	**Mean**	**SD**	Total subjects
Unemployed	5.4	1.25	362
Employed	5.6	0.86	164
p-value =0.041 T-statistic – 2.04			526

Table 6 : Distribution of Elderly according to Mental Illness as per GHQ 28 Scoring

Psychological problems	**Males (n=207)**		**Females (n=319)**		**Total (n=516)**
	No.	**%**	**No.**	**%**	**No. (%)**
GHQ score <39	206	99.5	313	98.1	519 (98.7%)
GHQ score >40	1	0.5	6	1.9%	7 (1.3%)

Table 7 : Association of Psychological Distress observed on GHQ 28 Scale with Gender of Study Subjects

Psychological distress		Male		female		Total	P value
		No.	%	No.	%	**No. (%)**	
Somatic symptoms	Present	3	1.4	12	3.8	15 (2.9%)	0.119
	Absent	204	98.6	307	96.2	511 (97.1%)	
Anxiety & Insomnia	Present	5	2.4	13	4.1	18 (3.4%)	0.306
	Absent	202	97.6	306	95.9	508 (96.6%)	
Social dysfunction	Present	2	1.0	6	1.9	8 (1.5%)	0.039
	Absent	205	99.0	131	98.1	518 (98.5%)	
Severe depression	Present	0	0.0	6	1.9	6 (1.1%)	0.046
	Absent	207	100	312	98.1	525 (98.9%)	

Table 8: Association of Psychological Distress with the Age of the Study Subjects

Psychological distress	Age <75 years (n=390)		Age >75 years (n=136)		t statistic & P value
	Mean	SD	Mean	SD	
Somatic symptoms	1.01	.011	1.07	0.026	t= 3.70 P <0.001
Anxiety & Insomnia	1.01	0.11	1.09	0.29	t= 4.65 P <0.001
Social dysfunction	1.00	0.07	1.04	0.020	t= 3.22 P =0.001
Severe depression	1.00	0.07	1.02	0.17	t= 2.31 P=0.021

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Nutritional Status of Children in Cuddalore District Tamilnadu

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ABSTRACT

Background: Child nutritional status is an essential component of a country's overall human development. Malnutrition in children is the consequence of a range of factors which are often related to insufficient food intake, poor food quality, and severe and repeated infectious diseases. **Method:** 120 school going children comprising 60 boys and 60 girls in the age group of 3-15 years was undertaken. Applying random sampling method; the children are selected from the primary school of Palvathunnan village, Cuddalore district. Relevant data were collected with respect to, children coming from different income groups Using standard procedures of body mass index were recorded. The study samples compared by National Centre for Health Statistics (NCHS).**Result:** 60%, 34%, 4% and 2% as underweight, normal weight, overweight and obese respectively .Percentage of underweight was higher in girls than boys .**Conclusion:** Awareness about balanced diet, improvement in the level of education and socioeconomic conditions, easy access to health facilities and prevention of the gender discrimination, are the remedial measures to be taken to redress the situation.

Keywords: *Children, Height, Weight, Body mass index.*

INTRODUCTION

Children are our future and most precious resource. Today's children determine the future of nation. Children below the age of 5 years constitute a major vulnerable segment of the population from the nutritional standpoint In addition to economic factors; social factors also affect nutritional input. Because of the important role that gender plays in defining an individual's social context there may be sex differences in the incidence and impact of malnutrition. In some cultures the conflict of interest between parents may be biased with respect to female children. There is the strongest evidence of low shares of energy and protein for young children (especially for girls under 4 years), [N.Malathi1994].In this context the present paper explore Nutritional Status of Children in Cuddalore District Tamilnadu.

MATERIALS AND METHOD

A survey of the nutritional status of 120 school going children comprising 60 boys and 60 girls in the age group of 3-15 years was undertaken. Applying random sampling method; the children are selected from the primary school of Palvathunnan village, Cuddalore district. Relevant data were collected with respect to, children coming from different income groups. Classification of various income groups viz. HIG, MIG and LIG was done based on the schedule adopted by the HUDCO Regional office, Tamilnadu assigning a monthly income of Rs.2500 to 5500 to LIG, Rs.5501-10000 to MIG and Rs.10000 and above to HIG respectively. Using standard procedures .of anthropometry, height, and weight were recorded. Taking into account the anthropometric observations, growth status of the study samples was evaluated and compared with standards adopted by National Centre for Health Statistics (NCHS).After field works data collection has been made and appropriate improvement has also modified collected dated has been checked and coded, and statistical analysis was made with the help of SPSS package

Table 1: RESULT AND DISCUSSION

Social Characteristics of the Sample household

Sl. No	Social Characteristics	Low income groups	Middle income groups	High income groups	Total
1	Sex				
	Male	25 (63)	21 (52)	22 (55)	68 (57)
	Female	15 (37)	19 (48)	18 (45)	52 (43)
2	Age				
	Below30	14 (35)	15 (37)	14 (35)	43 (36)
	31-40	19 (47)	19 (47)	17 (42)	55 (46)
	40+	7 (18)	6 (16)	9 (23)	22 (18)
3	Religion				
	Hindu	22 (55)	21 (52)	17 (42)	60 (50)
	Christian	13 (32)	11 (28)	16 (40)	40 (33)
	Muslim	5 (13)	8 (20)	7 (18)	20 (17)
4	Community				
	SC	31 (78)	0 (0)	0 (0)	31 (26)
	BC	5 (13)	21 (52)	15 (37)	41 (34)
	MBC	4 (9)	19 (48)	25 (63)	48 (40)
5	Type of family				
	Nuclear	32 (80)	20 (50)	22 (55)	74 (62)
	Joint	8 (20)	20 (50)	18 (45)	46 (38)
6	Educational level				
	Illiterate	16 (40)	9 (22)	6 (15)	31 (26)
	Primary	9 (22)	11 (28)	12 (31)	32 (27)

	Middle	8 (20)	10 (25)	9 (22)	27 (23)
	High school	7 (18)	4 (10)	4 (10)	15 (12)
	Hr.sec&above	0 (0)	6 (15)	9 (22)	15 (12)
7	Type of house				
	Thatched	30 (75)	0 (0)	0 (0)	30 (25)
	Tiled	10 (25)	35 (88)	17 (43)	62 (52)
	Roof	0 (0)	5 (12)	23 (57)	28 (23)
8	Occupation				
	A. labour	28 (70)	0 (0)	0 (0)	28 (23)
	Cultivators	12 (30)	15 (37)	18 (45)	45 (38)
	Business	0 (0)	13 (33)	12 (20)	25 (21)
	Private servant	0 (0)	12 (30)	10 (25)	22 (18)
	Total	40 (100)	40 (100)	40 (100)	120 (100)

Source: Primary Data.

The above table-1 shows that the number of females to thousand males would showcase the biological characteristics of the population and structural composition of the society in a particular village. It has also served as an essential tool for regional analysis and as a calibrator to measure the socio-economic conditions of the target region. Demographers have attributed the low female-male sex ratio to factors such as dowry and marriage practices and high female mortality rate. High female mortality rate is the result of poor nourishment and neglected health of female children due to gender bias.(Bardhan, Pranab (1988). The distribution of households by religion reveals that the majority of respondents are Hindus [50 percentage] Christians constitute 33 and Muslim constitute 17 percent. The major community is the most backward community (MBC), which constitutes 40 percent. Of this 60 percent belong to high income groups. Backward Community (BC) and Schedule Caste (SC) account for 36 percent and 24 percent respectively. The diffusion of general primary education has a long-run cumulative effect on economic development (Hanumantha Rao, G .(1977). In the sample on the whole, 27 per cent of the respondents have completed primary school level of education and it was followed by middle school, Sec and higher secondary education which constitute 23per cent, 12 per cent and 12 per cent respectively among the overall sample respondent households. In the study area, 26 per cent of the respondents are

illiterate. Economic status of an individual is determined by his/her employment(Bardhan, Kalpana (1986). In palvathunnan village, 23 per cent of the respondents are landless agricultural labourers, 38 per cent are cultivators and 21 per cent are business, 18 percent are private servant, It is concluded that the majority of the respondents household are cultivators and landless agricultural labourers. An important factor that affects the living environment of any section of the society is housing. According to Table-1 the majority of the respondent's household was lived in tiled house, which constitute 52 per cent, and it was followed by thatched and roof house Family structure indicates the nature of the interrelationships among different members of the family. Level of fertility in a community also depends upon the family structure(Krishnaji, N. (1980). Table-1 shows that majority of the households, comprising 62 percent and belong to nuclear family and the remaining households (38 percent) live in joint family system.

Table 2: Economic Characteristics of the Sample Households

Sl. No	Economic Characteristics	Low income groups	Middle income groups	High income groups	Total
1	**Monthlyincome**				
	2500-5500	40 (100)	0 (0)	0 (0)	40 (33.3)
	5501-10000	0 (0)	40 (100)	0 (0)	40 (33.3)
	10000and above	0 (0)	0 (0)	40 (100)	40 (33.3)
2	**Monthlyexpenditure**				
	Bellow3000	2 (5)	4 (10)	5 (13)	11 (9)
	3001-4000	6 (15)	5 (13)	6 (15)	17 (14)
	4001-5000	8 (20)	9 (23)	12 (30)	29 (24)
	5000and above	24 (60)	22 (55)	17 (42)	63 (53)
3	**Assets position**				
	Bellow50000	33 (83)	0 (0)	0 (0)	33 (28)
	50000-100000	7 (17)	31 (78)	3 (8)	41 (34)
	100000and above	0 (0)	9 (22)	37 (92)	46 (38)
4	**Indebtedness**				
	Below3000	4 (10)	2 (5)	4 (10)	10 (8)
	3001-4000	7 (18)	(4) (10)	6 (15)	17 (15)
	4001-5000	6 (15)	8 (20)	9 (23)	23 (19)
	5000and above	23 (57)	26 (65)	21 (52)	70 (58)
	Total	40 (100)	40 (100)	40 (100)	120 (100)

Source: Primary Data.

Note : Figures in parentheses indicate percentages

Lack of an adequate asset base has much to do with poverty and in turn malnutrition. Income Generating Assets constitutes the major form of asset, which is an around 60 percent high income group alone. The second larger share of assets is provided by household structures (HS), which constitute the major form of asset for middle income groups and low income groups categories. Next in order comes household durables (HD), and financial assets is shown to be meager for all categories. (Financial assets relate to savings through insurance and banking). LAL households are found to be with extremely low level of ownership of assets with cumulative asset value of less than fifty- thousand rupees. . Scarce assets may make these poor low income households vulnerable to child malnutrition. Lack of land asset is the most commonly cited reason for malnutrition among rural households. Observations and interviews further reveal that for many households, including landless households, animal ownership is their real asset which they use to generate income. Large livestock in the form of milk animals and drought animals are possessed by 20 percentage a majority of households which possess this asset is middle income category. Liquid assets like small livestock are found in 20 percentage. Liquid assets in the form of goats and chicken are more relevant to a household for they reflect a household's ability to cope with malnutrition. Small livestock is the most common form of liquid asset for low income groups category. In high income and middle income households, liquid asset in the form of jewellery is owned by respondents in Palvathunnan village.

Household durables (HD) in the form of gadgets like radio and television is found in a few households of these three income groups. It is found that a majority of low income households fall in the lowest asset group. Household income depends upon the number and occupation of wage earners. Household income or family income has been computed as summation of income earned by the respondents, income earned by other members of the family and income accruing from properties, livestock, and interest on savings. It is inferred from Table 2 that out of 120 sample respondent's households in palvathunnan village 40 (33.00 per cent) earned monthly income group of Rs.2500-5500,5501-10000, and above 10000.

An examination of the data from Table 2 will show that the largest amounts of borrowings are made by all the three income groups. The purposes of borrowing as stated by the respondents in Palvathunnan village include cultivation, marriage expenses and purchase of milk animals, repay the old debts. The rest of low income groups households mostly borrow to meet out family expenditure. An analysis of the sources of borrowing, among all the three categories, indicates that private moneylenders in the near-by town finance them to a large extent. Banks and Co-operatives. A few low income groups households said that their membership in the Self-Help group helped them to borrow money easily and on easily payable instalments. The analysis in terms of percentage share of debts over the asset reveals striking differences between all income category. From this table the highest and the lowest items of food consumption can be identified. Co-efficient of variation is also calculated and utilized for accounting the extent of inequality in the expenditure pattern among the three categories of sample households. The results show that the average monthly food expenditure is the highest in high income groups followed by middle income groups and low income groups. The striking variations in the level of expenditure among the three categories reflect the prevailing gross inequalities in income. Overall, the analysis shows that food expenditure was greater than non-food expenditure. An informal interview which the researcher had with the respondents reveals that in almost all LAL households, expenditure always exceeds income and the deficit is met by debts. This has also been the finding of other researchers(Lalitha, K. and D. Sharada (1988).

Table-3 : Distribution of Children belongs to Different Income Groups by Anthropometric Details

	Low income group				Middle income group				High income group			
BMI	Male	%	Female	%	Male	%	Female	%	Male	%	Female	%
NORMAL												
<4	-	-	-	-	2	10	1	5	1	5	2	10
5-9	-	-	-	-	2	10	-	-	2	10	2	10
10-12	-	-	-	-	1	5	2	10	3	15	-	-
13-14	-	-	-	-	3	15	1	5	2	10	-	-
>15	-	-	-	-	3	15	6	30	3	15	5	25
UNDER WEIGHT												
<4	3	15	4	20	-	-	2	10	-	-	1	5
5-9	5	25	2	10	2	10	2	10	-	-	-	-
10-12	5	25	2	10	2	10	-	-	3	15	2	10
13-14	3	15	4	20	2	10	2	10	-	-	2	10
>15	4	20	8	40	3	15	4	20	2	10	3	15
OVER WEIGHT												
<4	-	-	-	-	-	-	-	-	-	-	-	-
5-9	-	-	-	-	-	-	-	-	2	10	-	-
10-12	-	-	-	-	-	-	-	-	-		-	-
13-14	-	-	-	-	-	-	-	-	1	5	-	-
>15	-	-	-	-	-	-	-	-	-	-	2	10
OBESITY-												
<4	-	-	-	-	-	-	-	-	1	5	-	-
5-9	-	-	-	-	-	-	-	-	-	-	-	-
10-12	-	-	-	-	-	-	-	-	-	-	-	-
13-14	-	-	-	-	-	-	-	-	-	-	1	5
>15	-	-	-	-	-	-	-	-	-	-	-	-

Source: Primary Data.

This study was carried out using income group as the basic measurement to assess the nutritional status of male and female children of a family. This is evident from the fact that low income group children both male and female children were having the least normal nutritional status which is the lowest among all income groups.

Determinant of Nutritional Status in Palvathunnan Village: Factorial investigations are conducted for 13 variables selected. This analysis will help in forming a clear and comprehensive picture of the multi-dimensional relationships between important aspects of child nutritional status and their determinants

Table -4 Determinant of Nutritional Status in Palvathunnan Village

Sl. No.	Variables	F1	F2	F3
1	Family size	.972	.007	.025
2	Occupation	.961	.088	.019
3	Monthly expenditure	.939	.002	.073
4	Monthly income	.933	.090	.050
5	Education	.913	.076	.081
6	Community	.893	.031	.006
7	Wealth composition	.853	.089	.054
8	Household borrowing	.660	.281	.150
9	House type	.640	.547	.010
10	Father age	.111	.877	.104
11	Mother age	.137	.860	.268
12	Source of daring water	.166	.044	.917
13	Religion	.341	.191	.828
	Eigen value	6.9	1.9	1.6
	Percentage Variation	53.8	15.0	12.6
	Cumulative Percentage Variation	53.8	68.8	81.5

Source: Primary Data

Of the 13 socio-economic variables selected for factor analysis three factors have been extracted. They, all joined together have explained 53.8 per cent of the total variation in all the variables included. The first factor has eigen value 6.9 and explained 53.8 per cent of the total variation. The factor loadings of the variables in the first factor are family size (-0.972), occupation (0.961], monthly income (0.933), monthly expenditure (0.939), education (0.913), community [-893] wealth composition [0.853] household borrowing [-0.660] house type [0.640] The second factor has eigen value 1.9 and explained 15 per cent of the total variation. The factor loadings of the variables in the second factor are father age [0.87], mother age. (0.86). The third factor has eigen value 1.6 and explained 12.6 per cent of total variation. The factor loadings of the variables are drinking water (0.91), religion (0.82], It is to be noted from the factor analysis that the important factors influencing the child nutritional status in Palvathunnan village.

CONCLUSION

In this study, a sample of 120 children of 3–15 years of age was taken from different schools of Palvathunnan village. Out of them, 60 were girls and 60 boys. The factors influencing nutritional status such as family size, education and socio-economic status were studied using body mass index. There was much of an effect of family type in determining the nutritional status of children. Again when educational status was taken into consideration, the obvious result was that better educated parents were having better nourished children and had a standard level of nutrition and also cases of malnourishment were less. The interesting observation in this study was that the income group classification had no significant effect on nutrition in male children but in the female children, it was found significant. Only one-fourth of the boys and one-fifth of the girls were found to have normal nutritional status. Conversely, three-fourth of the boys and four-fifth of the girls were undernourished. Thus, gender was an important determinant of nutritional status of children.

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Study of Finger Print Pattern in Epileptic Patients of KLE's Dr. Prabhakar Kore Hospital and Medical Reasearch Centre, Belgaum-a Cross Sectional Study

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ABSTRACT

Objectives : Epilepsy is a group of disorders in which there are recurrent episodes of altered cerebral function associated with paroxysmal excessive hyper synchronous discharge of cerebral neurons. The objectives of the present study were to find out various dermatoglyphic features in patients suffering from epilepsy and to compare the dermatoglyphic features in normal and epileptic patients.

Material and Methods : The present cross sectional study was conducted during the period from January 2007 to December 2007 on age and sex matched 70 epileptic patients and 70 normal individuals. Patients were selected from that attending outpatient department of Neuro medicine, KLES Dr. Prabhakar Kore Hospital and Medical Research Centre, Belgaum aged between 5 and 40 years. Among the various methods was used for recording dermatoglyphics, most routinely used ink method was used for this study. The finger and palm prints were analyzed qualitatively and quantitatively.

Results : Significant findings in qualitative analyses of male epileptic patients showed increase in frequency of radial loops and decrease in frequency of whorls. Significant findings in quantitative analysis of epileptic patients included increase of total finger ridge count in male and female epileptics.

Conclusion : Thus with the help of these parameters, one can conclude that, there is some genetic basis for epilepsy and it is possible to a certain extent to predict from dermatoglphic studies, individual's tendency for acquiring epilepsy.

Key words : *Epilepsy; Deramtoglyphics; Finger print pattern; Total finger ridge count; Triradii*

INTRODUCTION

Dermatoglyphics is a branch of genetics dealing with the skin ridge system. Each Dermatoglyphic configuration is unique and no two persons, not even uniovular twins, show exactly similar finger pattern. Epilepsy and Dermatoglyphics both have strong genetic basis.

Dermatoglyphics analysis as a diagnostic tool has many advantages

- The epidermal ridge patterns on the palm are fully developed at birth and remain unchanged throughout life.
- Patterns are readily accessible.

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- Recording is quick, simple and inexpensive.
- There is no trauma to individual during recording.
- Ridge pattern can quickly be analyzed.
- Ridge pattern can be inspected for abnormalities immediately after birth.

Dermatoglyphics has been studied extensively in chromosomal disorders and studies proved quite useful in the medicolegal, anthropological and clinical fields. Currently several Dermatoglyphic research workers, claim a very high degree of accuracy, in their prognostic ability, from the hand features in diseases like diabetes mellitus, hypertension and some chromosomal disorders [1].

Studies have shown that total finger ridge count follow polygenic mode of inheritance [2]. Scientists opine that, the total ridge count, in spite of its continuous variations, is the sum of a heterogeneous combination of values (fingers with different means, standard deviations and frequency distributions) with complicated interrelations. Such a hetrogenous term cannot pass for a homogenous biologically meaningful character [3]. A single major autosomal locus with two additive alleles may account for over half the variations of the quantitative phenotype absolute finger ridge count [4].

Epilepsy is probably a familial hereditary diseases transmitted by as an autosomal dominant characteristic with variable expressivity [5]. This disparity is the result of many causes of seizures, their episodic occurrence and varying types of patients studied [6].

The annual incidence of new cases of epilepsy after infancy is 20 to 70 per 100000. The incidence of epilepsy in general population in India is one percent [5].A study showed an approximate 4% risk for epilepsy through age 20 and a 10% risk for any type of seizure disorders. Studies of parents with epilepsy had shown that offspring's of mother with epilepsy were at greater risk than those of fathers with epilepsy [7].

Presumably, genetically related of epilepsy are primary generalized tonic clonic seizures, progressive myoclonic epilepsy, some childhood absence seizures etc. except for relative rare Mediteranian traits that encompass seizure disorders , epilepsy does not follow single gene mechanism of inheritance [8].

The epileptic patients are available in large number and they along with their families, tagged with social stigma face lots of hardships and studies in epilepsy are scanty in India and abroad. Taking these into account we can establish the importance of dermatoglyphics as a useful investigatory or inexpensive screening procedure for the population at risk, so that anticipation and early detection of symptoms help in averting the disease or complications associated with the disease.

OBJECTIVES

The objectives of the present study were to find out various dermatoglyphic features in patients suffering from epilepsy and to compare the dermatoglyphic features in normal and epileptic patients.

MATERIAL AND METHOD

The present study was conducted in the Department of Anatomy during the period from January 2007 to December 2007. The material for the study consisted of finger and palm prints of patients selected from those attending outpatient Department of Neuromedicine, KLES Dr. Prabhakar Kore Hospital and Medical Research Centre, Belgaum, aged between 5 and 40 years. The controls were normal mixed population with same age and sex matched. Patients were informed about the procedure in detail and their consent was obtained. The data like age, sex, address, history of illness and other medical history of importance were obtained by interviewing the patients and recorded on predesigned and pretested proforma.

Among the various number of methods used for recording dermatoglyphics, the most routinely used one that is the ink method was used for this study. The finger and palm prints were analyzed qualitatively and quantitatively. The qualitative analysis done included the finger print patterns. The quantitative analysis done included total finger ridge count.

Qualitative analysis

To analyze finger pattern frequency, the fingertip pattern configurations were classified as arches (A), loops (L) and whorls (W) [9].Loops were recorded as ulnar or radial depending on the side on which they opened and whorls were recorded as true and composite (w comp) whorls. (Fig 1)

Quantitative analysis

The characteristics of dermatoglyphics can be described quantitatively that is by counting the number of ridges within a pattern and measuring angles or distance between specified points of triradii.The counting was done along a straight line connecting the triradii point to the point of core (Figure No. 1). Symbols and ridge counts were recorded in order, beginning from first digit of right hand to the fifth digit and from first digit of left hand to fifth digit of same hand. The total finger ridge count (TFR) was derived by adding the ridge counts on all ten fingers [3]. Only the large count was used on those digits with more than one ridge count. In a loop there is one triradius and so one side ridge count; in a whorl with two triradii there are two side counts and higher is used. For an arch the score is zero Loop Simple whor Composite whorl

Figure No. 1: Method of counting finger ridges Statistical analysis

For quantitative analysis the arithmetic mean, standard deviation and critical values were calculated. For qualitative analysis chi square test was applied.

OBSERVATION AND RESULTS

Difference in frequencies of pattern distribution in male controls and patients is significant. Whereas, the frequencies of pattern in female controls and patients are not statistically significant.

Finger print patterns of males and females in both the study groups

Table No 1.

Pattern		Controls (n = 35)		Patients (n = 35)	
		Male	Fe male	Male	Fe male
Loops	Ulnar	53.2%	61.2%	55.2%	60.4%
	Radial	1.2%	1.4%	3.6%	1.6%
Arch		2.8%	4.6%	3.8%	4.0%
Whorls		42.8%	32.8%	37.4%	34.0%

Male epileptic patients show higher mean total finger ridge count (130 ± 7.12) as compared to controls and difference is statistically significant ($t = 2.73$, $p < 0.05$). Female epileptic patients show higher mean total finger ridge count, which is statistically highly significant ($t = 11.88$, $p < 0.05$). Mean and S. D. of TFRC and 'atd' angles were calculated for different groups. They were compared using 't' test. Significance level fixed at 0.05 level (p value).

Mean total finger ridge count of males and females in both the study groups.

Table No. 2

Groups	Mean TFRC			
	Males		Females	
	Mean	S.D	Mean	S.D.
Control (n=35)	125	8.18	107	5.74
Patient (n=35)	130	7.12	121	4.76
t value	2.73		11.88	
p value	< 0.05		< 0.05	

In this table shows percentage of digit wise frequency in male patients, where digits on the right hand numbered R1 to R5 and left hand numbered L1 to L5 from thumb to little finger direction. Ulnar loops are increased in epilepsy on R_4, L_4 and R_1, and decreased on L_2 and L_5.Radial loops showed statistically significantly increased in epilepsy on R_2 ($x^2 = 4.400$; $p < 0.05$) and also

increased on L_2. Arches are increased in epilepsy on L_1, L_2, L_3.Whorls are decreased in epilepsy on R_1, R_2, R_4 and L_4, and are increased in epilepsy on L_5.

Percentage of digit wise frequency in male patients (n = 35)

Table No 3

Digit	Pattern			
	Ulnar loop	Radial loop	Arch	Whorl
R_1	56	00	02	42
R_2	40	16	08	36
R_3	72	02	04	22
R_4	38	02	02	48
R_5	68	02	02	28
L_1	52	00	04	44
L_2	36	12	08	44
L_3	72	00	04	24
L_4	44	02	02	52
L_5	74	00	02	24

In this table shows percentage of digit wise frequency in female patients, where digits on the right hand numbered R1 to R5 and left hand numbered L1 to L5 from thumb to little finger direction. Ulanr loops increased in epilepsy on R_1 and L_5, and are decreased on L_3.Radial loops are not showing significant change in controls and patients. Arches are increased in epilepsy on R_3 and L_3 but decreased on L_2.Whorls are increased in epilepsy on L_2 and are decreased on R_1.But these differences are not statistically significant.

Percentage of digit wise frequency of pattern in female patients (n = 35)

Table No 4

Digit	Pattern			
	Ulnar loop	Radial loop	Arch	Whorl
R_1	64	00	02	34
R_2	52	04	06	38
R_3	74	02	06	18
R_4	40	02	00	48
R_5	88	00	00	12
L_1	54	02	02	42
L_2	44	06	10	40
L_3	62	00	10	28
L_4	44	00	02	54
L_5	82	00	02	16

DISCUSSION

1. Ulnar loops : In the present study male epileptic patients showed higher frequency (55.2%) of ulnar loops as compared to controls (53.2%). Female epileptic patients showed slightly low frequency of ulanr loops (patients 60.4%, control 61.2%).A study conducted on 100 male epileptic patients reported the presence of ulnar loops in 63% epileptic patients compared to 59.9% of control population.[10]

2. Radial loops : In male epileptic patients the frequency of radial loops was 3.6%, and in control it was 1.2%. The difference in the frequencies was statistically significant (x^2 = 6.633; $p < 0.05$). In female epileptic patients the frequency of radial loops was 1.6% and in female control it was 1.4%. The difference in frequencies of female epileptic patients and control is not statistically significant in the present study. A study reported 6.6% frequency of radial loops in male epileptic patients and 5% in control patients.[10]

4. Arches : In the present study, the frequency of arches in male epileptic patients was 3.8% and in control it was 2.8% which indicates that there was increase in frequency of arches in male epileptic patients than control. The frequency of arches in epileptic female patients was 4% and in female control it was 4.6%.A study showed that 4.8% frequency of arches in male epileptic patients compared to 1.7% in controls.[10]

5. Whorls : The frequency of whorls in male epileptic patients was low (37.0%) as compared to control (42.8%), which was statistically not significant. In female epileptic patient the frequency of whorl was 34% while in female control it was 32.8%. This indicates the frequency of whorls is slightly more in female epileptic patients as

compared to control which was statistically not significant. A study reported 25.6% frequency of whorls in epileptic male patients compared to 28.4% control population.[10] From above observation it was seen that the arches, radial loops and ulnar loops have increased mainly at the cost of whorls in male epileptic patient. While in female epileptic patients, whorl and radial loops are showing marginal increase at the expense of other two that is arches and ulnar loops.

Digit wise frequency of male patients

In the present study digit wise frequency of finger print pattern is studied in male epileptic patients. The digits are numbered R1 to R5 for right hand and L1 to L5 for left hand. Ulnar loops are increased in epilepsy on R_4, L_4 and R_1, and decreased on L_2 and L_5.Radial loops showed statistically significantly increased in epilepsy on R_2 ($x^2 = 4.400$; $p < 0.05$) and also increased on L_2. Arches are increased in epilepsy on L_1, L_2, L_3.Whorls are decreased in epilepsy on R_1, R_2, R_4 and L_4, and are increased in epilepsy on L_5.

Digit wise frequency pattern in females

In the present study digit wise frequency of finger print pattern is studied in female epileptic patients. The digits are numbered R1 to R5 for right hand and L1 to L5 for left hand. Ulanr loops increased in epilepsy on R_1 and L_5, and are decreased on L_3.Radial loops are not showing significant change in controls and patients. Arches are increased in epilepsy on R_3 and L_3 but decreased on L_2.Whorls are increased in epilepsy on L_2 and are decreased on R_1.But these differences are not statistically significant.

Quantitative analysis

Mean Total Finger Ridge Count (TFRC)

In present study, the TFRC in male epileptics was 130 and in controls it was 125. The TFRC in female epileptics was 121 and in controls it was 107. Both male and female patients showed statistically significant higher mean TFRC. A study reported mean TFRC as 142.9 male in epileptics whereas it was 131 in controls.[10]

These differences in dermatoglyphic parameters being genetic markers raise the possibility of detecting those who are predisposed to develop the epilepsy. Thus further studies with a large population have to be conducted on dermatoglyphics in epilepsy, for the above mentioned parameters to be considered as "Dermatoglyphic markers of epilepsy".

CONCLUSION

There is some genetic basis for epilepsy and it is possible to a certain extent to predict from dermatoglyphic studies, individual's tendency for acquiring epilepsy.

But till today the studies in dermatoglyphics in epilepsy are very few in order to determine the use of dermatoglyphics as a diagnostic and screening method. It is believed that many more workers will come out with research on this interesting aspect and sufficient data may accumulate to enable the clinician to predict the development of epilepsy, well in advance with the help of the dermatoglyphics.

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Conflict of Interest: There is no conflict of interest in my study period.

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Ethical Clearence: Yes, ethical clearance has been taken from the Chairman, JNMC Institutional Ethics Committee on Human Subjects Research.

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Assessment of Unmet Needs of Contraceptive Practices among Married Women in Urban Slums of Lucknow District

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ABSTRACT

Objectives : To assess the unmet needs of contraceptive practices and its determinants among married women in urban slums of Lucknow district.

Materials and Method : This was a descriptive cross-sectional study and thirty cluster sampling technique was used; thereby thirty urban slums were selected. About 600 married women of reproductive age group (15-49 years) were interviewed in the period of one year from August 2010 to July 2011. Data was collected through preformed and pretested schedule and analysis was done using SPSS 17.0 software.

Results: The knowledge about contraceptives was in 99.2 percent women and about 57.2 percent women had met need, while 42.8 percent of women still had unmet need for contraception. It was found that the unmet need was highest (27.7%) in the age group 25-29 years and in those (16.5%) whose husbands' attitude was indifferent towards contraceptive use. Most common reason stated by these women for unmet was low/ no fertility (28.1%) followed by husband's opposition (16.5%).

Conclusions: Though knowledge of contraceptives among women residing in urban slums of Lucknow was good but contraceptive use was far lagging behind and also they have high unmet need. An important reason for the unmet need of contraceptive practices was husband's negative attitude towards contraceptive use, so to increase the use of contraceptive methods, it is imperative to develop a programme for changing husband's attitude.

Keywords : *Urban slums, Contraception, Unmet need*

INTRODUCTION

Emergence of slum is perpetuated by number of forces. Among these are rapid rural to urban migration, increasing rural poverty and inequality, insecure tenure, and globalization- all contribute to creation and contribution of slums.

Late in 2003 the United Nations reported that one billion people- approximately one third of the World's urban dwellers and a sixth of all humanity, live in slums and it is predicted that within next thirty years this figure would become doubled to two billion- a third of the current World population.

Family planning is one of the least expensive and most cost effective interventions that the

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government can take to have more lasting impact on health of the women living in slums. But it was seen in various studies that despite being aware of various contraceptive methods women still have high unmet need.

According to NFHS-3[7], in India the unmet need for family planning is 12.8% & of urban population it is 9.7%. Unmet need in urban slums is much higher, as seen by Patil, S. S., et. al., (2010)[1] in urban slums of Maharashtra, where unmet need is 45.1 percent.

Not many studies have been conducted assessing unmet need of contraception in the slums of Lucknow district. This study will be helpful in knowing current scenario regarding the unmet need of contraception in urban slums of Lucknow.

MATERIALS AND METHOD

A community based cross-sectional study was undertaken among married women of reproductive age group (15-49 years) of urban slums of Lucknow district. The study was conducted over a period of one year. Standard WHO 30 cluster sampling was used to select the respondents from urban slums of Lucknow district.

Considering the contraceptive prevalence rate of Lucknow as 42.5 percent[2], a confidence level of 95%, 6% of absolute precision and design effect of 2, the sample size calculated was 507. Thus from each cluster 17 married women were to be interviewed. To be on safer side 20 married women were interviewed from each cluster, thus a total of 600 married women were interviewed in this study.

Each slum was divided in to four quadrants and from each quadrant five women were interviewed. In each slum first the center point was selected and then starting each quadrant from left, first house having eligible woman was selected as first household and then subsequent houses having eligible women were selected. If all the eligible women could not be found in the selected cluster, then the survey was continued, taking women from the contiguous cluster.

The inclusion criteria was, all married women of reproductive age group (15-49 years) residing in urban slums of Lucknow, who had agreed for interview were included. The exclusion criteria were those women who were non-responsive, had undergone Hysterectomy/ Bilateral Oophorectomy, women whose 'gauna' was not done and women who were divorced/ disserted/ separated from their spouse.

After taking the informed consent from the eligible women they were interviewed with a predesigned, pretested, semi-structured schedule to collect information regarding bio-social characteristics of the married women, their unmet need of contraception and reasons for these unmet needs.

Data was tabulated on Microsoft Excel Sheet and analyzed by using Chi square test and Multiple logistic regression through SPSS software version 17.0.

FINDINGS

In this study, among 600 women studied a maximum of 27.5 percent women were in the age group 25-29 years. About 33.0 percent respondents and 21.8 percent respondent's husbands were illiterate. Majority of the women were housewives (unemployed, 94.0%) and among working women maximum (3.2%) were unskilled worker. A maximum of 32.8 percents respondent's husbands were unskilled workers and 1.7 percent were unemployed. Most of the studied women belonged to socio-economic class III (52.7%

TABLE 1: Distribution of married women according to Met and Unmet need for family planning

Need for family planning	Total no. of women	For spacing No.	%	For limiting No.	%
Met need	275 (572)	33	6.8	241	50.1
Unmet need	206 (42.8)	43	8.9	163	33.9
Total	481 (100.0)	76	15.8	404	84

About 57.2 percent women had met need while 42.8 percent of women still have unmet need for family planning. Among women with unmet need for family planning 33.9 percent women desired for limiting, while only 8.9 percent women desired for spacing (Table. 1).

TABLE 2: Distribution of women by bio-social characteristics and need for family planning

Characteristics	Unmet need (n=206)			Met need (n=275)		
	Spacing n (%)	Limiting n (%)	Total n (%)	Spacing n (%)	Limiting n (%)	Total n (%)
AGE GROUP						
15-19	-	1 (0.5)	1 (0.5)	-	-	-
20-24	18 (8.7)	10 (4.9)	28 (13.6)	16 (5.8)	14 (5.1)	30 (10.9)
25-29	22 (10.7)	35 (17.0)	57 (27.7)	15 (5.5)	58 (21.1)	73 (35.4)
30-34	2 (1.0)	33 (16.0)	35 (17.0)	1 (0.4)	66 (24.0)	67 (24.4)
35-39	1 (0.5)	50 (24.3)	51 (24.8)	-	72 (26.2)	72 (26.2)
40-44	-	24 (11.7)	24 (11.7)	1 (0.4)	30 (10.9)	31 (11.3)
45-49	-	10 (4.9)	10 (4.9)	-	2 (0.7)	2 (0.7)
RELEGION						
Hindu	31 (15.0)	145 (70.4)	176 (85.4)	26 (9.5)	214 (77.8)	240 (87.3)
Muslim	12 (5.8)	18 (8.7)	30 (14.7)	7 (2.5)	28 (10.2)	35 (12.7)
CASTE						
General	18 (8.7)	58 (28.2)	76 (36.9)	16 (5.8)	86 (31.3)	102 (37.1)
OBC	14 (6.8)	60 (29.1)	74 (35.9)	12 (4.4)	81 (29.5)	93 (33.8)
SC/ST	11 (5.3)	45 (21.8)	56 (27.2)	5 (1.8)	75 (27.3)	80 (29.1)
RESPONDENT'S EDUCATION						
terate	11 (5.3)	71 (34.5)	82 (39.8)	8 (2.9)	80 (29.1)	88 (32.0)
Primary	7 (3.4)	45 (21.8)	52 (25.2)	4 (1.5)	57 (20.7)	61 (22.2)
Middle school	12 (5.8)	17 (8.3)	29 (14.1)	3 (1.1)	34 (12.4)	37 (13.5)
High school	4 (1.9)	13 (6.3)	17 (8.3)	5 (1.8)	33 (12.0)	38 (13.8)
Intermediate	6 (2.9)	11 (5.3)	17 (8.3)	7 (2.5)	21 (7.6)	28 (10.2)
Graduate/PG	3 (1.5)	6 (2.9)	9 (4.4)	6 (2.2)	16 (5.8)	22 (8.0)
Professional	-	-	-	-	1 (0.4)	1 (0.4)

HUSBAND'S EDUCATION						
Illiterate	10 (4.9)	39 (18.9)	49 (23.8)	10 (3.6)	51 (18.5)	61 (22.2)
Primary	4 (1.9)	18 (8.7)	22 (10.7)	2 (0.7)	26 (9.5)	28 (10.2)
Middle school	5 (2.4)	34 (16.5)	39 (18.9)	5 (1.8)	46 (16.7)	51 (18.5)
High school	13 (6.3)	36 (17.5)	49 (23.8)	7 (2.5)	47 (17.1)	54 (19.6)
Intermediate	8 (3.9)	18 (8.7)	26 (12.6)	6 (2.2)	37 (13.5)	43 (15.6)
Graduate/PG	3 (1.5)	18 (8.7)	21 (10.2)	3 (1.1)	32 (11.6)	35 (12.7)
Professional	-	-	-	-	3 (1.1)	3 (1.1)
RESPONDENT'S OCCUPATION						
Semi-professional	-	2 (1.0)	2 (1.0)	1 (0.4)	6 (2.2)	7 (2.5)
Clerk,	-	1 (0.5)	1 (0.5)	-	4 (1.5)	4 (1.5)
Farmowner, Shopkeeper	-	1 (0.5)	1 (0.5)	1 (0.4)	-	-
Skilled worker	-	4 (1.9)	4 (1.9)	31 (11.3)	11 (4.0)	12 (4.4)
Unskilled	43 (20.9)	155 (75.2)	198 (96.1)		221 (80.4)	252 (91.6)
Unemployed						
SOCIO-ECONOMIC STATUS						
II	12 (5.8)	39 (18.9)	51 (24.8)	10 (3.6)	70 (25.5)	80 (29.1)
III	22 (10.7)	86 (41.7)	108 (52.5)	17 (6.2)	123 (44.7)	140 (51.0)
IV	9 (4.4)	38 (18.4)	47 (22.8)	6 (2.2)	49 (17.8)	55 (20.0)

Majority of women (27.7%) with unmet need belonged to 25-29 years age group. In case of unmet need for family planning, the unmet need for limiting was more as compared to that for spacing. (Table 2)

TABLE 3: Relation of unmet need with bio-social characteristic

Characteristics	Unmet need (N=206) n (%)	P value
AGE GROUP		
15-19	1 (0.5)	**0.001**
20-24	28 (13.6)	
25-29	57 (27.7)	
30-34	35 (17.0)	
35-39	51 (24.8)	
40-44	24 (11.7)	
45-49	10 (4.9)	
Exposure to family planning messages		
Yes	192 (42.0)	0.192
No	14 (58.3)	
Husband's attitude		
Encouraged	52 (16.3)	**0.000**
Discouraged	51 (96.2)	
Indifferent	103 (95.4)	
Fertility preference		
Want a/another child	39 (54.9)	**0.001**
Soon	-	
Later	32 (52.6)	
Undecided	7 (87.5)	
Want no more/ none	164 (40.4)	
Undecided	3 (75.0)	

The unmet need was highest (27.7%) among women in the age group 25-29 years and it was statistically significant (p value=0.001). About 42.0% women with unmet need were exposed to family planning messages recently. Attitude of husband towards contraceptive use was significantly

associated with unmet need (p value=0.000). Husband who discouraged and showed indifferent attitude towards contraceptive use, the unmet need in their wives was 96.2% and 95.4% respectively. (Table 3)

TABLE 4: Distribution of women with unmet according to reasons for not using contraceptive methods any time in future

Reasons	Women with unmet need (n= 121)	
	No.	%
FERTILITY RELATED REASONS		
Infrequent/No sex	13	10.7
Low/No fertility	34	28.1
Want son	2	1.7
Total	49	40.5
OPPOSITION TO USE		
Respondent opposed	6	4.9
Husband opposed	20	16.5
Others opposed	4	3.3
Religious prohibition	13	10.7
Total	43	35.5
LACK OF KNOWLEDGE		
Knows no method	2	1.7
Knows no source	-	-
Total	2	1.7
METHOD RELATED REASONS		
Fear of side effects	15	12.4
Lack of access	2	1.7
Costly	3	2.5
Inconvenient to use	5	4.1
Total	25	20.7
DON'T KNOW	1	0.8
OTHER	1	0.8

A maximum of 40.5 percent women told fertility related reasons as the main cause, followed by opposition to use contraception (35.5%), and method related reason (20.7%) for unmet needs. Most common reason stated by these women for unmet need was low/ no fertility (28.1%) followed by husband's opposition (16.5%), fear of side effects (12.4%) and religious prohibition (10.7%). (Table 4)

TABLE 5: Odds ratio of independent predictors of unmet need among married women by multiple logistic regression

Predictor variable	β Co-efficient	**Adjusted OR (95% CI)**	**P value**
Husband's attitude			
1	-2.725	0.066 (0.039-0.109)	0.000
2	1.095	2.988 (1.270-7.030)	0.012
3	Reference category		
Number of living children			

0	-2.669	0.069 (0.018-0.273)	0.000
1	-0.464	0.629 (0.267-1.479)	0.288
2	-0.205	0.815 (0.422-1.571)	0.541
3	-0.228	0.796 (0.438-1.449)	0.456
4+	Reference category		
Number of living sons			
0	-1.302	0.272 (0.065-1.131)	0.073
1	-0.781	0.458 (0.131-1.602)	0.222
2	-0.809	0.445 (0.132-1.497)	0.191
3	-1.204	0.300 (0.079-1.146)	0.078
4+	Reference category		
Fertility preference			
Want a/another child	-0.589	0.555 (0.081-3.803)	0.548
Want no more children	0.802	2.231 (0.328-15.162)	0.412
Undecided	Reference category		

After applying multiple logistic regression analysis the two predictor variables namely husband's attitude and number of living children were found to be statistically significant. The women whose husbands had encouraging attitude towards contraceptives were about three times less likely to have unmet need. Whereas women whose husbands had discouraging attitude towards contraceptives were more likely to have unmet need. As the number of living children increases the women were more likely to have unmet need. Women with no living children were 2.669 times less likely to have unmet need while women with three children were 0.228 times less likely to have unmet need (Table 5).

DISCUSSION

In this study, about 57.2 percent women had met need, while 42.8 percent women had unmet need for family planning. Above findings shows that met need is more than the unmet need for family planning but still about half of the respondents have unmet need which is primarily because women residing in urban slums were exposed to very less opportunities to avail the family planning services provided by the government. Among the women with unmet need, need for limiting (33.9%) was more than the need for spacing (8.9%). These findings are in accordance with the findings by Patil, S. S., et. al., (2010)[1] who also showed that unmet need of the respondents was 45.1 percent. The unmet need for limiting (26.0%) was more than the unmet need for spacing (19.1%) with the women. The unmet need for limiting (26.0%) was more than the unmet need for spacing (19.1%). In another study by Choudhary, S., et. al., (2011)[3], unmet need for limiting (25.5%) was more than unmet need for spacing (16.15%).

According to DLHS-3 (2007-08)[4] for Lucknow, the unmet need for family planning was 26.7%. Unmet need for limiting was 17.9 percent and for spacing was 8.8 percent. On comparing the present study from DLHS findings the unmet need was high, this is because the DLHS reports represents the whole Lucknow population while present study was confined only to urban slums of Lucknow. The fertility indicators and contraceptive practices of urban women are better than that of women residing in the urban slums.

In the present study maximum unmet need (27.7%) was observed in the age group 25-29 years. In a study done on Urban slums of Lucknow by Patil, S. S., et. al., (2010)[1], the unmet need for family planning was highest (63.5%) in the age group of 20-24 years. On, comparing the two studies it was observed that the maximum age group of women having unmet need has shifted from 20-24 years to 25-29 years. This change is probably because, over a decade's time, there are more number of delayed marriages. The association of unmet need

and age of the respondent women was significantly associated (p= 0.001).

In the present study, the unmet need was more among the illiterate women (39.8%) and women educated up to primary (21.8%) as compared to those who were more educated. Similar findings were observed in the study by Choudhary, S., et. al., (2011)[3] who also showed that the prevalence of unmet need was high among primary literacy group (51.61%) and illiterate women (46.41%), compared to that in the higher educational groups.

In our study, it was observed that about 42.0 percent women who were exposed to family planning messages have unmet need. Pal, A., et. al., (2001)[5], in their study in the urban slums of Lucknow showed that about 65.7 percent women who were exposed to family planning messages still had unmet need. This difference is probably because over a decade's time the exposure to family planning messages have increased markedly and has played a significant role in decreasing the unmet need of women.

In this study most common reason for not using contraceptives any time in future cited by the women was, low/ no fertility (28.1%) followed by husband's opposition (16.5%), fear of side effects (12.4%) and religious prohibition (10.7%). While the main reason cited in the study of Puri, A., et. al., (2004)[6], was religious taboos (2.5%) which is similar to present study.

The study conclusions led to the following suggestions:

For reducing the menace of exponential growth of the population in the country there is an urgent need for developing a BCC programme specially intended for urban slums. The BCC programme should emphasize more on educating this population regarding benefits of use of contraceptive methods and decreasing the unfounded fear of side effects of contraceptives. An important reason for not using contraceptive methods by women is husband's negative attitude towards use of contraceptive methods, so to increase the use of contraceptive methods, it is imperative to change husband's attitude and involvement of both men and women equally in family planning decision making and these should be incorporated in the programme.

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PEM in Relation to Birth Order and Birth Interval in Children Aged 1-6 Years in Urban Slums of Mysore City

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ABSTRACT

Background: Protein Energy Malnutrition (PEM) is widely prevalent form of malnutrition among under five children and is still the major problem in our country especially in urban slums.

Objectives: 1) To estimate the prevalence of PEM in children aged 1 to 5 years. 2) To study the association of birth order and birth interval with PEM in children aged 1to 5 years.

Method: A cross sectional study of 600 children of 1-5 year age group in urban slums of Mysore city was carried out with cluster random sampling method. The data was collected using a predesigned and pretested proforma. Assessment of the nutritional status was done by clinical examination and anthropometry. WHO child growth standards, 2006 reference data were used to classify malnutrition.

Results: Among 600 children examined, 285 (47.5%) were males and 315 (52.5%) were females. 281 (46.8%) of the children were of Birth order one, 237 (39.5%) were of Birth order two, 66 (11%) were of birth order three and 16 (2.7%) children were of Birth order four and above. Birth interval in majority of children i.e. 176 (54.1%) was between 24-35 months and only in 62 (19.07%) children birth interval was more than 36 months. the prevalence of underweight, stunting and wasting was 129 (21.5%), 135 (22.5%) and 9 (7.5%) respectively. The prevalence of underweight was least in children with birth order one 78 (27.8%), Similarly wasting was found to be high in children with birth order three and above i.e. 19 (23.1%). Maximum number of children i.e. 42 (48.3%) were found to be underweight with birth interval less than 24 months.

Conclusion: Birth order and birth interval plays an important role in nutritional status of the child and need to be addressed

Keywords: *PEM, Birth order, Birth interval*

INTRODUCTION

Children are nature's gift and the fountain of life. They are our future and are supremely important asset of nation. The term 'Nutrition' is derived from a Latin word nutritic, meaning nourishment.[1] Mal means any deviation from normal phenomenon. Malnutrition is defined as any deviation from normal nutrition. Globally, each year malnutrition is implicated in about 40% of the 11 million deaths of under five children in developing countries and lack of exclusive breast feeding in infancy causes an additional 1.5

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million deaths.[2] Despite the spectacular increase in the food grain production in recent years the problem of chronic malnutrition continues to exist extensively, especially among children of below 6 years of age as they are caught in a relentless sequence of ignorance, poverty, inadequate food intake, disease and early death. Undernutrition is still the major problem in our country especially in underserved areas such as urban slums. There are some unique problems faced by the people in urban slums. High prices of food, health care goods and essential commodities are making them unaffordable. They are denied the right to housing, their infrastructure is neglected and they are not provided easy access to basic healthcare; Scarcity of water supply and overcrowding reduce the quantity available per head. [1] Lack of spacing and large number of siblings are common among urban slum people. Therefore this study was carried out in urban slums which are regarded as the most problematic area.

MATERIAL AND METHOD

Subjects and Method: This cross sectional study was undertaken in urban slums of Mysore city, Karnataka for a period of one year.

Study area: The present study was taken up in urban slums of Mysore city. The slum clearance board of Mysore city was approached to get the list of slums and the population residing in each slum. A total of 62 slums have been listed with a total population of 47,931.

Study population: Urban slum children aged 1 to 5 years.

Inclusion Criteria: All children between 1-5 year age groups staying in the selected slums for a minimum period of 6 months.

Exclusion Criteria: Children, whose parents/ guardians did not consent for the study. Children who are temporary visitors to the house and children who were severely ill.

Sample size: For estimation of sample size, prevalence of PEM was taken as 40%, as per NFHS 3 report[3], with allowable error of 10% (using the formula n=4pq/L2) and the required sample was estimated to be 600 children.

Sampling method – Sampling frame was the list of all urban slums. A list of slums along with their population was obtained from slum clearance board of Mysore city. A total of 62 slums were listed with a total population of 47,931. With this data average population per slum comes to 773. Assuming proportion of children in 1-5 year age group as 8% of population, [4] it was calculated to be around 62 children of 1-5 year age group per slum. Each slum was considered as a cluster and the same was taken as sampling unit. To arrive at a sample of 600 among 62 slums, 10 slums were selected at random (i.e Cluster random sampling method).[5] All children in selected slums were included and all children between 1-5 year age group was enumerated and examined for protein energy malnutrition.

Methodology- A semi-structured questionnaire was designed and pilot tested. The information regarding parent's education, occupation, religion, per-capita income and infant feeding practices was collected. General physical examination including recording of anthropometrics was done. Body weight was measured without any footwear and with minimal clothing nearest to 0.5 Kgs using a standard portable weighing machine. For children between 1- 2 years, the supine length was measured using an infantometer and for children between 2 to 5 years, standing height was measured without any foot wear to nearest 0.5 cms using a standard calibrated bar.

Statistical analysis: The data was analyzed using Epi Info 2002 version 04. The height and weight of each child was compared with the WHO child growth standards, 2006 reference data for that particular age and sex to get weight for age, height for age and weight for height indices. Children below two standard deviation of the reference median on any of these indices were considered as undernourished and termed as underweight, stunted and wasted respectively. Children below three standard deviation were considered to be severely undernourished.[6] Prevalence of protein energy malnutrition was worked out along with 95% confidence interval. Chi square test was applied to find out the association of PEM with the

above factors at 5% level of significance.

RESULTS

A total of 600 children were studied from the 10 selected urban slums which consisted of 285 (47.5%) males and 315 (52.5%) females

With regards to age distribution **(Table 1**), it was observed that maximum number of children were in the age group of 24-35 months i.e. 210 (35%) and least number of children were observed in the age group of 12-23 months i.e. 108 (18%).

Table 1: Distribution of study subjects according to Age and Sex

Sl. No.	Age (In months)	Males		Females		Total	
		No.	%	No.	%	No.	%
1	12-23	50	46.3	58	53.7	108	18.0
2	24-35	109	51.9	101	48.1	210	35.0
3	36-47	69	42.6	93	57.4	162	27.0
4	48-59	57	47.5	63	52.5	120	20.0
	Total	285	47.5	315	52.5	600	100.0

Figure 1 reveals that majority i.e. 281 (46.8%) of the children were of Birth order one, 237 (39.5%) were of Birth order two, 66 (11%) were of birth order three and 16 (2.7%) children were of Birth order four and above.

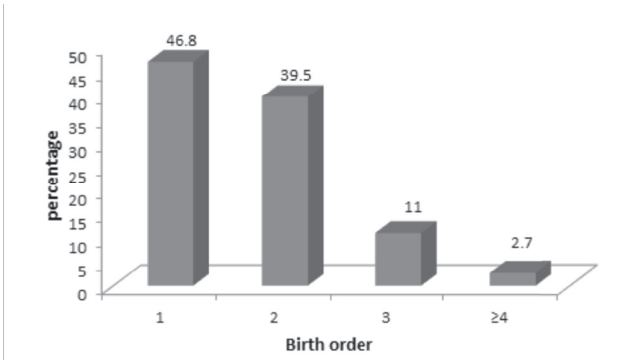

Figure 1: Distribution of study subjects according to Birth order

Table 2: birth interval in majority of children i.e. 176 (54.1%) was between 24-35 months and only in 62 (19.07%) children birth interval was more than 36 months. The children with birth order one were excluded for calculating birth interval.

Table 2: Distribution of study subjects according to Birth interval

Birth Interval (In months)	Numbers	**Percentage**
<24	87	27.3
24-35	172	53.9
>36	60	18.8
Total	319*	100.0

Table 3 shows, according to the WHO recommended classification the prevalence of underweight (low weight for age), stunting (low height for age) and wasting (low weight for height) to be 129 (21.5%), 135 (22.5%) and 9 (7.5%) respectively. Severe degree of underweight, stunting and wasting observed were 9.8%, 19.7% and 5.8% respectively.

Table 3: Distribution of nutritional status of study subjects according to W.H.O Classification

Indices	Normal	Undernourished	Severely undernourished			
	No.	%	No.	%	No.	%
Weight for age	412	68.7	129	21.5	59	9.8
Height for age	347	57.8	135	22.5	118	19.7
Weight for Height	515	86.7	61	10.2	24	4.0

Table 4 shows sex-wise distribution of malnutrition underweight, stunting and wasting were present in 87 (30.55), 120 (42.1%) and 43 (15.1%) of males respectively, whereas in females it was 101 (32.1%), 133 (42.2%) and 42 (13.3%) respectively. Although the prevalence of underweight was higher in female children, the difference was not statistically significant (p >0.05).

Table 4: Nutritional status of study subjects according to Sex

Sex	Normal	Underweight	Stunting	Wasting				
	No	%	No	%	No	%	No.	%
Males	198	69.5	87	30.5	120	42.1	43	15.1
Females	214	67.9	101	32.1	133	42.2	42	13.3
Total	412	68.7	188	31.3	253	42.2	85	14.2
p>0.05								

Table 5: The prevalence of underweight was least in children with birth order one, i.e. 78 (27.8%) and was found to be high in children with birth order three and above i.e. 36 (43.9%). This difference was found to be statistically significant (p <0.05).

The prevalence of stunting among children of birth order one, two, three and above were observed to be 116 (41.3%), 93 (39.2%) and 44 (53.6%). Here it was not statistically significant.

Similarly, wasting was found to be high in children with birth order three and above i.e. 19 (23.1%) and was low in children of first birth order 32 (11.4%). This was found to be statistically significant.

Table 5: Nutritional status of study subjects according to Birth order

Birth order of the subject	Children Observed	Underweight	Stunting	Wasting				
	No.	%	No.	%	**No.**	**%**	**No.**	**%**
1	281	46.8	78	27.8	116	41.3	32	11.4
2	237	39.5	74	31.2	93	39.2	34	14.3
≥3	82	13.6	36	43.9	44	53.6	19	23.1
Total	**600**	**100.0**	**188**	**31.3**	**253**	**42.2**	**85**	**14.2**
			$\chi^2 = 7.69$ p= 0.02		$\chi^2 = 5.63$ p= 0.068		$\chi^2 = 7.25$ p= 0.028	

Table 6: With regards to underweight, maximum number of children i.e. 42 (48.3%) were found to be underweight with birth interval less than 24 months and least prevalence was observed in children with birth interval more than 36 months i.e. 10 (16.7%). This difference was found to be statistically significant ($p < 0.05$).

In context to stunting, 46 (52.9%), 64 (37.2%) and 27 (45.0%)of children were stunted whose birth interval was less than 24 months, 24-36 months and more than 36 months respectively. This difference was not statistically significant.

With respect to wasting, the prevalence among children with birth intervals of less than 24 months was found to be high 18 (20.7%) and it was low in children with birth interval more than 36 months i.e. 7 (11.7%). This distribution also was not statistically significant.

Table 6: Nutritional status of study subjects according to Birth interval

Birth Interval (In months)	Children Observed		Underweight		Stunting		Wasting	
	No.	%	No.	%	No.	%	No.	%
<24	87	27.3	42	48.3	46	52.9	18	20.7
24-36	172	53.9	58	33.7	64	37.2	28	16.3
>36	60	18.8	10	16.7	27	45.0	7	11.7
Total	**325**	**100.0**	**110**	**34.5**	**137**	**42.9**	**53**	**16.6**
			χ^2=15.80 p <0.001		χ^2= 5.91 p = 0.05		χ^2=2.11 p = 0.34	

DISCUSION

It was found out that out of 600 children, about 31.3% were underweight, 42.2 % were stunted and 14.2% of children were having wasting. In a study conducted in three urban slum of Tripuri town, it was observed that prevalence of underweight was 38.38%, prevalence of stunting was 46.06%, both kinds of malnutrition were common in females than in males [7].

NFHS 3 reports that undernutrition is generally lower for first births than for subsequent births and consistently increases with increasing birth order for all measures of nutritional status.[8]

In Allahabad study in children of less than 6 year age group, the prevalence of malnutrition increased with increase in birth order and it was statistically significant (χ^2 =12.56, $p < 0.01$).[9]

A study conducted by Sen P et al., among 587 preschool children it was observed that prevalence of PEM was more with birth order equal to or more than three and found to be statistically significant.[10]

NFHS 3 reports that short birth intervals were associated with higher levels of malnutrition.[8]

In the study done at Calcutta, West Bengal it was observed that prevalence of underweight was 68.7% among children of birth interval less than 36 months, while it was significantly less ($p<0.05$) in children with birth interval of more than 36 months, similar to present study.[11]

Deoki Nandan et al, in their study in UP, observed that prevalence of grade II and grade III PEM increased with the decrease of the spacing of births as this was lowest (14.6% and 1.0% respectively) in those with birth spacing three years or more and highest (38.3 and 9.0% respectively) in those whose birth spacing with the elder child was less than one year. This difference was found statistically significant ($\chi^2 = 15.4$, $p < 0.01$). [12]

CONCLUSION

Undernutrition is still the major problem in our country especially in underserved areas such as urban slums. The migration of people from rural to urban areas has compounded the housing problem in the latter and these people settle in shanty towns

and slums in the fringes of the cities. Not getting the basic human necessities adversely affect the growth and nutritional status of this weaker section of society. Most slum dwellers in india belong to category of 'permanent necessitarians' who are forced to live in the existing eco cultural slum situations on account of poverty and social discard. Being most vulnerable segment of the community the preschoolers are at greatest risk of malnutrition since it is their growing period which demands high intake of proteins and calories. Birth order and birth interval plays an important role in determining the nutritional status of the children. Big family size and inadequate spacing of child births which are more common in urban slums need to be addressed with appropriate measures.

Running title: PEM in relation to birth order and birth interval in children aged 1-5 years in urban slums of mysore city

Conflict of Interest: None at present

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A Study of Hepatitis B Virus Co-infection in HIV Infected Patients

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ABSTRACT

Background and Objectives: HIV is known to influence the natural history of infections with certain hepatitis viruses and such interactions may potentiate HIV replication. There is a high degree of epidemiological similarity between HIV and HBV as regard to high risk group and route of transmission. Present study deals with the study of co-infection of HBV in HIV infected patients.

Method: A consecutive 106 HIV positive samples detected by ELISA, Rapid and Simple format were subjected for testing of HBsAg by ELISA. Patients' history was taken regarding high risk behavior, blood transfusion and others. The HIV positive patients were classified into four stages according to the CDC clinical staging system for HIV infection. Healthy individuals included as controls were simultaneously screened for HIV and HBsAg by ELISA.

Results: In the study of 106 HIV seropositive patients, 22 (20.75%) were positive for HBsAg. Among the 30 healthy controls, one individual (3.3%) was positive for HBsAg and none was positive for HIV. The difference of co-infection of HIV and HBV was statistically significant compared to controls ($p < 0.05$, chi-square value 3.94). Co-infection of HIV and HBV was found to be more in the symptomatic group (19.81%) compared to asymptomatic group (0.94%). History of heterosexual contact was given by all the HIV positive patients.

Interpretation and conclusions: It is clear from the study that, HIV infected individuals have a high probability of getting co-infected with HBV and leads to symptomatic infection.

Keywords: *HIV, HBV, Co-infection.*

INTRODUCTION

Infection with Human Immunodeficiency Virus (HIV) and its end stage Acquired Immunodeficiency Syndrome (AIDS) is the major public health challenge of modern times majority of whom are without access to therapy. The HIV/AIDS pandemic is changing the epidemiology of infectious diseases[1]. Co-infection of HIV with Hepatitis B Virus (HBV) is increasingly recognized as a public health problem. There is a high degree of epidemiological similarity between these viruses as regard to high risk groups, routes of transmission and the presence of virus in the body fluids[2]. Injecting drug users (IDUs) represent a group for high risk of acquiring HIV& HBV.

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HIV infection appears to influence the natural history of infection with the hepatitis B virus[2]. HBV infection in HIV infected patients is increasing with many of these patients having a high level of circulating HBV DNA and is at increased likelihood of developing cirrhosis and hepatocellular carcinoma[3].

With the successful implementation of highly active antiretroviral therapy (HAART) for patients with HIV infection, a rapidly fatal illness has been converted to an illness maintained as a chronic disease with dramatic reductions in the prevalence of opportunistic infections. Other diseases like HBV co-infection have emerged as a major source of morbidity and mortality[3]. Hence, the present study was undertaken to study the HBV co-infection in HIV infected patients.

MATERIALS AND METHOD

This study was carried out in the Department of Microbiology, Mysore Medical College and Research Institute (MMCRI), Mysore. This was a nonrandomized, prospective study where in 429 consecutive patients visiting the Integrated counseling and testing centre in the department of microbiology, MMCRI, Mysore were screened for HIV antibodies and 106 HIV positive patients constituted the study group.

The study also included 30 asymptomatic healthy individuals who constituted the control group. Institutional ethical committee approval was obtained for the study.

Inclusion criteria

a. History of exposure; heterosexual and homosexual

b. History of blood transfusion

c. History of intravenous drug abuse

d. History of occupational exposure

e. History of other sexual transmitted diseases

5ml of blood was collected from all patients with all aseptic precautions by venepuncture in sterilized labeled test tubes, centrifuged at 1000 rpm for 5 mins, serum separated and collected in 2ml sterile serum vials and stored at –20^{o}C until tested. Patients' history was elicited regarding high risk behaviour, blood transfusion etc and any clinical symptoms.

Sera of the patients were tested for HIV antibodies and HIV infection was confirmed by using ERS (ELISA, Rapid, sample) format. The kits used were (1) Comb Aids – Span diagnostic Ltd., India, (2) HIV Tridot – J. Mitra and Co. Ltd., India, (3) Capillus HIV-1 / HIV-2 – Trinity Biotech, USA, (4) ELISA – Microlisa HIV from J. Mitra & Co. Ltd., India.

Sera of HIV positive cases were subjected for testing of hepatitis B surface antigen (HBsAg) by using third generation ELISA kits (Zhongshan HBsAg ELISA kit from Zhongshan Bio-Tech Co. Ltd., China). Samples positive for HBsAg by first kit were retested for confirmation of results.

Serum samples from healthy individuals included as controls were simultaneously screened for HIV and HBsAg as per the methodology mentioned above.

RESULTS

Table – 1: Co-infection rate of HBV in HIV positive patients

Total No. of HIV +ve	No. of HBsAg positive (%)
106	22 (20.75)

Among the 106 HIV positive patients, 22 (20.75%) were co-infected with HBV. Among the 30 healthy controls, one individual (3.3%) was positive for HBsAg and none was positive for HIV. The difference of co-infection of HIV and HBV was statistically significant compared to controls ($p < 0.05$, chi-square value 3.94).

Table – 2: Age and sex distribution of HIV positive patients

Age group (yrs)	No. of patients	%	Male		Female	
			No. of patients	%	No. of patients	%
15-20	7	(6.6)	3	(2.8)	4	(3.8)
21-30	51	(48.2)	29	(27.4)	22	(20.8)
31-40	37	(35.0)	24	(22.7)	13	(12.3)
41-50	6	(5.6)	5	(4.7)	1	(0.9)
51-60	4	(3.7)	3	(2.8)	1	(0.9)
61-70	1	(0.9)	Nil	(Nil)	1	(0.9)
Total	106	(100)	64	(60.4)	42	(39.6)

Among the 106 HIV positive patients, 64 (60.4%) and 42 (39.6%) were male and female respectively. Maximum number of HIV positive patients, 51 (48.2%) were in the age group 21-30 years followed by, 37 (35%) in the age group 31-40 years.

All 106 HIV positive patients gave the history of heterosexual contact.

Table – 3: Age and sex distribution of HBsAg positive patients among HIV positive

Age group (yrs)	No. of patients	%	Male		Female	
			No. of patients	%	No. of patients	%
15-20	3	(13.6)	1	(4.6)	2	(9.0)
21-30	8	(36.4)	8	(36.4)	Nil	(Nil)
31-40	7	(31.8)	4	(18.2)	3	(13.6)
41-50	2	(9.0)	2	(9.0)	Nil	(Nil)
51-60	1	(4.6)	1	(4.6)	Nil	(Nil)
61-70	1	(4.6)	Nil	(Nil)	1	(4.6)
Total	22	(100)	16	(72.8)	6	(27.2)

Among the 22 HBsAg positive patients, 16 (72.8%) and 6 (27.2%) were male and female respectively. Maximum number of HBsAg positive patients, 8 (36.4%) were in the age group 21-30 years followed by, 7 (31.8%) in the age group of 31-40 years.

Table – 4: Percentage positivity of HBsAg according to CDC clinical staging system for HIV infection

	CDC stage	No. of HIV positive (%)	No. of HBsAg positive (%)
I	Acute infection with seroconversion	Nil	Nil
II	Asymptomatic infection	12 (11.32)	1 (0.94)
III	Persistent generalized lymphadenopathy	Nil	Nil
IV	Symptomatic HIV disease	94 (88.68)	21 (19.81)
	Total	106 (100)	22 (20.75)

Among the 106 HIV positive patients, according to the CDC clinical staging for HIV infection, 1 (0.94%) and 21 (19.81%) of HBsAg positive patients were asymptomatic and symptomatic for HIV disease respectively. Therefore co-infection of HIV and HBV was found to be more in the symptomatic group compared to asymptomatic group.

DISCUSSION

Infection with HIV, the retrovirus, that causes AIDS, is one of the leading causes of death worldwide. HIV shares common epidemiological similarities regarding route of transmission and high risk groups with HBV. The probability of sexual transmission of HIV is 10-15% and HBV is 30%. It is therefore not surprising to find that some patients with HIV are co-infected with HBV.

The HIV seropositivity was higher among male than female, 60.4% and 39.6% respectively. Maximum number of HIV positive patients, 51 (48.2%) were in the age group 21-30 years followed by, 37(35%) in the age group 31-40 years reflecting that sexually active young adults are affected more. Of the 106 HIV positive patients in the study, 12(11.32%) were asymptomatic (Stage II) and 94 (88.68%) were symptomatic (stage IV) according to the CDC clinical staging for HIV. There were no patients in the CDC stage I (acute infection with seroconversion) and stage III (persistent generalized lymphadenopathy). In the asymptomatic group, majority were female who were tested after their husbands were initially tested positive for HIV. The common mode of transmission in the study was heterosexual contact, which confirms the findings of earlier studies from India[4].

Table – 5: Comparison of results of present study with the studies of other authors

Sl. No.	Author (year)	Place	HIV and HBV (%)
1	Dhanvijay AK et al [5]	Nagpur	22.58
2	Tankhiwale SS et al [2]	Nagpur	25.8
3	Sheng WH et al [6]	Taipei, Taiwan	21.7
4	Present study	Mysore	20.75

The results of the present study correlate with the findings of other similar studies and heterosexual contact was the common mode of transmission in all the studies.

Out of 106 HIV positive patients, 22 (20.75%) were positive for HBsAg. Out of 30 healthy controls, one patient (3.3%) was positive for HBsAg. Statistical analysis using chisquare test revealed that the difference of concomitant infection was statistically significant compared to controls ($p < 0.05$). The co-infection rate of HIV and HBV was low compared to two studies from Nagpur, Maharashtra, which may be due to difference in the epidemiological factors. The HBsAg positivity was higher among male than female, 72.8% and 27.2% respectively. Maximum number of HBsAg positive patients, 8 (36.4%) were in the age group 21-30 years followed by, 7 (31.8%) in the age group of 31-40 years, which is a common finding as with HIV infection regarding age group.

It was observed in the present study that the incidence of co-infection rises with disease progression. Significant difference in the rate of HIV and HBV co-infection was observed between the symptomatic (stage IV), 19.81% and asymptomatic groups (stage II), 11.32% of HIV infected patients.

CONCLUSIONS

It is clear from the study that, HIV infected individuals have a high probability of getting co-infected with HBV and leads to symptomatic infection. Sexual transmission of HBV appears to be main mode of transmission and is of epidemiological importance in the light of heterosexual transmission of HIV in India. Monitoring of HIV infected patients for concurrent infection with HBV is therefore necessary.

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