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Editorial : IMRAD

There are thousands of scientific journals in publication, and many more have been published at various points in the past. The number of biomedical journals currently being published all over the world are somewhere from 15,000 to 17,000[1].

The history of scientific journals dates from 1665, when the French Journal des sçavans and the English Philosophical Transactions of the Royal Society first began systematically publishing research results. Over a thousand, mostly ephemeral, were founded in the 18th century, and the number has increased rapidly after that.[2]

In academic publishing, a scientific journal is a periodical publication intended to further the progress of science, usually by reporting new research. With the aim of providing research data at the doorstep of practicing doctor, we are restarting our Journal with the help of member of scientific community of India. At this juncture we would like to stress something on IMRAD.

IMRAD (Introduction, Methods, Result [and] Discussion) is a mnemonic for a common format used for academic ['scientific'] research papers. While used primarily in the hard sciences, like physics and biology, it is also widely used in the social and behavioral sciences. The IMRAD format is also known as the APA format, as the American Psychological Association employs the IMRAD headings in its APA style sheet. IMRAD is simply a more 'defined' version of the "IBC" [Introduction, Body, Conclusion] format used for all academic writing.[3]

In addition to the scientific article itself a brief abstract is usually required for publication. This has become important enough as an article component that the "A" of abstract may sometimes be added to "IMRAD" yielding "AIMRAD". The abstract should, however, be composed to function as an autonomous text, even if most authors and readers will think of it as an integral part of the article. There is a strong recent trend toward developing formal requirements for abstracts, most often structured on the IMRAD pattern, and often with strict additional specifications of topical content items that should be considered for inclusion in the abstract.[4] Such abstracts are often referred to as "structured abstracts"[2]. The increasing importance of structuring abstracts may well be a consequence of the increasing use of searchable digital abstract archives, where a well-formed abstract will dramatically increase the probability for an article to be found by its readership[2].

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Saleem-ur-Rehman
Editor-in-Chief

Evaluation of coliform in tap water of forty one towns of ten districts of Kashmir valley

Saleem-ur-Rehman[1], Rehana Kausar[2], S.M. Kadri[2],

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:ABSTRACT:

The coliform group has been used extensively as an indicator of water quality and has historically led to the public health protection concept. The aim of the study was to evaluate the status of tap water in the Kashmir valley, and to monitor coliforms using the multiple tube method known as Most Probable Number (MPN). MPN proved highly successful when it was used to detect faecal pollution and to monitor water quality during outbreaks of water borne diseases in the valley. Total forty one towns of ten districts of three subdivisions were studied. The coliform count of tap water of Kashmir valley varied greatly. District Srinagar showed the lowest level of MPN ≤ 2/100ml of tap water. However the bacterial count of tap water of the majority of the towns exceeded the recommended permissible level of WHO. The introduction of sewage into the drinking water was the main reason for the bacterial contamination. Recycling sewage water was necessary to minimize the water borne diseases. During the study it was found that the tap water of the Kashmir valley, except in Srinagar, is unfit for human consumption and other similar uses

Key Words: Coliform, MPN count, Tap water, Kashmir valley

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INTRODUCTION: In many countries, microbiologically safe drinking water is considered a fundamental human right.[1] About 80% of communicable diseases in the world are waterborne.[2] According to WHO estimate about 80% of water pollution in developing country, like India is carried by domestic waste.[3] In India 70% of the water is seriously polluted and 75% of illness and 80% of the child mortality is attributed to water pollution.[4] The improper management of water systems may cause serious problems in availability and quality of water.[5] The major pathogenic bacteria responsible for water borne disease are spread by the faeco-oral route, in which water may play an intermediate role.

Faecal Coliform is by far the most important microbial indicator from water quality point of view because of its direct health significance.6,7 Coliform bacteria are often referred to as ~~–in~~dicator organisms" because they indicate the potential presence of disease causing bacteria in water. The presence of coliform bacteria in water does not guarantee that the water will cause an illness. Rather, their presence indicates that a contamination pathway exists between a source of bacteria (septic system, animal waste, etc.) and the water supply. Disease causing bacteria may use this pathway to enter the water supply and thereby human system.

The multiple tube method was introduced by McCrady[8] and has been widely used for

estimating numbers of particular organisms in water and other public health specimens. The MPN method of coliform bacteria testing that rely on color changes also provide an estimate of the number of bacteria present, which use a statistical relationship to estimate the number of bacteria in water sample based on color changes in multiple test tubes. The higher the level of indicator bacteria, the higher the level of faecal contamination and the greater the risk of water borne diseases.[9]

The purpose of this study was to investigate and analyze microbial coliform contamination in the tap water system of forty one major towns of ten districts of Kashmir valley, to assess the quality of tap water, in the valley. The data of this study may provide some important information about public health risks associated with water quality in this region.

MATERIALS AND METHODS:

For bacteriological study of water total forty one towns of ten districts of Kashmir valley were studied. Minimum five samples were taken from each town. Only tap water was used for the study. Samples were taken from the consumer points and all possible care was taken to collect the samples from the taps used by the major population of the area. Water was allowed to run for five minutes before filling the bottle. The study was carried out from January 2011 to December 2011. Samples were collected in sterilized glass bottles of 500ml capacity and were sealed to avoid contamination if any. Sterile gloves were used while collection of water samples to avoid the contamination. They were stored in ice box[10] and transported to lab within 12 hours and processed within 24 hours.

MacConkey broth (single strength) and MacConkey broth (double strength) was prepared by adding 40mg and 80mg of MacConkey broth (single strength) and MacConkey broth (double strength) powder to 1000ml of distilled water separately respectively. The content of both the mixtures were stirred and shaked well before heating for one hour. For MPN values 50ml & 10ml of MacConkey broth (double strength) was added one 150ml fermentation tube and five 30ml fermentation tubes respectively. Similarly 10ml of MacConkey broth (single strength) was added to five 20ml fermentation tubes. One Durham‘s vial was added to each fermentation tube in an inverted condition. All the eleven tubes were plugged with cotton and sterilized in an autoclave at 15 albs for 15 minutes. After autoclaving water samples of one 50ml, five 10ml and five 1ml were added to one 150ml, five 30ml and five 20ml fermentation tubes respectively with measuring cylinder and pipettes. Fermentation tubes were shaked vigorously and incubated at 37^0C for 48 hours. After 48 hours each tube was examined carefully for gas production. The tubes showing gas, seen in Durham‘s vial were compared with McCrady‘s statistical table and results were recorded.

The following classification of water samples based on MPN coliform count test was used
Excellent- MPN count is Zero
Satisfactory- MPN count is 1-3/100ml
Suspicious- MPN count is 4-10/ 100ml
Unsatisfactory- MPN count is >10/ 100ml

RESULTS AND DISCUSSION:

The MPN coliform count of tap water of four districts namely Anantnag, Kulgam, Shopian and Pulwama of South Kashmir shows presence of coliform ranges from 1-180/ 100ml of tap water (Fig 1). Among the twelve towns of the three districts of South Kashmir, no towns show MPN 0/ 100ml. The least polluted town i.e., Qazigund shows MPN 1/ 100ml followed by both Awantipora and Pampore MPN 10/ 100ml. The towns Pahalgam, Anantnag, Bijbehara and Pulwama show MPN of 54, 92, 92, 161/ 100ml respectively. The tap water of Kokernag, Kulgam, Shopian, Keller and Tral shows MPN of 180/ 100ml.

The MPN coliform count of three districts namely Budgam, Ganderbal and Srinagar of Central Kashmir differs greatly (Fig. 2). Amirakadal, Batamaloo, Habbakadal, Khanyar, Sonwar and Zadibal areas of Srinagar district shows MPN 0/ 100ml of water, followed by Hazratbal, Iddgha and Sonamarg MPN 2/

100ml. Khan Sahib, Budgam, Magam, Beerwah and Chari-Sharief show 54, 92, 92, 161, 161/ 100ml respectively. Chadoora, Ganderbal and Kangan shows MPN 180/ 100ml each.

Similarly MPN coliform count of Bandipora, Baramulla and Kupwara shows great diversity (Fig. 3). Among the Twelve towns of North Kashmir Gulmerg shows lowest MPN 4/ 100ml followed by Bandipora 10/ 100ml. Tangdar, Handwara, Sumbal, Sopore and Pattan shows 35, 43, 54, 92 and 161/ 100ml respectively. All other towns namely Hajan, Baramulla, Uri, Kupwara and Lolab show highest MPN of 180/ 100ml each.

Similarly data of district headquarters is also represent in fig. 4. Srinagar shows lowest MPN i.e. 0/ 100ml followed by Bandipora 10/ 100ml. Anantnag and Budgam both shows 92/ 100ml, Pulwama 161/ 100ml. Baramulla, Ganderbal, Kulgam, Kupwara and Shopian shows MPN 180/ 100ml. Our results are in accordance with Punam Sharma et al.[11] who recorded highest MPN 135/100ml during summer from Dal lake. According to our analysis the tap water of these districts are polluted with faecal coliforms and only tap water of Srinagar is fit for human consumption.

In Kashmir valley, inadequate sewage disposal and water treatment facility are primary cause of waterborne infectious diseases. With the increase in population water resources of this region are being polluted at an alarming rate which decreases the availability of potable water. We are exploiting our water resources with great speed, which once seemed endlessly renewable when our population was limited. Today very rare or no river has been spared from domestic discharge in valley. This untreated domestic discharge increases the water pollutants and makes the water unfit for human consumption. If this trend continues then in the next twenty to twenty five years our water sources will become sewage channels.

Many authors have reported waterborne disease outbreaks in water.[12,13,14] Outbreak of viral hepatitis A and E has been reported frequently in the valley.[15,16,17] The incidence is generally more than one outbreak per month which is related to water contamination. Tap water is the source of faecal pollution that causes the outbreak. Also, the infectious disease caused by pathogenic bacteria, viruses and parasites (e.g. Protozoa and Helminths) are the most common and widespread health risks associated with water in rural habitation.

The reason for high MPN coliform is due to inadequate maintenance of water reservoirs and pipe lines, and the percolation of sewage into water bodies. The desirable limit of coliform in water is 10 MPN/100ml (ISI). The total coliform in the water of Srinagar district was within the permissible level (≤2MPN/100ml). The same results of total coliforms were also observed in Qazigund, Sonamarg and Gulmarg towns of Kashmir valley. The remaining water samples exceeded the desirable limit. Similar results were also reported in other water bodies.[18] The reason for the high number of total coliforms was due to the discharge of human and animal faces into the water bodies.

The results of the present study draw support from the findings of Radha & Seenayya[19] and Sood et al.[10] According to Pujari et al.[20], the onsite sanitation that is increasingly adopted in India is possibly responsible for high levels of nitrates and bacterial contamination in water sources. In rural areas, people prefer to eliminate night soils in open places especially in agriculture fields and river banks. In such conditions, there are more possibilities of contamination of open water resources through rainwater runoff mechanism.

The inadequate availability of potable water,[21,22] poor quality of water at source, lack of water treatment facility,[23] ill-maintained water pipelines and sewer lines, faulty water supply system, direct distribution of water from high altitude streams (which gets contaminated by herds raised by shepherds) in hilly terrain, lack of sewage treatment plants, direct sewage disposal into water bodies, open air defecation, lack of disposal of human, animal (cow dung) and household wastes, open latrines, unhygienic environment, unawareness about

good sanitation etc. are some key factors responsible for poor water quality in Kashmir valley.

The bacteriological analysis of water determines its potability. Water of Kashmir valley except for district Srinagar, was found unsuitable for domestic use because the bacterial parameters exceeded the standard limit. Therefore boiling of water is essential before consumption by the people living in the region. The sewage water must be treated and then disposed of into the environment for avoiding health hazards. Similarly water must be treated scientifically before supplying to consumers.

CONCLUSION:

This study indicated that the tap water of the Kashmir valley is contaminated with coliform bacteria. The MPN count of different localities varies greatly. The data clearly suggests that people of this region are under severe threat of water related diseases and health risks. The continuous consumption of such polluted water could pose serious health risks especially in infants.

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Assessment of risk of diabetes among medical students using IDRS (indian diabetes risk score): a non laboratory tool.

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:ABSTRACT:

Diabetes is a known emerging problem and numbers will be more than double over the next two decades, to reach a total of 366 million by 2030, more so in developing countries like India especially, in the young population. The perceptions and practices of medical students regarding prevention of diseases will strongly motivate the future clinical practice, heath of future clinicians and community health. Hence, the study was conducted with the objectives to assess risk of diabetes among medical students &to assess the risk factors related to diabetes mellitus among medical students. A cross-sectional study was conducted in department of community medicine BIMS Belgaum from June to August 2011. A self administered questionnaire was used to collect data regarding socio demographic factors, family history of diabetes and physical activity etc, and proportions & percentages were calculated to derive conclusions and 71 (93.43%) students were at moderate risk of getting Diabetes.

Key Words: Diabetes, Risk factors, Obesity, Medical students, IDRS,.

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INTRODUCTION: Diabetes mellitus is a clinical syndrome characterized by hyperglycemia and disturbance of carbohydrates, fat and protein metabolism that are associated with absolute or relative deficiency of insulin action or secretion 1.Long-term complications of type 2 diabetes include nerve damage, amputation, eye disease and high blood pressure. Risk of coronary heart disease, kidney disease, stroke, and blindness are greatly increased in those with type 2 diabetes and definitely going to affect the health care burden and the cost.

The World Health Organization (WHO) estimates that more than 180 million people worldwide have diabetes. These numbers will be more than double over the next two decades, to reach a total of 366 million by 2030, more so in developing countries. Over 19% of the world's diabetic population currently resides in India. In India, prevalence of disease in adult was found 4.0-11.6% in urban dweller [2].

Medical students are exposed to the environmental factors, variant life style of an urban area and prone to acquire the life style patterns (high social status, sedentary life style, habits like tobacco, alcohol etc, consumption due to peer pressure) of high economic profile related to the medical profession and these behavioral risk factors are mainly associated with development of diabetes and other non communicable diseases. Diabetes is a silent killer and risk factors emerge slowly. Medical students of today will be the healthcare providers of tomorrow. Their perceptions and practices regarding prevention of diseases will strongly motivate the future clinical practice [3]. Hence, the study was undertaken for early

detection of risk factors related to this disease and its risk among the young adults in order to reduce the chances of morbidities and complications in their future life which help them to promote their health status.

Research related to the risk behavior especially, among medical students is essential, considering their role as future physicians and role model in public health and their own health status. Hence, the present study was planned to assess the risk behavior & risk of diabetes among the young medical students.

OBJECTIVES:

1. To assess risk of diabetes among medical students.
2. To assess the risk factors of diabetes mellitus among medical students.

MATERIALS AND METHODS:A cross-sectional study was conducted among undergraduate medical students of Belgaum Institute of Medical Sciences, from June to august 2011. A purposive sample of 76 undergraduate medical students of MBBS was selected. A self administered questionnaire was used to collect data regarding socio demographic factors, family history of diabetes and physical activity (at work place and at leisure time), tobacco consumption, alcohol consumption etc. The waist circumference of the participants was measured using measuring tape and BMI [4] was assessed according to asian cut off points, to assess the overweight and obesity.

The risk of Diabetes was assessed using Indian Diabetes Risk Score (IDRS).This tool was developed from CURES study by V. Mohan, using four simple parameters age, abdominal obesity, physical activity and family history which, is one of the standard, cost effective, easy, non laboratory methods for early diagnosis of diabetes. The same tool was used for assessing risk of diabetes among our study group. Statistical analysis was done using the proportions and percentages and the results were tabulated for study analysis. According to the scores of IDRS, cumulative score for each individual was calculated, to assess the risk of diabetes among medical students

Indian Diabetes Risk Score [IDRS]

Particulars	Score	Particulars	Score
1. Age [years] < 35 35 - 49 ≥ 50	 0 20 30	3. Family history No family history Either parent Both parents	 0 10 20
2.Abdominal obesity Waist <80 cm [female] , <90 [male] Waist ≥ 80 – 89 cm [female], ≥ 90 – 99 cm [male] Waist ≥90 cm [female], ≥ 100 cm [male]	 0 10 20	4. Physical activity Exercise [regular] + strenuous work Exercise [regular] or strenuous work No exercise and sedentary work	 0 20 30

Minimum score 0, Maximum score 100

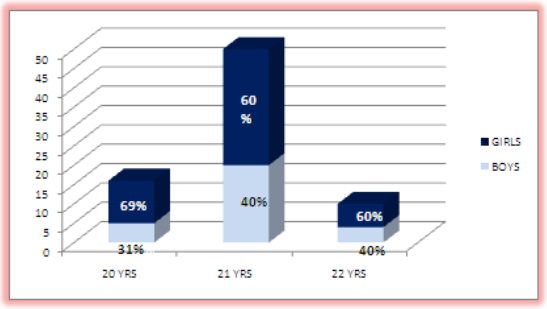
>= 60: High risk*
30 – 60: Moderate risk;
<30: Low risk.
[Significantly associated with Diabetes ***strongly advice for screening for Diabetes]**

RESULTS: The study was conducted among the selected group of medical students. Out of 76 students, 29(38.15%) were boys and 47(61.84%) were girls. The age distribution was as shown in (Fig 1).

The risk factor for diabetes was assessed by asking family history of non communicable diseases including diabetes among parents. In the present study 44(57.9%) students had family history of non communicable diseases among parents and 24(31.6%) students had a family history of diabetes as one of the parent was suffering from it; among them 15(19.7%) students said that their fathers were suffering from diabetes, 6(7.9%) students said their mothers were suffering from diabetes while, 3(3.9%) students had both their parents suffering from diabetes. When the other risk

factor like physical inactivity was assessed we observed the following results {Table no 1}.

Fig 1: Age and Sex Wise Distribution of students:



Overall 28/76 (36.84%) students were physically inactive and none of the girl was involved in heavy physical activity. According to a history of alcohol consumption 6/29(20.68%) boys said they used to consume alcohol occasionally and 3/47(6.4%) girls said they had attempted the alcohol consumption. In the study 11(14.47%) students were overweight and 4(5.26 %) were having obesity as per the Asian standards. Overall, central obesity was present among 3(10.34%) boys and 10(13.16%) students were having pre obesity according to their waist circumference. The prevalence of central obesity varied among boys and girls and the difference was statistically significant {Table: 2}.The risk of diabetes was assessed according to IDRS and 71 (93.42%) students had moderate risk for Diabetes {Table: 3}

Table No: 1. Sex wise and grade wise distribution of students according to their physical activity.

STUDENTS	ACTIVE				INACTIVE
	MILD	MODERATE	HEAVY	ACTIVE TOTAL	INACTIVE TOTAL
BOYS	10(34.48)	10(34.48)	2(6.90)	22(75.86)	7(24.14)
GIRLS	13(27.66)	13(27.66)	0	26(55.32)	21(44.68)
TOTAL	23(30.26)	23(30.26)	2(2.63)	48(63.16)	28(36.84)
	$x^2 = 2.4$ $p > 0.05$			$x^2 = 4.49$ $p < 0.05$	

n = 76

Table No 2: Sex wise distribution of students according to waist Circumference (Central Obesity).

GIRLS	Normal (<80cm)	Obesity	Moderate (80-90cm)	Severe (>90cm
	41 (87.23%)	6(12.77%)	6 (12.77%)	0(0.0%)
BOYS	Normal (<90cm)	Obesity	Moderate (90-99cm)	Severe (>100cm)
	22 (75.86%)	7(24.14)	4(13.79%)	3(10.34%)
	$x^2 = 1.66$ $p > 0.1$			
TOTAL	63 (82.90%)	13(17.10)	10 (13.16%)	3(3.95%)
	$x^2 = 84.99$ $p < 0.001$			

n = 76

Table No 3: Risk status for diabetes among study population according to IDRS scores

LEVEL OF RISK	SCORE	NUMBER	(%)
Low	< 30	2	2.63
Moderate	30-60	71	93.42
High	>60	3	3.94

$x^2 = 123.52$ $p < 0.001$ **n = 76**

DISCUSSION & CONCLUSION:

Indians are at increased risk of diabetes and other non communicable diseases due to increasing prevalence of risk factors especially, in younger population as they are emerging at that age and important contributors for development of these chronic diseases including diabetes.

In the present study all (76) students belonged to low risk age group (as per IDRS) as they were between 20 to 22 years and only particular term students were included in the study. Thus, by age they had a least risk of developing diabetes.

The other risk factors like family history of diabetes, physical inactivity and other habits were also assessed among the students; among the students, 57.9% had a history of one or the other non communicable diseases (NCDs) among parents. Two-third of the students were at a risk of developing metabolic or degenerative diseases as they were having family history of NCDs and most of these including diabetes, share the common risk factors. Thus, the family history of any of these diseases could precipitate diabetes among these young students as they have a genetic predisposition. When specifically history of diabetes among parents was assessed, 31.6% students had a history of diabetes among either of the parents; among them 19.7% students had a paternal history of diabetes and 7.9% had a maternal history. So, 27.6% of students had a history of diabetes among single parent who were at the risk of getting diabetes. And 3.9% of students had a history of diabetes among both the parents had an increased (2 to 3 fold) risk of getting diabetes.

In present study 36.84% students were physically inactive and none of the girls were involved in heavy physical activity. The difference between various grades of physical activity was not statistically significant; whereas, difference between the prevalence of physical activity and inactivity were statistically significant. In a study conducted among medical students of Tehran University, 43.5% students were physically inactive [5]. And another study in Basrah to assess the cardiovascular risk factors among college students revealed that, 9.5% were physically inactive, 7.3% were obese and 2.2% students were having diabetes mellitus [6].The study in government medical college of Karachi to assess cardiovascular risk in medical students showed that, 37.7% students were having low physical activity level and 17.4% were overweight [3].The levels of physical activity were low in medical students than the nonmedical students of general population[6]. The medical students are expected to have a healthy life style than the general population, presuming the awareness of students is better. However, with regards to physical activity the practices of medical students were poor as more than one-third of medical students from various universities were physically inactive.

The life style trends showed that, alcohol consumption rate was 20.68% among boys and 6.4% girls had attempted the alcohol. The alcohol consumption rate increased with body mass index. In medical students of government teaching hospitals of Karachi had the low consumption rate of alcohol among students and this can be attributed to religious taboos of the society [3].

In the present study the prevalence of overweight and obesity among students was 14.47% and 5.26 % respectively. Among students 27.59% boys and 6.38% girls were having central obesity. More boys were obese compared to girls. The study from south India revealed that, the prevalence of overweight (BMI: 25-29.9 kg/m2) was 33.26% (males 34.2%, females 32.44%), Obesity (BMI 30-35 kg/m2) was 26.5% (males 24.5%, females 28.24%) and high WC in 33.4% (males 39.9%, females 59.15%) people. The obesity among south Indian adults was almost double or more, that of young professionals [7]. However, the obesity appears to be an emerging problem of young Indians, that too, among medical students. The study done in Karachi, to determine the prevalence of major risk factors of CVD, including dietary modification and obesity showed similar prevalence rates of overweight / obesity (14%). In a survey in University of Crete, 27.6% medical students were overweight and 4.3% were obese [8].

Abdominal obesity among students according to waist circumference was graded as normal, moderate and severe as per the IDRS score separately for boys and girls; 13.79% boys and 12.77% girls were pre obese and 10.34% of boys were having central obesity whereas, none of the girls had central obesity. The difference between the prevalence of pre-obesity and obesity among boys and girls was found statistically insignificant ($p>0.05$). Medical students of Tehran found to be having risk factors for diabetes as 10.2% students were having abdominal obesity, 15.9% were having family history of coronary vascular disease etc.[5]. In a South Indian study, 47.09% of young adults were having abdominal obesity, 36.32% were overweight and 22.87% were having obesity [7]. In the same study, central obesity was more among females (55.75%) compared to males (38.18%). In Greece medical students, 40% of men and 23% of women were overweight (BMI>25) and central obesity was found in 33.4% of male and 21.7% of female students [8]. In Singapore study, based on Asian cut off (BMI>23) of BMI, overweight among medical students was 30% and according to this study Malays and Indians were more obese than Chinese [9]. And males were found to be more overweight compared to females. Though, males in our study were more obese than girls, the overall rates were lesser than Singapore Medical Students, may be attributed to cultural, dietary and other life style factors. The obesity especially, central obesity is a major risk factor for diabetes and insulin resistance.

The overall risk status for diabetes was assessed among medical students using IDRS method. The total scores were calculated for each risk factor and cumulative risk assessment was done for diabetes according to IDRS. The majority of students (93.42%) were having moderate risk for diabetes, 2.63% had low level of risk and 3.94% students fell into the category of high risk status, who were needed immediate screening for diabetes. Most of the students belonged to moderate risk category and the low risk age was the protective factor as they were between 20 to 22 years. Considering the consistent life style among them, these students would fall into high risk category with increased risk of diabetes at 35 years of their age.

Though, all the students belonged to low risk age, most of them had moderate risk for diabetes. Majority of Girls had risk due to physical inactivity than boys. Only few boys engaged in heavy activity and none of girls did heavy physical activity. Obesity was more among the boys and only one girl was obese. Boys had higher risk than girls due to added risk factors like alcohol and tobacco consumption. And these changes can be attributed to peer culture and casual attitude among medical students. The environmental and life style factors like physical inactivity, overweight and obesity are emerging risk factors among medical students. The physical activity is a major determinant of health and obesity related problems. These factors multiply the risk of metabolic diseases like diabetes.

The students in the moderate risk category are the target group for life style modification especially, with regards to physical activity and towards physical fitness to maintain the optimum body weight. However, the students having moderate risk can be screened for blood sugar to know the exact risk status of diabetes which could reveal the pre-diabetic conditions like glucose intolerance. The students at low risk can be motivated and encouraged to continue good practices like regular physical exercises, abstinence from alcohol and smoking etc.

The future doctors who are expected to treat and educate the patients are suppose to be good role models for healthy life style in their community and need adequate education and more emphasis on prevention of the adverse outcomes associated with overweight / obesity. The study identifies the gaps in knowledge and practice in the curriculum of medical school which need to be addressed.

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Calciuria and preeclampsia

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:ABSTRACT:

Objective: The objective of the present study was to determine the urinary excretion of calcium in preeclamptic women and to compare it with that in the normotensive pregnant women. Methods: This study comprised 200 pregnant women which included 100 preeclamptic pregnant women (study group) and 100 normotensive pregnant women of singleton gestations in third trimester (control group) in whom 24 hours urine calcium excretion was estimated. Results: The maternal age, gestational age, body mass index, gravidity and parity did not differ significantly ($p>0.05$). The serum levels of total proteins and albumin were significantly lower in pregnant women with preeclampsia than in normotensive pregnant women. Serum calcium levels and serum levels of creatnine and urea were not significantly different between the two groups ($p>0.05$) but serum uric acid levels were significantly more in the pregnant women with preeclampsia than the controls ($p<0.001$). Creatnine clearance in the pregnant women with preeclampsia was lower than in the controls. The urine calcium concentration in the study group (11.0 ± 1.8 mg/dl) was significantly lower than that in the controls (16.2 ± 2.5 mg/dl) ($p<0.001$). Preeclamptic women excreted significantly lower total urine calcium (117.0 ± 46.9 mg/24h) than the normotensive women (307.9 ± 104.3 mg/24h) ($p<0.001$). Hypocalciuria in preeclamptic women was associated with decreased fractional excretion of calcium 0.91±0.61% compared with control 1.94±1.27 % ($p<0.001$). Conclusion: Calciuria in preeclamptic patients was significantly lower than in the normotensive pregnant patients and this hypocalciuria in preeclamptic patients is associated with decreased fractional excretion of calcium, suggesting a mechanism which may involve increased tubular reabsorption of calcium.

Keywords: Hypocalciuria, Pregnancy, Preeclampsia

INTRODUCTION: Hypertensive disorders are the most common medical complications of pregnancy with a reported incidence ranging between 5-10%.[1] It contributes significantly to the cause of maternal and perinatal mortality and morbidity. According to the Working group of National High Blood Pressure Education Program (NHBPEP) preeclampsia is defined as the blood pressure of $\geq$ 140/90 mmHg in a woman without a previous history of arterial hypertension on at least two occasions more than six hours apart along with the presence of proteinuria >300 mg in a 24 hours urine collection or a > 1+ by a qualitative urine examination, after 20 weeks of pregnancy. Preeclampsia is a pregnancy-specific disease manifested by hypertension, coagulopathy, and impaired tissue perfusion. Its etiology remains unclear, and it is possible that the rise in blood pressure is a manifestation of more than one pathophysiological conditions. One of these conditions is related to abnormal renal function[2] and probably decreased urinary calcium excretion.[3,4]

Calcium metabolism during normal pregnancy is characterized by minor changes in the serum levels of calcium, however, urinary calcium excretion increases.[2] While urinary calcium values in nonpregnant women

are about 100-250 mg/day, in pregnant women they range between 350-620 mg/day.[2,5] Excretion usually increases during each trimester, with maximum level reached during third trimester. Hypercalciuria in normal pregnancy occurs due to increased glomerular filtration rate. Aberrations in calcium homeostasis have been recognized in hypertension in general and specifically in preeclampsia. Possible abnormalities of calcium metabolism associated with preeclampsia are hypocalciuria, decreased 1,25 dihydroxy vitamin D3, decreased serum ionized calcium, elevated parathyroid hormone, decreased urinary cyclic adenosine monophosphate, and increased intracellular calcium levels.[3,6] In preeclampsia the urinary calcium excretion is decreased. The exact cause of which is unclear. This hypocalciuria can be due to low dietary calcium intake, impaired intestinal absorption, increased fetal extraction, or primary renal dysfunction. Decreased fractional calcium excretion, decreased glomerular filteration rate and increased tubular reabsorption precipitate hypocalciuria. However, it is not clear whether the decrease of calcium is due to disordered renal function or is it a compensatory mechanism in the pathogenesis of preeclampsia.[7] The purpose of this study was to determine the urinary calcium excretion in patients with preeclampsia and to compare it with normotensive pregnant women.

MATERIALS AND METHODS: The present study was designed as prospective case controlled study and was conducted in the department of Gynecology and Obstetrics at Lal Ded Hospital, an associated hospital of Government Medical College, Srinagar during the year 2007 and 2008. A total of 200 pregnant women were taken which were divided into two groups: Hundred pregnant women with preeclampsia comprised study group and 100 normotensive pregnant women constituted controls. The subjects were selected under defined criteria. *Exclusion criteria* included: previous history of hypertension with proteinuria before conception or before 20 weeks of gestation, hypertension but no significant proteinuria, history of systemic illnesses like diabetes mellitus, renal disease, heart disease, multiple pregnancy, eclampsia, history of smoking and history of antioxidant vitamin therapy during last one year. *Inclusion criteria* of study group included: Women with singleton pregnancy, age ranging between 15 and 40 years and gestation age ranging between 28 to 42 weeks calculated from the first day of last menstrual period having preeclampsia which was taken as blood pressure of ≥140/90 mmHg on at least two consecutive occasions six hours apart along with urinary protein excretion of >300 mg/day quantitatively or —ve on dipstick examination. As cohort control, age- and socio-economically matched healthy normotensive pregnant women at 28 to 42 weeks of singleton gestation with no urinary protein were recruited by convenience.

The women included in this study were taken from outpatient department and from admission wards after 28 weeks. On development of preeclampsia for the first time in the third trimester and fulfillment of selection criteria they were enrolled in the study group while others which remained normotensive and fulfilled the selection criteria were allocated to the control group. The women were informed about the procedure and a verbal informed consent was taken from each one of them before doing the procedure. While evaluating the results of the study, relevant clinical data were collected from every woman, which included a detailed history, general, systemic and obstetric examinations and baseline investigations. Blood pressure was measured by the sphygmomanometer from the right arm while the patient was in semi-recumbent position with the arm roughly at heart level. The first and fifth Korotkoff auscultatory sounds were used to determine the systolic and diastolic components respectively.

The blood sample was taken from the antecubital vein of every studied subject and investigated for: complete haemogram, bleeding time, clotting time, blood sugar, kidney function test, liver function test, serum calcium. Blood samples were collected at mid time of urine collection. Twenty four hours urine sample was collected from each patient and evaluated for: volume, creatnine, total

protein, total calcium levels and calcium concentration. Creatnine clearance was calculated. Fractional excretion of calcium was computed by dividing calcium clearance by creatnine clearance. Measurement of calcium in urine was done by the orthocresolphthalein complexone (o-CPC) method using Spectrophotometry which was based on the direct combination of calcium with reactant orthocesolphthalein complex (o-CPC), to form a stable, colored reaction product.[8] Both the study group and the control group were followed up until delivery and the outcome of pregnancy (birth weight of baby and apgar score) was noted.

Statistical Analysis: Data was expressed as mean and percentage. Patient characteristics were compared using chi-square analysis, Mann-Whitney-U test, student's t-test and odds ratio. Two sided $p<0.05$ was defined for significance. Software used was MS Excel and SPSS 11.5.

RESULTS: In Table I shows the clinical characteristics of patients. The mean maternall age, gestational age, body mass index (BMI), gravidity and parity did not differ significantly in the two groups ($p>0.05$). The birth weight and apgar score were significantly lower in the preecamptic patients than the normotensive pregnant women ($p<0.005$). As expected blood pressure (systolic and diastolic) in preeclamptic patients was significantly higher than the normotensive women.$P< 0.001$. Only 76/440 (17.17%) of the total study subjects were employed. As many as 54/76 (71.05%) of the employed women had ever communicated with their husbands about contraceptive use as against 22/76 (28.94%) of the unemployed and the difference is statistically significant ($p<0.001$).

Table II shows the laboratory findings of serum analyses of the studied subjects. The serum levels of total proteins, albumin and uric acid were significantly lower in study group than the controls ($p<0.05$ in each case). The serum calcium, serum creatnine and serum urea levels did not differ significantly between the two groups ($p>0.05$).

Table I. Clinical characteristics of the studied subjects.

Clinical data	Preeclamptic	Normotensive	P value
Maternal age (years)	26.7 ± 3.8 (22, 35)	26.1 ± 3.3 (22, 35)	0.272 (NS)
Gestational age at sampling (weeks)	35.3 ± 1.9 (29, 38)	35.8 ± 1.4 (30, 39)	0.110 (NS)
Gravidity (%)	2.0 ± 1.0 (1,4)	2.0±1.0 (1,4)	0.502 (NS)
Parity (%)	0.9 ± 0.9	1.0± 0.9	0.214 (NS)
BMI (kg/m2)	22.2±2.3	23.0±2.8	0.091 (NS)
Birth weight (grams)	2.5 ± 0.4 (1.7, 3.5)	2.9 ± 0.4 (2.3, 3.9)	0.000 (S)
Apgar score	7.4 ± 1.2 (4, 10)	8.0 ± 1.1 (6, 10)	0.003 (S)
Blood pressure (mm Hg) Systolic Diastolic	153.0 ± 7.2 (140, 166 101.0 ± 6.1(90, 110)	125.2 ± 7.4 (110, 138) 73.0 ± 2.9 (70, 80)	0.000 (S) 0.000 (S)

Values are expressed as mean ± SD (maximum, minimum). S: significant; NS: nonsignificant

Table III shows the laboratory findings of 24 hour urine collections of the studied subjects. Preecamptic patients showed significantly higher proteinuria than normotensive women. They had significantly lower urine calcium concentration ($p<0.001$) and total urine calcium content ($p=0.000$) than normotensive women. Creatnine clearance of study group was lower than the control group but the values did not differ significantly ($p>0.05$). To determine whether the decreased urinary calcium excretion in women with preeclampsia could be

attributed to decreased glomerular filtration or whether there was evidence of increased tubular reabsorption, we calculated the fractional excretion. It was calculated by dividing calcium clearance by creatnine clearance and it was found to be significantly lower in the preecamptic patients than in the normotensive group (p=0.000).

Table II. Serum analyses of the studied subjects

Serum analyses	Preeclamptic	Normotensive	P value
Total protein (g/l)	6.3 ± 0.8 (4.9, 8.0)	6.5 ± 0.6 (5.4, 7.6)	0.015 (S)
Albumin (g/l)	3.3 ± 0.2 (3.0, 3.6)	3.4 ± 0.2 (3.0, 3.7)	0.012 (S)
Calcium (mg/dl)	8.9 ± 0.6 (7.4, 10.3)	9.1 ±0.7 (7.6.4, 11.7)	0.287 (NS)
Creatnine (mg/dl)	0.65 ± 0.11 (0.42, 1.06)	0.64 ± 0.14 (0.27, 0.92)	0.889 (NS)
Urea (mg/dl)	22.9 ± 4.5 (15.0, 36.0)	21.9 ± 3.3 (15.0, 31.0)	0.066 (NS)
Uric acid (mg/dl)	5.9 ± 0.6 (5.0, 7.0)	4.5 ± 0.6 (3.5, 5.7)	0.000 (S)

Values are expressed as mean ± SD (maximum, minimum).
S:significant;NS:nonsignificant

Table III. 24-h urine collections of the study subjects

Urine analyses	Preecla Mptic	Normo tensive	P value
Protein (g/day)	1.9 ± 0.9 (0.3, 3.4)	0.12 ± 0.07 (0.02, 0.25)	0.000 (S)
Calcium (g/day)	117.0±46.9 (75.0, 330.0)	307.9 ± 104.3 (142.0, 443.0)	0.000 (S)
Calcium (mg/dl)	11.0 ± 1.8 (9.3,16.9)	16.2 ± 2.5 (11.3, 19.0)	0.000 (S)
Creatnine clearance (ml/min)	122.5 ± 24.2 (67.3, 185.7)	125.9 ± 35.1 (75.5, 276.6)	0.430 (NS)
FECA (%)*	0.91±0.61 (0.28.4.11)	1.94±1.27 (0.42,6.68)	0.000 (S)

Values are expressed as mean ± SD (maximum, minimum). S: significant; NS: nonsignificant
* FECA: Fractional excretion of calcium

DISCUSSION : It has been seen that women with preeclampsia have hypocalciuria as compared with normotensive pregnant women. The aetiology of hypocalciuria in preeclamptic women is unknown. It has been speculated that hypocalciuria may result from decreased dietary intake, decreased intestinal absorption, increased calcium uptake by the fetus and placenta, or intrinsic renal tubular dysfunction. In our study we observed that preeclamptic women had significantly decreased urine calcium excretion than normotensive pregnant women. The mean fractional excretion of calcium in preeclamptic women was significantly lower than that in the normotensive pregnant women ($p<0.001$). The creatnine clearance in the preeclamptic women was lower than that in the normotensive pregnant women but the difference was not statistically significant ($p>0.05$).

Our observations of hypocalciuria in pre-eclamptic women are in accordance with the results of previous studies. Tufan Bilgin et al. (1999)[9] reported that preeclamptic women excreted significantly lesser total urine calcium (150.1±21.4 mg/24hr) than normotensive women (296.0±14.4 mg/24hr) ($p<0.001$). They found that there was no significant decrease in creatnine clearance ($p>0.05$) but fractional excretion of calcium was significantly decreased ($p<0.05$) in pre-eclamptic women, so they considered that hypocalciuria in preeclampsia may be due to enhanced tubular reabsorption. Taufield PA et al. (1987)[3] found that there was a significantly decreased mean urinary calcium levels in preeclamptic women and in hypertensive women with superimposed preeclampsia (42 and 72 mg/24 h respectively) than in the patients with chronic hypertension, transient hypertension and in normotensive patients (223, 248 and 313 mg/24h respectively). They suggested that increased distal tubular reabsorption of calcium may be a possible mechanism for hypocalciuria in preeclampsia. In a similar study, Donovan McGrowder et al. (2009)[10] reported that hypocalciuria in preeclampsia was associated

with decreased fractional excretion of calcium and suggested that increased tubular reabsorption of calcium may be a mechanism associated with hypocalciuria in pre-eclampsia. Pedersen EB et al. (1984)[12] also observed that urinary calcium excretion was considerably lower in the third trimester of preeclamptic women than in both normotensive pregnant and nonpregnant women and suggested decreased fractional excretion of calcium and decreased glomerular filtration rate may be possibly responsible for it. Other investigators[4,12,13,14] also made similar observations.

Serum calcium concentrations in preeclamptic women appear no different from values in the normotensive women in our study. However, the serum albumin was significantly lower in preeclamptic women. The concentration of total calcium in maternal serum declines during pregnancy, reaching its lowest value during the third trimester and rising slightly thereafter. The pattern of decline of serum calcium is parallel to that of serum albumin, suggesting that the fall largely involves the protein bound fraction.[7] Other investigators[4,10,11] also found that there was no difference in serum calcium level between the preeclamptic and normotensive women. The possible cause for this may be the enhanced tubular reabsorption of calcium seen in the preeclamptic patients.

Our results of hypocalciuria and normocalcemia in preeclamptic women are not in agreement with the findings of Cuney Tanner et al. (1994)[15] who reported that preeclamptic patients have significantly decreased serum calcium level than the normotensive women and have higher total calcium excretion and fractional excretion of calcium though these differences are not statistically significant. They attributed the decreased serum calcium to decreased serum albumin, hypoproteinemia, decreased dietary intake, maternal magnesium therapy in severe preeclamptic and eclamptic women (magnesium interferes with the synthesis of parathyroid hormone).

Lower calcium excretion may result from dietary variation. All participants in our study were on a free range diet. Because we did not advise any of our patient to alter their diets. However, we believe it is unlikely that dietary calcium intake played an important role in our findings.

CONCLUSION: In conclusion our study showed that the 24 hours urinary calcium excretion in preeclamptic women was significantly lower than that in the normotensive pregnant women. This hypocalciuria in preeclamptic patients was associated with decreased fractional excretion of calcium, suggesting a mechanism which may involve increased tubular reabsorption of calcium. As a potential diagnostic test for preeclampsia urinary calcium excretion is easy to carry out, non-invasive and inexpensive. However, further prospective studies are needed to understand the physiology and pathophysiology of calcium metabolism in normal and preeclamptic pregnancy.

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Aetiology and associated co-morbidities of locomotor disorders in a slum area in Mumbai.

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:ABSTRACT:

Background: Aetiology of locomotor disabilities is diverse and complex. Having a good knowledge of the causative factors leads to better and appropriate planning of the preventive and rehabilitative strategies and services. Objectives: To find out the aetiology, co-morbidities and addictions of individuals suffering from locomotor disability. Methods: A community based cross-sectional observation study was conducted in an urban slum of Mumbai. Total sample of 3665 individuals was screened. 205 were identified with loco motor disabilities who were subjected to a structured questionnaire. The data was analysed using SPSS software (Version 17). 95 % confidence limits for prevalence was calculated to estimate the prevalence in the general population. Z test of standard error of difference between two proportions was applied to identify the association between two variables. Results: Prevalence of locomotor disability is observed to be 5.59% with congenital impairment being 0.08 % in general population. Somatic aetiology is more common than traumatic. Muscular involvement is more common than neurological as well as skeletal. Single joint involvement is more common in the lower extremity. Dorso-lumbar and knee joints are maximally affected. Hypertension is the commonest co-morbidity and tobacco chewing is the commonest addiction.Conclusion: Disability due to locomotor dysfunction is amenable to prevention. Illnesses which are followed by musculoskeletal impairments and complaints regarding dorso-lumbar joints and knees especially in females should be urgently catered. Measures to control hypertension and tobacco chewing should be promptly implemented.

Key Words: Locomotor disability, aetiology, co morbidities, addictions

INTRODUCTION: Many diseases have iceberg phenomenon so that hidden or submerged aspects are not revealed to health system unless they are actively searched for or reported. Out of all disabilities, locomotor disabilities have diverse aetiologies and cause major functional impact due direct effect on areas of functional outlet. In addition to that their complexity is further enhanced by primary, secondary and subsequent impairments. Understanding the causes leads to proper health planning and prevention strategies. Considering that locomotor disability is the commonest type of disability in India, 1, 2 this study was undertaken to find out the aetiology and associated co-morbidities of locomotor disorders in a slum area in Mumbai.

MATERIALS AND METHODS: The study was carried out in an urban slum which is the field practice area of a teaching hospital in Mumbai. The study is cross sectional and observation based. A pilot study was conducted which showed a prevalence of 10% of loco motor disability among randomly screened population. Based on this minimum sample of 3600 was estimated. A household was taken as a

single unit by stratified systematic random sampling in two demarcated areas of the slum. All members of the household were included in the study. A sample of 3665 individuals was taken. Participants were screened for detection of locomotor disabilities by physical examination by trained health professional. A structured questionnaire was administered to individuals detected with locomotor disability in the local language. The study was conducted over a period of 3 months. The data was analysed using SPSS software (Version 17). 95 % confidence limits for prevalence were calculated to estimate the prevalence in the general population and Chi-square test was applied to identify the association between two variables.

RESULTS: Total sample of 3665 individuals was screened for locomotor disabilities. Among 3665 individuals 205 were identified with loco motor disabilities. Thus, the prevalence of loco motor disabilities is 5.59 % (95 % C.L. 4.85 % to 6.33 %). The study was further carried out on these 205 disabled individuals. Mean age of the affected sample was 38.89 years with standard deviation 15.1 years. 28.9 % are males and 71.1 % are females. 69.3 % were married. Out of the total sample, 62.7 % of disabled people had families with per capita income of less than 500 rupees per month and 75 % were un-employed. 101 affected individuals (49.3%) were illiterate and only 3.9% were educated beyond tenth class.

26.8% of affected individuals were suffering from locomotor disability for less than 1 year. Maximum numbers of cases (47.3%) were suffering between 1-5 years and only 25.9 % cases were chronic cases suffering for more than 5 years.

3 (1.46%) children were diagnosed with congenital impairment. Prevalence is 0.08% (0.8 per 1000) in general population. Out of the three two were females suffering from Bilateral genu valgum and left hip congenital dislocation and one male suffering from talipes equino varus .

Table 1: Distribution of affected individuals according to aetiological categories

Distribution of affected individuals according to broad aetiological categories		
Aetiology	Number	Percentage
Somatic	159	78.7
Traumatic	39	19.2
Somatic + Traumatic	4	2
Total	202	100
Distribution of affected individuals according to somatic aetiology		
Somatic Aetiology	Number	Percentage
Neurological	6	3.7
Muscular disorders	98	60.1
Arthritis	30	18.4
Muscular disorders + Arthritis	29	17.8
Total	163	100
Distribution of affected individuals according to traumatic aetiology		
Traumatic Aetiology	Number	Percentage
Muscular Disorders	22	51.2
Joints	11	25.6
Muscular Disorders + Joint	10	23.2
Total	43	100

Table 2: Distribution of affected individuals according to number of joints involved

No. of joints	**Number**	**Percentage**
Nil	2	1
1	118	57.5
2	36	17.6
3	30	14.6
>3	19	9.3
Total	205	100

Table 1 shows that 78. 7 % individuals having locomotor functional disability is due to illness and 19.3 % due to trauma. 2 % are due to combined aetiologies. Among locomotor disability due to illness, 3.7 % were due to neurological conditions, 60.1 % due to muscular disorders and 18.4 % due to joint involvement or arthritis. In 17.8 % individuals both muscular disorders and joint involvement were found. In traumatic category 51.2 % individuals suffered from muscular trauma not involving joint directly. In 25.6 % there was direct trauma to joint and in 23.2% both muscles and joints were involved.

As seen in Table 2, 57.5 % affected individuals have single joint involvement. Table 3, shows that lower extremity is affected more than the upper extremity. Single joint involvement is observed significantly more in the lower extremity as compared to upper extremity ($p< 0.01$). Multiple joint involvements are observed more in upper extremities. Involvement of dorsolumbar spine is seen in 110 out of 205 affected individuals. Out of these 77(70 %) showed affection of dorsolumbar spine without affection of other joints. Out of 71 individuals with affected knee joints, 37 (52.1%) showed exclusive affection of knee joints. The difference between single affection of knee and dorsolumbar spine is statistically significant ($p<0.05$). Ankle and foot, shoulder, elbow and forearm are moderately involved and rest of the joints are observed to be minimally involved.

Table 3: Distribution of affected individuals according to type of joints involved

Classification of affected individuals according to upper extremity and lower extremity joints involved either single or in combination with other joints				
Joints	**Single**	**Single + Combination**	**Percentage**	**Significance**
Upper extremity(shoulder, Elbow, Wrist, Thumb, Fingers and Cervical Spine)	19	59	32.2*	*Z = 4.05, p<0.01
Lower Extremity (Hip, Knee, Ankle,Toes, and Dorso lumbar Spine)	133	221	60.2*	
Classification of affected individuals according to joints involved (single or in combination)				
Joint involved	**Single**	**Single + Combination**	**Percentage**	**Test of Significance**
Dorso lumbar spine	77	110	70*	*Z=2.43, p<0.05
Knee	37	71	52.1*	
Ankle and Foot	14	27	51.9	
Shoulder	6	21	28.6	
Elbow and forearm	7	14	50	
Hip	4	9	44.4	
Fingers	2	8	25	
Wrist	2	6	33.3	
Thumb	1	5	20	
Cervical spine	1	5	20	
Toes	1	4	25	

Table 4 shows the morbidity pattern in individuals with locomotor disability.33 individuals (16.1%) were detected with some chronic medical illness. Among that hypertension is observed to be predominant. 46 (22.4%) affected individuals have undergone surgical procedure out of which 5(2.4%) had undergone orthopaedic surgery. In non

orthopaedic category, majority are middle aged females who have undergone procedure of tubal ligation as permanent method of sterilization. 46 (22.4%) affected individuals are having some addictions. Tobacco chewing is observed to be commonest type of addiction.

DISCUSSION: Prevalence of locomotor disorder in the current study is 5.59%. In a community based study conducted in rural Goa, Borker S et al. observed a prevalence of 0.92% whereas Osman A and Rampal KG found a prevalence of 3.9% in a study conducted in a Malay Community in Tanjung Karang, Kuala Selangor.3,4 Mean age of the sample is 38.89 years. Similarly Kar N observed that maximum cases were in the age group of 20 -40 years.5 Majority of the sample consists of females. Reynolds et al also observed that females were more affected than the males.6 However there are other studies which show that males are affected more than the females.4, 5 High rates of illiteracy (49.3%) and unemployment (75%) are observed in the current study. In the 58th Round of National Sample Survey Organisation (NASSO) it has been observed that about 55 per cent of the disabled in India were illiterate and only about 26 per cent of the disabled persons were employed.1, The prevalence of congenital locomotor functional disability is 0.08% in general population in the current study. This is very low as compared to some other studies. Kar N and Disler PB et al. calculated disability with congenital origin to be 14.3 % and 23.7 % respectively.5, 7

Majority of the study population showed somatic aetiology, which is also observed in other studies.5,8 However in some studies almost equal number of cases with somatic and traumatic origin are observed.4,7,9

In the current study, only 3.7 % are of neurological aetiology. Musculo skeletal disorders were observed in 96.3 % of affected individuals with somatic aetiology and all individuals with traumatic aetiology. In these, the muscular involvement is more than involvement of joints in somatic as well as traumatic category. Reynolds DL et al. observed that about one million Canadian adults are estimated to have physical disabilities attributed to a musculoskeletal condition, a prevalence of 50.1/1,000 adults (all rates expressed/1,000).6

41.5 % have involvement multiple joints. Osman A and Rampal KG observed that more than 50 % had pain in more than one joint. 4 Affection of lower extremity is more than the upper extremity. Single joint involvement is seen significantly more ($p<0.01$) in lower extremity than the upper extremity. Similarly Melzer D et al. observed that the role of pain in the lower limb (hip, knees and feet) was a major factor in mobility limitation.10 In Rotterdam Study it was observed that pain in one joint of the lower limbs was present in one fifth of the men and in a one third of the women.11 Single joint involvement of dorsolumbar spine is more than any other joints. Knee joint is the next important joint involved. In the Rotterdam study and study conducted by Chopra A et al., knee joint was found to be the most affected joint whereas Kar N observed that foot / ankle were the most commonly affected joints.5, 11, 12

16.1 % suffered from chronic medical illness. Hypertension, diabetes, asthma and tuberculosis were identified. Hypertension was the most common among them. Review of literature reveals that co-morbidities in locomotor disorder have been studied by various researchers. Hypertension, Chronic Obstructive Pulmonary Disorder, asthma, angina, stroke etc. have been commonly identified by most of them. 10, 13-15

77.6 % affected individuals did not have any addiction. Out of those addicted, majority indulged in tobacco chewing. Similar findings were observed by Chopra A et al. where oral tobacco use was reported to be significantly greater ($p < 0.001$) in the patients with rheumatic-musculoskeletal
symptoms/disorders. 12 In a study to examine the impact of lifestyle and disease on locomotor disability in British men, Ebrahim S et al observed that smoking and heavy drinking were some of strong predictors of locomotor disability in later life.16

Conclusions

Majority of the locomotor disabilities are of somatic origin and musculo-skeletal in nature. Muscular problems were found to be more than the skeletal and neurological counterpart. To limit disability, early diagnosis and prompt treatment of illnesses which are followed by musculoskeletal impairments is needed. Complaints regarding dorso-lumbar joints and knees especially in females should be urgently catered. Further research needs to be directed to understand the types of illnesses leading to locomotor disability and specially regarding involvement of dorsolumbar spine and knee joint. Primordial and primary prevention of hypertension and tobacco chewing will help in limiting of co-morbidities and addictions. The current study indicates that better understanding of the aetiology and co-morbidities associated with locomotor disability will help while planning for appropriate rehabilitative services and strategies.

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Patterns of health care utilization and morbidity in urban communities adopted by (UHTC) B. J. medical college & new civil hospital, Ahmedabad

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:ABSTRACT:

The aims of this cross sectional study were to describe the pattern of health care utilization and patterns in seeking health care, and to identify the determinants of care seeking from private general practitioners (GP) in Urban Health Training Centre area. The study was conducted over a 23-week period from Feb 2010 till Feb 2011 in the field practice area of the Department of Community Medicine, B J Medical College, Asarwa, Ahmedabad which has approximate population of 12,000. The mean (± SD) age of the study participants was 25±18 years, while the median age was 27 years. When the patients were classified according to the International Classification of Diseases, the most common disease category was infectious and parasitic diseases 31(25%) followed by diseases of respiratory system 21 (16.93%). In view of the fact that infectious diseases continue to be a major public health problem, need for a sound health policy that is primarily focused on preventive medicine, especially health education is apparent.

Key Words: Health seeking behavior, ICD Classification, health Utilization

INTRODUCTION

Nearly 23.1 per cent of urban population lives in slums in our country. Socio-economic status of these people does not differ much from their rural counterparts because of lack of sanitation facilities. (1-4) Utilization of the health services is a complex phenomenon which, on one hand, is influenced by the belief about causation of diseases and thereby prompting a person to take a decision to utilize various available health agencies and on the other hand by the availability, accessibility and organizational aspects of health services system. Such information is also important in planning and organizing health care services to the community. Indigenous systems like homeopathy, ayurveda, Yunani Medicine, rakee, physiotherapy, are also useful in health research. (5, 6)

In much of the region, including India, a large proportion of the curative ambulatory health care is provided by the private sector, whereas preventive services (such as immunization) and secondary and tertiary health care services are provided by the public sector. Health care is provided by public health care facilities, private general Practitioners (GP) and private dispensers‘ facility, renders equally both to the rural as well as the urban population(7,8). In view of this, a cross sectional study was conducted in an urban communities of Ahmedabad with the objectives (i) to know the various morbidities; and (ii) to study the utilization of various available health agencies.

METHODOLOGY

The study was conducted in the field practice area of the Department of Community Medicine, B J Medical College, Ahmedabad. The urban field practice area is located at Asarwa at a distance of 3Km from the Medical College. The area has an approximate population of 12,000. Field work was conducted over a 23-week period from Feb 2010 till Feb, 2011.

The instrument also captured: (a) general information about the household and its

members; (b) health care utilization and resulting expenditures; and (c) Morbidities (Past/Current) as per ICD classification. For assessing ocular morbidity, help of ophthalmologist was sought.

It was a cross-sectional, community- based study. The sampling of households was stratified in a way that the number of households sampled in each area was directly proportional to the number of households in the district (7.3 households per 1000 population). House-to-house survey in total 1000 houses. Asarwa UHTC consists of migrants from neighboring states of Gujarat (M.P, Rajasthan, U.P, Maharashtra and Bihar). Medical Social workers along with Interns and residents of Community Medicine collected the data by visiting, in respective areas of MSW. Each case was identified, recorded for major signs, symptoms, and clinical diagnosis and treated freely during routine diagnostic camps and focus group discussion arranged twice weekly by UHTC In charge. The primary schools and angan-wadi, Private hospital, Dispensaries, NGOs in the study area were also visited to assess the current health status. Data were recorded and analyzed in Epi-info (3.5) the number of patients attending field clinics (Camps) in different months was tested by X2 tests. Age-specific person-visits to clinics (Camp/Nursing Homes/Dispensary etc.) were computed and the diseases problems were broadly classified according to the 10th revision of the International Classification of Diseases. (ICD; WHO, 1998)(9)

RESULTS

Table- 1: The mean (± SD) age of the study participants was 25±18 years, while the median age was 27 years. Participants age less than 5 years were more likely to visit health care providers as compared with their counterparts age 5 years and above (rate ratio=1.29 95% CI: 1.10,1.51). The age and sex wise distribution was almost uniform, with sex-ratio of 0.85.

Table-2 Distribution of cases By ICD Category.

A total of 124(2.66%) current morbidities were observed in study population. The most common category was infectious and parasitic diseases 31(25%) followed by Respiratory system, accounting for 21(16.93%), disease of Digestive system 16(12.90%), Circulatory system 15(12.09%). And diseases of Endocrine, Nutritional and Metabolic 14(11.29%) the remaining , less frequent collectively accounted for 29.9% of the cases (Table 2)

TABLE 1:Age and Sexwise Distribution of the Respondents

Age in years	Female (%)	Male (%)	Total (%)	Sex Ratio Female : male
Below 1 year	12 (54.5)	10 (45.5)	22 (100)	1.2
1-5	100 (40.5)	147 (59.5)	247 (100)	0.68
10-15	182 (43.9)	233 (56.1)	415 (100)	0.78
15-20	229 (43.7)	295 (56.3)	524 (100)	0.77
20-30	470 (48.2)	505 (51.8)	975 (100)	0.93
30-45	566 (50)	567 (50)	1133 (100)	0.998
45-60	345 (45.9)	407 (54.1)	752 (100)	0.84
5-10	122 (40.1)	182 (59.9)	304 (100)	0.67
60+	113 (43.3)	148 (56.7)	261 (100)	0.76
TOTAL	2139 (46.2)	2496 (53.8)	4650 (100)	0.85

Table 3: Males and females in almost equal proportions, comprising 32.9 per cent in the reproductive age group availed treatment for RTI/STIs in a Government allopathic health facility. In contrast, a significantly higher percentage (82.9 %) reported for treatment for diarrheal diseases.. Ten per cent of children

under age four were ill with diarrhoea. Most mothers were not aware of ORS, indicating the need to pay attention to the prevention and treatment of diarrhea.

Table-2 Current morbidity (all ages and both sex) (As per ICD-10)

No.	System	No. (%) (N=4650)
I	Certain Infectious and Parasitic Diseases(A00-B99)	31 (25%)
II	Neoplasms (C00-D49)	0
III	Dis.Of Blood and Blood forming organs / Dis.(D50-D89)	2 (1.61%)
IV	Endocrine, Nutritional and Metabolic Dis. (E00-E90)	14 (11.29%)
V	Mental and Behavioral Disorders. (F00-F99)	1
VI	Dis. Of Nervous System (G00-G99)	1
VII	Dis. Of Eye and Adnexa (H00-H59)	2 (1.61%)
VIII	Dis. Of Ear and Mastoid Process (H60-H99)	3 (2.41%)
IX	Dis. of Circulatory System (I00-I99)	15 (12.09%)
X	Dis. Of Respiratory System (J00-J99)	21 (16.93%)
XI	Dis. of Digestive System (k00-K93)	16 (12.90%)
XII	Dis. Of Skin and Subcutaneous Tissue (L00-L99)	0
XIII	Dis. Of musculoskeletal Sys. And Connective tissue(M00-M99)	11 (8.87%)
XIV	Dis. Of genitor-Urinary System (N00-N99)	3 (2.41%)
XV	Dis. Of Pregnancy, Childbirth and Pueperium (O00-O99)	3 (2.41%)
XVI	Conditions originating in Perinatal period (P00-P96)	0
XVII	Congenital .Mal. Deformities, Chromosomal Abn. (Q00-Q99)	0
XVIII	Symptoms/signs & Abn. Clinical & Lab Findings (R00-R99)	0
XIX	Injury, Poisoning, Consequences of External Causes (S00-T98)	1
XX	External causes of Morbidity & Mortality(V01-Y98)	0
XXI	Factors influencing Health Status & Contact with Health Services(Z00-Z99)	0
Total Current Morbidity		124 (2.66%)

TABLE 3:Distribution of Subjects Based On Their Preference for the Type of Health Facility (Past Morbidity)

Health Facility	RTIs/STIs		Diarrheal Diseases	
	Male (n=799)	Female (n=685)	Male (n=799)	Female (n=685)
Allopathic (govt)	517 (64.5)	346 (50.3)	440 (55.1)	411 (60.1)
Allopathic (private)	232 (29.2)	244 (35.7)	309 (38.7)	209 (30.6)
Ayurvedic	5 (0.6)	18 (2.6)	12 (1.5)	25 (3.7)
Traditional Healer	0 (0.0)	44 (6.4)	4 (0.5)	10 (1.4)
Homeopathy	2 (0.2)	8 (1.2)	0 (0.0)	0 (0.0)
No response	43 (5.4)	25 (3.7)	33 (4.1)	30 (4.2)

Significant at $p<0.05$, Figures in parentheses are in percentage.

Table 4: Out of 1493 males, 215(14.4%) were undergone Ophthalmic examination (Ophthalmic Professor) and out of 1420 females, 176(12.4%) were thoroughly examined. The sex ratio was 0.95:1(No .Of females per 1000 males), which was not significant. The study population comprised of 391(13.4%) children in the community who were not going to school. There were 215(54.9%) Males and 176 (45.1%) females in urban slum area. This association was found to be statistically significant (X^2=18.5, df=2, $p<0.0001$). Out of 215 Male, 49(22.8%) of male and 176 female, 34(19.3%) female found to had ocular morbidities. The Sex ratio of persons with morbidity was 0.82: 1.

ICD coding was given according to morbidities. Maximum 4.9% were having trachoma, followed by 3.6% xeropthalmia. When specific ocular morbidities were analyzed with respect to age, it was found that the prevalence of conjunctivitis, trachoma, refractive errors, and squint increased with age. Because Refractive error and squint were manifested in later age group. Xerophthalmia was the only disease in which a decreasing prevalence was observed

with an increase in age ($p<0.05$). The other morbidities could not be analyzed separately because of small number of cases. A case of Congenital Glaucoma (Buphthalmos) in age 1 year was found, treated at Hospital. Free glasses were given to cases with refractive errors. A total 15 cases with treatable causes were referred, rechecked, followed-up and treated at M & J Ophthalmic Institute.

TABLE 4:Distribution of Ocular Morbidity (By Type) Amongst Study Subjects

Disease	ICD Code	Urban slums N= 391 No (%)	Sex	
			Male(49)	Female(34)
Refractive errors	H 52.7	13 (3.3)	6(12.2)	7(20.6)
Conjunctivitis and dacryocystitis	H 10.9	11 (3.3)	8(16.3)	3(8.8)
Trachoma	A 71.9	19 (4.9)	14(28. 6)	5(14.7)
Xerophthalmia	H 19.8	14 (3.6)	7(14.3)	7(20.6)
Stye	H 00.0	4 (1.0)	2(4.1)	2(5.9)
Blepharitis	H 01.0	5 (1.3)	3(6.1)	2(5.9)
Color blindness	H 53.5	4 (1.0)	3(6.1)	1(2.9)
Chalazion	H 00.1	3 (0.8)	2(4.1)	1(2.9)
Latent-Squint Manifest-squint	H 50.9	4(1.0 0) 6(1.5)	2(4.1) 2(4.1)	2(5.9) 4(11.8)
Total		83(10 0)	49(10 0)	34(100)

Table 5: Total physical disability was 17(0.79%) in females and 21 (0.84%) in males. Majority 8(0.4%) of females were having Visual impairment as compared to males where orthopedic deformity of feet was 10 (0.4%).

TABLE 5 :PHYSICAL DISABILITY

Physical Disability	Female (%)	Male (%)
Deafness affecting routine activities	1 (0.0)	1 (0.0)
Visual impairment	8 (0.4)	6 (0.2)
Orthopedic deformity of feet affecting routine activities	2 (0.1)	10 (0.4)
Orthopedic deformity of hand affecting routine activities	5 (0.2)	2 (0.1)
Others	1 (0)	2 (0.1)
Total Disabled	17 (0.79%)	21(0.84 %)
Nil	2121 (99.2)	2473 (99.2)
Total	2138 (100)	2494 (100)

DISCUSSION:

In response to questions regarding the prevailing or current health problems faced by the household and broader community informants cited the following, in descending order of frequency:

† Mild to severe fever and malaria (fevers were often referred to as malaria, though they may have been the result of some other conditions);

† Diarrhea and vomiting (sometimes referred to in terms of Specific conditions such as dysentery, typhoid or cholera);

† Skin diseases (particularly scabies);

† Joint pain and paralysis, particularly in the elderly;

† Hemorrhoids;

† Tuberculosis;

† Specific injuries–burns, fractures, bites and cuts.

Two conditions that were frequently cited for women in particular were:

† Non-specific problems after a sterilization operation (e.g. general weakness, localized pain, painful menses, discharge);

† Complications in childbirth (e.g. prolonged labor and hemorrhage).

M.Suleman et al(10) also showed the utilisation of the private sector for health care was 69.5 per cent. Only in 15.7 per cent of the episodes did public health care was sought. A vast majority (72.2%) of subjects expressed their willingness to pay more for further improvement of health care services in the Government sector.

The main reason for preferring a Government health facility was the low cost of the treatment followed by easy availability of services. Waiting time for availing the services varied between 2 (for 44.4%) to 4 hours (for 29.3%) of those interviewed. People incurred high health expenditure ranging from Rs 50-2,000 per illness episode, and Rs 600-1,500 for a delivery. Most of this money was spent on transport and doctors' fees. Coverage Evaluation Survey 2009 - Gujarat Fact Sheet (9), showed in Government Health Facility/Provider Rural, 29.7 %, Urban 15.0%, Total 24.9%, in Private Health Facility/Provider Rural 63.4% , Urban 68.1%, Total 64.9%.

The private sector plays an important role in health care in developing country like India where about 60-70% of patients are receiving healthcare from the private providers i.e. face various health challenges of communicable diseases, non communicable diseases, maternal and child health problems, natural calamities and threat of re-emerging and emerging diseases. (10-13).

Most of the disease burden in the state can be directly or indirectly attributed to poverty. Access to local health services by socially and economically marginalized groups is thus a major priority (World Bank 1998; GoO 2001). WHO has appealed for helping the Urban health matters, in critical ways, for more and more people and has requested support for promoting urban planning for healthy behaviors and safety; improvement of urban living conditions; ensuring participatory urban governance; building inclusive cities that are accessible and age friendly; and, making urban areas resilient to emergencies and disasters.(14)

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Socio demographic determinates of type 2 diabetes among residents of a peri-urban society of Ahmadabad district.

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:ABSTRACT:

A community based survey was done in September 2008 to find out the socio demographic determinants for type 2 diabetes and explore the awareness about its signs, symptoms and complications amongst people aged 20 years and above, residing in a peri-urban locality of Ahmedabad district. Out of 508 study subjects, 55 (10.8%) were suffering from diabetes. Prevalence was statistically high in males (13.5%) than females (8.17%) and further increased significantly from 0.7% in 20 - 30 years to 35.7% in 60 - 70 years. Only 17.9 percent subjects were undertaking some exercise. Commonest symptom as perceived by subjects was a weakness and half of the study subjects were aware that if not timely diagnosed and managed, it can affect eyes.

Key words: Socio demographic determinants, type 2 diabetes, awareness

INTRODUCTION:

Globally 3.2 million deaths every year are attributed to diabetes. It means 1 in 20 deaths, 8700 deaths every day and 6 deaths every minute[1]. Indeed, India leads the world in the number of people with diabetes (40.9 million) and this number is expected to rise to 69.9 million by 2025[2]. The problem continues unabated despite advances in every field[3]. Lack of concern/ awareness in the community and the long latent period before symptomatic manifestations of diabetes are the reason for late detection of disease.

Knowing the awareness levels about a condition in population is important as knowledge is crucial for behavior change. Therefore, this community based study was planned, designed, conducted by the medical students (III MBBS) during their posting to explore the factual situation in terms of disease load. Though maturity onset to diabetes (type 2) develops after 40 years but considering the epidemiologic shift in age in recent times, it was decided to include all people above 20 years for assessing the knowledge level in the community. Additional objective of the study was the capacity building and empowerment of students for organization of such study and its interpretation.

MATERIALS & METHODS:

A Community based cross sectional was carried out in September 2008 by team of medical students under the direct supervision of teaching faculty (RS) of the institute. Questionnaire was designed by faculty member and team members after review of existing literature and thorough discussion and was revised after pilot testing. Study population was people above 20 years from a residential society – 5 km away from institute. Though the area is served by the municipal corporation, it is located at the periphery and qualifies as peri urban area. There are 240 houses in this society, however, after taking oral consent, explaining the purpose of the study and with several attempts, 200 houses (83.3%) could be covered; rest were locked/ under construction. History of diabetes diagnosed by doctor (qualified allopathic) was asked for and the available case papers were studied to know the type of treatment prescribed. History of exercise (minimum 30 minutes/ day for at least 5 days in week) was enquired from

all study subjects. For Data entry and analysis Epi-Info Version 6.04b was used. Percentage, chi square test and odds ratios with 95 percent confidence interval were calculated for descriptive statistics.

OBSERVATIONS: Out of 508 study subjects, 251 (49.4%) were males and 257 (50.6%) females. Mean age of study population was 43.3 $\pm$ 1.6 years. Literacy rate of study population was 96%. Based on the history and appraisal of case papers, point prevalence of Diabetes was 10.4 percent.

Table 1 Age wise prevalence of diabetes in the study population (n=508)

Age (yrs)	Population (n)	Diabetic cases (based on history/ case papers)	Point Prevalence Rate (%)
21-30	146	1	0.7
31-40	110	2	1.8
41-50	87	11	12.6
51-60	85	18	21.2
61-70	56	20	35.7
> 71	24	3	12.5
Total	508	55	10.8

($X^{2=}$70.5, df = 5, P <.001)

Prevalence increased with age from 0.7 in 20 - 30 years to 35.7 percent in 60-70 years and difference was statistically significant (table 1). In fact the prevalence was less than 2 percent till 44 years of age and showed a sharp increase thereafter (29%). Male were affected more (13.5%) than female (8.2%) the difference was statistically not significant (table 2). Half of the cases (27/55 or 49.1%) were chronic in nature and diagnosed 5-10 years back. Only 5 out of 55 cases were diagnosed in last one year. Most (90%) cases were diagnosed by physicians. None of the patient was on non pharmacological management alone. 49 out of 55 were on oral hypoglycemic agents and 3 each on insulin alone and both (oral & insulin). Only 25 of them (45.3%) were monitoring their blood sugar every month. Disease Occurrence also correlated positively with literacy and showed increasing trend with literacy though this association was statistically not significant.

Only 91 (17.9%) study subjects were doing regular physical exercise. Proportion of those doing physical exercise was more in diabetics and difference was statistically significant. Most common symptom known to study subjects; irrespective of their diabetes status, was weakness (78.9%) followed by delayed healing, polydypsia/ polyphagia/ polyuria (table 3). Half of study subjects (50.8%) knew that if disease is not diagnosed/ managed in time, it can affect eyes also. Awareness for involvement of other organs in study population was renal complications (28.2%), heart diseases (25.0%) and neuropathy (23.0%) (table 3). In actual amongst those with diabetes, two third cases had one or other complications. Hypertension was the commonest complication (38.2%) followed by heart diseases, renal disorders, involvement of central nervous system, thyroid and eye. Six cases had skin infections including boils which may also be due to uncontrolled or poorly managed diabetes (table 4).

DISCUSSION: Classification in the two primary types of diabetes is not simple. Children classified with type 1 diabetes may actually have Maturity Onset Diabetes (MOD) accounting for < 5% of all type 2 diabetes cases and similarly 5-10 percent of adults with presumed type 2 diabetes have auto antibodies as seen in type 1 diabetes may have an incomplete form of type 1 diabetes called latent autoimmune diabetes of adulthood (LADA) but both the situations are uncommon[4]. The prevalence of diabetes for all age group worlds wide was estimated to be 2.8% in 2000 and is expected to be 4.4% in 2030[5]. Prevalence in the study was 10.8 percent which is high when compared with adults (> 20years) from USA (7%) [6]. In developing countries like ours, majority patients are in the age group 45-64 years of age while in developed countries majority cases are in the age group of 64 years age and above [5.] . Sharp and significant increase in prevalence at 44 years of age from 2% to 29% (x^2 =55, df =1, P<.001) pinpoints the age group

Table 2 Association between socio demographic variables & occurrence of diabetes

Variable	Population	cases	X^2	P value	df	OR	95% Confidence interval
Gender							
Male	251	34	3.79	P=.05	1	1.76	(0.96 -3.25)
female	257	21					
Education							
Illiterate	16	4	2.14	P=.143	1	0.44	(0.13 - 1.62)
Literate	488	51					
Occupation							
Employed	243	20	3.48	P=.06	1	0.58	(0.31 - 1.07)
unemployed	265	35					
Family History							
Yes	121	10	1.08	P=.05	1	0.68	(0.31 - 1.46)
No	387	45					
H/o of exercise							
Yes	91	32	68.02	P <.001	1	9.29	(4.89 - 17.73)
No	417	23					

for high risk strategy. Increase in prevalence of diabetes with increase in literacy is indirect as improvement of literacy and employment leads to skilled and businessman type jobs which result into sedentary lifestyle – an important risk factor for obesity and diabetes. As per the Chennai Urban Rural Epidemiology Study (CURES) conducted on adult ($\geq$ 20 years) population (N = 26001), nearly 25% of the population was unaware of a condition called diabetes. Further only 22.2 percent of population and 41.0 percent of the known diabetic subjects were aware that diabetes is preventable. The fact that diabetes can cause other complications was also known to only 19 percent of study subjects. This proportion was only 40.6 percent amongst those who are suffering from diabetes. The situation in other parts of India is likely to be even worse[7]. None of the diabetic in the study was being managed on non pharmacological basis alone suggests the late arrival of the cases to treatment providers – emphasizing the need to incorporate messages in the health educational campaigns for early self detection The fact that proportion of those undertaking regular physical exercise was more amongst known diabetics than non diabetics was because diabetics started physical exercise only after they became aware of their disease status and were told to do so by treatment providers.

Table 3 Awareness of study subjects about symptoms and complications of diabetes (n=508)

Symptoms/ Complications	No.	(%)
Symptoms		
weakness	401	(78.9)
Delayed healing	284	(55.9)
Increased thirst/ hunger/ frequency of urination	255	(50.2)
Complications		
Central Nervous	117	(23.0)
System	258	(50.8)
Eye	143	(28.1)
Kidney	127	(25.0)
Heart		

Most cases were diagnosed within 10 years, than also two third of them had one or other complications. It may be due to the uncontrolled or poorly managed status of the disease. Hypertension was present in 38.2 percent of patients along with the involvement of heart, kidney, CNS and eye. Diabetic retinopathy is not a preventable or treatable cause of blindness and is related to the duration of disease[7]. Elsewhere too, the prevalence of diabetic retinopathy after 40 years of age is 40.3 percent and 3.4 percent amongst diabetics and general population

respectively [8]. In present study, prevalence of diabetic retinopathy amongst patients was only 2%. Fortunately half of the study population was aware that if disease is not managed in time, it can affect eye. Diabetics are also at higher risk for other ophthalmic disease, such as cataracts [9].

Table 4 Associated complications among diabetics (N=55)

Complications	No.	(%)
No Complications	19	34.5
Yes	36	65.5
Heart disease	6	10.9
Renal disease	5	9.1
Thyroid	1	2.0
CNS	2	4.0
Eye	1	2.0
Hypertension	23	38.2
Others*	6	10.9

*Include boils and other skin infections,

** Some cases had more than one complication

Nephropathy is a diabetes-specific complication associated with the greater mortality and it develops in less than 20 percent of those with NIDDM [10-12]. In the present study, ocular involvement was the most perceived complication of diabetes followed by involvement of heart, CNS and kidney. Most common symptom perceived by 79 percent of the study population (with 96% literacy) was only weakness - commonly associated with diabetic neuropathy. Half of the people with diabetes are affected to some degree of diabetic neuropathy. Though very common, weakness is a non specific symptom with little coordination at the level of patient of weakness with the onset of disease. It suggests for a need to inform people about other rather more specific symptoms of this disease. Major risk factors of complications are the level and duration of elevated blood glucose which can be taken care of by regular treatment and monitoring of blood glucose. This is another point to be emphasized while planning the health education programs for target population. The fact that two third patients had complications can be used in IEC program to highlight the importance of regular treatment.

CONCLUSION:

Prevalence of type 2 diabetes was 10.8% and showed increase with age. Though 96% population was literate, half of the study subjects were unaware about signs, symptoms and complications of diabetes and less than one fifth of the study population were undertaking physical exercise. Complications were seen in 65 percent of diabetics and the hypertension was the commonest present in 42 percent of diabetics.

Limitations: Though study sample is small and prompts for further studies with adequate sample using some sampling and at the same time to make it cost effective it can be combined with population screening to detect new cases. Only few of the socio demographic determinates based on the feasibility were covered in this study. However, the study was very helpful in (1) empowering the students to conduct field based research and to have first hand understanding of the disease and (2) sensitizing the community about the regular check up, treatment compliance and physical exercise.

Recommendations

Keeping in view the rising trend of Non Communicable Diseases (NCDs), there is an urgent need to start NCD control program in India. Interventions should include primary prevention focusing on risk prevention and risk reduction, health promotion and secondary prevention by early detection with the availability of diagnostic, management & referral facilities.

Screening for complications is justified if treatment begins in the pre-symptomatic phase which improves outcome. Therefore, preclinical phases of retinopathy, nephropathy and neuropathy can be targeted for screening and may include pre-proliferative or proliferative retinal changes (retinopathy), micro-albuminuria, overt proteinuria (renal complications) and decreased sensory-nerve function (neuropathy). Since the development of loss of sensation in the feet poses a substantial risk of foot trauma with resultant diabetic ulcers and amputations, a foot examination should also be performed during every such visit. Community screening of adults (> 20 years) for early detection of diabetes with built in provision of above mentioned screening of complications can be an integral part of any such program focusing on NCD in general and diabetes in particular.

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Study on epidemiological determinants of refractive errors among Kashmiri school going children.

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:ABSTRACT:

Objective: To determine the prevalence of visual impairment due to refractive errors in school children of district Srinagar, Kashmir and, to investigate the influence of factors on problem of low vision due to refractive errors. **Study design:** Cross-sectional. **Setting:** Rural and urban schools of Srinagar. **Participants:** School children aged 7-18 years studying in 3rd to 10th class. **Study period:** October 2010 to September 2011 **Sample size:** 1217 school children who included 561 males and 656 females. **Study variables**: Refractive errors by age, sex, exposure to TV and family history .Type and grades of refractive error. **Statistical analysis:** Chi square test, proportions. **Results** The prevalence rate of refractive errors was 10.8% and myopia was observed to be the most dominant state of refractive error (i.e.,61.25%), indicating a major visual problem in school children. Among the various influencing factors considered, family history and longer hours of exposure to TV was found to be significantly associated with the presence of refractive errors ($P<0.05$).Conclusion: Since Refractive errors have a significant impact on a child's life in terms of education and personality development, it is important that School Eye Screening Programme should be effectively implemented to eliminate this easily treated cause of visual impairment.

KEY WORDS Prevalence, Refractive Error, School Children, Myopia

INTRODUCTION:

It is estimated that 2.3 billion people worldwide have refractive errors; out of which 1.8 billion have access to adequate eye examination and affordable corrections leaving behind 500 million people, mostly in developing countries with uncorrected error causing either blindness or impaired vision[1]. The prevalence of refractive errors of the children varies worldwide. Refractive errors are one of the most common visual impairment in the world[2] The importance of early detection and treatment of ocular diseases and visual impairment in young children lies in the fact that 30% of India's population become blind before the age of 20 years and many of them are under five when they become blind. An effective blindness prevention programme is said to be complete after including child screening. School going children therefore form an important large target group which is easy to approach and also adaptable to the Health Education imparted[3]. Poor vision in childhood affects performance in school or at work and has a negative influence on the future life of the child. Moreover, planning of a youth's career is very much dependent on the visual acuity, especially in jobs for navy, military, railways and aviation[4].

In the present study, prevalence and pattern of refractive errors among school children of Kashmir has been studied for determining the magnitude and factors associated with occurrence of refractive errors. Such studies when done on large scale will also help in planning of appropriate eye health services for the school children of our region

MATERIALS AND METHODS:

A population based survey of refractive errors was conducted from October 2010 to September 2011 in district Srinagar of Kashmir Division. It was cross sectional study and the study population consisted of school students studying from class 3rd to class 10th of government schools. The list of all government schools in district Srinagar was obtained from Chief education office, Srinagar.

The Sample size for the survey was calculated by using formula **4pq/L2.** Prevalence of refractive errors in previous study from India was 25%[5] .Considering p=25, q=75 and allowable error (L) =10 % of p, required sample size was 1200 for the present study. Selection of the schools was done by simple random sampling technique using random number table.

The Preliminary examination of school children was done at the respective schools. Before the examination, the purpose of the study was explained to head of the school and consent was obtained from the proper authority (School Headmaster). The visual acuity was tested by Snellen's chart keeping it at six meters distance from the Subjects. Other ocular problems were also tested with the help of Torch Light, Ishihara chart etc. The subjects who had visual acuity equal or less than 6/12 were referred to ophthalmic section of Primary Health centre Hazratbal for further confirmatory examinations. Subjective refraction was performed by achieving best corrected visual acuity, while Cyclopaedic refraction was advised for students when best corrected visual acuity could not be achieved. Refractive errors were categorized into four categories Emmetropia, myopia, Hypermetropia, Anisometropia.

Definition used to stratify refractive errors:

- Emmetropia was defined as a spherical equivalent between -0.5 and +0.5 dioptre sphere[6].
- Myopia was defined as a spherical equivalent less than -0.5[7].
- Hyperopic was defined as a spherical equivalent greater than +0.5 DS[8].
- Astigmatism was defined as with the rule if axis lay between 15º on either side of the horizontal meridian, against the rule if the axis lay between 15º on either side of the vertical meridian, and oblique if the axis lay between 15º and 75º or between 105º and 165º[8].
- Anisometropia; When there was a difference in refraction between the two eyes greater than 2.00 dioptres (D), it was designated as anisometropia[10].

Ethical Issues ; All children found to have refractive errors were provided free spectacles under School eye screening project conducted by department of community medicine , Govt Medical college , Srinagar.

Results

Table 1: Prevalence of Uncorrected refractive error (in Either eye)

Setting	Total number of screened children N	Prevalence n (%)
Rural	740	78(10.1%)
Urban	477	53(11.1%)
Total Prevalence	1217	131(10.8%)

Table 2: Gender wise distribution of uncorrected refractive errors (in either eye)

Gender	Uncorrected refractive error		Total
	Yes n (%)	No n (%)	n(%)
Male	61 (10.9%)	500 (89.1%)	561
Female	70 (10.7%)	586 (89.3%)	656
Total screened children	131 (10.8%)	1086 (89.2%)	1217

The mean age of the screened children was 12.22± 2.289. Among total 1217 students 53.9% were females and 46.1% were males from grade

3rd to 10th. Prevalence of refractive error in screened children was 10.8% and it was almost similar in both rural(10.1%) and urban setting(11.1%).The refractive errors was present in both sexes with almost equal prevalence in both groups (10.9%,10.7%%)(Table no 2).

Table 3: Higher prevalence of refractive error was found in <10 years (14.1%) and 10-12 years (12.4%). Prevalence showed a decreasing trend afterwards.

Table no 3 :Age wise distribution of Uncorrected refractive error (in either eye)

Age groups	Uncorrected refractive error		Total
	Yes n(%)	No n(%)	
< 10 years	21 (14.1%)	128 (85.9%)	149
10- 12 years	62 (12.4%)	440 (87.6%)	502
13-15 years	43 (9.0%)	436 (91.0%)	479
>15 years	5 (5.7%)	82 (94.3%)	87
Total screened children	131 (10.8%)	1086 (89.2%)	1217

Table 4: Grade of Visual acuity (Right and Left Eye)

Visual Acuity	Right eye n (%)	Left eye n (%)
Normal to borderline (6/6-6/9)	1125 (92.4%)	1111 (91.3%)
Mild decrease (6/12-6/18)	68(5.6%)	67(5.5%)
Moderate decrease (6/24-6/36)	18(1.5%)	17(1.4%)
Severe decrease(< 6/60)	6(0.5%)	22(1.8%)
Total number of screened Children	819(100.0%)	819(100.0)

The table 4 shows that more than ninety percent of students had normal to borderline visual acuity (6/6 to 6/12) in both eyes. Most of the student with error had mild decrease (5.6%, 5.59%) followed by moderate decrease (1.5%,1.4%) and severe decrease was represented by 0.5% in right eye and 1.8% in left eye..

Table No 5a: Correlation between Family history of wearing spectacles and uncorrected Refractive error (in either eye)

Family History	Uncorrected refractive error		Total
	Yes	No	
Yes	67(22.0%)	238(78.0%)	305
No	64(7.0%)	848(93.0%)	912
Total screened	131(10.8%)	1086 (89.2%)	1217

Chi sq =53.18 , p value <0.001 , df = 1

Table No 5b: Correlation between duration of watching TV and uncorrected Refractive error in either eye

Duration for watching TV	Uncorrected refractive error		Total
	yes	No	
Do not watch TV	11(6.6%)	155 (93.4%)	166
< 1 hour	8(15.4%)	44 (84.6%)	52
1 hour	23(7.9%)	269 (92.1%)	292
2 hour	31(8.4%)	340 (91.6%)	371
3 hour	28 (14.2%)	169 (85.8%)	197
4 hour	11(16.7%)	55 (83.3%)	66
>= 5 hour	19 (26.0%)	54 (74.0%)	73
Total Screened	131 (10.8%)	1086 (89.2%)	1217

Chi-Square = 31.428, df = 6, p value <0.001

The table 5a shows that 51.1% out of 131 students who have refractive errors have a positive history of wearing glasses in their families and indicates a very strong relationship between refractive errors and results are statistically significant with a p value of

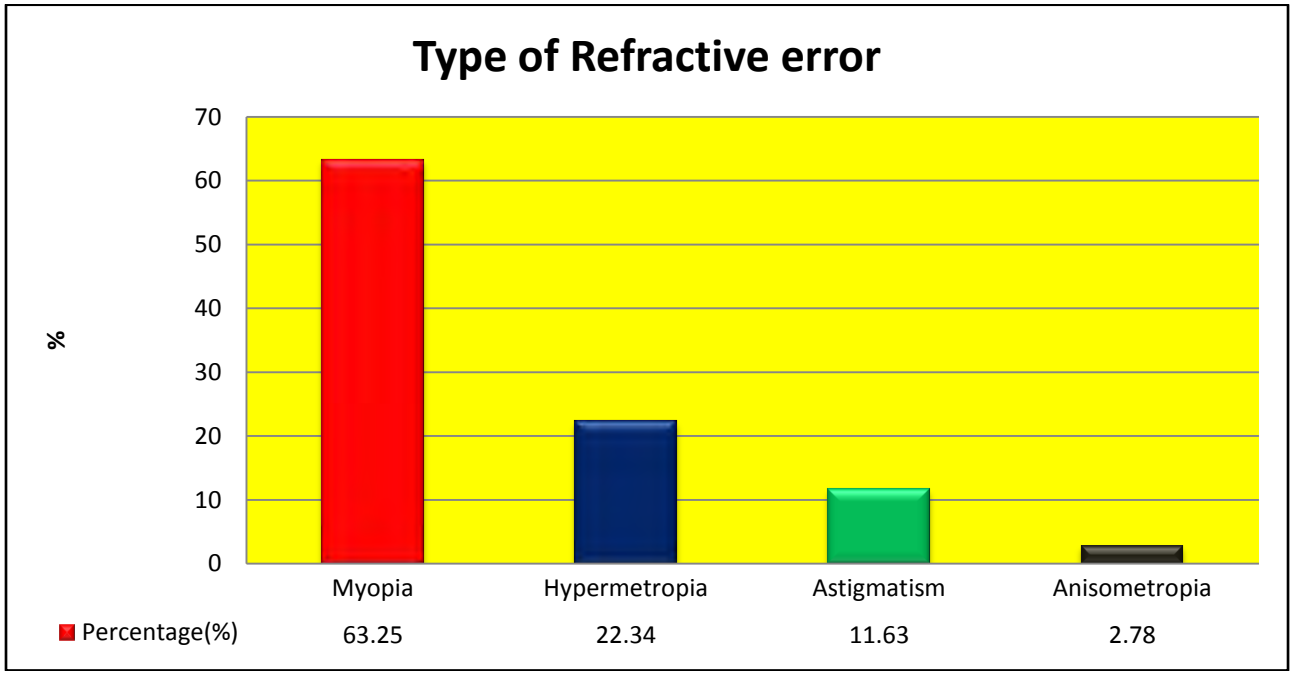

Fig : 1: Types of Refractive Error (percentage)

<0.001.Table 5b shows increasing prevalence of refractive error who watched TV for longer hours and it was highest among those who watched TV for 2 hour (23.7%)and three hours(21.4%) (p<0.001).

Among the 131 children who were found to have refractive error the most common type was myopia (63.25%) followed by Hypermetropia (22.34%) whereas Astigmatism (11.63%) was present in just 11.63 % subjects. Anisometripia was present in 1.04%.

DISCUSSION:

Childhood blindness is one of the priority conditions targeted in VISION 2020: The Right to Sight Initiative of the World Health Organisation[10].Uncorrected refractive errors form the most important cause of visual impairment in childhood and early adolescence. The ultimate moulding of a person's personality and potentiality rests with his nature, surroundings and quality of eye sight. Further, most school children do not realize that they are suffering from the ocular disability as they adjust to poor eye sight in different ways. They compensate for their poor vision by sitting closer to the blackboard, or by holding their books close to their eyes. They may also squeeze their eyes. They may also tend not to undertake any work that needs visual concentration, thus affecting their performance[11].So identifying refractive errors in childhood and providing them spectacles can help to mitigate there problem to great extent.

The prevalence of uncorrected refractive error in our study was significant differences in refractive errors between males and females[12.] However results of many other shows higher prevalence among girls. This could be probably related to their 10.8% whereas Indian studies report, prevalence in range of 6.8%[2] to 25%[5.] The difference in the prevalence of refractive errors could be attributed to different population under study, particularly with regard to the age groups under consideration, cut off value taken for considering refractive error, ethnic group and other socioeconomic determinants. Refractive errors especially myopias are common in childhood because of normal growing up process and strain of studies.

Refractive errors found in our study did not differ much between males and females. Results can be compared with findings of one study,

which showed no difference among the both sexes[12]. However, in other studies[13, 14] refractive errors were found to be more common in girls than in boys. In these studies the differences were related to the possible differences in the rate of growth between girls and boy.

Although there are few data available on the prevalence, types and associated risk factors of refractive errors in children in developing countries to make comparisons, there is a general truth that as age increases from preschool age to early adolescence, an increasing number of children who would manifest their myopia will be observed[15, 16]. This fact is supported by the finding of our study which also showed increasing prevalence in late childhood and early adolescence. The increasing prevalence for certain age of onset for vision problems in preschool and school children may be a good argument for applying vision screening[17].

The refractive errors mostly present were of mild or moderate grades (6/12 to 6/36), which explain the delay in looking for expert help. The visual acuity of 6/60 or less is represented by only 2.4% but denotes very high refractive errors and this too, is thought provoking as to why these were left undiagnosed[18].

The students who had refractive errors had a positive history of wearing spectacles in their families and which indicates a very strong relationship between refractive errors and heredity or familial factors. Furthermore all those children who watched TV longer hours showed higher prevalence of refractive error. However it must be clearly understood that proper sequence of events has to be established by further studies whether this is a cause or an effect. In a longitudinal study by Mutti et al[19], they showed that heredity is most important factor associated with refractive error especially myopia. The relationship between watching TV and development of refractive error is also reflected by Singapore-China Study by Tan et al[20].

Among refractive errors Myopia (61.25%) was the most common followed by Hypermetropia (25.95%) and Astigmatism (11.76%).The similar results were reported by the many studies[21, 22,23].

CONCLUSION:

Refractive errors are second important cause of treatable blindness after cataract. A school eye screening cum intervention programme with periodic evaluation seems to be appropriate for developing countries as most of the eye diseases found are preventable or treatable[24].This could be properly implemented by training of school teachers for early detection of the error by using single optotypes snellen`s chart and referral to the nearby health centres ,where necessary follow-up measures can be taken .

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A cephalometric study of "effective midfacial length"

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:ABSTRACT:

—There is an existstance of a Linear relationship between effective midfacial length, effective mandibular length and Anterior lower facial height within a given range in an individual having normal occlusion, asthetic profile and good skeletal balance." Present study was carried out to confirm the above statement in Gujarati Males and Females with various dental occlusal and skeletal categories, based on their lateral cephalogram radiographic evaluation. Necessary statistical formulae were applied to compare and conclude the results. The study confirms the above statement in not only individual with asthetic profile and good skeletal balance but also in various malocclusion categories. Regression equation to determine mandibular length and anterior lower facial height from maxillary length was derived.

Key Words: Effective midfacial length, Effective mandibular length, Anterior lower facial height.

INTRODUCTION:

The growth and development of the human skull occurs in all the three dimensions of space leading to increase in size, alteration in shape, change in proportion and adjustment in position of various bones. This depends upon innumerable factors and if all conditions are favourable, a child acquires normal dentofacial skeleton pattern having normal dentition and good pleasing facial profile , which possesses and does show some kind of proportional interrelationship between the maxilla and mandible[1].

In clinical science variation is the rule and not an exception. Any kind of variation, in any part of jaw will disturb the dental occlusion and facial esthetics. Keeping above facts in mind, an attempt has been made in this study to determine correlation if any, between effective midfacial length, effective mandibular length and anterior lower facial height in Gujarati males and females having normal as well as various types of dental and skelatal malocclusions. Length of any of these three parameters can be calculated from the derived Regression equation.

MATERIALS AND METHOD

SAMPLE:

The sample for the present study consisted of total 283 subjects randomly selected from the patients who visited Department of Orthodontia,

GDCH, Ahmedabad during the defined study period for an Orthodontic treatment as well as from the students of this institution.

Following criteria were considered for sample selection :

Age : Between 15 to 20 years.

Sex : Both males and females were included.

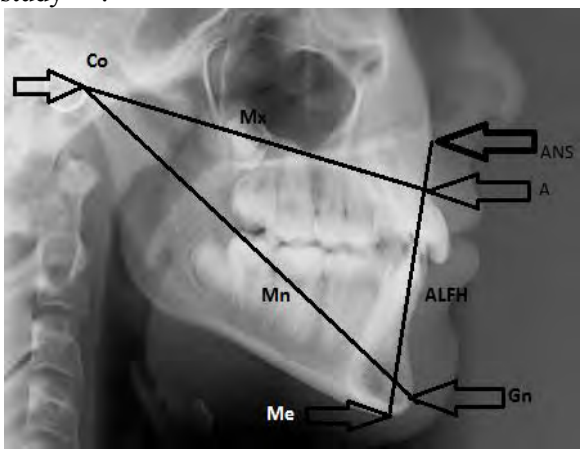
Race : A person belonging to Gujarati Community for at least 2 prior generations

Dentition : Must show

- All permanent teeth up to 2nd molar.
- Similar molar relationship on both the sides.
- No over retained deciduous teeth.
- No supernumerary teeth.
- No missing teeth.
- No history of trauma to facial structures.
- No previous orthodontic treatment taken.

Thus the scrutinized samples were divided into 10 different groups as per their dento-alveolar configuration and sex for further study. Good quality lateral cephalogram was taken of each subject[2].On cephalometric evaluation, the

skeletal pattern of each malocclusion was estimated by Steiner's analysis (ANB angle) and Wits appraisal and when the type of dentition is found to be same as the skeletal pattern, the case was selected for further study[3,4,5].



A Lateral Cephalogram

Further readings were taken as follow:
To estimate Effective midfacial length (Mx), the Linear distance between point "Co" and "A" was recorded.
To estimate Effective mendibular length (Mn), the Linear distance between point "Co" and "Gn" was recorded.
Anterior lower facial height (ALFH) was determined by measuring Linear distance between point "ANS" and "Me".
Cephalometric points plotted :

Condylion: "Co"	The most postero-superior point on the outline of the mandibular condyle.
Anterior nasal spine: "ANS"	The anterior tip of the sharp bony process of maxilla at the lower margin of the anterior nasal opening.
Point A : "A"	The most posterior midline point in the concavity between the anterior nasal spine and the prosthion.
Gnathion : "Gn"	A point located by taking the midpoint between the anterior (pogonion) and inferior(menton) point of the bony chin.
Menton : "Me"	Anteroinferior point of the bony chin.

From the data thus collected, Mean and Standard deviation (SD) of various parameters from different groups were calculated and necessary comparison were done by applying appropriate statistical tests for significance, Coefficient of variation, Correlation value and Regression equation to conclude the results.

OBSERVATIONS & DISCUSSION: Out of the total 283 subjects in various groups, total no of samples in class 2 div.2, class 3 were comparatively less as they also show their little proportion in total population. Significant difference was found between males and females of Gujarati population in measurements of Effective midfacial length(Mx), Effective mandibular length(Mn) and Anterior lower facial height(ALFH) in each occlusal category. Female showed decreased value for each of the above measurements as compared to males, that confirms the statement suggested by Gilmour W.A.[6] Table 1 shows the values of Mean, SD and C_oV for Mx, Mn and ALFH of different groups. When Mx and Mn were compared between males and females having similar types of occlusal and skeletal pattern, significant difference was found ($p<0.05$). Similarly value of ALFH between males and females also showed significant difference($p<0.01$). In rest of the occlusal categories no significant difference was found. It was not possible to apply test of significance between males and females having class 3 malocclusion due to small sample size.

When class 2 div 1 and class 2 div.2 malocclusal males and females were compared to class 1 normal males and females accordingly, value of Mx was significantly more($p<0.01$) while the value of Mn did not show significant different. This suggest in class 2 cases, in present study there us hardly change in mandibular length, however Mx significantly large, which confirms the statement as suggested by Renfroe E.W.[7]

Increased ALFH seen in class 2 div.1 group confirms the statement given by Ram S Nanda, Merril at al.[8] Mx and Mn value in class 3 malocclusion confirms the statement by Staph W.C.[9] but its small sample size restrics any statistical test. Coefficient of variation value for each parameter in different occlusal categories

shows ALFH to be a highly variable parameter with highest variability in class 1 malocclusal males followed by class 2 div. 2 malocclusion in both males and females.[10]

To determine whether any correlation exists between Mx, Mn and ALFH in all of these malocclusal groups and normal group, correlation value ‘r’ was statistically found. A very high correlation was found between these 2 parameters and hence regression was derived for each group to estimate the value of Mn and ALFH for given value of Mx. The above correlation seen in class 1 normal males and females confirms statement of McNamara. No one single equation of this type can be put forward in general to estimate Mn from Mx without considering the type of malocclusion and/or sex of an individual as we have found different trends at different level.

Table 1 showing Mean, SD and Coefficient of variation values of various parameters in different groups.

Parameters	Effective mid-facial Length Mx			Effective mandibular Length Mn			Anterior Lower Facial Height ALFH		
	Mean	SD	Coefficient of variation	Mean	SD	Coefficient of variation	Mean	SD	Coefficient of variation (C_oV)
Class 1 Normal males (n: 25)	93.52	4.78	5.11	120.04	8.37	6.97	67.92	4.97	7.31
Class 1 Normal females (n: 25)	91.00	3.00	3.29	115.64	4.67	4.03	66.04	2.70	4.08
Class 1 Mal. Males (n: 47)	94.10	5.00	5.31	121.00	7.91	6.53	72.17	7.50	10.39
Class 1 Mal. Females (n: 53)	91.73	3.46	3.77	116.00	4.28	3.68	69.20	2.69	6.44
Class 2 Div. 1 Mal. Males (n: 41)	97.10	5.39	5.55	117.00	5.57	4.76	69.00	5.25	7.60
Class 2 Div. 1 Mal. Females (n: 51)	94.58	4.22	4.46	114.25	6.28	5.49	67.33	4.52	6.7
Class 2 Div. 2 Mal. Males (n: 16)	100.43	3.52	3.5	118..75	4.38	3.68	66.81	6.76	10.11
Class 2 Div. 2 Mal. Females (n: 15)	92.66	6.74	7.27	114.53	5.28	4.61	62.86	4.27	6.79
Class 3 Mal. Males (n: 7)	93.00	4.58	-	126.28	5.34	-	68.57	5.82	-
Class 3 Mal. Females (n: 3)	89.00	4.58	-	117.33	5.85	-	66.00	2.64	-

CONCLUSION: Gujarati females shows reduced skeletal measurements as compared to males in different occlusal categories. Mx value was greater in any of the malocclusal categories than normal. ALFH values was greater in normal as compared to any other malocclusions. Skeletal pattern in class 1 malocclusion remains similar to class 1 normal group in both males and females of Gujarati population. Decreased ALFH, typical of class 2 div.2 was also observed. ALFH is highly variable parameter and class 2 div.2 is relatively a stable group.Definite and very high positive correlation was found between Mx and Mn, Mx and ALFH

in class 1 normal group and the regression equation obtained. However this correlation varies a lot for different malocclusal group, hence no single regression equation can be derived to estimate Mx, Mn and ALFH in malocclusal cases.

Table 2 Showing Correlation value and regression equation between Mx, Mn and ALFH.

Group	Mx	Mn	ALFH	—²ŕ value for Mx∞Mn	Regression equation for Mx∞Mn	—²ŕ value for Mx∞ALFH	Regression equation for Mx∞ALFH
Class 1 Normal males (n: 25)	93.52	120.04	67.92	0.978	Mn = (-42.061) + (1.733)Mx	0.869	ALFH = (-22.07) + (0.963)Mx
Class 1 Normal females (n: 25)	91.00	115.64	66.04	0.937	Mn = (-17.068) + (1.458)Mx	0.658	ALFH = (12.11) + (0.593)Mx
Class 1 Mal. Males (n: 47)	94.10	121.00	72.17	0.860	Mn = (-6.888) + (1.360)Mx	0.165	-
Class 1 Mal. Females (n: 53)	91.73	116.00	69.20	0.619	Mn = (-45.539) + (0.768)Mx	0.033	-
Class 2 Div. 1 Mal. Males (n: 41)	97.10	117.00	69.00	0.675	-	0.121	-
Class 2 Div. 1 Mal. Females (n: 51)	94.58	114.25	67.33	0.754	-	0.170	-
Class 2 Div. 2 Mal. Males (n: 16)	100.43	118..75	66.81	0.728	-	0.225	-
Class 2 Div. 2 Mal. Females (n: 15)	92.66	114.53	62.86	0.642	-	0.149	-
Class 3 Mal. Males (n: 7)	93.00	126.28	68.57	-	-	-	-
Class 3 Mal. Females (n: 3)	89.00	117.33	66.00	-	-	-	-

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Group discussion as a teaching learning method in anatomy: perception of medical students

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:ABSTRACT :

Introduction-Acquisition of sound knowledge of anatomy is essential for creating strong foundation for future clinical practice. Teaching of anatomy with clinical context, use of teaching learning methods requiring self directed and group learning improves long term retention of knowledge and its subsequent application. Case based learning (CBL) incorporates clinical context, small group team working and self directed learning. We evaluated students' perception regarding group discussion as a process in CBL to teach anatomy to first year MBBS students in 2009. Methods-After orientation of faculty and students of first MBBS, six paper based CBL scenarios were presented to a batch of 100 students. Nine groups, each having eleven students, were formed with one facilitator guiding three groups. For each scenario, the first session comprised of small group discussion amongst students with a facilitator followed by presentations of discussion outcomes in second session. Anonymous written feedback using structured questionnaire on a five point likert scale was obtained at the end of completion of discussion of six scenarios to know students' perception towards group discussion process. Results- Majority of the students felt that group discussion was a useful process which helped them in improved understanding of topic (88%), expression of thoughts (78%) and better problem solving skills (81%). Seventy seven percent of students felt that group discussions should be introduced for other topics in anatomy and other subjects of first MBBS. Students felt that group learning as a collaborative process may help them perform better in their examinations (73%) and future clinical practice (86%). Conclusions-
Based on responses of the students, we conclude that CBL in anatomy was very well received by students of first MBBS. Students also perceived group discussion helping them in better understanding, expression and application of the subject.

Key Words: group discussion, case based learning, anatomy

INTRODUCTION:

Anatomy is an important subject taught to the first MBBS students. Sound knowledge of the subject with clear understanding of its clinical applications is important to create strong foundation of sound clinical practice. It is well appreciated that anatomy should be presented and learned as a dynamic basis for problem solving & for application in the practice and delivery of quality health care. (Sue Ann Miller et al[7])

Efforts have been made to enhance understanding of the subject by various methods like interactive lecturing, problem based learning, case based learning, and project based learning. Working and learning in groups is an integral part of small group teaching and known to enhance both understanding & learning of the subject. Problem based learning (PBL) with its group discussion approach to problem solving, was introduced in the medical curriculum in 1969 and has been endorsed as an educational strategy by the World Federation of Medical Education and the World Health Organization.[2, 8] The perception of students towards group discussion forms an important part of educational interventions like CBL or PBL. We introduced case based learning for teaching anatomy in year 2009. Keeping in mind the role of group discussion in the all-round education of students, both in the innovative as well as traditional teaching methods [3] we evaluated student's feedback concerning their perceptions to the group discussion conducted during case based learning.

MATERIAL & METHOD:

The study was conducted on a batch of 100 students admitted to first year of MBBS in year 2009.

The faculty and students were oriented and introduced to the concept of CBL and group discussion. All students willingly participated in the study and no control group was formed due to ethical issues. Informed written consent was obtained from all the students.

Six paper based clinical cases and modules were prepared for various regions of the body by the trained faculty of anatomy department with clinical consultation. The study was conducted in two sessions for each module. The first session was based on discussion of the given case in small groups followed by second session after three or four days with presentations of the learning during group discussions by each group followed by final compiling of the session by the faculty. This was done to help students achieve the learning objectives.

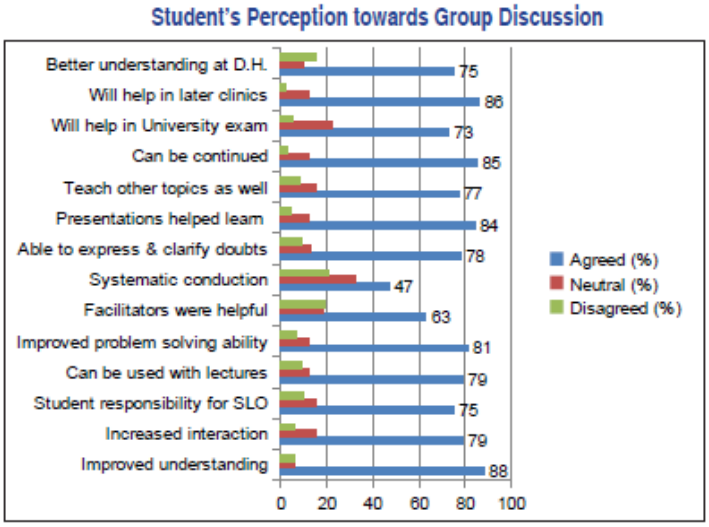
First, the whole class dissected a particular region/part with demonstrations as was being done in the traditional way. Then students were given paper based clinical cases related to the topic and they discussed in groups of eleven with a trained facilitator. They were made to sit in a circle to maintain eye to eye contact and to ensure that they followed the rules of group dynamics. The group through consensus elected the chairperson, scribe, time keeper & presenter for the group discussion. Participation of each member of the group was ensured by the chairperson. The role of facilitator was not to lead the group but to keep the discussion on the right track by observing the whole process.

Anonymous written feedback was taken at the end of the session through structured questionnaire from the students. This was done to know their perceptions towards group discussion as a method of enhancing learning. The responses were measured in terms of agreed, disagreed or remained neutral.

RESULT & DISCUSSION: Descriptive analysis of students responses collected through feedback questionnaire was performed. Cronbach's alpha coefficient was used to assess the internal consistency and reliability of different components of feedback questionnaire. The response of students is shown in table. We came to the following conclusions on analyzing the feedback questionnaire.

As is evident from the table the percentage of students agreeing to most of the questions posed to them was in the range of 47 to 88 %.

Majority of the students felt that group discussion was a useful process which helped them in improved understanding of topic (88%), expression of thoughts (78%) and better problem solving skills (81%). Seventy seven percent of students felt that group discussions should be introduced for other topics in anatomy and other subjects of first MBBS. Students felt that group learning as a collaborative process may help them perform better in their examinations (73%) and future clinical practice (86%).



The conduct of case discussion was appreciated as systematic with opportunity of expression and doubt clearance by 78%. The ability of group discussion improved problem solving was agreed to by 81% of students. Seventy nine percent of students agreed to increased interaction through group discussions.

Due to unavailability of published work the results of group discussion in anatomy could not be discussed A similar study on CBL was done by Wojciech Pawlina etal[9]. They got similar response from the students. In their study 82% percent of the students felt that these sessions were a useful method of providing clinical correlations with gross anatomy compared to about 81 % of our students agreeing to increased problem solving ability.

As noted by Albanese MAetal[1] & Des Marchais JE[4], most students enjoy the active participation

and consider the process to be relevant & stimulating similar to our case. Diana et al[5] were of the view that students in a problem-based curriculum are provided with many clues and directions that directly or indirectly play a role in their decisions on what to study, such as reference literature, course objectives, lectures and tests. In addition, students become better self-directed learners over the four curriculum years. In a latter review of study on advantages of problem based learning, Diana Dolmans et al[6] found that there is evidence towards increased retention of knowledge, enhancement of integration of basic science concepts into clinical problems, the development of self-directed learning skills, and enhancement of students' intrinsic interest in the subject matter in PBL.

CONCLUSION:

Based on responses of the students, we conclude that CBL in anatomy was very well received by students of first MBBS. Students also perceived group discussion helping them in better understanding, expression and application of the subject. Our basic aim of making the subject more interesting, increasing retention and making it contextual was achieved.

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To study the impact of health awareness programme on knowledge about HIV/AIDS among interns

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:ABSTRACT:

Background: AIDS has emerged as a rapidly spreading, devastating fatal disease, spreading from High risk group population through bridge population to the general population & Interns are budding doctors need to be made aware about it. Aim & Objectives: 1)To find study the knowledge of HIV/AIDS among interns regarding its epidemiology, high risk group involved, myths prevailing about mode of transmission, methods of diagnosis & treatment, Importance of counselling. 2) To assess the impact of health awareness programme on knowledge of HIV/AIDS among interns. Materials & Method: Present cross-sectional study was conducted among representative group of 100 interns from Topiwala National Medical College & B.Y.L Nair Charitable Hospital, Mumbai from September to December 2005. Pre test were carried out before beginning the programme followed by post test to assess the impact of health awareness programme. Results: The overall knowledge regarding epidemiology of HIV/AIDS, high risk group, myths regarding transmission, diagnosis, treatment, prevention & control measures has been significantly improved after giving various lectures & demonstration on it which has been explained in detail below in result section. Conclusion: ―EDUCATION IS THE ONLY SOURCE OF ALL ILLUMINATION & NOTHING IS MORE PURIFYING ON EARTH THAN KNOWLEDGE."

Key Words: HIV/AIDS, Interns, Education.

INTRODUCTION:

HIV/AIDS - Physical illness, Social illness, Mental illness, Economic illness.

Why HIV / AIDS????

―AIDS affects many parts of society, and so everyone needs to be aware of HIV and AIDS."

Affects mostly young adults in prime productive years. Occurs not randomly, but through risk behaviour.

Long period of invisibility: 6 – 8 years.

Prevention is important & cost-effective.

High treatment cost, with no cure.

Non-availability of effective HIV preventive vaccine.

Associated with high level of social stigma.

History & origin:AIDS was first reported June 5, 1981, when the U. S. Centers for Disease Control (CDC) recorded a cluster of *Pneumocystis carinii* pneumonia classified as PCP but known to be caused by in five homosexual men in Los Angeles.[1] The earliest known positive identification of the HIV-1 virus comes from the Congo in 1959 & 1960 though genetic studies indicate that it passed into the human population from chimpanzees around fifty years earlier.[2] A 2007 study states that a strain of HIV-1 probably moved from Africa to Haiti & then entered the United States around 1969.[3]

HIV descends from the related simian immunodeficiency virus (SIV), which infects apes & monkeys in Africa. There is evidence that humans who participate in bushmeat activities, either as hunters or as bushmeat vendors, commonly acquire SIV.[4] However, only a few of these infections were able to cause epidemics in humans, &all did so in the late 19th—early 20th century.

Global HIV/AIDS Scenario:

The epidemic of Human Immunodeficiency Virus (HIV) infection that causes Acquired Immuno-Deficiency Syndrome (AIDS) has emerged as a serious public health problem in

many parts of the world. Estimates at the end of 2009 suggest that 33.3 million men, women & children are living with HIV/AIDS worldwide, 2.7 million people newly infected with HIV & almost 2 million have already lost their lives. [5]

India-HIV/AIDS scenario

First case of HIV was reported in a CSW at Chennai in the year 1986. First case of AIDS was detected in Mumbai in 1987. An estimated 22.7 lakh people are living with HIV/AIDS with an estimated HIV prevalence in adult is 0.29%. Currently nine out of ten HIV infected people fall in the age group of 15 - 49 years & every minute two new HIV infections are occurring[6]. It has been estimated that *mere increase in prevalence rate of HIV amounts to 5, 00,000 new HIV infections in India*. In India, there are many Contributing factors for HIV transmission which includes[7]--- Large sexually active population, Work related migration & travel, 50% population in slum & slum like area, Illiteracy, Poverty, Poor awareness of HIV , Socio-economic problems & lack of economic opportunities , Poor health seeking behaviour, Sex industry, Urbanization & Industrialization, Changing social values, Alcoholism, Drug abuse.

HIV/AIDS is a major development crisis that affects all sectors. During the last two decades the HIV/AIDS epidemic has spread relentlessly affecting people in all walks of life& decimating the most productive segments of the population particularly women & men between the ages of 15-49 years. Given the high HIV prevalence in the society, & in the absence of cure, the devastating impact of the epidemic is incomprehensible. With introduction of NACP, the spread of infection is controlled but one of the major objectives of NACP III is to halt & reverse the epidemic in India over the next five years by integrating programs for prevention, care, support & treatment.

Prevention & control of HIV/AIDS epidemic require organisation of resources, technology & concerted effort both at local & global level. To halt the rapid spread of HIV/AIDS there is an urgent need to take an action speedily & effectively. In the absence of any vaccine & medicine prevention is the only weapon in hands to curb the current catastrophic HIV/AIDS situation in India. The best weapon of prevention is the health education in all sectors including general population.

Need for the study:

HIV/AIDS education around the world is critical to prevent the spread of HIV & to equip individuals with the knowledge to protect themselves from becoming infected with the virus. Around the world, there continues to be a great deal of fear and stigmatisation of people living with HIV, which is fuelled by misunderstanding & misinformation. HIV/ AIDS education therefore also plays a vital role in reducing stigma & discrimination.

Some occupations carry an increased risk of HIV infection, making HIV/AIDS education in the workplace even more important for preventing the spread of the virus. Health care workers may be at a higher risk of HIV transmission, for example from needles & other medical instruments, while at work. HIV/ AIDS education needs to be a priority in such environments, to ensure that healthcare workers take precautions that will protect them from HIV infection.

Interns are budding doctors with tremendous enthusiasm & are full of energy to explore the practical aspects of medicine. Therefore they need to be made aware about the basic epidemiology of HIV/AIDS as well as the Universal safety precautions to be taken while dealing with patients. Also, they need to be sensitized for avoiding discrimination of the HIV /AIDS patients & their relatives.

With these facts in mind, it was decided to assess the impact of health education imparted to the interns as a part of their Internship training.

MATERIAL & METHODS: Present cross-sectional study was conducted among representative group of 100 interns from Topiwala National Medical College & B.Y.L Nair Charitable Hospital, Mumbai from September to December 2005. The HIV/AIDS awareness programme was conducted by the department of Preventive & Social Medicine, Topiwala National Medical College & B.Y.L Nair Charitable Hospital, Mumbai in collaboration with Mumbai District AIDS Control Society. The pogramme was organized in the form of lecture & demonstrations on

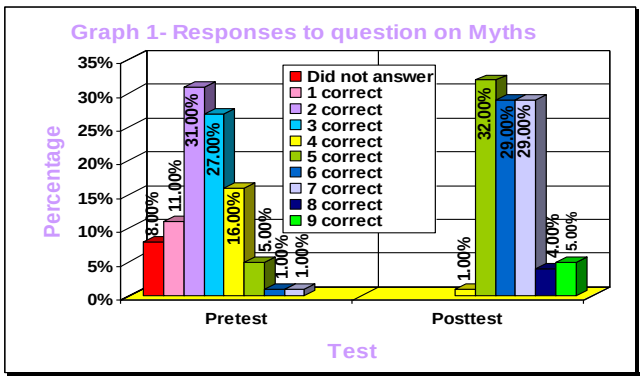
overview of HIV and AIDS, WHO classification, epidemiology, modes of transmission, symptomatology and testing by various medical & paramedical faculties with active involvement of participants. Semi structured questionnaire were prepared consisting HIV/AIDS epidemiology, high risk groups, myths regarding transmission, diagnosis & treatment. The questions asked about epidemiology of HIV/AIDS were close ended & these were age group involved, HIV/AIDS prevalence in adults, HIV/AIDS prevalence & % of risk of HIV/AIDS transmission from mother to child.

The question on myths & high risk groups involved in HIV/AIDS transmissions were open ended. The question asked for diagnosis & treatment of HIV/AIDS were window period, kits used, counselling for tests & antiretroviral Therapy. Before beginning the programme, PRE-TEST questionnaires were distributed among interns & the time given for the same was 30 minutes. At the end of programme POST-TEST questionnaires were filled up again by the interns to assess impact of health education.

The data were analyzed based on the scores (for the correct answer one mark was given & for incorrect zero mark) obtained in pre & post tests questionnaires using SPSS software &presented in the form of tables & graphs.

RESULTS:

Commonest age group involved in HIV/AIDS are 15-24 years & 93% interns knew about this. After health education almost 100% gave correct answer. 61% gave incorrect answer about HIV/AIDS prevalence in pre-test which reduced to 16% after post test.



Risk of HIV transmission from mother to child is 33% & the virus can be transmitted to child during pregnancy through placenta, during labour & post delivery through breast milk. Therefore breast feeding should not be encouraged in positive mother. From the above table it can be concluded that maximum interns were knew about these facts.

Table: 1 Responses regarding epidemiology of HIV/AIDS

Questions regarding epidemiology of HIV/AIDS	Pre-test		Post-test		P-value
	IC %	C %	IC %	C %	
Age group affected	7	93	0	100	0.007 (SS)
Adults HIV/AIDS Prevalence	61	39	16	84	<0.001 (SS)
March-1999 HIV/AIDS Prevalence	65	35	21	79	<0.001 (SS)
STD proportion India: World	77	23	17	83	<0.001 (SS)
Mother to child transmission	19	61	12	88	0.171 (NS)
All + women should be counselled for risk factors of HIV transmission with regards to pregnancy & delivery however, the decision should be left to the woman	6	94	1	99	0.001 (SS)
BF encouraged in HIV+ mothers	52	48	7	99	0.001 (SS)

As we all know that HIV can be transmitted by four routes only which are through unsafe sex with HIV infected person, contact with HIV infected blood (blood transfusion), sharing HIV infected needle & syringes & from HIV infected

mother to child. Sharing utensils, eating together, shaking hands with HIV infected persons, through mosquito bite will not transmit HIV. There were many myths regarding HIV/AIDS transmission among interns which has been removed with lecture on it.

From the above graph it can be interpreted that in the pre-test, 8 interns did not answer at all & 85 interns gave only < 5 correct answer regarding myths of HIV transmission while in the post-test almost 97 interns gave > correct answer regarding myths of HIV transmission which suggests that knowledge about myths regarding HIV transmission has been significantly improved after education.

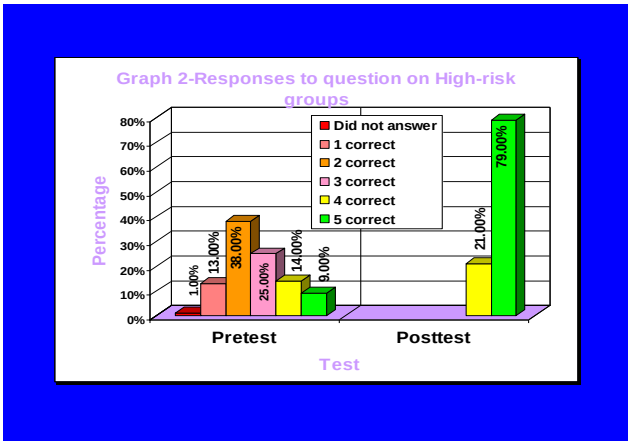
Question about HIV/AIDS high risk groups were kept open ended. The above graph suggests that only 23 interns answered five groups of HIV/AIDS high risk groups in the pre-test, while in the post-test all interns answered five groups of HIV/AIDS high risk groups which was statistically significant.

Table: 2: Methods of diagnosis & treatment

Methods of iagnosis & reatment	re-test		ost-test		value
	C%	%	C%	%	
LISA test fter 3 mths. of xposure	2	8		5	.001 SS)
o. of Kits sed for iagnosis	0	0	1	9	.001 SS)
ime for ntibody etection	6	4	0	0	.001 SS)
andatory re-test & ost-test ounselling		3		9	.030 SS)
o treatment; nly revention	0	0		8	.001 SS)
RT only to rolong life		3		00	.001 SS)

Knowledge about the tests used for HIV diagnosis, window period & number of kits used for it was significantly improved after lectures & demonstrations & the results are statistically proven.

Once the person infected with HIV, will remain HIV infected lifelong. No treatment & vaccine is yet available to cure HIV/AIDS. Hence prevention is the only method. Available ART will just prolong the life of infected persons rather than curing the disease. From the above table it very much clear that only few interns were aware of these facts, but after educating them about method of diagnosis & treatment, response has been significantly increased in the post test.



DISCUSSION: The education of interns is important for successful prevention of transmission of HIV at workplaces. Without being armed with correct and precise knowledge about the disease which spread through occupational work exposure, proceeding for internship duties is fraught with problems. As the number of cases who get infected with HIV will increase the patients needing hospitalization &professional care is also bound to increase. This may expose the interns to unacceptably high probability of contracting the infection in absence of the knowledge regarding prevention. Given the level of stigmatization of HIV/AIDS in the current day, special emphasis was given on the need to seek urgent medical attention in case of an occupational exposure to potentially infected material especially blood.

In the pre-test questionnaire, it is observed that knowledge regarding epidemiology, transmission, testing, treatment & prevention is lacking. This situation although not desirable even in the general population is more worrisome in interns & other health care staff

who have to deal with infected materials on a day to day basis. Hence there is a further need to educate &motivate the interns to seek help in case of potentially infectious exposures.

The study emphasizes on need of education about HIV for the interns by means of training programs that have HIV as a center issue.

This will not only lead to curbing the spread of the disease occupationally but is also expected to bring

about a change in the outlook & attitude of the staff towards the patients. Eventually it may mean a higher quality of care to people living with a HIV/AIDS (PLWHA) & the public at large.

CONCLUSION: With the help of *HEALTH EDUCATION* intervention present study had improved the overall knowledge regarding prevalence of HIV/AIDS, high risk group, myths regarding transmission, diagnosis, treatment, prevention n & control measures.

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A study on clinical profile and management of incisional hernias (ventral hernias) in the tertiary institute of north India-Kashmir

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:ABSTRACT:

Background: Thousands of laparotomies are performed every year and incisional hernia looks to be common occurrences. Whichever method is used for abdominal wall closure and for repair of hernias, the result of surgery is most important for patient satisfaction. Objective: To study the course, etiologic profile and management of incisional hernias through various procedures. Methods: A retrospective analysis of patient records and prospective study of patients of incisional hernias in the department of plastic surgery and General surgery, SKIMS was done. Results: 76 patients of incisional hernia were studied with male: female ratio of 1:1.17 and mean age of 33.25 yrs (S.D. _8.24). The most frequent complaint was dragging sensation and abdominal discomfort in almost 89.47% patients, obstructive episodes like abdominal colic and vomiting in 7.89% patients and 2.63% patients presented as intestinal obstruction without incarceration and were managed on an emergency basis. Also, half of the patients had previous pelvic surgery mainly caesarian section, 22 patients had laparotomy for peritonitis and almost 20% patients had undergone other general surgical procedures mainly open cholecystectomy and appendecectomy. Wound infection was the dominant risk factor present in 51.31% cases and respiratory tract infection was seen in 15.78% of cases. In our study, small sized defects were managed by resuture, moderate defects by Keel`s repair and modified double-breasting technique. For larger defects, Onlay technique of polypropelene mesh-plasty and tensor fascia lata myofascial flap cover was employed. Conclusion: Incisional hernia is a significant source of morbidity and a loss of time from productive employment. Onlay mesh repair is almost an absolute weapon in sepsis-free patients where hernias are prone to repair. Incisional hernias should always be repaired unless the patient is unable or unwilling to undergo surgery, as the hernia increases in size, is unsightly, frequently painful and may cause bowl obstruction.

Key words: Hospital, Inclusion hearnia.

INTRODUCTION

Among the major catastrophes that can follow abdominal operations, wound infection and wound dehiscence are two of the most serious. In the event that the patient recovers from either or both of these initial happenings, an incisional hernia is apt to develop within months or perhaps a few years. The term hernia is derived from the Greek word meaning an offshoot or bulge. In Latin Hernia means a rupture or tear. A postoperative ventral abdominal or incisional hernia is the result of failure of the lines of closure of the abdominal wall following laparotomy. It represents a breakdown or loss of continuity of a fascial closure. In the best centers the incidence of incisional hernia has been at least 10%, of these 35% appear at around 5 years or later. One in three hernias causes symptoms. Recurrence is around 40% but seems to be related to surgical technique[1]. Factors such as obesity, Diabetes mellitus, wound infection, lower abdominal incision, have a higher rate of incisional hernias and recurrence after repair. Hernias less

than 4cm wide have a recurrence rate of 25% while those >4cm recur in 41 %[2]. A hernia may develop in any abdominal incision, but most are found in midline or paramedian incisions. They are also commonly seen in wounds for appendicectomy, sub costal incisions for cholecystectomy, or scars following closure of colostomy. Post laparoscopy hernias are being reported recently and are associated with significant morbidity[3]. Patients of incisional hernias usually complain of a bulge in the operation scar, which can be associated with pain or discomfort. They suffer from a heavy, sickening, dragging sensation which gets aggravated by coughing or straining. Sometimes the skin overlying the hernia may ulcerate and the infection of the ulcer may then cause the hernia to rupture [4]. Surgery is usually required for pain and discomfort or in those hernias which are large and have a small opening with a risk of strangulation [5]. Four basic methods have emerged for the repair of incisional hernias depending largely on the size of the hernial defect and include Rupture (a small defect in which the musculoaponeurotic edges come together without tension is suitable for closure by resutures), Shoelace–Darn Repair**,** Synthetic Non-Absorbable Mesh Closure and Regional Flaps. Whichever method is used for abdominal wall closures, for repair of hernias, the result of surgery is most important for patient satisfaction. Since thousands of laparotomies are performed every year and since incisional hernia looks to be a common occurrence, a study about various predisposing factors and evaluation of different techniques for its cure is well deserved.

MATERIAL AND METHODS

The present study both prospective (27 patients) as well as retrospective (49 patients), was conducted in the Department of Plastic Surgery and General Surgery at SKIMS, Srinagar. Prospective study was conducted on all patients with incisional hernias operated at this Institute and it included total of 27 patients. Retrospective group included all those patients with incisional hernias who were operated in this hospital earlier. A thorough search of threcords of these patients was made from the Medical Records Department of the Institute. The records were collected and analyzed. All those patients whose records were incomplete or were lost in follow-up were excluded from this study. So in this group total of 49 patients were studied. Out of these patients, repair had been tried on five patients previously who had failed. Also, patients in the pediatric age group (less than 15 years of age), with hernias other than post operative ventral hernias, recurrent inguinal or femoral hernias were excluded from this study. A detailed history was recorded regarding presenting symptoms and special references were given to History of previous surgery and post operative complications, if any, at that time, History of Diabetes mellitus, COPD, Renal disease, Liver failure, Malignancy, Frequency or urgency of micturation and History of drug intake (Immunosupressants or Steroids). In addition to general physical and systemic examination, a detailed local examination was done in every patient for the site of previous incision, site of swelling, size and shape of swelling, consistency of the swelling, pulsatility and reducibility. Special attention was given to rising test, leg lifting test and impulse on coughing. Other hernial sites were also examined. Patients repaired previously were examined for laxity of abdominal wall and any ulceration, discharging sinus, or any other complication. Routine investigations like Hb%, TLC, DLC, BT, CT, weight of the patient, chest X-ray, ECG, urine examination, complete serum chemistry were done in all patients. Specific investigations like lipid profile, lung function tests and USG abdomen and pelvis were performed in cases where needed. Surgery was preferred after around 1 to 1 ½ years of the previous surgery, which caused the hernia unless the patients presented late. Recurrent attacks of sub acute obstruction, incarceration, irreducibility and strangulation were indications for surgery on an emergency basis. Obese patients were encouraged to reduce weight, smokers were advised to abstain from smoking for at least one month prior to the repair. Any intercurrent illness like COPD, diabetes mellitus was taken care of pre-operatively. Pre-operative antibiotics were given in all cases. All the patients were operated upon under general anesthesia. Usually, the surgical treatment to be most effective needs to be individualized with regard to incisional hernia repair. The incision to be given in these hernial repairs was decided by the surgeon according to the site and size of the hernia and the defect. Any associated abdominal pathology was dealt with at the same time. As per the size and site of hernia and the defect, different methods for incisional hernia repair were used which included

Resuture of the defect, Keels repair, Modified double breasting technique, Prolene mesh repair and Tensor fascia lata myofascial flap cover of the

defect. Patients were summoned to attend the follow-up clinic and were advised to continue the use of abdominal binders. Patients were also advised to refrain from lifting heavy weights or performing any strenuous work. The results were analyzed by examining the patient for any late post-operative complications or any recurrence. Finally, the data acquired was interpreted and analyzed for Presentation of the hernia, Cause of the hernia and Management of the hernia, Recurrence, if any.

Results:

Table 1: Distribution of cases according to age

Age (years)	No. of patients	Percentage
<20	02	2.63
21 – 30	23	30.26
31 – 40	35	46.05
41 – 50	12	15.78
>50	04	5.26
Total	76	100.00

The youngest patient operated in our series was 17 years old and the maximum age at which patients got operated was 54 years. 58 patients in this study were between 21 – 40 years of age. Mean age was 33.25 years (S.D. + 8.24). (Table 1) There was a female preponderance in cases of incisional hernia, females being 63.15% as compared to males who were about 36.84%. The male to female ratio was 1:1.71.

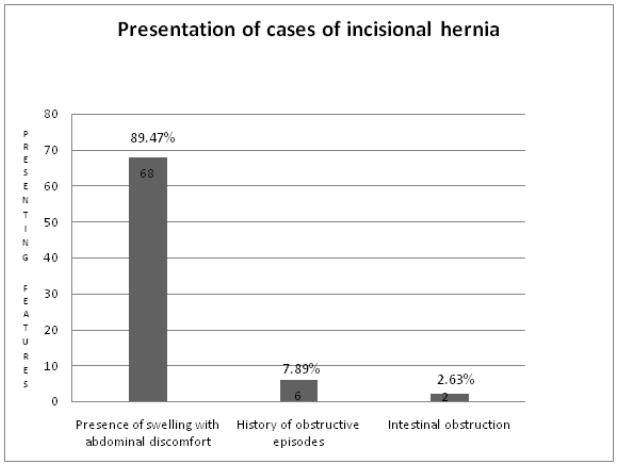


Fig-1

Presence of swelling with abdominal discomfort and a dragging sensation was the most frequent complaint present in 68 patients. Six patients presented with symptoms of obstructive episodes like abdominal colic and vomiting. Only 2 patients presented as intestinal obstruction without incarceration. Fig-1.

Table 2: Type of previous surgery

Type of operation	No. of Cases	Percentage
Gyneco-Obstetric Operations	N = 40	
- Caesarean section - Hysterectomy - Tubal ligation - Ovarian cystectomy	28 (70%) 09 (22.50%) 02 (5.0%) 01 (2.50%	52.63
Laparotomy for peritonitis	N = 22	28.94
Other General Surgical Procedures	N = 14	
- Cholecystectomy - Cholecystectomy with CBD exploration - Appendectomy	09 (64.28%) 03 (21.42%) 02 (14.28%)	18.42

In a series of 76 patients, 52.63% had previous operations on female pelvic organs mainly caesarean section. 28.94% cases of incisional hernia developed following exploratory laparatomy for peritonitis. 18.42% cases developed after other general surgical procedures mainly cholecystectomy. Table-2.

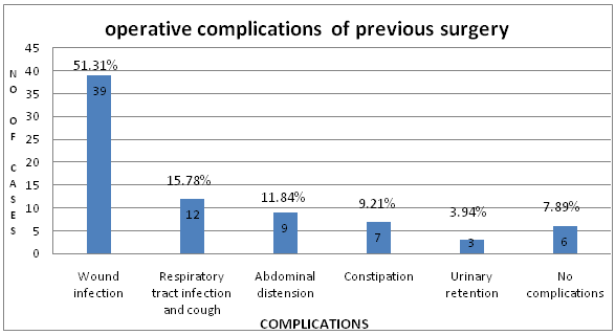


Fig-2.

From the above graph, it is evident that wound infection was the dominant risk factor present in 51.31% of cases. Respiratory tract infection and cough was seen in 15.78% cases. Other post operative complications of previous surgery were abdominal distension in 9 cases, constipation in 7 cases and urinary retention in 3 cases of incisional

hernia. 7.89% patients had no history of complications of previous surgery

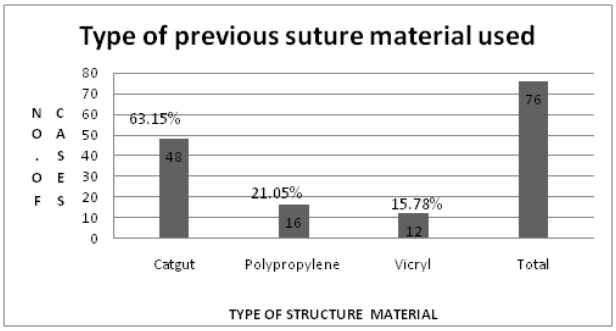


Fig-3

Out of 76 patients, wound closure had been performed previously by catgut in 48 patients, 28 patients had wounds closed by using prolene (21.05%) or vicryl (15.78%). Fig 3.

Table 3: General condition of the incisional hernia patients

General condition	No. of Cases	Percentage
Built		
- Obese - Average	45 31	59.21 40.78
Pallor : (Anemia)		
- Mild - Moderate - Severe	10 62 04	13.15 81.57 5.26
Muscle Tone (Abdominal Wall)		
- Normal - Lax abdominal wall with poor muscle tone	34 42	44.73 55.26

In our series of patients, most of the patients were obese (59.21%). Around 81.57% patients were moderately anemic and 55.26% of patients had lax abdominal wall with poor muscle tone. Table-3.

From the table-4, it is obvious that 44 patients had previous midline (mostly lower) incisions. 25 patients had previous paramedian incisions. Only 9.21% of patients had previous transverse incisions

Table 4: Type of previous Incision

Type of operation	No. of Cases	Percentage
Midline	44	57.89
Paramedian	25	32.89
Transverse	07	9.21
TOTAL	76	100.00

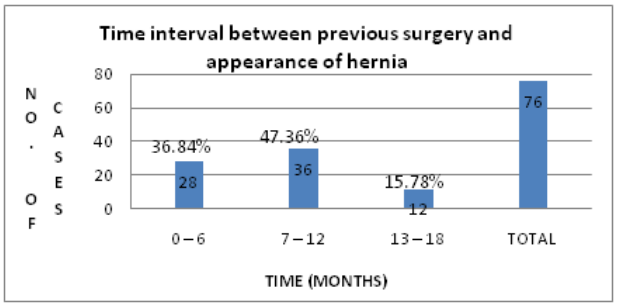


Fig-4

Out of 76 patients 84.20% cases of incisional hernia appeared within the first year of previous operation. 15.78% of cases appeared after one year of previous surgery. Fig-4

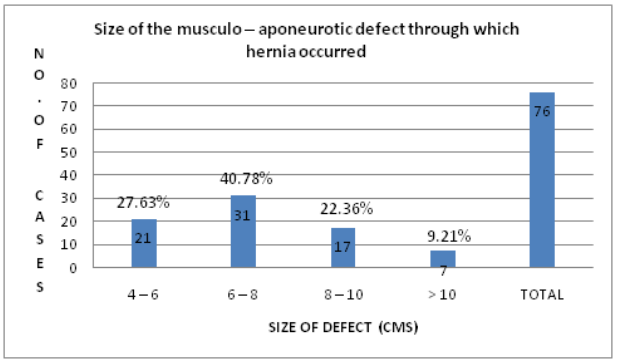


Fig-5

Musculo- aponeurotic defect was 4 – 6cm in 27.63% cases. 31 patients had a defect of 6 – 8cm. 7 patients had a defect which was more than 10cm. Fig-5.

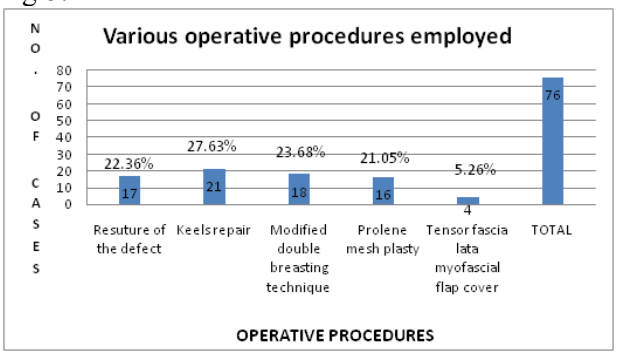


Fig-6

In our series, small sized defects were managed by resuture (22.36%). Most of the moderate sized defects were repaired by Keel's repair (27.63%) and modified double breasting technique (23.68%). For larger sized defects and in 3 patients where previous attempts at repair had been tried, but had failed, Onlay technique of prolene mesh plasty (21.05%) was employed. 4 cases were managed by tensor fascia lata myofascial flap cover of the defect, rotated from the thigh, 2 of them being cases where previous repair had failed. Fig-6.

Table 5: Comparison of hospital stay as per type of repair

Type of repair	Hospital Stay (days) (Range)	Mean hospital stay (days)	Statistical analysis
Primary repairs (including resuture, Keel's repair and modified double breasting technique) (total patients n=56)	8 – 12	10.05	P <0.001 (HS)
Repair using prosthetic mesh and flap cover (total patients n=20)	10 – 15	12.25	

HS = Highly Significant

The hospital stay in the group of patients managed by primary repairs of the musculo – aponeurotic defect ranged from 8 – 12 days with a mean hospital stay of 10.05 days and with a standard deviation of $\pm$1.419. While as for the group of patients repaired by using prosthetic mesh and flap cover of the defect, it ranged from 10 – 15 days with a mean hospital stay of 12.25 days and standard deviation of $\pm$1.81. Applying student's test, p value derived is P<0.001; meaning that the difference between hospital stay of two groups is statistically significant. Table-5.

From the table 6, we can see that wound infection was the most common complication in all groups of repair, maximum being in the group repaired by prolene mesh plasty (31.25%) followed by a single patient (25%) out of the four repaired by flap cover. Post-operative chest infection was common to all groups expect where flap was used. 2 (12.50%)

Table 6: Post-operative complications in all groups of repair

Type of repair	WOUND infections	POST-op. chest infection	Serum collection	Chronic sinus
Resuture n = 17	3 (17.64%)	1 (5.88%)	2 (11.76%)	Nil
Keel's repair n = 21	4 (19.04%)	3 (14.28%)	1 (4.76%)	Nil
Modified double breasting tech. n = 18	3 (16.66%)	2 (11.11%)	Nil	Nil
Prolene mesh plasty n = 16	5 (31.25%)	3 (18.75%)	4 (25%)	2 (12.50%)
Flap cover N = 4	1 (25%)	Nil	1 (25%)	Nil

patients in the group repaired by prolene mesh plasty developed a chronic sinus which settled after curettage. There was no mortality in our series of patients.

Table 7: Results of Repair in all groups

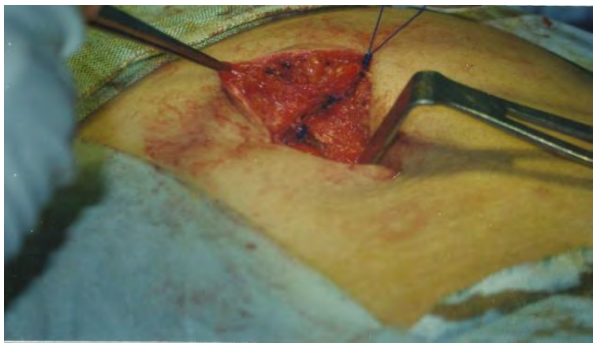
Type of Repair	Successful	Recurrence
Resuture n = 17	12 (70.58%)	5 (29.41%)
Keel's repair n = 21	16 (76.19%)	5 (23.80%)
Modified double breasting technique n = 18	16 (88.88%)	2 (11.11%)
Prolene mesh plasty n = 16	15 (93.75%)	1 (6.25%)
Flap cover n = 4	04 (100%)	Nil

Maximum recurrence was recorded in the groups repaired by resuture (29.41%) and Keel's repair (23.80%). Modified double breasting technique usually employed for moderate sized defects had a success rate of 88.88%. Incisional hernia recurred in only 2 patients out of the 18 managed by

modified double breasting technique. Out of the 16 patients, managed by Onlay technique of prolene Mesh 15 repairs were successful, recurrence occurred in 1 (6.25%) patient only. 100% success rate was seen in the patients repaired by tensor fascia lata myofascial flap cover of the defect. Table-7.

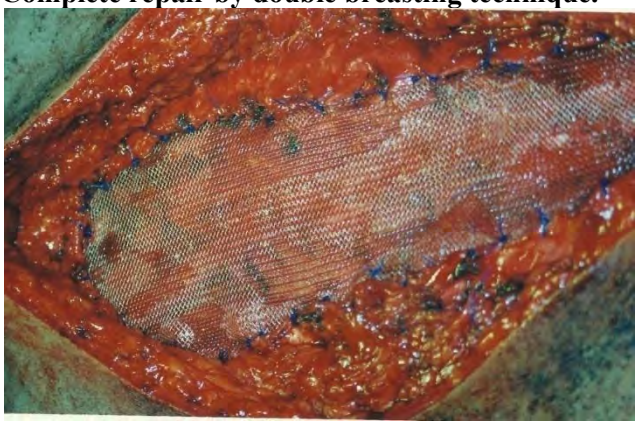
Post-Cholecystectomy incisional hernia.

Incisional hernia after Caesarian section.



Resuture of the defect.

Complete repair by double breasting technique.



Complete prolene mesh repair.

DISCUSSION

The Present study (prospective and retrospective) was conducted in the department of General surgery and plastic surgery at SKIMS with the aim of studying the clinical profile, predisposing factors, various techniques of repair of incisional hernia and their complications.

Since satisfactory closure of abdominal incisions remain the challenge and incisional hernias testify the lack of perfection of closure of abdominal wounds. With the evolution of modern surgeries and rapid increase in abdominal operations, there is an increase in the occurrence of incisional hernias.

In this study of 76 patients, almost 3/4th patients of incisional hernias belong to age group of 21-40yrs with highest incidence in the 3rd and 4th decade. The youngest patient operated upon was 17yr old and maximum age at which patient got operated was 54yrs. The females were affected more than the males (1:1.7). Incisional hernias occurred at an earlier age in our study because of early marriage and multiple pregnancies. Sharma Jayant et al [6] and Molley R G et al[7] reported similar age incidence in their study on incisional hernias.

Also in this study, presence of swelling with abdominal discomfort and dragging sensation was the most frequent complaint. Symptoms of obstructive episodes like abdominal colic and vomiting were seen in less number of patients whereas very few patients presented to the emergency department as an intestinal obstruction and were managed on an emergency basis. Mudges et al[1] and Sheikh Naushad et al[8] observed the similar results in their study. Almost half of the patients had previous surgeries on female pelvic organs mainly C. section and more than 1/4th cases develop hernia after exploratory laparotomy for peritonitis. Cholecystectomy was the most frequent general surgical procedures resulting in incisional hernias. Similar results were published by Sharma jayant et al[6] and Shaikh Naushad et al[8] where they found that more than half cases had previously been operated on pelvic organs mainly C. section. Wound infection as a post operative complication of previous surgery was the dominant complication having the high propensity for facial necrosis with resultant loss of integrity of closure. The infection causes inflammation and oedema of the tissues which becomes soft and weak so that the sutures pull out under the strain of the intra abdominal pressure. This was followed by the RTI and cough which increases the incidence of herniation because of strain placed on the wound closure. Very few developed post operative abdominal distention and had uneventful post operative period after the surgery which caused hernia. Gislason et al[9] in his study found that wound infection is the most important single factor in the development of burst abdominal and incisional hernias. Similar observations were documented by Bucknail et al[10].

After going through previous records, it was found (in 48 patients) that wound closure had been performed by catgut sutures. Since the catgut does not retain its tensile strength longer than 10 days and is not long enough for the linea alba or rectus sheath to heal strongly and results in high incidence of dehiscence. Israelson LA et al[11] and Goligher et al[12] reported similar observations of wound dehiscence while using the catgut. Since obesity is associated with three fold increase in herniation and recurrence. Tissue infiltrated with fat may not be able to hold the sutures because the excess fat adds enormous tension on the sutures, causing a defect in the abdominal wall. Therefore, in our study, obesity was one of the dominant risk factor for herniation and more than half of the patients with herniation were obese. The results run in conformity with the studies conducted by Bucknail et al[10] and Sugarman Harvey et al[13]. Also in our study, more than 2/3rd cases of hernia appeared within 1st year of previous operation and less than 1/3rd appeared within six years and later. Statistically similar data has been published by Akman PC et al[14] and Manninen et al[15].

After the initial evaluation of these patients, they were subjected to repair of the hernias. Resuture of the defect was performed in patients who had small defects. Most of the moderate sized defects were repaired by Keels repair and modified double breasting technique. For larger defects and in patients where previous attempts have failed, Onlay technique of Prolene mesh plasty was employed. In some other cases Tensor Fascia Lata Myofascial flap was rotated from thigh and used to cover the defect. However in our study, majority of the patients were managed by primary repair technique because most of our patients were laborers or housewives and could not afford prosthetic material.

Hospital stay is one of the important parameters in the management of incisional hernias and needs special consideration because of so many factors including hospital cost, limited bed strength, and hospital acquired infections. In our study, the hospital stay for the group of patients managed by primary repair techniques was almost 10 days and for the group repaired by prosthetic mesh and flap cover, it was about 12 days. The hospitalization for the group managed by primary repair of the musculo aponeurotic defect was less than the group managed by using prolene mesh/tensor fascia lata myocutaneous flap. Our results run in conformity with the studies conducted by Misger et al[16] and Hesselink et al[2]. Since complications don‘t not need any signal and can occur with any patient. Wound infection prevailed as most common complication in all groups of repair especially Keels repair, resuture and modified double breasting technique. It

was managed by proper care of the wound and good antibiotic cover. The second most common complication was post operative chest infection and it was managed by chest physiotherapy and adequate antibiotics. However, no patient in the group by flap cover develops post operative chest infection. Serum collection was also a common complication seen mostly in patients managed by prolene mesh plasty and flap cover and it was managed by local care of the wound and drainage of the seroma. However patients managed by double breasting technique did not develop serum collection. Also, chronic sinus as a complication was only seen in prolene mesh plasty repair which settled after curettage. Shaikh Noushad et al[9] and Honck James et al[17] observed the similar results of the complication of repair. Also, the results after the different types of incisional hernias were analyzed and were recorded as successful. 100% success rate was seen in the group managed by flap cover. However, maximum recurrence was seen in group managed by resuture and Keels repair. Stoppa Rene et al[18] George CD et al[19] in their results shows the success rate of 85% and recurrence rate 46%.

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Oral agar therapy in the management of hyperbilirubinaemia in neonates

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: ABSTRACT:

Objective:. Our aim was to study the effect of oral agar on neonatal hyperbilirubinemia in uncomplicated jaundice. *Material & Methods:* This clinical trial study has been conducted on 60 normal term neonates who were admitted for uncomplicated jaundice Princess Durru Shehwar Children's Hospital, Hydrabad between April and November 2004. The data included: age, sex, total serum bilirubin, weight and duration of pthototherapy in hospitalization. All data were analyzed by using statistical methods after giving agar and phototherapy.*Findings:* All 60 infants enrolled in our study were divided into three group i.e agar alone group, Agar plus phototherapy group and phototherapy alone group. Total serum bilirubin level at admission was recorded. And total serum bilirubin was recorded after 24, 48 and 60 hours after admission(i.e bilirubin level falls <10mg%) for agar alone and phototherapy alone group and value is significant (P<0.05) after 48 hours. Similarly the total serum bilirubin recorded after 12,24 and 36 hours for agar plus phototherapy and phototherapy alone group it is significant after 24 hour only($p<0.05$) and highly significant after 36 hours ($p<0.005$).*Conclusion:* oral agar is effective and probably a safe drug for neonatal hyperbilirubinemia that can decrease the time needed for phototherapy and hospitalization, although further studies with a more precise and longer follow up is needed for confirmation.

Key words: neonatal hyperbilirubinemia, oral agar, phototherapy.

INTRODUCTION:

Approximately 60% of full term and 80% of premature infants have jaundice during the first week of life. The increased intensity and duration of hyperbilirubinemia in preterm infants as well as immaturity of the blood brain barrier have led to concern about greater risk of bilirubin encephalopathy
in preterm infants.[1-3] The incidence of severe neonatal hyperbilirubinemia is highest in Asians. Five to ten percent of all newborns require intervention for pathologic jaundice.[4] Phototherapy is used worldwide for treatment of hyperbilirubinemia in newborn infants.[5] Some pharmacological agents such as D-penicillamine, phenobarbital, agar, oral charcoal, metalloporphyrins and clofibrate have been suggested to treat neonatal jaundice.[6]

Several lines of evidence suggest the importance of intestinal metabolism of
unconjugated bilirubin (UCB) in the pathogenesis of neonatal jaundice or CN syndrome.[7-9] Moreover, it has been recently postulated that increased enterohepatic circulation (EHC) of bilirubin that may occur with ileal inflammation, resection or bypass results in biliary hypersecretion of bilirubin with enhanced black pigment gallstone formation.[10-11] The existence of EHC of bilirubin was first described in early 1960s when radiolabeled bilirubin became available.[12-13] Based on these data it was suggested that bilirubin must be deconjugated before reabsorption from the intestine.[14] As no active transport for UCB has been proved in the intestine, bilirubin may cycle enterohepatically only by passive diffusion under specific conditions that occur, for instance, during the neonatal period.[9] or in patients with pathology of the distal ileum.[10-11] Interestingly, only one third of bilirubin
reabsorbed from the intestine is cleared by the liver during the first pass [15-16] the remainder may enter the systemic circulation. Blocking EHC of bilirubin as a means of therapy has been evaluated in patients with neonatal jaundice or CN syndrome using bilirubin binders such as agar [7,17-19] phosphate [8] or inhibitors of b-glucuronidase such as casein

hydrolysate [20,21] However, none of these agents has been accepted for general application, mainly because of an inconsistent hypobilirubinemic effect and the occurrence of adverse effects.[8,22] activated charcoal, [23,24] cholestyramin,[25-27]
There are several studies in the literature either in favors or in contrast to agar treatment.[28] The current study was done to explore the usefulness of oral agar in treatment of neonatal hyperbilirubinemia.

MATERIAL & METHODS: It is a prospective study conducted at Princess Durru Shehwar Children's Hospital, Hydrabad between April and November 2004. This clinical trial study was performed during Patients of the study were admitted during the study period in this center for evaluation and treatment of jaundice. Babies weighing <1.5 kg or >4 kg, Sick babies with severe hemolysis, sepsis, respiratory distress syndrome, maternal diabetes mellitus, congenital malformation, bruising, hypothyroidism, direct hyperbilirubinemia and babies required exchange transfusion were excluded and from the remainder 80 neonates filling the inclusion criteria like age between 2 days to 7 days, total bilirubin level >10 mg% and babies with appropriate size of or gestational age and weight between 1.5 to kg with exaggerated physiological jaundice were enrolled in this study. Parental consent and the ethics committee of our university and the hospital was obtained before study. Babies were divided into three groups.

a) Phototherapy alone group.
b) Oral agar alone group.
c) Oral agar plus phototherapy group.

Serum bilirubin was measured by Jendrassik and Grof method on admission and every 12 hourly till bilirubin falls below 10 mg% or more. In oral agar group bilirubin was measured 24 hrly as at the start of treatment, at 24hr.at 48hr, or 60hr to obtain trend of fall of bilirubin.These neonates were randomly allocated to all the three group. phototherapy under standard conditions with 4 special white 420-480 nanometer lamps being used less than 240 hours and adjusted to about 30 centimeters above neonate. Phototherapy was given continuously interrupted only for 15 to 20 minutes every 2-3 hrs whenever feeding is feasible. During phototherapy eyes were covered by opaque eye patches and genitals shielded by diapers. Phototherapy was stopped after bilirubin was below 10mg% oral agar group received 500mg/kg every 6 hrs (Finar Chemicals) by spoon diluted in 10ml distilled water / milk. Oral agar was stopped when bilirubin was below 10mg%.
All data were analyzed by using student's t test.Statistical significance was considered at a p value less than 0.05.

Findings-
In this current study, 80 newborn babies were enrolled from 1/4/04 to 30/11/04 out of 80 enrolled babies, 20 neonates were excluded from the study because-

a) 8 babies of agar alone group lost follow up.
b) 6 babies required exchange transfusion
c) 3 babies had conjugated hyperbilirubinea
d) 3 babies developed sepsis.

Among 60 neonates, 12 male 8 female belongs to group I i.e agar alone, and 11 male and 9 female in group II i.e agar plus phototherapy group and 12 male and 8 female in group III i.e phototherapy alone group.
There were no statistically significant differences between the three groups regarding weight, age and first TSB value (Table 1). TBS values show significant difference between the agar alone and phototherapy alone group after 48 hrs(Table 2 A). and p value is significant after 24 hrs in agar plus phototherapy group i.e 12.9 and it is highly significant after 36 hr i.e 9.85(Table 2 B). according to this result we can say that agar decrease the time period of phototherapy in second group.

No major complications were encountered during the study except 6 babies had diarrhea out of which three were phototherapy alone group and two were from agar with phototherapy group and also six babies had phototherapy rash during treatment.

Table 1: Mean (±SD) age, weight and first TSB value in the three groups.

Parameters	Agar	Phototherapy	Agar +Phototherapy
Age(days)	6.2 (1.2)	5.8 (1.5)	6.4(1.2)
Weight(Kg)	2.9 (0.057)	2.43 (0.53)	2.47(0.7)
TSB	16.19 (1.9)	16.51 (2.01)	15.98(2.43)

TSB- Total serum bilirubin
Table 2: Comparision of rate of fall of bilirubin.

A) Comparision between agar alone and phototherapy group.

Sr No.	Time (hr)	Agar (bilirubin (S.D))	Pthtotherapy alone (Bilirubin (S.D))	P value
1	0	16.19±1.9	16.51±2.01	>0.4
2	24	13.84±1.46	14.07±1.63	>0.25
3	48	11.69±1.77	10.62±2.39	<0.05
4	60	9.4±1.37	8.57	>0.05

B) Comparision between agar + phototherapy(PT) group and phototherapy(PT) alone group.

Sr No.	Time (hr)	Agar+PT(bilirubin (S.D))	Pthtotherapy alone (Bilirubin (S.D))	P value
1	0	15.98±2.43	16.51±2.01	>0.1
2	12	14.53±1.90	15.41±1.78	>0.05
3	24	12.9±2.23	14.07±1.63	<0.05
4	36	9.85±2.26	12.59±2.1	<0.0005

DISCUSSION: In this clinical trial study we determined the effect of oral agar therapy (500mg/kg) every 6 hrs on neonatal hyperbilirubinemia. In the present study we demonstrated that in Oral agar group there was lower TSB after 48 hours. In group II i.e agar plus Phototherapy group the agar shorten the requirement of phototherapy at 24 hrs only. The neonatal hyperbilirubinemia is the most common disease in neonatal period. Although there are advantages of phototherapy, several potential complications may occur with its use. At present there is no safe drug for treatment of neonatal icterus and shortening of phototherapy time. The effect of numerous drugs on bilirubin metabolism and reducing hyperbilirubinemia has been identified. Metalloporphyrins and d-penicillamine act by inhibition of heme oxygenase, charcoal by decreasing entrohepatic circulation. The clofibrate and phenobarbital are potent inducers of microsomal enzymes that increase bilirubin conjugation and excretion.[29] Clofibrate like phenobarbital is a hepatic bilirubin metabolism inducer, in addition causes 100% increase of hepatic bilirubin clearance within 6 hours with no drowsiness effect in contrast to the latter. Clofibrate when used as an antilipidemic agent in adults, has some side effects such as nausea, gastrointestinal disturbance, vomiting and loose stools.[30] Other possible complications include cramps, fatigue, pruritus and alopecia.[30]Phenobarbital, clofibrate increases bilirubin conjugation and excretion and is a better enhancer of glucuronosyl transferase induction causing 100% increase of hepatic bilirubin clearance Phenobarbital.[29] Phenobarbital has a long half life and its effect on severe jaundice is questionable. Phenobarbital also causes drowsiness in neonates and may slow down the oxidation of bilirubin in the brain leading to worse bilirubin toxicity.[31]

The role of enterohepatic circulation of bilirubin in 'physiological' hyperbilirubinaemia has not been well established[32-34] although Poland and Odell (1971)[35] have shown that reabsorption of bilirubin from the intestine may be a major contributory factor. They reported no further rise in neonatal serum bilirubin concentrations in term infants when a formula supplemented with agar was given. At the same time an increased excretion of bilirubin in the faeces was shown. Plain agar ,a seaweed extract, was shown in 1971 to bind bilirubin in the newborn gut decreasing its enterohepatic circulation and thus serum bilirubin level decrease without adverse effect.[35]In our clinical trial we successfully demonstrate that the oral agar administration in neonatal jaundice decrease the serum bilirubin concentration and also decrease the time period of phototherapy required.

Conclusion

Oral agar is an effective and probably safe drug also for neonatal hyperbilirubinemia and decreases the time needed for phototherapy. Although
we didn't find any side effects of agar after a course, further studies with a more precise and longer follow up is needed for proving its safety to be used in the treatment of neonatal hyperbilirubinemia.

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Mind your sleep to save your tummy. A link between sleep abnormality and heartburn

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: ABSTRACT:

As a result of extensive and the comprehensive work done over last two to three decades in many countries, the relationship between upper gut dysfunction in the form of GERD and sleep disorders was established. The upper gut disease in the form of Gastro esophageal reflux disease (GERD) and sleep disturbance are both common health problems and continue to be in hot debate. There is a significant association between disturbed sleep and GERD, which may be bidirectional . Sleep disorders may induce gastrointestinal (GI) disturbance, while GI symptoms also may provoke or worsen sleep derangements. Reflux of gastric acid is a less frequent event during sleep, however, acid clearance machanisms (swallowing, salivation and primary esophageal motility) are impaired during sleep resulting in prolongation of acid contact time. Night time reflux can lead to sleep disturbance and sleep disturbance inturn may further aggravate GERD by prolonged acid contact time and heightened sensory perception. This may facilitate the occurrence of complicated GERD and decreased quality of life. However the interplay between sleep problems and GERD is complex. Further investigation of sleep related GERD may identify common pathophysiological themes and new therapeutic targets .

Key words: Sleep , Gastroesophageal reflux disease , pathophysiology, provoking factors

INTRODUCTION: Gastroesophageal reflux disease is a common and chronic condition and a significant number of patients have heartburn once a wk. or more. Insomnia is a condition where patiens have difficulty in initiating or maintaining sleep or experiencing non refreshing sleep and is again very common problem.[1] Atleast 50% of patients with sleep disturbances seen in primary care practices have co-morbid conditions.It was found that a higher prevalence of gastro-intestinal problems in those with chronic insomnia(33.6%) compared with those without insomnia(9.2%).[2] Among patients with frequent heart burn majority reported difficulties in initiating or maintaining sleep.[3] Sleep has significant impact on individuals health and,quality of life and daytime functioning.[4,5]

In this review, we aimed to address the complex relationships between GERD and sleep.

We addressed the following points:

1, Interrelationship between GERD & sleep disorders.

2, Pathophysiological mechanism.

3, Immpact on treatment.

1a, Occurrence of sleep disorders in GERD patients.

Recent epidemiologic studies have revealed a significant association between GERD and sleep disturbance indicating this is not a chance finding. Several epidemiologic studies have show that nighttime heartburn is prevalent and that individuals who experience nighttime heartburn have associated sleep disturbances resulting in alterations in daytime performance.[6-16] A large population-based, cross sectional study based on two large health surveys of 1984-1986 and 1995-1997 was done on 65,333 participants (70% of adult population) in Norway [6].They found an association around 95% between GERD symptom and sleep problems including ,sleeplessness and problems of falling asleep adjusting for age ,sex,smoking,obesity and socioeconomic status. Further they showed that the association between GERD symptoms and sleep persisted after adjusting for other comorbid condition, such as depression or anxiety, which were themselves also associated with sleep disturbance. However, their study had inherent limitations including a cross sectional study design and reliance on self-reported

symptoms of reflux and sleep. In another study based on data form the 2006 US National Health and Wellness Survey Mody et al. observed that 19% of 62,833 respondents experienced heartburn at least twice a month, and among, them 89% experienced nighttime GERD symptom ,68% sleep difficulties,49% difficulty initiating asleep and 58% difficulty maintaining sleep.[7] They showed the presence of GERD was associated with more than twice the likelihood of experiencing sleep difficulties , and more specifically subjects with nighttime GERD symptoms experienced 1.5 times more sleep diffculties compared to subjects with daytime only with GERD symptoms. In additions, they showed that among adults with GERD symptoms, sleep difficulties were associated with greater use of health care resources and loss of work productivity, and incersed impairment of dally activites.[7] Adults with GERD symptoms who experienced sleep difficulties had 5.5% greater work productivity loss than those without sleep difficulties equating to a loss of 2.75 wks. of lost productivity per year per sufferer compared with those without sleep difficulty.These effects were depicted in other studies as well.[17-19]

In another large multicenter, multinational,observational study conducted a series of parallel, local managed studies at 134 primary care sites across six European countries , sleep disturbance was common among subject with GERD symptoms in all countries both in terms in frequency and intensity. Similar data have been reported from a primary a care study in spain.[8,9] Recent systematic reviews have also reported that nocturnal GERD symptoms and sleep disturbance increased the likelihood of medical consultation.[11,12]

Reflux esophagitis at upper endoscopy has been observed to be associated with an increased risk for sleep disturbance. At a Chinese referral center 3663 individuals who underwent endoscopy reflux symptom were associated with two fold increased of sleep disturbance and the severity esophagitis[10] Other studies have also observed that sleep-related GERD is associated with higher esophagitis grades and Barrett's esophagus.[20,21]Thus there is a convincing data showing high occurrence of sleep problems in patients of GERD.

1b , Occurrence GERD in patients with primary sleep disturbance

A substantial proportion of adults with sleep disturbance experience GERD. In a multicenter, longitudinal cohort study of sleep-disordered breathing 24.9% (3,806/15,314) reported having GERD. Body mass index, daytime sleepiness, insomnia, hypertension and asthma were strong predictors for nighttime heartburn.[16] Usage of benzodiazepines was a risk factor for GERD among subject with sleep disordered breathing.[16] Limitted data suggest a relationship between symptomatic obstructive sleep apnea (OSA) and GERD. The prevalence of GERD has been show about 58-62% of patients with OSA however, these results may all be confounded by obesity.[23,24] Apnea may increase trans diaphragmartic pressure and decrease intra-thoracic pressure, favoring GERD.[25] Moreover, apnea might induce gastric dilation, decrease gastric emptying, and induce transient lower esophageal sphincter relaxations.[26] Further , greater respiratory effort increasing the pressure gradient across the lower esophageal sphincter and eventually facilitates the retrograde moment of gastric contents[27] . However ,other studies have failed to significant relationship between GERD and OSA. Moreover , in a recent steady applying simultaneous recordings of high resolution manometer (impendence and pH monitoring) and polysomnography , the pressure of the upper esophageal sphincter and esophagus-gastric junction increased during OSA despite decreased esophageal body pressure , and the incidence of GERD was not different from controls.[28,29] Although the relationship between them is not clear, treatment of OSA has been shown to improve GERD[30] and continuous positive airway pressure(CPAP) has been demonstrated to reduce the total 42 hour esophageal acid contact time.[31,32]

2. **Pathophysiology:**

GERD is usually a postprandial event and is a normal physiologic response to gastric distension after eating ,which induces a transient relaxation of the lower esophageal sphincter but notably esophageal physiology and esophageal acid clearance during sleep differ from wakefulness.[33] Acidification of the distal esophagus produces a marked increase in the secretion of saliva and its bicarbonate concentration whilst awake. In addition ,in response to an acidic distal esophagus , there is a marked increase of swallowing and in subsequent primary peristalsis of the esophagus.[34] However, this secretary and motor response to acid exposure in the distal esophagus is different during sleep, swallowing frequency is almost not existent during

sleep;swallows only occur during brief arousals.Salivary secretion ceases during sleep, and sleep facilitates proximal acid migration into the esophagus.
In a small sample of GERD patients who underwent poly-sommography and 24-hr esophageal pH monitoring assessing the impact of GERD on sleep, Disckman et al[31]. showed that most reflux event occurred during stage 2 sleep and 95 of reflux event were associated with a short arousal.[35,36]In other recent study using 24-hr esophageal pH monitoring and actigraphy, a validated watch-like ambulatory digital recording system in determining sleep duration and awakening, Poh et al. confirmed that short duration reflux event during the sleep period were associated conscious aweakenings.Thus,it is conceivable that nocturnal reflux events might evoke frequent conscious awekenings during sleep.[36]

Thus conscious awakening may interrupt sleep; a high arousal index has been shown to be associated with poor quality of sleep, hyperarousal may be associated with activation of neuroendocrine system including the autonomic nervous system and the hypothalamic pituitary adrenal axis.These arousals might lead to increased sympathetic activation manifested by events such as increased heart rate or blood pressure such as autonomic arousals can result in poor sleep quality in the absence of electroencephalographic evidence cortical arousal. Indeed, hyperarousal has been demonstrated to disrupt sleep patterns[37] . However , there were few studies that have specifically addressed the nighttime response ANS to acid reflux events. Interesting ,simultaneous cardiac and ambulatory pH monitoring revealed that esophageal acid exposure during sleep was associated with parasympathetic fluctuation with a superimposed Sympathetetic interaction[38.]

a) Prolonged acid contact time during sleep disturbance may provoke GERD. The occurrence of GERD can not bee evaluated by symptoms during sleep.[34] 24-hr esophageal pH monitoring studies combined with simultaneous polysomnography have established that GERD occurs less frequently during sleep[39].However prolonged acid contact time during sleep has been shown in GERD patients.[40.] Using simultaneously monitoring of esophageal pH and polysomnography , and recent steady was conducted in 81 patients with sleep disturbance and heartburn and 39 controls with neither sleep problems nor heartburn.This study showed no difference in reflux event (27% vs. 33%) ,but acid exposure time was longer in patients with sleep disturbances than controls.[41,42,43]

b) Disturbed sleep induced Hyperalgesia may Cause GERD
In a cross over study evaluating sleep deprivation and perception in the oesophagus Schey et al. studied 10 patients with reflex esophagus‘s (loss Angles classification B-D) and 10 healthy controls, after sleep deprivation, the GERD patients had a significant decrease in lag time to symptom report , an increase in intensity rating, and increase in acid perfusion sensitivity score , as compared to nights of good sleep.[44] Normal subjects did not demonstrate any difference in stimulus response to acid between sufficient sleep and sleep deprivation. They concluded that sleep deprivation may provoke Hyperalgesia in patients with GERD . However further studies are needed to confirm findings.

c) Use of sleep medictions can aggravate or provoke GERD

Some medications used to manage sleep disturbance may aggravate GERD . For example, benzodiazepines have been shown to be significantly associated with heartburn during sleep in an epidemiologic study .In both animal models and humans benzodiazepines decreased basal lower esophageal sphincter pressure and increased the number of Gastro esophageal reflux events.[45] Non- benzodiazepines hypnotics include zolpidem binds to gamma-aminobytric acid(GABA) A receptors, facilitating sleep onset, and reducing the arousal threshold. Recently one study showed that zolpidem reduced the arousal response to nocturnal acid exporesure and increased the duration of each esophageal acid reflux event in healthy individuals and patients with GERD.[46]

3, Treatment implications
Theoretically the vicious cycle of GERD inducing poor sleep that in turn aggravates GERD may be interrupted by more aggressive acid reducing therapy . Johnson and colleagues [47-50] performed a large multicenter randomized double-blind placebo controlled trial utilizing emoeprazole 40 mg, 20 mg, or placebo for 6 weeks in 657 adults with GERD – associated sleep disturbance. 50% of esomeprazole –treated subjects had resolution of nighttime heartburn ,and by 4 weeks, 73% of esomeprazole-

treated subjects had resolution of GERD – associated sleep disturbance. Both doses of esomeprazole result in improvement of sleep quality,reducing lost work hours, and increased work productivity. In other study using rebeprazole for sleep-related GERD with 24-pH esophageal monitoring study with polysommography, Orr et al. observed that rabeprazole reduced overall acid reflx,and improved sleep quality.[48]

A retrospective obserativation study in 65 patents with GERD who took double dose proton pump inhibitor (PPI) with or/without additional ranitidine was conducted to evaluative symptom relief by a patent, interview.[49] The addition of ranitidine admistrated at bedtime to patent taking double dose of PPI therapy led to an improvement in allover symptoms and GERD- associated sleep distrbunce.Another study suggested that the addition of a nocturnal H2 receptor antagonist) or PPI after morning dose of PPI decreased nocturnal acid breakthrough with improvment of day time functioning.[50] unformentely , other data suggested tachpylaxis with H2RAs in nocturnal acid breakthrough.[51]

Data regarding the impact of fundoplication on sleep parameters has been very limited. 11 patents with heartburn undergoing fundopication 8 to 10 weeks after surgery all reported an improvement of subjective sleep disturbance but not the objective sleep parameaters.[52]

CONCLUSION:

This review has addressed the complex relationship between GERD and sleep. Epidemiologic data suggested that GERD has modest but improved association with sleep disturbance, and this appears to be bidirectional. Medical treatment of nighttime GERD appears to improve subjective sleep disturbances but objective data may not improve.Futher studies are need to insvestigate sleep architecture and brain fuction in GERD patents , that is not detected by tradiontal polysomnography[36,44, 52]. Data on non acidc reflux and the potential relationship with sleep disturbance is also need (e.g by using impedance and high resolution manometry). A better understanding of the relationships between sleep and GERD may allow the clinician to manage these pateants more effectively in the future.[53]

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Eyebrow lacerations: a brief review

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INTRODUCTION:

Most people do not want an unsightly scar anywhere on the body; they are especially concerned about scars on their face. Eyebrow lacerations are commonly encountered in day to day practice. More than 50% of patients with these injuries have multisystem trauma requiring coordinated management between emergency physicians and surgical specialists. It is not unusual for the General Practitioner to get a patient of facial trauma patient with laceration on the eyebrows.

Eyebrow Laceration may be caused by facial trauma as a result of either blunt or penetrating trauma, typically from fall, road traffic accident, inter-personal violence, sports or inter-personal violence, vehicle accident. Because of the strong bone structure beneath the eyebrow, these lacerations are common, but when occurring, they commonly require medical attention and repair[1].

Etiology has a profound influence on the distribution of facial lacerations. Although the upper 1/3 is often quoted as being the most commonly affected region[2]. Commonest cause of facial laceration is fall, assault. Male predominance seen particularly in assault and sports[2].

Bolt RW, Watts PG assessed the relationship between etiology and distribution of facial lacerations using soft tissue landmarks, according to them the most common site to sustain laceration were forehead(30%) and eyebrow (22%), the eyebrows were the structures most densely lacerated per uint area[2]. Lacerations resulting from blunt trauma followed a general antero-medial distribution, with structures such as the forehead, eyebrows and lips commonly affected[2].

Generally lacerations occur on the eyebrow, which is there to protect the eye, when the eye is not damaged, it is mandatory to check the vision to make sure that everything is normal. Provided the bleeding has stopped and the other eye injury is excluded. Eyebrow lacerations are common; repairing an eyebrow laceration is complicated by the presence of hairs. A Laceration that involves the eyebrow should be reapproximated to recreate the natural curve of the eyebrow as well as possible. Laceration of the eyebrow requires particular care to avoid developing a distortion in the line of the eyebrow, which would be especially noticeable[3].

Assessment:

The eye and periorbital structures should be examined to exclude an ocular injury. A systemic evaluation of the other head and neck structures should be undertaken to exclude serious injury[4]. The wound is likely to be contaminated by the dirt or foreign body[1].

Pre procedure patient preparation:

Determine the history of the injury, associated symptoms, and interventions the patient has used.

Asses the patient‘s tetanus immunization status, and provide tetanus prophylaxis as warranted. Rabies prophylaxis must be administered in case of animal bite.

Procedure:

Explain the procedure to the patient, and address any questions or concerns he /she may have.

Obtain Informed consent

Wash your hands and put on gloves

Irrigate the laceration with normal saline solution and be careful not to get the saline into the patient's eyes.

If necessary, remove dead tissue with the #15 scalpel blade, leaving clean edges on the laceration.

Clean the area around the laceration with povidone-iodine and gauze. Avoid getting the povidone-iodine directly into the wound-it may be toxic to the tissue. Allow it to dry.

Sutures:

Administer Local anesthesia.

Suture the laceration using simple interrupted suturing and 5.0 nonabsorbale suture material. Be sure to approximat the edges of the laceration precisely for the best cosmetic result.

Apply a topical antibiotic ointment.

The most important thing in repairing a eyebrow laceration is not to shave the eyebrow hairs as they may not grow back fully after shaving or trimming, apart from this another important thing is, a single layer closure is preferred over multilayer closer because the subcutaneous sutures used in multilayed closure also increase the risk of hair loss in the eyebrow[5]. Another important fact in eyebrow repair is to be judicious in debriding an eyebrow laceration because removal of tissue may leave a cosmetic defect. If it appears that jagged edges of an eyebrow laceration prevents accurate approximation of the wound edges, it is still better to repair the laceration without extensive debridement of irreplaceable tissues[5] .The vascularity of the face is such that even seemingly nonviable tissue may survive if handled gently, so aggressive debridement is contraindicated[6].

If the laceration is totally within the eyebrow, the likely hood of a cosmetically unacceptable scar is very minimal because the scar will be hidden by the eyebrow hair[5]. If the laceration crosses the hair-bearing and non-hair bearing border of the eyebrow, it is essential that these borders are carefully approximated across the laceration[5]. If the muscle under the eyebrow is damaged, a single layer, loose dexon or chromic gut suture should be placed to approximate the muscle edges. The deeper subcutaneous layers are then repaired with a long lasting absorbable suture, a single layered closure is preferred when possible[5]. Skin repair is accomplished by fast absorbing synthetic sutures, as this will minimize scarring and eliminate the need for suture removal[5]. The first sutures placed should serve to realign the eyebrow margins[4]. As a general rule, it is not recommended to excise any eyebrow skin. However, in certain circumstances, gentle debridement of the wound may be necessary. If this is undertaken, the skin excision should be performed parallel to the eyebrow hair shafts[4]. In general, horizontal lacerations within the eyebrow respond well to careful closure with tissue adhesive. Those that dissect the eyebrow vertically should be referred to the maxillofacial or plastic surgery team for specialist closur[3].

Post procedure patient teaching:

Explain to the patient of infection, such as redness, swelling, yellow or green drainage, foul odor, or increase in temperature, and have him notify your office if the experiences any of these.

Daily wound cleaning and application of topical antibiotic ointment is recommended.

The patient requiring sutures should return to the Clinic in 5 to 7 days for suture removal. If necessary,

Complications:

The most common and serious complication of wound and laceration repair is infection. Because all accidentally induced wounds occur in unsterile conditions, they have to be on considered contaminated with bacteria and other organisms on arrival to the emergency department

Anticipate hematoma formation if there is significant trauma- use pressure dressing.

Scar potential and resultant cosmetic deformity is always a concern in the repair of eyebrow lacerations.

Misalignment of the eyebrow margin or extensive debridement may result in a scar that is cosmetically unacceptable[2].

Special Consideration:

Do not shave the eyebrow, because it serves as a land mark during repair, moreover the hair may not grow back normally[4]. Eyebrow hairs are unpredictable; either it may grow slow or incomplete, potentially leading to an poor cosmetic outcome[1, 7].

A Laceration that involves the eyebrow should be approximated to recreate the natural curve of the eyebrow as well as possible.
Leave the suture ends long so that you can easily distinguish them from the eyebrow hairs[1].
Do not try to repair the eyelid, the chances of underlying eyelid muscle getting traumatized is high, better refer the case to an ophthalmologist[5].

Documentation:

Document pre- and post procedure visual function.
Thoroughly document the location, size, depth, and mechanism of the eyebrow laceration, using illustrations as necessary.
Document the method of wound closure used and a description of the procedure
If suturing was require, record the analgesia and anesthetic used, the type and number of sutures placed, and the patient‘s tolerance of the procedure.
Document the patient‘s scheduled follow-up visit and discharge instructions given.

Suggestions:

Repairing an eyebrow laceration is complicated by the presence of hair. It is advisable not to shave the eyebrow for wound preparation because it serves as a landmark during repair. Also, eyebrow regrowth is unpredictable; it may be either slow or incomplete, potentially leading to poor cosmetic outcome[4, 5, and 7].
Debriement , if required, should be minimal and along the same axis of the hair shafts to avoid damage to hair follicles; otherwise alopecia of the brow will result[57].
Attention must be paid to avoid inverting the hair bearing edges into the wound[7].
It is also important to pay attention to proper alignment of both ends along an eyebrow wound[4].

CONCLUSION:

Great care should be taken to precisely approximate the laceration edges for the best cosmetic results despite the method used for closure.

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Figures:

Figure 1: eyebrow laceration seen on right side of face with displacement of lacerated soft tissues.

Figure 2: Facial laceration over right eye involving the eyebrow.

Figure 3: Sutured laceration over right eyebrow with good approximation of tissues

Figure 4 : Sutured eyebrow laceration with approximation of edges unevenly

Figure 5: scar seen over the right eye brow due to improper suturing and approximation of soft tissue in hair bearing area.

Lawrence Moon Beidle Syndrome (Bardet Biedle Syndrome) In A 13 Year Old Boy From India

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INTRODUCTION:

BBS is a rare heterogeneous, autosomal recessive disorder that presents with different structural and functional abnormalities during childhood. The highest prevalence of this syndrome is found in the Middle East countries with an incidence of 1:13,500, while for the rest of the world it is 1:160,000. It is more prevalent in the male with male to female ratio of 1.3:1[3]. The mean age of diagnosis is nine years with the most common presentation is difficulty in vision especially during night. The most common cause of death is associated with the renal complications [2]. This syndrome is diagnosed with the presence of at least four primary features or three primary features with two secondary features. From highest to lowest incidence level the primary features are retinal dystrophy (93%), hypogenitalism (89%), postaxial polydactyly (69%), learning disabilities (62%), obesity (52%) and renal abnormalities (24%). Other secondary features found to be associated with this syndrome are speech disorder (54%), developmental delay (52%), brachydactyly / syndactyly / clinodactyly (46%), neurological problems (40%), behavioral problems (33%), dental abnormality (27%), nephrogenic diabetes insipidus, diabetes mellitus (6%), hypertension and anosmia[2].

BBS was first defined by George Bardet in 1922 [4]. It is much similar in clinical presentation with Laurence-Moon Syndrome. Different research studies have shown that plydactyly, obesity and retinitis pigmentosa are more commonly associated with the BBS. On the contrary, the presence of spastic paraplegia and choroidal atrophy are more predominant in LMS [1, 4, 8].
This syndrome is the result of mutations in different BBS genes. So far, several (BBS1 to BBS12) genes are identified, among which mutations in BBS1 (23%), BBS2 (8%) and BBS10 (20%) are commonly found, and thus, suggested for the genetic testing to diagnose this syndrome in its early stage. Different BBS gene products are essential during the intraflagellar transport (IFT).

More preciously, the ITF is an active transport of proteins through microtubules that helps during a wide variety of cellular functions. Any abnormality in IFT can result into a wide range of systemic abnormalities that includes but not limited to male infertility, polycystic kidney disease, retinal degeneration, and disturbances in embryonic development. This is the reason why BBS is considered as a pleiotropic disorder that presents with different structural and functional abnormalities with involvement of different body systems [5].

Case report

A 13 years old boy presented with complains of bed-wetting since last 15 days, difficulty in vision and poor learning skills. He denied any fever, abdominal pain or burning sensations while passing urine. His bladder control was achieved at the age of 3 years. Since 15 days, he was having 4-5 times involuntary urination during night. He denied any such episodes during day time. According to his parents, his vision problems started early in childhood which has been progressive and more prominent during the night. His past medical history is significant for irregular episodes of febrile convulsions started at the age of six months and subsequently subsided by the age of five years. He experienced total 6 episodes of convulsion which were associated with high grade fever and post ictal

confustion for around 30 minutes. The patient had taken some anti-epileptic treatment up during this time, facts of which could not be established due to unavailability of his past medical records. Child's growth development was delayed and his speech developed after three years of age. Child was delivered in hospital at full term with uncomplicated normal delivery. There were no complications during pregnancy and child received all vaccinations after birth on time. Family history is significant for febrile convulsion in father and child's 15 year old elder brother. There is no evidence of BBS in any of his siblings. There was a history of second degree consanguineous marriage between parents.

On physical examination, his weight was 43 kg (>85 percentile for age), height was 147 cm (50 percentile for age), and BMI was 19.9 kg/m^2 (>75 percentile for age). His vitals were within normal limit except for the Blood pressure which was 150/90 mm Hg in right brachial artery. Both systemic and diastolic blood pressure was more than 90th percentile in all four limbs. There was postaxial polydactyly of all four limbs (figure 1 and 2). Other relevant physical findings were central obesity (figure 3), convergent squint in right eye, wide ear pinna (bat ear), low pitched voice (stammering speech), partially bifid uvula and thyroid swelling. Examination of external genitalia revealed penile length less than 2 SD of mean for the age suggestive of microphallus (figure 4). His reviews of systems were within normal limits except his fundoscopy of retina showed evidence of retinitis pigmentosa and bilateral optic disc pallor (figure 5). Vision loss was almost 100%. Child's psychiatric evaluation revealed mild mental retardation.

His routine laboratory investigations reports were within normal limits except Hb% 10gm%, total white cell count 6500, and differential white cell count 63/33/3/1/0. His serum glucose, lipid profile, serum osmolality, and urine osmolality were within normal limits. His urine analysis and culture was within normal range. Early morning serum testosterone (total) was <10 ng/dl, S. FSH value 22IU/L(Normal range 1-12 IU/L) and S.LH value was 20IU/L(normal range 1-12IU/L), suggestive of primary hypogonadism. His renal, liver, and thyroid functional tests were within normal limits. USG abdomen showed moderate hydronephrosis, hydroureter and cortical thickness in both kidneys as well as 8 mm thickness of bladder wall, suggestive of cystitis. His USG neck and MRI brain

Figure 1

Figure 2 : is suggestive of post axial polyductyly of Both Upper Limbs

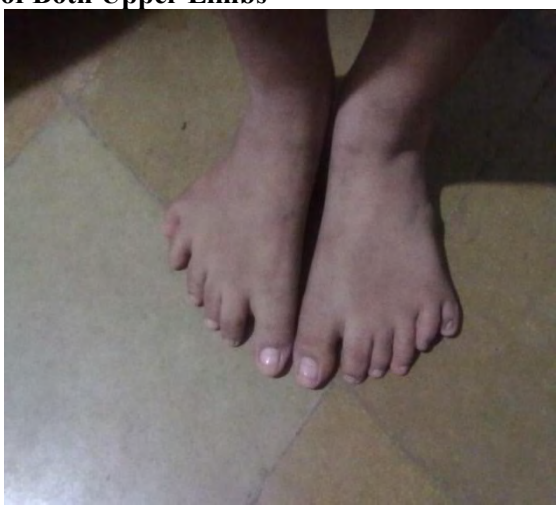

Figure 3 is suggestive of post axial polyductyly of Both Lower Limbs

Figure 4 : is suggestive of truncal obesity

Figure 5 : is suggestive of Hypogonadism

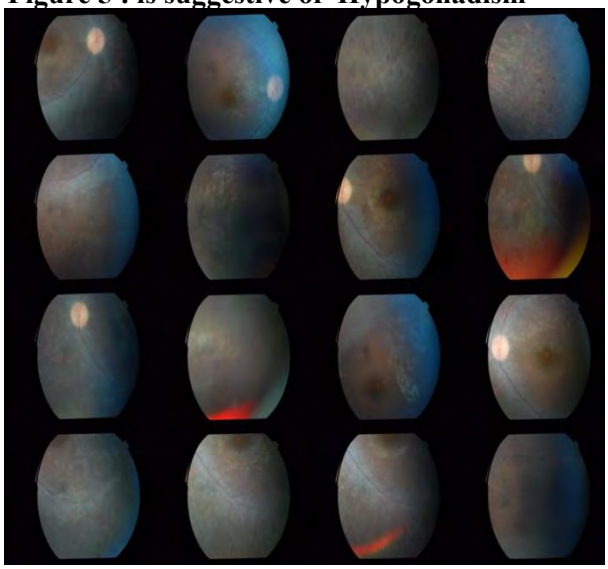

Figure 6 : is suggestive of classical "Retinitis Pigmentosa" on expert Ophthalmic examination

did not show any abnormal findings. Child was given Nifedipine 0.5 mg/kg/day and his blood pressure was monitored every 6 hourly for 3 days which remained relatively stable at 130/88 mmHg.

DISCUSSION:

Our patient is a classic case of Bardet-Biedl syndrome with presence of polydactyly, truncal obesity, retinitis pigmentosa on fundoscopy, renal abnormalities on USG mild mental retardation and hypogonadism. Apart from the standard primary features, this patient was also presented with some rare secondary features such as bilateral bat ears, febrile convulsion and hypertension. Although, patient had experienced several episodes of febrile convulsions during his early age, its relation with the BSS could not be established as his convulsions were subsided by the age of 5 years.

As BBS is a pleiotropic syndrome, patient's management includes a wide spectrum of investigations to evaluate individual body systems. Suggested baseline investigations includes electroretinogram (ERG) / visually evoked responses (VER), renal ultrasound, intravenous pyelogram (IVP) or DMSA/DPTA scan, ECG and echocardiogram as well as prader-willi syndrome exclusion by molecular testing. Patient's follow up should include six monthly urine analyses (dipstick) and annually check of blood pressure and serum urea and creatinine level. Case by case basis consideration should also be given to the speech assessment and therapy, registration of blindness, understanding educational needs, CT/MRI scan and electroencephalogram (EEG) [2].

Our advanced medical technology has not come with any definitive treatment for the BBS. Currently, only genetic testing is available for early diagnosis. Although, unique clinical presentation of this syndrome has left very few possibilities of misdiagnosis, early diagnosis is crucial to take preventive and timely measures to monitor different body systems, rehabilitation and prolonged life expectancy of the patient [5]. Few research studies have reported increased prevalence of renal cell carcinoma in the unaffected relatives of BBS patients [2]. Usually, parents notice night blindness in their child at a mean age of 8.5 years, which progress to registered blindness at the mean age of 15.5 years [2]. Different chromosomes have been identified for few typical presentations of BBS. While polydactyly of all four limbs have been associated with chromosome 3 locus and obesity is related to the chromosome 15; leanest BBS patients have abnormal chromosome 16 [8].

CONCLUSION:

The patient with BBS is required to be managed by collaborative efforts by different specialties physicians. It is suggested that after diagnosis patient should be followed up every six months by the general physician for his routine physical and mental health assessment. During each visit patient's vitals, body mass index, vision, renal function, cardiovascular system, as well as psychiatric evaluation should be performed to diagnose any kind of structural, functional, systemic, cognitive or learning complications in its early stage. It is very important to notice that

because of associated vision problems and mild to moderate mental retardation, such patients requires specially designed learning facilities to educate them about their daily activities.

Specific precautions should be taken in such patients during anesthetic procedures. Patients with BBS are more likely to undergo different corrective surgeries for urogenital system, limb deformities, and imaging studies. Previous studies have shown difficulties during administrating anesthesia due to obesity, bifid epiglottis, cardiovascular and renal system abnormalities [3]. Patient with BBS are more prone to develop osteodystrophy due to subsequent renal failure. Although our patient has not developed any skeletal abnormalities, various studies have shown that such patients are more likely to develop bone fractures, joint laxity and dislocations and kypho-scoliosis over years. Such complications develops even more rapidly if patient develops other complications due to renal failure such as need of chronic hemodialysis, avascular necrosis in post-transplant patients and amyloidosis[4].

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An unusual case of gastric teratoma

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: ABSTRACT:

Gastric teratomas are rare tumours commonly presenting in males, which usually manifest in infancy or early childhood as an abdominal mass, resulting in features of obstruction or bleeding. We report a case of gastric teratoma in a 5 month old male infant who presented with a large abdominal lump. Diagnosis was aided by findings on Computerized Tomography and confirmed by gross and histopathological examination of the excised tumor. The definitive treatment being surgical, gastroplasty with excision of the tumour was done. These tumours are usually benign and recurrence is very rare.

INTRODUCTION: Teratomas are embryonic neoplasms which arise from totipotent cells and contain elements from all of the three germ layers, i.e. ectoderm, endoderm and mesoderm. Gastric teratoma is a rare tumour, accounting for less than 1% of all teratomas in infants and children.[1] To date, less than 100 cases have been reported in literature.[2-6]

CASE REPORT : A 5 month old male infant presented with abdominal distension since birth, which was gradually increasing in size since the last 5 months. The child had no fever, vomiting, constipation, diarrhea, hematemasis, malena or respiratory distress. On examination, his vitals were stable; per abdomen examination revealed abdominal distension with visible dilated veins and an everted umbilicus. On palpation, there was a firm to hard lump over the left hypochondrium, epigastrium extending upto left iliac region and crossing the midline; measuring approx. 10 x 20 cm in size. Liver and spleen were not separately palpable. There was no evidence of free fluid on percussion. On auscultation, there was no bruit or hum over the lump, and bowel sounds were normal on auscultation. Rest systemic examination revealed no abnormality. Routine investigations were normal. X-Ray Abdomen standing revealed central radio opacification with bowels being pushed to the periphery without evidence of calcification. Ultrasound abdomen was suggestive of multiple cystic lesions with multiple septations and dense echoes within, displacing the viscera and bowel loops laterally possibly a cystic teratoma. CT Abdomen was suggestive of a large well defined lower density mass lesion in the central abdomen measuring 145mm x 105mm x 93mm, involving the mesentry and left anterior pararenal space with peripheral enhancement; the lesion showing internal septations with areas of calcification and fat density, displacing the bowel loops peripherally on right side and superiorly, pancreas superiorly and superior mesenteric vessels towards right side, possibly a cystic teratoma.

The definitive management being surgical, exploratory laparotomy with adhesinolysis, total excision of the teratoma followed by gastroplasty (suturing of posterior wall of stomach) was done, and sample was sent for histopathological examination which confirmed the diagnosis of mature cystic teratoma. Post operative period was uneventful and the patient was discharged on the 15th post operative day. The child came after 3 weeks on follow up and was normal.

DISCUSSION: Gastric teratomas are very rare tumours. About 30 cases were reported till 1970s and till date about 100 cases have been reported.[2-6] The first case was reported in 1922 by Eustermann and Sentry. [7] The tumor usually occurs in children less than 1 year of age,

especially neonates with a predilection towards males though it can rarely occur in females also. [8]

These large tumours presenting in the newborn may cause premature labour or dystocia. Respiratory difficulty is also common cause by upward displacement of the diaphragm by the tumour. Some may present as an abdominal mass, gastrointestinal bleeding in case of intramural extension of the tumour with ulceration of overlying mucosa; and/or obstructive manifestations. The preoperative diagnosis consists of neuroblastoma, pancreatic cyst, omental cyst, splenic cyst, Wilm's tumour and teratoid tumour.

They are usually benign in nature, although malignancy has been reported in few cases. The tumour commonly arises form the posterior wall of the stomach and is exogastric in 58% -70% of cases, while it is endogastric in 30% of cases; the commonly encountered sites being the lesser curvature of the stomach, antrum and fundus of stomach. Some of these tumours are peduculated and are attached by a pedicle to the stomach.[9] Gastric teratomas have been found to be associated with Beckwith Weidman syndrome and peritoneal gliomatosis.[10]

Teratomas may be diagnosed on the basis of presence of calcification on abdominal radiographs, however they are better diagnosed on ultrasound abdomen and most accurately on abdominal CT. Serum AFP levels are used to monitor for the recurrence or presence of a residual tumour and malignant transformation. Pre- operatively, an abnormally-elevated level can be obtained because of the presence of intestine in these teratomas or due to the presence of germ cell tumour in immature teratoma.

Partial, subtotal and total gastrectomies have been performed as dictated by the extent of stomach involvement. If the tumour is attached to the stomach on the serosal surface by a small pedicle, excision including a portion of the gastric mucosa is sufficient. If the tumour involves a great extent of the stomach and grows intramurally, a partial gastrectomy is necessary. The prognosis following surgical excision has been shown to be excellent.

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