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Contact

Editor, Osmani Medical Teachers Association Journal
Syllhet MAG Osmani Medical College
Sylhet-3100, Bangladesh.
Email : theomtaj@gmail.com

Teachers Association, Sylhet MAG Osmani Medical College

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Obstructive Sleep Apnoea (OSA); Overall Management

Introduction

Sleep apnoea is a sleep disorder characterized by pauses in breathing or a shallow breathing during sleep. Each pauses can last for a few seconds to a few minutes and they happen many times a night sleep period, usually following loud snoring. As this disorder disrupts normal sleep, the affected person experience sleepiness or feel tiredness during the day. In children it may cause problem in school or hyperactivity.

There are three forms of sleep apnoea; Obstructive (OSA), Central (CSA) and a combination of the two called Mixed. OSA is the most common form. Central sleep apnoea is caused by the brain not sending signals to the breathing muscles during sleep.

In OSA, breathing is interrupted by a blockage of airflow, while in CSA breathing stops due to a lack of effort to breath. People with sleep apnoea may not be aware they have it, in many causes it is first observed by a family member.

It is normal for the muscles and soft tissues in the throat to relax and collapse to some degree while sleeping. For most people this does not cause breathing problem. In OSA, the airway has narrowed as the result of a number of factors, including.

* Overweight - Excessive body fat increases the bulk of soft tissue in the neck.
* Male Gender - OSA is more common in men than in women.
* Above 40 years of age - Although OSA can occur at any age, it is more common in people who are over 40.
* Having a large neck - Men having a greater collar size having an increased risk of developing OSA.
* Medicine with a Sedative effect - Such as sleeping pills or tranquillizers.
* Having unusual inner throat strictures - Such as narrow airway, large tonsils, adenoids in children, bulky tongue, small lower jaw etc.
* Alcohol - Drinking alcohol, particularly before going to sleep, can make OSA.
* Nasal Obstruction - OSA occur more often in people with nasal congestion, deviated nasal septum, nasal polyp, nasal growth or a hypertrophied turbinate.

A detailed and meticulous history is needed for diagnosis a case of OSA and also for his proper management; patient's bed partner gives more reliable information. History should include snoring during sleep, restless disturbed sleep, gasping, chocking are apnoeic events and sweating. In the day time, there is history of excessive sleepiness and fatigue, irritability, morning headache, memory loss and impotence. Also one should elicit history of body position during sleep, use of alcohol, sedative, mouth breathing etc.

A detailed physical examination is also needed. The risk factors include male gender, obesity and age above 40 years. Measurement of body-mass index, collar size, complete head and neck examinations is necessary. A systemic examination should be done to look for hypertension, congestive heart failure, leg edema, pattern of obesity and any signs of hypothyroidism.

The gold standard, investigation is the Polysomnography, also known as sleep study. It is usually done in a sleep laboratory, specially designed and well equipped. Sometimes a reduced channel home based test is done.

In a typical sleep study the following parameters are recorded from a sleeping person in a sleep laboratory.

* EEG - (Electroencephalography) -To look for non-REM and REM sleep and stages of non-REM sleep.
* ECG - For heart rate and rhythm.
* EOM (Electroculogram) - For eye movements.
* EMG (Electromyography).
* Pulse Oximetry.
* Nasal and Oral airflow (by microphone).
* Sleep position.
* Blood pressure.

This Polysomnography can differentiate between primary snoring, pure OSA and CSA.

After diagnosis of OSA, it should be managed or treated in a logical manner. The treatment options may be non-surgical or surgical.

Figure-1:

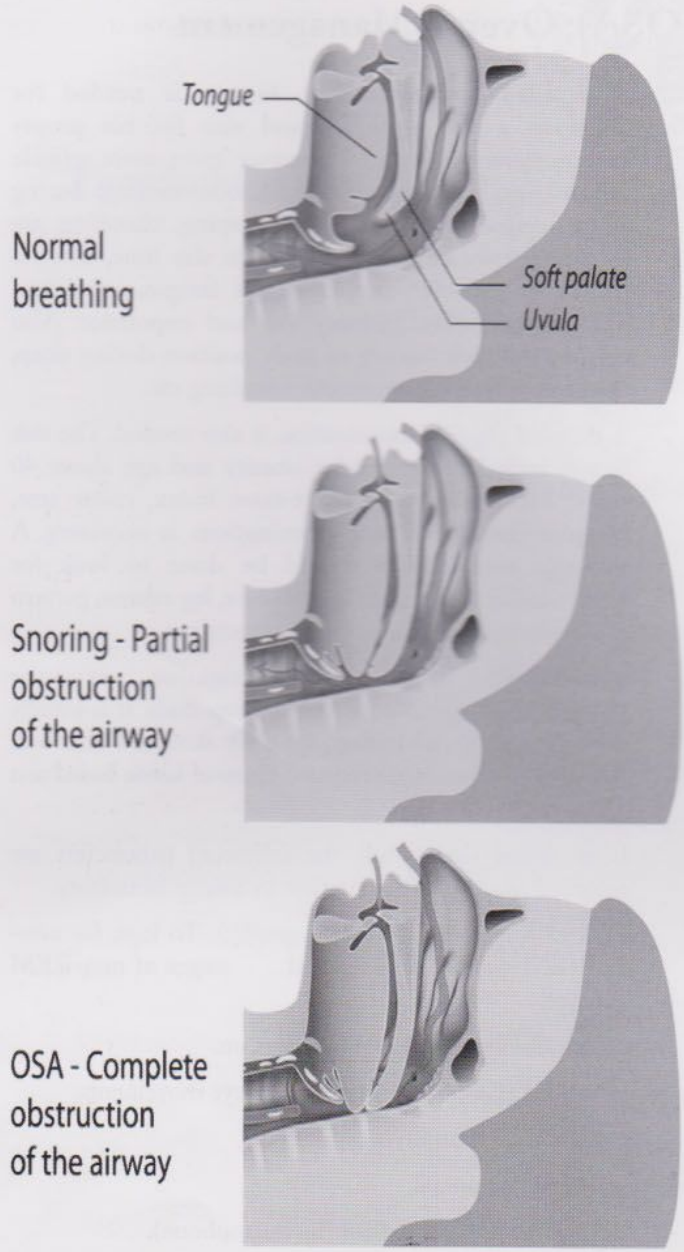
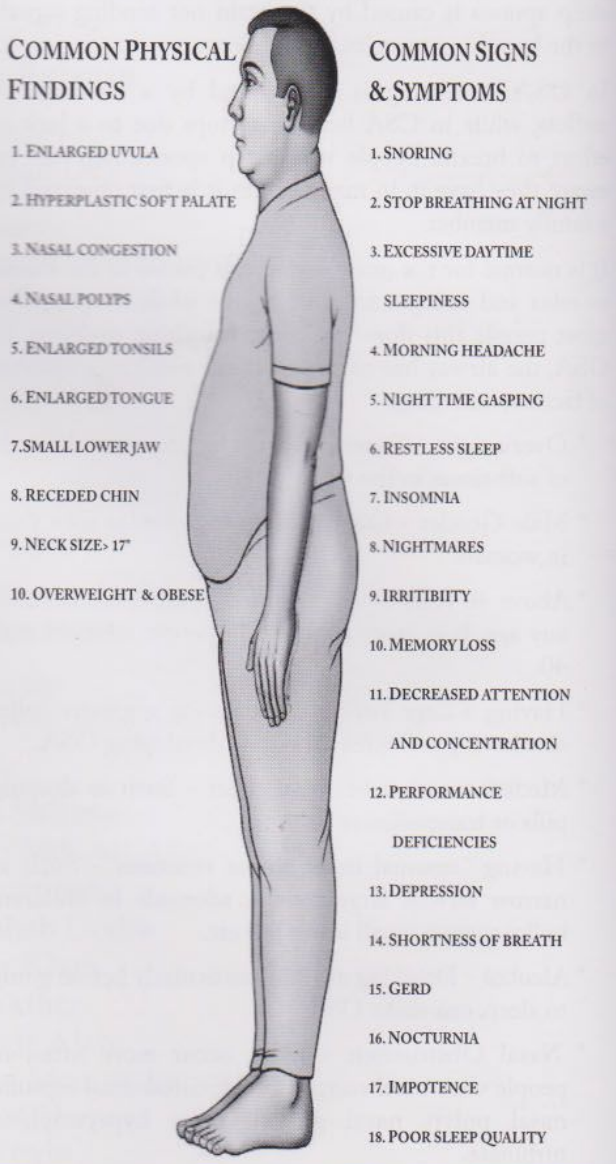


Figure-2:



The Non-Surgical measures are-

* Changes in lifestyle - Those with mild disease and minimal symptoms can be treated with weight loss and dietary changes, use of alcohol especially in the evening aggravates OSA, sedative, hypnotics taken at night also aggravates OSA, smoking should be prohibited and reduction of weight is helpful.
* Positional therapy - Patient should sleep on side as supine position aggravates OSA.
* Intra oral devices - There are some devices which alter the position of the mandible or tongue to open the airway and relieve snoring and sleep apnoea. Mandible advancement devices (MAD), Tongue retaining devices (TRD) are the examples. Nasal EPAP is another device used in nostrils.
* CPAP (Continuous positive airway pressure) - It is a device which patients uses during sleep. It provides pneumatic splint to airway and increases its caliber. Many patients cannot tolerate the CPAP during sleep. In those cases a Bi-PAP (Bi-level positive airway pressure) is used. Another one is Auto trating PAP (APAP). These devices are non-invasive to the patient.

The surgical treatment-

* Surgical treatment is indicated in some of the cases who are not helped by non surgical treatment.
* The surgeries may be Adenoidectomy and Tonsillectomy in children, nasal surgery like - Correction of a deviated nasal septum, the removal of a polyp and reduction of a hypertrophied turbinate. Oropharyngeal surgery like (UPP) Uvulopalato-Pharyngo-plasty is the most common procedure performed for OSA or Snoring. UPP can be done by Laser or Radiofrequency. Other rare surgeries for snoring and OSA are - Advancement genioplasty with hyoid suspension, Tongue base radiofrequency, Maxillo-mandibular advancement osteotomy.

At last, it is not always possible to prevent or treat OSA, but making certain lifestyle change may reduce someone's risk of developing or risk of progression of OSA, like losing overweight, limiting alcohol intake and maintaining an appropriate BMI, which will definitely solves the problems of a person arising due to obstructive sleep apnoea.

Prof. Dr. Nanda Kishore Sinha
Head, Department of ORL & HNS
Sylhet M.A.G Osmani Medical College, Sylhet.
Email: nk.sinha85@yahoo.com.
Tel- 0821-711556

ORIGINAL ARTICLE

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Pattern of Antibiotic Sensitivity to Uropathogens in a Tertiary Care Hospital in Bangladesh

Mohammad Alamgir Ahmed Chowdhury[1], Osul Ahmed Chowdhury[2], Z.H.M. Nazmul Alam[3], S.M. Sajjadul Haq[4]

Abstract

Urinary tract infection (UTI) is one of the most common bacterial illnesses and hence one of the most important indications for antibiotic therapy. Concomitant rise in antibiotic resistance among uropathogens remained a major health problem. A periodic appraisal of the microbial agents responsible for UTIs with their antimicrobial susceptibility is, therefore, fundamental for a suitable empirical antimicrobial intervention. This study determined the range of bacterial species in patients with suspected UTI and their antibiotic susceptibility pattern at a tertiary care hospital in Bangladesh. This was a descriptive cross sectional study of urine samples subjected to microscopy, culture, and sensitivity from patients at Nephrology OPD, Sylhet M A G Osmani Medical College Hospital, Bangladesh with suspected UTI in 2017-2018. 183 culture positive urine samples being evaluated. Escherichia coli were the single most important cause of UTI, accounting for 70% of the infection. A pattern of increased susceptibility to relatively newer, broad spectrum antibiotics like Carbapenems and decreased sensitivity to fluroquionolones, macrolids and cephalosporins were evident. In addition, nitrofurantoin was found to be one of the urinary tract antiseptics to which most of the organisms were susceptible favoring its use in empirical therapy of UTI. Periodic appraisal of the uropathogens and evaluation of their sensitivity is a must needed guide in empirical antibiotic interventions.

[OMTAJ 2018; 17 (1)]

Introduction

Urinary tract infection (UTI), either hospital acquired or community acquired, is one of the most commoninfections. An estimate of patients suffering from UTI is around 150 million per annum across the Globe, which may rise to 75% in the female population by the age of 24, and 15-25% of this group will suffer from a relapse of this disease[1]. Urinary tract infection (UTI) is the foremost of all the urinary tract afflictions worldwide[2]. It is one of the most prevalent presenting pathologies in the health care centers and has prevailed as a prominent cause of morbidity and mortality. An in-depth knowledge on antimicrobial susceptibility pattern is essential for appropriate therapy; particularly with increasing resistance resulting from repeated use of the same antibiotics[3]. It is also essential to be aware of the changing patterns of antibiotic resistance in a locale[4]. Resistance significantly varies by region and the highest antibiotic resistance has been observed in developing countries. Similarly a significant rise in resistance over time is seen in studies reporting on community acquired E. coli UTI[5]. In global as well as the national context, uropathogens treated empirically with antibiotics have been regarded as a potential cause for the emergence of antibiotic resistance among several classes of bacteria. Although empirical antimicrobial treatment for UTI is accepted clinically, bacteria are developing resistance to antibiotics faster than the development of new classes of antibiotics. Use of broad-spectrum antibiotics instead of a narrow spectrum specific antibiotic during empirical treatment, improper antibiotic selection and noncompliance, inappropriate and incomplete antibiotic therapy contribute towards an increase in antibiotic-resistant bacteria.

Urine samples microscopy, culture, and sensitivity that provide authentication in the therapeutic use of antibiotics constitute the largest in the category of specimens examined in medical microbiology laboratories[6]. Furthermore, clinical impression of UTI is the second most common indication for the empirical antimicrobial therapy at all levels of health care delivery[7]. The concomitant rise in the resistance of uropathogenic organisms to the currently used antibiotics is a unique serious concern in the empirical usage of antibiotics amidst patients with UTI globally[8]. This is in the face of a fewer breakthrough in novel antibiotic development[9].

Material and Methods

This was a hospital based study done at Nephrology outdoor, Sylhet M A G Osmani Medical College

1. Associate Professor (CC), Nephrology, Sylhet MAG Osmani Medical College, Sylhet.
2. Professor, Microbiology, Park View Medical College, Sylhet.
3. Medical Officer, Gastroenterology, Sylhet MAG Osmani Medical College, Sylhet.
4. Junior Consultant, Medicine, Sylhet MAG Osmani Medical College, Sylhet.

Hospital from June 2017 to December 2018. The study was a cross sectional one. The data of the patients who attended OPD with diagnosis of UTI as culture positive during the study period were included for the study based on inclusion and exclusion criteria. The study included all the patients who visited the out-patient department in the hospital with symptoms of UTI during the study period and then had UTI con?rmed further by positive urine culture reports. Pediatric and pregnant patients, HIV patients, on corticosteroids or immunosuppressant therapy, organ transplant recipient were excluded. Additionally important co morbid conditions like diabetes, urinary catheters, obstructive uropathy, urinary stones and frequency of recurrences were also evaluated.

A clean-catch midstream specimen was collected in a sterile wide mouth leak-proof container. Using the calibrated loop method, 10 l of uncentrifuged specimen was transferred onto the agar plate and streaked without ?aming the loop, for isolation, and incubated at 35-37₀C for24h. A specimen was considered positive for UTI when the density of the bacterium was 10^5 colony-forming units (CFU)/ml. Antibiotic sensitivity testing was done following the KirbyBauer disc diffusion method according to the Clinical and Laboratory Standards Institute (CLSI) guidelines. The antibiotics tested were broad-spectrum penicillin, first, second, third and fourth generation Cephalosporin, Quinolones, Macrolides, Aminoglycosides, and Sulfonamides, Carbapenems and others. The data were analyzed using Statistical Package for the Social Sciences (SPSS), version 22 and the result is presented as percentages in tables.

Results

A total of 183 patients who were diagnosed as UTI with positive cultures, were included for the study. In our study 25.8% of patients were in the age group 12 -40 years and 35.5% were in the age group of 41-60 years and a majority of the patients (38.8%) were aged more then 60. (Figure I) Among these, 24.6% were male and 75.4 were female and male female ratio in our study population was 1:3.

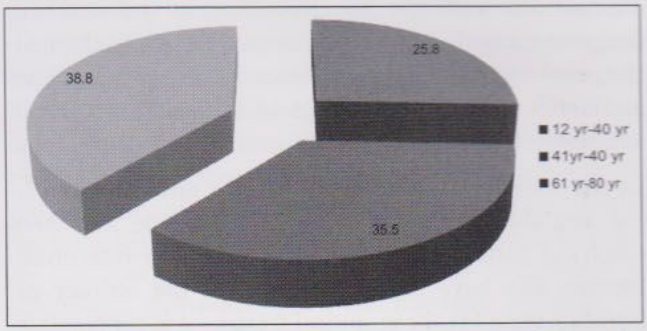
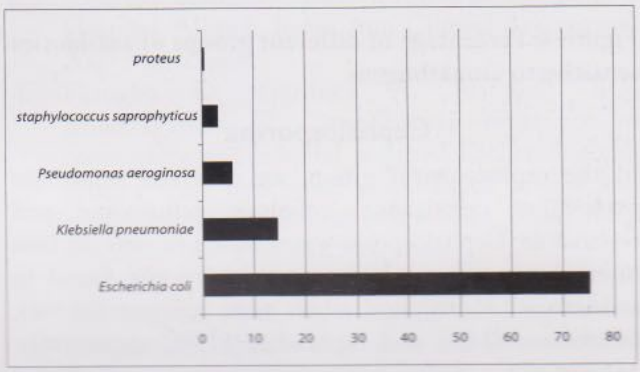


Figure I: frequency distribution of age in the study population

Data also demonstrated that concomitant systemic diseases were present in a significant proportion of the patients. A total of 65 (35.5%) had diabetes mellitus. It was found that there were 69 patients (37.7) suffering from Chronic Kidney diseases. Among these 69 CKD patients 63% were diabetic. Renal stone also observed in 16% of cases. Escherichia coli was the single most important microorganism found to implicated in causation of UTI, accounting for 75.4% (138 patients) of the infection among the studied subjects (Figure 2).) Next in frequency was Klebsiella (14.75%), Pseudomonas aeroginosa (6.01%) and Staphylococcus Aureus (3.27%).



The sensitivity of the cultured organisms was also evaluated based on their susceptibility to different groups of antibiotics.

Antibiotics	No. of patients to sensitive	% of sensitivity
Amikacin	165	90.16
Gentamycin	145	79.23
Netilmycin	120	65.57
Ciprofloxacin	76	41.53
Levofloxacin	95	51.91
Ceftriaxone	76	41.53
Cefixime	53	28.96
Cefuroxime	44	24.04
Cephradine	24	13.11
Azithromycin	84	45.90
Co-amoxyclav	6	3.27
Cotrimoxazole	78	42.62
Meropenem	178	97.26
Nitrofurantoin	147	80.32
Colistin	88	48.08

Figure 3: Percentage of sensitivity of antibiotics to uropathogens in study population

The sensitivity to Amikacin was found to be highest (90%) followed by Gentamycin (79.2%) and then Netilmycin (65.5%). The overall sensitivity to Quinolones was found to be lower than that of aminoglycosides. Among the Quinolones, the greatest sensitivity e was recorded for Levofloxacin (52%) and

Ciprofloxacin (42%) respectively. Analyzing beta-lactams when combined with beta-lactamase inhibitors (amoxicillin clavulanate) it was found that 6 (3.2%) patients were seen sensitive to beta lactams.

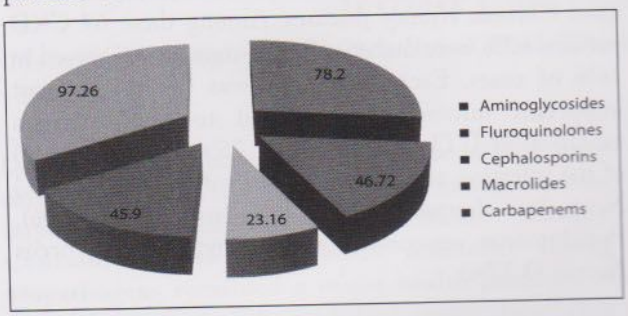


Figure 4: Percentage of different groups of antibiotics sensitive to uropathogens

Cephalosporins

In the cephalosporin group, we observed sensitivity pattern of ceftriaxone, cefixime, cefuroxime and cephradine. Cephalosporin was sensitive in only 23.16% cases. Among them, highest sensitivity was found in ceftriaxone (41.5%), and others were cefixime (28.9%), cefuroxime (24%) and cephradine (13%) respectively.

Carbapenems

Among Carbapenems, we observed the sensitivity of Meropenem and it was recorded as greatest sensitivity among all the antibiotics. More than 97% cases are sensitive to Meropenem.(Figure 6).

Macrolides

The sensitivity of commonly used Macrolides in our community is Azithromycin. It was sensitive in 45.9% cases of UTI.

Miscellaneous antibacterial

Interestingly, more than 80% of the cultures showed sensitivity to Nitrofurantoin. Also, Colistin was another antibiotic found to have sensitive in 48%. Sensitivity to cotrimoxazole was 42%.

Discussion

Urinary tract infections (UTI) is the most common infection experienced by human after respiratory and gastrointestinal infections, accounting for 8.6 million visits (84% by women) in 2007 in the United States[10]. UTI occurs more commonly in females than in males. In males it is uncommon and often associated with structural abnormality[11]. The major co-morbidity noted in our study population was diabetes and Chronic Kidney Disease. A significant proportion also had renal stone and previous history of UTI. Diabetes plays a definitive role in increasing the occurrence of UTI because of the changes in immunological function and thereby increasing the susceptibility to UTI. Studies have demonstrated that the epidemiology of urinary tract infections (UTIs) among men and women with diabetes is similar to the epidemiology of those without diabetes with women having greater risk than men[12]. However, the bacteriology and antibiotic susceptibility patterns also do not, in general, differ from those without diabetes[13].

UTIs spans crosswise age categories, although children and young adults are the most vulnerable[14]. The age 12 years is often the cut-off age for appropriate selection and dosage in antibiotics therapy between pediatrics and adults[15]. However, the incidence of UTI is still higher among females (47.71%) compared to males (39.11%) aswas reported by Akingbade et al[16].Worldwide, the most frequent etiology is Escherichia coli and this is also reflected in our study results[17]. However the sensitivity and resistance patterns of E. coli strains causing UTI varies considerably between regions and countries[18]. Earlier studies from different regions of India and from other countries have reported that the most prevalent UTI pathogen was E.coli, followed by Klebsiella spp[19]. In our study, we have reported that the most prevalent pathogen was E.coli, followed by Klebsiella and Pseudomonas aeroginosa respectively.

The aminoglycosides are antibiotics of choice for the empirical prescription in UTI; this was backed by Onanuga et al . and Selekere[20]. In our study, Amikacin and Gentamycin were second and third most sensitive antibiotics, respectively. The uneasiness among clinicians regarding the nephrotoxicity of aminoglycosides and their parenteral route of administration has led to restricted use of these drugs and thereby fortunate preservation of their sensitivity. The rise in resistance to Penicillin and Cephalosporin was observed across board. This was similar to several reported series, mainly due to the availability of these antibiotics as over-the-counter medications and rise in circulation of substandard drugsencouraged misuse and abuse, therefore elevated the evolution of their resistance[21]. Hence, these antibiotics are no longer drugs of choice for empirical antibiotics therapy.

In our study, it has clearly proved that nitrofurantoin is the available antibiotic that can act as the best oral empirical antibiotic therapy in urinary tract infections. Studies also have acknowledged that the efficacy of nitrofurantoin for the empirical treatment is supportable from a public health perspective in an attempt to

decrease uropathogens resistance[24]. Thus the current scenario based on drug sensitivity justifies the use of nitrofurantoin in the empiric management of UTI, not only due to the high susceptibility of E. coli to nitrofurantoin and the ease of oral administration but also owing to the fact that it lacks cross-resistance with commonly prescribed antibiotics for UTI. However, nitrofurantoin is contraindicated in renal disease since most of it is really excreted through kidney. Like cephalosporin, Quinolones and Macrolides could not prove promising results though these drugs are prescribed very commonly as oral empirical therapy, particularly in our country. Widespread use of these drugs by medical and non medical persons as over the counter drugs, easy availability and easy compliance, oral formulations and a long list of other indications made these drugs resistance to common pathogens.Expensive and lengthy pathway of drug development and approval resulted in fewer new antibiotics available to physicians to treat emerging drug resistance. As newer drugs are obviously more expensive, so in a country like us, they remain outside the reach of poorer section of the community in demanding scenario. Such a situation can be overcome by implementing rational prescribing practices like the use of inexpensive antibiotics with limited spectrum to which the organism is susceptible rather than resorting to prescribe broad spectrum, expensive new antibiotics. In our study, the antibiotic resistance pattern to common uropathogens is similar to that found in India as well as other parts of the globe. Greater than 50% resistance was observed for penicillin, cephalosporins, fluroquionolones and macrolids. Satisfactory result was observed in carbapenem, aminoglycosides and nitrofurantoin.

Conclusion

The study showed that current trend of treating urinary tract infections empirically is not updated as well as not current evidence based. Pattern of sensitivity has changed a lot towards the parenteral antibiotics though the major uropathogens has remained the same. The current drug sensitivity pattern signifies the need for newer antibiotics and mandates the implementation of rational prescription strategies to avert forging resistanceto these valuable life-saving agents. This study advocates the empirical use of nitrofurantoin for treatment of uncomplicated, community acquired UTI. In addition, improved record keeping and prospective surveillance system are needed in the hospitals in order to facilitate regular surveillance of the occurrence of antibiotic resistance as these patterns continue to change. The use of antibiotics thus became an urgent issue which must have to be strictly regulated and controlled. Physicians have a moral duty to resist temptations to use expensive new broad spectrum antibiotic where inexpensive narrow spectrum antibiotic options are available.

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ORIGINAL ARTICLE

The Osmani Medical Teachers Association Journal Volume 17 Number 1

Morphological Pattern of Anaemia among Female Tea Pluckers Admitted in Sylhet M A G Osmani Medical College Hospital.

Hezbullah M[1], Akter J[2], Chakrabarty SR[3], Tohin MH[4], Sultana S[5], Fatema SN[6]

Abstract

This descriptive, cross -sectional study was conducted in the department of Medicine, Sylhet M.A.G. Osmani medical college hospital, Sylhet during the period from october 2015 to April 2016. Adult female tea pluckers admitted in the department of medicine of Sylhet MAG Osmani medical college hospital were the study population. Of them 64 adult female patients were recruited as sample fulfilling the inclusion and exclusion criteria by consecutive sampling method. Detailed history, clinical examination and investigations with particular references to anaemia were done of each patient. Blood sample was collected for haemoglobin level measurement. If haemoglobin level was found below 12gm/dl, blood was collected for different other tests including complete blood count, red cell indices (MCV, MCH, MCHC) and peripheral smear. This study revealed that 6(9.37%) patients were mildly anaemic, 25(39.07%) were moderately anaemic, 33(51.56%) were severely anaemic. Morphological pattern of anaemia found in the current study revealed that 38(59.37%) patient had microcytic hypochromic anaemia, 10(15.63%) had normocytic normochromic anaemia and 16(25%) had macrocytic anaemia.

[OMTAJ 2018; 17 (1)]

Introduction

The tea industry occupies a place of considerable importance in our economy. A large number of tea workers are directly or indirectly related with this industry.[1] They are one of the most backward and exploited community in Bangladesh due to decades of continuous exploitation by tea garden managements and neglects in part of government.[2]

The findings of some studies show the sub-human life of tea workers both in terms of working environment, living conditions and health and sanitation security.[3-4] Most of the work forces in a tea garden are engaged in plucking leaves and they are almost exclusively female.[5] It is noted that dietary intake of woman is poor than those of their adult male counterpart.[6] So there is always a higher chance of anaemia and malnutrition among them. Undiagnosed and untreated anaemia is associated with an increased risk of morbidity and mortality.

Anaemia may decrease the work capacity, birth weight, increase maternal and infant mortality that seriously affects the families.[7] Most of the 163 tea estates of Bangladesh are located in north eastern region. Workers from tea gardens are frequently admitted to Sylhet MAG Osmani medical college hospital with different medical problems. Several studies were carried out in the past in India and Sri Lanka regarding nutrition, anaemia, health status and their impact on quality of life and work productivity of the tea pluckers. There are currently no studies on pattern of anaemia of female tea pluckers in Bangladesh. Thus the present study was designed to assess morphological pattern of anaemia of the female tea pluckers admitted in Sylhet M.A.G. Osmani medical college hospital, Sylhet.

Material and Methods

This descriptive, cross -sectional study was conducted in the department of Medicine, Sylhet M.A.G. Osmani medical college hospital, Sylhet during the period from october 2015 to April 2016. Adult female tea pluckers who were admitted in the department of medicine of Sylhet MAG Osmani medical college hospital were the study population. Those who fulfilled the inclusion and exclusion criteria were recruited as the study sample.

Consecutive sampling was applied to recruit sample. In this way 64 adult female patients were recruited as sample.The subject was thoroughly informed about the aims, objectives and detail procedure of the study before examination. An informed written consent was taken from each participant who was selected for the study. Detailed history, clinical examination and investigations with particular references to anaemia were done of each patient. Blood sample was collected for haemoglobin level measurement. If haemoglobin level was found below 12gm/dl, blood was collected for different other

1. Associate, Department of Medicine, Sylhet MAG Osmani medical college, Sylhet.
2. Indoor medical officer, Department of Medicine, Sylhet MAG Osmani medical college, Sylhet.
3. Associate, Department of Medicine, Sylhet MAG Osmani medical college, Sylhet.
4. Indoor medical officer, Department of Medicine, Sylhet MAG Osmani medical college, Sylhet.
5. Associate Professor, Department of Pharmacology and therapeutics, Jalalabad RagibRabeya medical college, Sylhet.
6. Honorary medical officer, Department of Medicine, Sylhet MAG Osmani medical college, Sylhet

tests including complete blood count, red cell indices (MCV, MCH, MCHC) and peripheral smear. Haemoglobin, Mean Corpuscular Volume (MCV), Mean Corpuscular Haemoglobin (MCH), Mean Corpuscular Haemoglobin Concentration (MCHC) were analyzed by Sysmax XS-500i Haematology analyzer. PBF (Peripheral blood film) was produced manually in the spot to avoid technical error.

After collection; data were checked, verified, edited and coded. All the data were recorded in a computerized structured form. The obtained data were analyzed and statistical evaluation were performed by SPSS (Statistical Package for Social Sciences)-16 program. Quantitative data were expressed as mean and standard deviation. Qualitative data were expressed as frequency and percentage.

Results

The age of the female tea pluckers ranged from 18 to 56 years with the Mean± SD: 34.28± 5.16 years of age. Haemoglobin level of the participants ranged from 2.8-11.6 gm/dl with Mean±SD:7.24 ±3.68 gm/dl. The MCV value of the participants ranged from 54.2-134 fl with Mean±SD:76.38 ±8.24 fl. The MCH level of the respondents ranged from 12.8-40.2 pg with Mean±SD:24.68 ±4.06 pg. Level of MCHC of the participants ranged from 21.4 - 35.7 gm/dl with Mean±SD:28.04 ±3.52 gm/dl. All the results are shown in table-1 to table-7.

Table I: Age and religion distribution

Characteristics		Number	Percentage
Age	18-27 years	14	21.88%
	28-37 years	23	35%
	38-47 years	15	23.48%
	48years-above	12	18.8%
Religion	Hindu	60	93.75%
	Muslim	3	4.68%
	Christian	1	1.56%
	Others	0	0%

Table II: Educational status and family income distribution

Characteristics		Number	Percentage
Educational status	No formal schooling	56	87.5%
	primary	7	10.94%
	above	1	1.56%
Family income	Below 5000 taka	46	71.87%
	5000taka and above	18	28.13%

Table III: Dietary habit and personal history distribution

Characteristics		Number	Percentage
Dietary habit	Consume animal protein	53	82.81%
	Strict vegans	11	17.19%
Personal history	Smoker	11	17.19%
	Drinks Alcohol	20	31.25%
	Chewing tobacco/pan masala	44	68.75%
	Married	52	81.25%

Table IV: Distribution of respondents by past medical history

Past medical history	Number	Percentage
Tuberculosis	8	12.5%
Jaundice	4	6.13%
Chronic diarrhea	11	17.19%
Malaria	2	3.13%
Blood loss	18	28.13%
Abdominal surgery	3	4.69%
Hypertension	2	3.13%

Table V: Distribution of participants according to severity of anaemia

Anaemia	Number	Percentage
Mild (Haemoglobin11-11.9gm/dl)	6	9.37%
Moderate (Haemoglobin8-10.9 gm/dl)	25	39.07%
Severe (Haemoglobin<8gm/d	33	51.56%

gm/dl: gram/ deciliter

Table VI: Distribution of respondents by MCV, MCH, MCHC

Characteristics		Number	Percentage
MCV	<80fl	38	59.37%
	80-96fl	10	15.63%
	>96fl	16	25%
MCH	<27 pg	38	59.37%
	27 pg &above	26	40.63%
MCHC	<30gm/dl	38	59.37%
	30gm/dl & above	26	40.63%

MCV: mean corpuscular volume, fl:femto liter
MCH: mean corpuscular haemoglobin ,pg: pico gram
MCHC: mean corpuscular haemoglobin concentration gm/dl:gram/deciliter

Table VII: Distribution of participants according to morphological pattern of anaemia

Morphological pattern of anaemia	Number	Percentage
Microcytic hypochromic anaemia	38	59.37%
Normocytic normochromic anaemia	10	15.63%
Macrocytic anaemia	16	25%

Discussion

Anaemia in women is a recognized public health issue worldwide. Workers from the tea gardens frequently get admitted in the department of medicine of Sylhet MAG Osmani medical college hospital with different medical problems including acute and chronic illness. Poor socioeconomic condition, ignorance, unhygienic living condition, malnutrition, worm infection etc. make the tea garden population vulnerable to anaemia. Again anaemia among female tea pluckers has important medical and economic impact. This hospital based study was conducted to observe and record demographic characteristics, severity and morphological pattern of anaemia among female tea pluckers admitted in Sylhet M A G Osmani medical college hospital.

The age of the female tea pluckers ranged from 18 to 56 years with the Mean± SD: 34.28± 5.16 years of age. This study also revealed, among the participants 60(93.75%) were Hindu, 3 (4.68%) were Muslim and 1(1.56%) was Christian. This result was different from the study conducted in tea garden in Dooars, West Bengal where 100% were Hindu[8].

This study also reported educational status of the tea pluckers among whom them 56(87.5%) had no formal schooling, 7(10.94%) had primary education and 1(1.56%) had above primary education, which varied from the study done in Darjeeling and Jalpaiguri districts of West Bengal where 34.48% were illiterate, 52.68% had primary and 12.84% had above primary education[7]. This study showed the distribution of the participants according to family income. Among the participants 46(71.87%) had monthly family income below 5000 taka, 18(28.13%) had monthly family income 5000 taka and above. While another study with Sri Lankan tea pluckers revealed that 53.6% said that they had a total household monthly income of less than 21 US Dollar(<2000 TK) and only 9.5% said that they had a monthly household income above 53 US Dollar(4210TK).[9] This is much lower than our study population. This might be due to the fact that the study in Sri Lanka was done twelve years before our study.

This study revealed the distribution of participants according to status of dietary habit. Among the participants 53 (82.81%) consumed animal protein and 11(17.19%) were strict vegan. This study also showed that among them 11(17.19%) were smoker, 20(31.25%) were alcoholic and 44(68.75%) chewed tobacco/pan masala which is also different from study done in tea garden in Dooars, West Bengal where 12.06% were alcoholic and 98.61% chewed tobacco/pan masala.[8]

This study revealed that haemoglobin level of the participants ranged from 2.8-11.6 gm/dl withMean±SD:7.24 ±3.68 gm/dl. The distribution of respondents according to severity of anaemia showed that 6(9.37%) were mildly anaemic, 25(39.07%) were moderately anaemic, 33(51.56%) were severely anaemic which was higher than the study done in Darjeeling and Jalpaiguri districts of West Bengal where 39.49% were

mildly anaemic, 35.00% were moderately anaemic and 6.73% were severely anaemic.[7] This result was also not concordant with the study conducted in tea garden in Dooars, West Bengal where 36% were mildly anaemic, 54% were moderately anaemic and 10% severely anaemic.[8]

These data indicating that severity of anaemia is much more higher in our female tea-pluckers in comparison to our neighboring countries. This may be due to poor socioeconomic condition and ignorance of our tea-pluckers. This current study revealed that MCV value of the participants ranged from 54.2-134 fl with Mean±SD:76.38 ±8.24 fl. Among them 38(59.37%) had MCV <80fl, 10(15.63%) had MCV within 80-96fl, 16(25%) had MCV >96fl.This study also revealed MCH level of the respondents ranged from 12.8-40.2 pg with Mean±SD:24.68 ±4.06 pg also revealed the distribution of respondents according to MCH. that 38 (59.37%) had MCH<27pg, 26(40.63%) had MCH 27 pg and above. The study also revealed level of MCHC of the participants ranged from 21.4 - 35.7 gm/dl with Mean±SD:28.04 ±3.52 gm/dl and among them 38(59.37%) had MCHC<30gm/dl and 26(40.63%) had MCHC 30gm/dl and above. Distribution of participants according to morphological pattern of anaemia was shown in the current study which revealed that among them 38(59.37%) had microcytic hypochromic anaemia, 10(15.63%) had normocytic normochromic anaemia, 16(25%) had macrocytic anaemia. So iron deficiency is the most common cause of anemia in our study population which might be due to dietary deficiency, hook worm infestations, chronic blood loss etc. Poor socioeconomic condition resulting in poor dietary intake, ignorance about balanced diet, lack of proper sanitation resulting hook worm infestations, poor health care facilities not addressing chronic illnesses and lack of routine iron, vitamin supplementations are the cause of high prevalence of anaemia in this group of population. Very few studies have so far been carried out particularly among tea garden workers in hospital settings addressing the morphological pattern of anaemia among female tea pluckers.

Conclusion

This study revealed that most of female tea pluckers suffered from severe anaemia and majority had microcytic hypochromic anaemia. Poverty, including household food insecurity, lack of resources to obtain sufficient micronutrient rich-foods, micronutrient supplements, treatment for parasitic disease (eg. hookworm infection, malaria etc), shoes, insecticide treated bed-nets, and other preventative measures, inadequate health services and unhealthy environment make them vulnerable to anaemia. They also lack knowledge on how to make their diet more nutritious and on appropriate cooking methods. In occupation like tea plucking, which demands continuous physical labour adequate dietary supply is needed. More over these hard working labour forces with chronic energy deficiency is prone to many communicable and non communicable diseases which may result in loss in work capacity, malnutrition and anaemia vicious cycle.

In depth analysis of cause anaemia is the need of the hour. Health status of this population can be ameliorated through creating health awareness, nutritional intervention and overall improvement of socioeconomic conditions of the female tea pluckers. Breaking the cycle of poverty, malnutrition and low productivity would require a multi-faceted approach involving both short and long term strategies.

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ORIGINAL ARTICLE

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Risk factors & pregnancy outcome of placenta previa

Jamila Khatun,[1] Biswajit Golder,[2] Zenan reza,[3]

Abstract

Bleeding from or into the genital tract after the age of viability but before the birth of the baby is called antepartum hemorrhage. It may be due to placenta previa, abruptia placenta and unexplained causes. Bleeding from placenta previa is one of the most acute life threatening emergencies in obstetric practice. The potential maternal and neonatal morbidity and mortality associated with this condition have generated a lot of concern among practicing clinicians.To determine the maternal risk factors and pregnancy outcome associated with placenta previa.Case control study Obstetrics and Gynaecology Department of Sylhet MAG Osmani Medical College & Hospital Sylhet, from January 2015 to December 2015 The study population was pregnant women having placenta previa and without placenta previa admitted in the Department of Obstetrics and Gynecology in SOMCH. Most of the patients were in 3rd decade. Middle income group family was found 55 (55.0%) in case group and 60(60.0%) in control group. Nulli para was found 29(29.0%) in control group. Primi para was 25(25.0%) in case group and 19(19.0%) in control group. Multipara was 62(62.0%) in case group and 52(52.0%) in control group. Anaemia 2+was found 40(40.0%) in case group and 7(7.0%) in control group. The difference was statistically significant (p<0.05) between two groups. Vaginal bleeding was found 56.0% and 7.0% in case and control group respectively.The difference was statistically significant (p<0.05) between two groups. About the mode of delivery, caesarean section was 75(75.0%) in case group and 24(24.0%) in control group. The difference was statistically significant (p<0.05) between two groups.Still birth was found 14(14.0%) in case group but not found in control group. In case group 64(64.0%) babies were preterm maturity and in control group all babies were term maturity. At 1 & 5 minutes APGAR score < 7 was found 57(57.0%) in case group and 33(33.0%) in control group. Low birth weight was found 63% in case group and not found in control in control group. Neonatal death was found 7(7%) in case group but not bound in control group. The difference was statistically significant (P<0.05) betweentwo groups.The most important obstetric factors of placenta previa development were advanced maternal age especially >34 years, 3 or more previous pregnancies, parity of 2 and more and previous placenta previa. Preterm delivery still remains the greatest problem in pregnancies complicated with placenta previa. pregnancy, placenta previa, outcome, risk factor.

[OMTAJ 2018; 17 (1)]

Material and Methods

This prospective interventional study was carried out in the Department of Pharmacology & Therapeutics, Sher-E Bangla Medical College, Barisal and Department of Orthopaedic Surgery, Bangabandhu Sheikh Mujib Medical University (BSMMU), Shahbag, Dhaka over a period of one year from January 2015 to December 2015. Seventy cases of postmenopausal osteoporosis taking only Bisphosphonates were enrolled

Introduction

Placenta previa is a form of placentation where placenta lies low in the uterine segment, covering completely or partially the internal cervical os and thereby preventing normal vaginal delivery. Placenta previa is a major cause of third-trimester hemorrhage and accounting for significant maternal and perinatal morbidity and mortality [1-4]. Placenta previa occurs when the placenta is wholly or partially implanted in the lower uterine segment. The prevalence rates range from 0.35% to 0.6% 5-6. These differences in prevalence rates are mainly due to differences in the populations studied and methods of diagnosis. The condition is associated with significant maternal morbidity and perinatal morbidity and mortality[7-9]. Although the etiology of placenta previa remains speculative. Several risk factors associated with this condition have been established.

These include advanced maternal age, multiparity, multiple gestation and placenta previa in a previous pregnancy [10]. Major maternal morbidity is mainly associated with ante, intra and postpartum bleeding requiring blood transfusion, hysterectomy, septicemia, coagulopathy or even death7. Neonates of placenta previa have a higher risk of being born preterm, low birth weight or asphyxiated, requiring intensive neonatal

1. Associate Professor, Obstetrics and Gynecology,Sylhet M.A.G Osmani Medical College, Sylhet.
2. Senior Consultant, Surgery, Sadar Hospital Sunamgonj
3. Medical Officer, Sylhet M.A.G Osmani Medical College Hospital Sylhet.

care, while stillbirth or neonatal mortality may also occur 9. Preterm delivery is related to a need for elective or emergency cesarean section before or just after the onset of spontaneous labour and preterm delivery rates as high as around 47% have been reported. Much of the increased neonatal risk is primarily related to being preterm rather than to the placenta previa itself. The need for CS at term is predicated upon the os to placental edge distance and clinical features. Five studies have examined the likelihood of CS for placenta previa on the basis of distance to the placental edge on the last ultrasound prior to delivery[11-15]. CS for placenta preavia varies from approximately 40% to 90% and may be driven by the exact distance from the os[11].

Materials and methods

This study was a hospital based Case control study, carried out in IPD (inpatient department) of Obstetrics and Gynecology of Sylhet M.A.G Osmani Medical College and Hospital, Sylhet from January 2015 to December 2015. Total 200 pregnant women having placenta previa 100 (case) and without placenta previa 100 (control) were enrolled in this study. Data was collected by using a preformed questionnaire and check list. Cases were selected according to inclusion and exclusion criteria. Relevant information (according to questionnaire) were taken from patients. After data collection data was processed manually and analyzed with the help of SPSS (Statistical package for social sciences) Version 20.0.

Result

Table I: Distribution of the study patients by age (n=200)

Age (years)	Case (n-100)		Control (n-100)	
	n	%	n	%
≤ 20	16	16.0	7	7.0
21-30	50	50.0	63	63.0
30॥	34	34.0	30	30
Mena SD± 0.195	28.3.645±		273.538.±	

Table I shows age distribution of the patients. It was observed that most of the patients were 3rd decade in both groups, which was 50 (50.0%) in case and 63(63.0%) in control. The mean age was found 28.45±6.3 years in case group and 27.38±5.3 years in control group.

Table ll: Distribution on the study patients by socio-economical status (n=200)

Socio-economical	Case (n-100)		Control (n-100)		p-value
	n	%	n	%	
Middle class	55	55.0	60	60.0	0.021
Lower middle class	31	31.0	16	16.0	
Lower class	14	14.0	24	24.0	

Table ll shows socio-economic status of the patients. It was observed that majority patients came from middle income group family in both groups, which was 55(55.0%) in case group and 60(60.0%) in control group. The difference was statistically significant (p<O.O5) between two group.

Table III: Distribution of the study patients by para (n=200)

Para	Case (n-100)		Control (n-100)		p-value
	n	%	n	%	
Nulli (para 0)	13	13.0	29	29.0	0.001
Primi (para 1)	25	25.0	16	19.0	
Multi (para >1)	62	62.0	52	52.0	

Table III: shows para of the patients. It was observed that nulli para was found 13(13.0%) in case and 29(29.0%) in control group. Primi para was 25(25.0%) in case group and 19(19.0%) in control group. Multipara was 62(62.0%) in case group and 52(52.0%) in control group. The difference was statistically significant (p<O.O5) between two groups.

Table IV: Distribution of the study patients by history of previous placenta previa (n=200)

History of previous placenta previa	Case (n-100)		Control (n-100)		P value
	N	%	n	%	
Present	10	10.0	6	6.0	0.297
Absent	90	90.0	94	94.0	

Table IV shows history of previous placenta previa. It was observed that history of previous placenta previa was found 10(10.0%) in ease group and 6(6.0%) in control group. The difference was not statistically significant (p>0.05) between two groups.

Table V: Distribution of the study patients by gestational age (n=200)

Gestational	Case (n-100)		Control (n-100)		P value
	n	%	N	%	
≤36 (preterm)	62	62.0	0	0.0	0.001
37-42 (Term)	38	38.0	100	100	
Mean	35.31±2.8		38.7±1.0		

Table V shows gestat ional age of the patients. It was observed that in case group majority 62(62.0%) patients had preterm and in control group all patients had term gestational age. Mean gestational age was found 35.31±2.8 weeks in case group and 38.7±1.0 weeks in control group. Mean gestational age difference was statistically significant (p<0.05) between two groups.

Table VI: Distribution of the study patients by anemia (n=200).

Anemia	Case (n-100)		Control (n-100)		P-Value
	N	%	N	%	
1+	33	33.0	85	85.0	0.001
2+	40	40.0	7	7.0	
3+	23	23.0	0	0.0	
Nil	4	4.0	8	8.0	

Table VI shows anaemia of the patients. It was observed that 1+ anaemia was found 33(33.0%) in case group and 85(85.0%) in control group. 2+ anaemia was 40(40.0%) in case group and 7(7.0%) in control group. 3+ anaemia was 23(23.0%) in case group and not found in control group. The difference was statistically significant (p<0.O5) between two groups.

Table VII: Distribution of the study patients by other signs of shock (n=200)

Other signs of shock	Case (n-100)		Control (n-100)		P value
	N	%	n	%	
Present	46	46.0	0	0.0	0.001
Absent	54	54.0	100	100	

Table VII shows other signs of shock of the patients. It was observed that other signs of shock was found 46(46.0%) in case group but not found in control group. The difference was statistically significant (p<O.O5) between two groups.

Table VIII: Distribution of the study patients by active vaginal bleeding (n=200)

Active vaginal bleeding	Case (n-100)		Control (n-100)		o value
	N	%	n	%	
Present	56	56.0	7	70	0.001
Absent	44	44.0	93	93.0	

Table VIII shows vaginal bleeding of the patients. It was observed vaginal bleeding was found 56.0% and 7.0% in case and control group respectively. The difference was statistically significant (p<0.05) between two group

Table IX: Distribution of the study patients by mode of delivery (n=200)

Mode of delivery	Case (n-100)		Control (n-100)		P value
	N	%	n	%	
Vaginal delivery	25	25.0	76	76.0	0.001
Caesarean section	75	75.0	24	24.0	

Table IX shows mode of delivery of the patients. It was observed that vaginal delivery was found 25(25.0%) in case group and 76(76.0%) in control group. Caesarean section was 75(75.0%) in case group and 24(24.0%) in control group. The difference was statistically significant (p<0.05) between two groups.

Table X: Fetal Outcome

Fetal outcome	Case (n-100)		Control (n-100)		P Value
	N	%	N	%	
Live birth	86	86.0	100	100.0	**0.001**
Still birth	14	14.0	0	0	
Fetal maturity					**0.001**
Pre term	64	64.0	0	0.0	
Term	36	36.0	100	100.0	
APGAR score at 1 & 5 minute					**0.001**
≤ 7	57	57.0	33	33.0	
≥ 7	43	43.0	67	67.0	
Birth weight(kg)					**0.001**
≤ 2.5 (LBW)	63	630	0	0	
≥ 2.5(normal)	37	370	100	100	
Mean±SD Range (Min-max)	2.19±0, 1.1-3.0		3.06±0.4 2.6-4.0		
Congenital Malformations					**0.001**
Present	17	170	0	0.0	
Absent	83	830	100	100.0	
Perinatal death					**0.003**
Present	7	7.0	0		
Absent	93	93.0	100		

Table shows fetal outcome. It was observed that live birth was found 86(86.0%) in case group and 100(100.0%) in control group. Still birth was found 14(14.0%) in case group 64(64.0%) babies were preterm maturity and in control group all babies was term maturity. At 1&5 minutes APGAR score ?7 was found 57(57.0%) in case group and 33(33.0%) in control group. Mean birth weight was found 2.19±0.5 kg in case group and 3.06±0.4 kg in control group. Congenital malformations present in 17(17.0%) in case group and but not found in control group. Perinatal death was found 7(7.0%) in case group but not found in control group. The difference was statistically significant between two groups.

Discussion

This case control study was carried out with an aim to determine risk factors of women with placenta previa and to assess the pregnancy outcome associated with placenta previa. A total of 100 women having placenta previa and 100 women without placenta previa admitted in the Department of Obstetrics and Gynecology of Sylhet

MAG Osmani Medical College & Hospital, Sylhet, from January 2015 to December 2015 were included in this study. Painless antepartum hemorrhage, gestational age between 28 wks to 42 wks, silent placenta previa diagnosed by USG and placenta previa diagnosed during caesarean section were enrolled in this study. Painful antepartum hemorrhage were excluded unless the diagnosis of placenta preavia confirmed later. Abruption placenta, APH other than placenta preavia and patients with medical complication eg. HTN, DM, liver or renal disease were excluded from the study. The present study findings were discussed and compared with previously published relevant studies.

In this present study it was observed that most of the patients were in 3rd decade in both groups, which was 50(50.0%) and 63(63.0%) in case and control group respectively. The mean age was found 28.45±6.3 years varied from 18 - 38 years in case group and 27.38±5.3 years varied from 19- 38 years in control group. Similarly, Rosenberg et al[12] showed 32.5% in placenta previa and 55.8% in no placenta previa patients belonged to age 20-29 years. 29.0% in placenta previa and 23.6% in no placenta previa patients belonged to age 30-34 years. 37.4% in placenta previa and 16.5% in no placenta previa patients belonged to age 35+ years. Norgaard et al[13] found the mean age was found 31.9 years in placenta previa and 30.0 years in no placenta previa. Similarly, Hung et al.[14] and Tuzovic et al.[15] have observed identical mean age of their study patients, this support the present study. The mechanism by which advanced maternal age impairs normal placental development is not well understood. One of the possible explanations could be that the percentage of sclerotic changes on intramyometrial arteries increases with increasing age, thereby reducing blood supply to placenta[16-18]

Most of the patients came from middle income group family in both groups, which was 55(55.0%) in case group and 60(60.0%) in control group. The difference was statistically significant (p<0.O5) between two groups. Parveen[19] observed the most (66.0%) of the patients having plalcenta preavia came from lower socio-economic condition than that of middle and upper class and usually they have more children than that of upper and middle class in our country. In this current study it was observed that Nulli para was found 13.0% and 29.0% in case and control group respectively. Primi para was 25.0% in case group and 19.0% in control group. Multipara was 62.0% in case group and 52.0% in control group. The difference was statistically significant (p<0.05) between two groups. Hung et al.[14] showed parity 2 was 38.3% and 37.5% in placenta previa and controls group respectively. Para 3 was 15.5% in placenta previa and 10.1% in controls group. Para 4 was found 3.9% and 1.6% in placenta previa and controls group respectively. In another study Tuzovic et al[15]. observed multiparity was 71.6% in with placenta previa and 53.4% in without placenta previa. Some earlier studies showed that parity became significant after 4 or more previous pregnancies.[17-18]

In this current study it was observed that history of previous placenta previa was found 10(10.0%) in case group and 6(6.0%) in control group, which is higher in case group but not statistically significant (p>O.05) between two groups. History of previous placenta previa was not found 90% in placenta previa and 94% in without placenta previa.[19] In this current study it was observed that in case group majority 62(62.0%) patients had preterm and in control group all patients had term gestational age. Mean gestational age was found 35.31±2.8 weeks in case group and 38.7±1.0 weeks in control group. Mean gestational age difference was statistically significant (p<0.05) between two groups. Rosenberg et al.[12] showed 23.5% patients in placenta previa and 2.1% in no placenta previa patients had < 34 weeks gestational age. 28.4% patients in placenta previa and 5.6% in no placenta previa patients had 34-36 weeks gestational age. 47.1% patients in placenta previa and 87.6% in no placenta previa patients had 37-4 1 weeks gestational age. Norgaard et al.[13] found 12.1% patients in placenta previa and 1.6% in no placenta previa patients had < 34 weeks gestational age. 31.7% patients in placenta previa and 5.1% in no placenta previa patients had < 37 weeks gestational age.

In this present study it was observed that 1+ anaemia was found 33(33.0%) in case group and 85(85.0%) in control group. 2+ anaemia was 40(40.0%) in case group and 7(7.0%) in control group. 3+ anaemia was 23(23.0%) in case group and not found in control group. The difference was statistically significant (p<0.05) between two groups. In our country Parveen[19] showed more than two third (68.0%) of the patients with placenta preavia came with moderate to severe degree of anaemia during the time of admission and the complications were found more in the severely anaemic patients than the non anaemic or mildly anaemic patients. Postpartum anemia was found 52.3% in placenta previa and 16.6% in controls group.[20] In this current study it was observed that vaginal bleeding was found 56.0% and 7.0% in case and control group respectively. Per vaginal examination was not found 44(44.0%) in case group and 93(93.0%) in control group. The difference was statistically significant (p<O.O5) between two groups. In this current study it was observed that vaginal delivery was

found 25(25.0%) in case group and 76(76.0%) in control group. Three fourth (75.0%) of the patients in case group and 24(24.0%) in control group underwent caesarean section. Caesarean section was significantly (p<O.05) higher in case group. Norgaard et al13. showed in the placenta previa group 33.3% had a vaginal delivery and 66.7% a caesarean section. In another study caesarean section was found 86.6% in placenta previa and 10.1% in controls group.[20] The difference was statistically significant (p<0.05) between two groups, which is comparable with the current study

In this current study it was observed that live birth was found 86(86.0%) in case group and 100(100.0%) in control group. Still birth was found 14(14.0%) in case group but not found in control group.

The risk of having preterm delivery was almost 14-fold higher in the placenta previa group[15]. Stratified analysis of neonatal outcome data according to time of delivery (preterm vs term delivery) showed no significant difference in median birth weight and height of preterm infants between the two groups. In this current study it was observed that 64.0% babies were preterm maturity in case group and in control group all babies was term maturity. Hung et al.[14] found delivery before 37 weeks was 43.3% in placenta previa and 6.4% in controls group. Delivery before 34 weeks was found 14.7% in placenta previa and 1.8% in controls groups, which is comparable with the current study. In this present study it was observed that 1 & 5 minutes APGAR score 7 was found 57(57.0%) in case group and 33(33.0%) in control group. Tuzovic et al[15]. mentioned that infants of mothers with placenta previa had significantly lower APGAR scores than their controls. Hung et al[14] found APGAR score at 1-min <7 was 17.9% in placenta previa and 2.7% in controls group. 5-mm APGAR score <7 was found 7.9% placenta previa and 1 .3% in controls group. In another study Norgaard et al[13] reported that APGAR scores at 5 min <7 was 3.4% in placenta previa and 1.3% in no placenta previa. APGAR scores at 1 min < 7 was found 25.3% in placenta previa and 5.9% in no placenta previa. APGAR scores at 5 min <7 was found 7.1% in placenta previa and 2.6% in no placenta previa. The difference was statistically significant (p<O.05) between two groups observed by Rosenberg et al[12] which are closely resembled with the present study.

Term infants with placenta previa had significantly lower birth weight than infants of the mothers in control group. In this current series it was observed that low birth weight was found 63% in case group but not found in control group. Mean birth weight was found 2.19±0.5 kg in case group and 3.06±0.4 kg in control group. Rosenberg et al[12]. found birth weight <2,500 gm was 42.8% in placenta previa and 8.1% in no placenta previa. 2,5004,000 gm was found 46.1% in placenta previa and 77.5% in no placenta previa. > 4,000 g was found 1.2% in placenta previa and 4.6% in no placenta previa. The difference was statistically significant (p<0.O5) between two groups. In this series it was observed that perinatal death was found 7% in case group but not found in control group. The difference was statistically significant (P<0.05) between two groups. Rosenberg et al[12]. showed Perinatal mortality was 6.6% in case group and 1.3% in no placenta previa[8]. The diffethnce was statistically significant (p<0.05) between two groups. Mortality was found 1.2% in placenta previa and 0.7% in no placenta previa. In another study neonatal death was found 2.2% in placenta previa and 0.6% in controls group[13]. The above findings are comparable with the current study.

Conclusion

This study was undertaken to determine the risk factors and pregnancy out come associated with development of placenta previa. The results of this study indicate that knowing obstetric factors predisposing women for placenta previa development in our population is important for choosing adequate preventive measures for these women. Obstetrician should suspect placenta previa especially if woman is over 34 years of age, has had 3 or more previous pregnancies, parity 2 and more. These women should receive counseling as soon as pregnancy is confirmed. This is especially important in noncompliant women with possible poor antenatal care. Careful monitoring of these highrisk pregnancies is of utmost importance, especially regarding careful ultrasonographic examination with exact placental location during the second trimester of pregnancy. Early recognition and proper monitoring of placenta previa could minimize the possibility of poor outcome in sudden massive vaginal bleeding.

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ORIGINAL ARTICLE

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Management of Rupture Tendo Achilles by reconstructing with Flexor Hallucis and Peroneus Bravis tendons: A comparative study.

Syed Musharof Hussain[1], shantanu Dhar [2] , Shankar kumar Roy [3]

Abstract

The Achilles tendon is the strongest and thickest tendon in the body, but it is the tendon which ruptured commonly. Most are commonly seen in agricultural labour in our country. Local steroid injection for retrocalcaneal bursitis is one of the common risk factors. The usual mechanism of injury is a violent dorsi flexion in a planter flexed foot. Achilles tendon is relatively hypo vascular in 3-6 cms above its calcaneal insertion. Repeated micro injury and steroid injection in this region are the main precipitating factors for rupture. Traumatic TA cuts can be managed easily but the problem is with chronic degenerative ruptures, for which various procedures were described. When gap<3cm, end to end repair with or without v-y plasty, when gap >3cm augmentation with flexor hallucis longus and peroneus brevis tendons are popular among them. Both are vascular and dynamic structures which help in healing. In our study, though AOFAS scores were slightly encouraging for FHL over PB, both the procedures using FHL and PB tendon transfers yielded well to excellent results in chronic ruptures of more than 4 weeks old and with more than 3cm gap.

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Introduction

The Achilles tendon is the strongest tendon in the body, formed by gastronomies and soleus muscle and inserts into calcaneum. TA rupture is commonly seen in agricultural labour and those who are treated with local steroid for retrocalcaneal pain. The usual mode of injury is sudden forced planter flexion and violent dorsi flexion[1,2] in a planter flexed foot. Achilles tendon is relatively hypo vascular in 3-6cms above its insertion and repeated micro injuries in this region is the cause of rupture. Acute traumatic injury can be managed easily by end to end repair .

1. Associate Professor, Dept. of Orthopaedics Jalalabad Ragib Rabeya Medical college Sylhet.
2. Associate Professor, Dept. of Orthopaedics. Jalalabad Ragib Rabeya Medical college Sylhet.
3. Associate Professor,Dept. of Orthopaedics, Sylhet MAG Osmani Medical College Hospital, sylhet.

But the problem is with chronic degenerative ruptures, for which various procedures were described. The most common is reconstruction with v-y plasty if the defect is <3cms.But if the defect is >3cms reconstruction with PB[3,4] or FHL[5,6] tendon transfers are the preferred treatment. Both PB and FHL tendons are vascular and dynamic structure which helps in healing at repair site.

Material and Methods

we prospectively enrolled 20 patients with chronic tendo Achilles ruptures that underwent reconstruction using PB or FHL tendon, in Sylhet MAG Osmani medical college hospital and jalalabad Raguib Rabeya medical college hospital between March 2005 to December 2017. An attempt has been made to compare the functional outcome in the management of chronic Achilles tendon rupture. Out of 20 patients, 15 were male and 05 were female. Most of patients' ages were between 40-50 yrs.

We included in our study group patients who presented after 4 weeks of rupture, which is named as chronic rupture. The mean duration was 12 weeks. 10 patients had local steroid injections.

The chief complains were pain, calf muscle weakness, gait disturbances and gap in the tendon.

Gap became >4cms in all cases after excision of scar tissue hence reconstruction with v-y was not performed, and opted to go for reconstruction procedures only. Intraoperatively most of the cases defects were found at 3-6 cms above its insertion.

Intraoperatively most of the cases were found to be in zone 2[7,8] (3-6cms) according to Lagergren and Lindholm classification.

We performed PB tendon transfer in 11 cases and FHL tendon transfer in 09 cases.

Peroneus brevis tendon Transfer (Teuffer s[9])

Through poster lateral longitudinal incision, Tendoachilles and calcaneal tuberosity were exposed. PB tendon was detached from its insertion through a small incision at the base of 5th metatarsal. The aponeurotic septum was excised separating the lateral and posterior compartments, and freed PB was delivered into the first incision. A drill hole was made through the transverse diameter of calcaneal tuberosity and the PB tendon was

passed through the hole and proximally beside the Achilles tendon, reinforcing the rupture site and was sutured to the PB tendon itself, producing a dynamic loop.

Flexor Hallucis Longus Transfer (Modified Wapner s [10,11])

A longitudinal incision was made on the medial border of the foot just above the abductor hallucis, extending from head of first metacarpal to the navicular. A sharp dissection was carried out through the subcutaneous tissue to the fascia of abductor hallucis. The abductor hallucis and flexor hallucis bravis were reflected planterward.The FHL and FDL tendons were identified. The FHL was divided as far distally as possible, leaving an adequate distal stump for suturing to FDL. A tag suture was placed into divided proximal end of FHL. The distal end of FHL was sutured into FDL.

A poster medial incision was made just medial to TA from its musculotendinous junction proximally to 2.5 cm below its calcaneal insertion and TA was exposed. Through sharp dissection FHL was exposed and retracted from the midfoot into the posterior wound.

A tunnel was made through calcaneum and the FHL with prolene suture was brought out through the calcaneal tunnel. Later it was sutured to the proximal end of ruptured TA.




Out come	AOFAS score	FHL Transfer	PB Transfer
Excellent	85-100	07	08
Good	70-85	01	02
Fair	50-70	01	01
Bad	<50	0	0

We found 02 cases superficial infection which was managed conservatively. Delayed wound healing was in 03 cases. There were no re rupture in our series.

Post operatively long leg full plaster was applied with knee flex 15^0 and ankle in 15^0 planter flexion. Plaster kept for 03 wks. After 03 wks below knee cast was applied with foot 150 equinus and kept for another 03 wks. After 06 wks remove plaster and use multilayer heel raised shoe. And advised to remove each layer in every weekly. After another 04 wks patient was allowed to walk with normal shoes.

Results

Mean follow-up period was 12 months (Range 6-24 months). Results were evaluated on the basis AOFAS[12] scoring system.

Discussion

In the Management of chronic degenerative ruptures of TA.several procedure were described so far, when gap <3cm end to end repair by percutaneous or v-y plasty but when gap >3cm FHL or PB tendon transfer are the popular methods. The tendon is relatively hypo vascular at 3-6 cm proximal to its insertion and that's why we find more rupture at this site. Moreover delayed presentations are other problems in the management. In our scenario the most common reasons includes negligence because of poor socioeconomic status. Some cases are misdiagnosed also. The practice of squatting in Indian toilets is another problem by increasing the gap between the ruptured ends.

In our study both FHL and PB tendon transfers yielded well to excellent results in chronic rupture >4wks old and gap>5cms. The mean AOFAS scores were little better in FHL tendon transfers.

FHL tendon is stronger than PB tendon. Moreover it has highly vascular muscle belly which helps in revascularization at repair site.

We sutured the distal stump of FHL tendon to FDL tendon to retain the planter flexion of great toe but despite this, we found little weakness in planter flexion of great toe. This is the disadvantage with this

technique. Failure is often due to infection. Risk factors are age >60 years, Diabetes and smoking.

Conclusion:

Though AOFAS scores were slightly more encouraging for FHL over PB regarding the length of tendon. PB tendon is relatively more expandable than FHL but may cause some eversion problem at subtalar joint which is very minimum. Moreover PB tendon transfer is technically easy to perform in comparison to FHL tendon transfer. So in our study it was found that both the procedure was found equally good.

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ORIGINAL ARTICLE

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In Hospital Outcome of Diabetic Patients with Acute Myocardial Infarction

Mohammad Shofiullah[1], M.Ahmed Selim[1], Mohammed Sakir Ahmed[2].
Iqbal Ahmed Chowdhury[3], Md. Jalal Hossain[3], Biswajit Golder[4],

Abstract

Diabetes mellitus (DM) is a stronger risk factor for coronary artery disease (CAD) and is associated with mortality and morbidity of cardiovascular disease. The in-hospital outcome in diabetic patients with acute myocardial infarction (AMI) is less known. The aim of this study is to evaluate in-hospital outcome of AMI in patients with diabetes mellitus. A comparative study was conducted in the Department of Cardiology, Sylhet M.A.G. Osmani Medical College Hospital, Sylhet between July 2008 to June 2010. Fifty diabetic and 50 non-diabetic patients with AMI were selected. The in-hospital outcome of patients with and without DM was recorded. The mean age (51.1±11.1 vs 49.6±13.1; p=0.537) and sex (80.0% male vs 88.0% male; p=0.275) did not differ significantly between diabetic and non-diabetic. Hypertension (56.0% versus 38.0%; p=0.045) was significantly more in diabetic compared to non-diabetic. But current smoker, dyslipidaemia and family history of CAD did not differ significantly between two groups. In-hospital mortality was higher in diabetic than non-diabetic patients (24% vs. 6%%, p=0.021). Diabetic patients also demonstrated higher acute left ventricular failure than non-diabetic patients (54.0% versus 20.0%; p<0.001). But cardiogenic shock, ventricular tachycardia and ventricular fibrillation did not differ significantly between diabetic and non-diabetic patients. DM is associated with considerably increased in-hospital mortality and acute left ventricular failure after an acute myocardial infarction.

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Introduction

Myocardial Infarction (MI) is a condition characterized by necrosis of the myocardium due to prolonged irreversible ischemia following coronary occlusion. It is an important disease entity in developed nations and recently in developing nations.[1] Diabetes mellitus is a group of metabolic diseases characterized by hyperglycemia resulting from defects in Insulin secretion, Insulin action or both.[2] The global prevalence of Diabetes mellitus is expected to rise to 300 million, an increase of approximately 120% from 1995 to 2025.[3]

Diabetes mellitus is one of the six primary risk factors identified for MI, others being dyslipidaemia, smoking, male gender, hypertension and family history of atherosclerotic arterial disease. Diabetes mellitus increases the rate of atherosclerosis progression of vascular occlusion,[4] and is associated with a higher incidence of Myocardial Infarction (MI) and sudden death.[5] Morbidity, mortality and re-infarction rate are higher following MI in Diabetic than Non-diabetic individuals with one-year mortality in this population as high as 50%.[6] Type 2 Diabetes is present in 10-30% of patients presenting with Myocardial Infarction and represents a major public health concern.[7]

Diabetic patients have a worse risk profile than non diabetic patients, and several studies have shown that diabetes is an independent predictor of mortality after myocardial infarction.[8,9] Malmberg et al.[10] 2reported a significantly higher rate of mortality during Hospitalization in patients with Diabetes (2.9%) compared to those without diabetes (2.0%). Few studies have examined the effects of Diabetes on short-term prognosis following first Acute Myocardial Infarction.[11,12]

Most studies have shown that Diabetic patients who have suffered a first acute myocardial Infarction have a significantly higher mortality rate than myocardial patients without Diabetes.[12,14] Mortality rates in post Myocardial Infarction patients with Diabetes vary from 10.5% to 40% and are between 40% and 100% higher than post myocardial infarction patients without diabetes.[15] Numerous studies have consistently shown higher in-hospital mortality in diabetic patients when compared to non-diabetics suffering from AMI.[16,17] But other study revealed no significant difference in mortality between diabetic and non-diabetic with AMI.[18] The present study was conducted to see in hospital outcome of AMI with T2DM.

1. Associate Professor (C.C), Medicine, Sylhet M A G Osmani Medical College, Sylhet.
2. Assistant Professor, Cardiology, Park View Medical College, Sylhet.
3. Assistant Professor, Medicine, Sylhet MAG Osmani Medical College, Sylhet.
4. Senior Consultant, Surgery, Sadar Hospital Sunamgonj

Material and Methods

This comparative study was conducted in the Department of Cardiology, Sylhet M.A.G. Osmani Medical College Hospital, Sylhet during the period from 1st July 2008 to 30th June 2010. One hundred patients having acute myocardial infarction of first attack of which 50 patients were diabetic and 50 patients were non-diabetic were fulfilling the enrollment were selected. Previous history of acute myocardial infarction, PCI, stenting or CABG, stroke, heart failure, chronic kidney disease were excluded.

A detailed history and through examination was done in each patient on admission. Criteria for acute myocardial infarction was any two of the following: cardiac chest pain lasting at least 30 minutes; ? 0.1 mV ST elevation in at least one standard lead or ? 0.2 mV ST elevation in two or more contiguous chest leads; or serum troponin I (higher than the upper limit of reference range).[19]

The patients were considered as having diabetes mellitus if they have a classical history of diabetes mellitus (DM), and their admission plasma glucose was 200 mg/dl or greater, fasting plasma glucose (FG) was 126 mg/dl (7 mmol/liter) or greater and HbA1C ? 6.5%;[20]

Data on demographics, cardiovascular risk factors, and medical history were collected along with baseline clinical data and admission data like systolic blood pressure (SBP) diastolic blood pressure (DBP) and heart rate. Echocardiography was performed at day 3 to calculate left ventricular ejection fraction (LVEF). Acute reperfusion procedures [thrombolysis and primary coronary intervention (PCI)] were collected. Blood samples were drawn on admission to measure concentrations of random blood sugar and after overnight fasting blood lipids and fasting glucose determination at day 4. Fasting plasma glucose measured at day 4 after acute myocardial infarction (AMI) gives reliable estimates of stable glucose metabolism.[21] Plasma glucose was assessed by the enzymatic method on a Vitros 950 analyzer (Ortho Clinical Diagnostics, Rochester, NY). HbA1c concentration was measured with ion exchange HPLC (Bio-Rad Laboratories, Richmond, CA). Fasting glycaemia was estimated by the plasma blood glucose values at day 4 (after overnight fasting). Blood lipid concentrations was determined on a dimension Xp and (Dade Behring, Deerfield, IL) using enzymatic methods. Low-density lipoprotein (LDL) cholesterol was calculated using.19 LDL-C was calculated using the Friedwald's formula LDL = (TChol - HDL-C) - TG/5 when the values of TG were less than 400 mg%.[22] The outcomes was defined as in-hospital heart failure, ventricular arrhythmia (ventricular tachycardia or fibrillation), In-hospital heart failure was defined as rales over more than half of the lung field (Killip class II), pulmonary edema (Killip class III), or cardiogenic shock (Killip class IV).[19]

Data were analyzed with the help of computer program SPSS (Statistical package for social sciences) 16.0. All continuous data were expressed as mean and standard deviation; and comparisons were performed by unpaired 't' test. Qualitative data were expressed as frequency and percentages; and comparison was done by the chi-Square (?2) test or Fisher's Exact test. 'Any probability (p) value of less than 5% ($p<0.05$) was considered statistically significant.

Informed written consent was taken from each of the patients and approval of study protocol was obtained from the institutional ethical committee of Sylhet M.A.G Osmani Medical College, Sylhet before commencement of the study.

Results

The mean age (years) of the patients of Group-A and Group-B were almost similar [51.1 ± 11.1 vs 49.6 ± 13.1; t=0.619; p=0.537). Majorities of the patients in the both groups were male (80.0% vs 88.0%); difference was not significant (χ^2=1.190; p=0.275) (Table-I)

Hypertension [28 (56.0%) versus 19 (38.0%); χ^2=4.006; p=0.045]. But current smoker 23 (46.0%) versus 28 (56.0%); χ^2=1.000; p=0.317], dyslipidaemia [27 (54.0%) versus 19 (38.0%); χ^2=2.576; p=0.108] and family history of CAD [8 (16.0%) versus 9 (18.0%), χ^2=0. 585; p=0.790) did not differ significantly between two groups (Table-II).

In diabetic group 37 (74%) patients had ST-elevation and 13 (26.0%) had non-ST-elevation acute myocardial infarction. It was 41 (82.0%) and 9 (18.0%) respectively in non-diabetic group; difference was not significant (χ^2=0.932; p=0.334) (table-III).

In-hospital mortality was 11 (24.0%) in diabetic group and 3 (6.0%) in non-diabetic group. In-hospital mortality was significantly higher in diabetic patients than that of non-diabetic patients (χ^2=5.316; p=0.021) (Table-IV). Acute left ventricular failure [28 (54.0%) versus 10 (20.0%); χ^2=13.752; p<0.001] was significantly higher in diabetic patients than that of non-diabetic patients. But cardiogenic shock [10 (20.0%) versus 4 (8.0%); χ^2=2.990; p=0.084], ventricular tachycardia [2 (4.0%) versus 3 (6.0%); χ^2=0.211; p=0.646] and Ventricular fibrillation [3 (6.0%) versus 2 (4.0%); χ^2=0.211; p=0.646] did not differ significantly between diabetic and non-diabetic patients (Table-IV).

Table I: Distribution of patients according to demographic characteristics

Parameters	Diabetic (n = 50)	Non-diabetic(n = 50)	p-value
Age (years)			
40	10 (20.0%)	17 (34.0%)	*p=0.463
41 to 50	17 (34.0%)	23 (46.0%)	
51 to 60	16 (32.0%)	12 (24.0%)	
61 to 70	5 (10.0%)	4 (8.0%)	
>70	2 (4.0%)	4 (8.0%)	
Mean ± SD	51.1 ± 11.1	49.6 ± 13.1	p=0. 0.537
Sex			
Male	40 (80.0%)	44 (88.0%)	*p=0.275
Female	10 (20.0%)	6 (12.0%)	

*Chi-Square test and †unpaired t test were employed to analyse the data.

Table II: Distribution of patients according to risk factors of CAD

Risk factors	Diabetic (n = 50)	Non-diabetic (n = 50)	*p-value
Current smoker	23 (28.0%)	28 (56.0)	p=0.317
Hypertension	28 (58.0%)	19 (38.0)	p=0.045
Family history of CAD	8 (16.0%)	9 (18.0%)	p=0.790
Dyslipidaemia	27 (54.0%)	19 (38.0%)	p=0.108

*Chi-Square test was employed to analyse the data.

Table III: Distribution of patients according to types of acute MI

Types of acute MI	Diabetic (n=50)	Non-diabetic (n = 50)	*p-value
STEMI	23 (28.0%)	28 (56.0)	
Non STEMI	27 (54.0%)	19 (38.0%)	p=0.334
Total	50 (100.0%)	50 (100.0%)	

*Chi-Square test was employed to analyse the data.

Table IV Distribution of patients by in hospital mortality

In hospital Outcome	Diabetic (n = 50)	Non-diabetic (n = 50)	*p-value
Mortality			
Death 5316	11 (22.0%)	3 (6.0%)	p=0.021
Survive	39 (78.0%)	47 (94.0%)	
Complication			
Acute left ventricular failure	28 (54.0%)	10 (20.0%)	p<0.001
Ventricular Tachycardia	2 (4.0%)	3 (6.0%)	†p=0.646
Ventricular fibrillation	3 (6.0%)	2 (4.0%)	†p=0.646
Cardiogenic shock 2.990	10 (20.0)	4 (8.0%)	p=0.084

*Chi-Square test and †Fisher's Exact test were employed to analyse the data.

Discussion

This study shows that influence of diabetes on the outcome in AMI. The mean age of the patients of diabetic group and non-diabetic were almost similar (p=0.537). Hirakawa et al.[23] found that the mean age of the patients of diabetic group and non-diabetic group did not differ significantly (p=0.537). But other study the mean age of the patients of non-diabetic group were higher compared to diabetic while other study revealed the mean age of the patients of diabetic group were higher compared to non-diabetic.

Male preponderance was seen in both groups in the present study and difference was not significant (p=0.275). This result correlated with the study of Svensson et al.[24] where they found male preponderance in both groups and difference was not significant (p=0.275). Samadikhah et al.[25] also found male preponderance in both groups but difference was significant (p<0.05).

In this study current smoker 46.0% in diabetic group and 52.0% in non-diabetic group); difference was not significant (p=0.548). Similar findings were reported in the study of Samadikhah et al.[25] But others studies revealed current smoker was signifiacnly more in non-diabetic group compared to diabetic group (p<0.001).[18,23,26.] In this study hypertension 58.0% patients were hypertensive in diabetic group and 38.0% of patients in non-diabetic group; difference was significant (p=0.045). This result correlated with several studies that hypertensive patients were significantly higher in diabetic group compared to non-diabetic group (p<0.05).[18,223,25,26]

In the present study dyslipidaemia was found in 54.0% of patients in diabetic group and 38.0% of patients in non-diabetic group; difference was significant (p=0.108). This result was supported by Samadikhah et al.[25] where they reported dyslipidaemia did not differ significantly between diabetic group and non-diabetic group (p>0.05). Hirakawa et al.[23] also in line with the present study. But several other studies revealed that dyslipidaemia was significantly higher in diabetic group compared to non-diabetic group (p<0.001).[18,25,26] This study revealed that family history of CAD was found in 34.0% of patients in diabetic group and 18.0% of patients in non-diabetic group; difference was significant (p=0.115). This results concordant with the study of Wei et al.[27] where they found family history of CAD did not differ significantly between diabetic group and non-diabetic group (p>0.05).

But Shehab et al.[18] found family history of CAD was more frequent non-diabetic group compared to diabetic group (p=0.01). In diabetic group 74% patients had ST-elevation and 26.0% had non-ST-elevation acute myocardial infarction. It was 82.0% and 18.0% respectively in non-diabetic group; difference was not significant (p=0.334). Park et al.[26] found ST elevation myocardial infarction in 58.7% and non-ST elevation

myocardial infarction in 41.3% patients of diabetic group; it was 66.1% and 33.9% respectively in patients of non-diabetic group. We found that diabetic patients had a significantly higher in-hospital mortality compared to non-diabetic patients (24% versus 6%, p=0.021). This finding was consistent with Hansen et al.[17] where they reported significantly higher in-hospital mortality in diabetic patients compared to non-diabetic patients (23% versus 5%, p=0.001). This result was also in line with several studies that the DM group had a significantly higher incidence of in-hospital mortality than the non-DM group.[25,26] But Shehab et al.[18] found in hospital mortality did not differ significantly between two treatment groups.

In this study acute left ventricular failure was significantly higher in diabetic patients than that of non-diabetic patients. But and cardiogenic shock, ventricular tachycardia and ventricular fibrillation did not differ significantly between diabetic and non-diabetic patients. Shehab et al.[18] also found that congestive heart failure was significantly higher in diabetic patients than that of non-diabetic patients. But cardiogenic shock did not differ significantly between two treatment groups.

Increased mortality rate in diabetic patients may have several explanations. First, diabetics experience more severe coronary atherosclerosis and more often multivessel disease, which double their risk for a subsequent infarction. Also, some but not all studies reported that DM patients have larger and more frequent anterior infarcts. Second, chronic heart failure and cardiogenic shock are more common and more severe in DM patients than would be predicted from infarction size. Third, beta-blocker treatment in CAD is less frequently used in diabetic patients. Fourth, type 2 DM patients are often treated with oral antidiabetic sulphonylurea agents who may increase the risk of dying during critical myocardial ischemia. Fifth, proliferation of smooth muscle cells is involved in the healing of the ulcerated coronary plaque stabilization through synthesis of macromolecules that strengthen the fibrous cap.

Endothelial dysfunction and insulin resistance at the cellular smooth muscle level, which is a frequent feature of type 2 DM may impair the coronary healing processes and plaque stabilization.[25] DM with its profound effects on metabolic milieu, vascular tree and nervous system no wonder has influence on cardiovascular system and its disorders. There are some facts to be considered which might affect the results. It was a single centre study and number of study population was limited. However, both groups were selected in the same way and were similarly affected by the selection bias.

Conclusion

DM is associated with considerably increased mortality and acute left ventricular failure after an acute MI. However, further studies involving a large number of participants will be required to substantiate the findings of the current study.

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ORIGINAL ARTICLE

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Analysis of Mitral Valve Annulus of Heart in Human Adult Cadavers

Jesmin Sultana[1], Zakia Sultana [2], Mst. Effat Jahan[1], A.S.M. Meshbah Uddin[3], Mohammad Sofiullah[4]

Abstract

Mitral annulus consists of a collagenous ring where the lamina fibrosa of the valve leaflets are attached. Data on mitral annulus may be of interest to anatomists and cardio-thoracic surgeons to assess the exact mechanical reason for valve insufficiency. To see the morphometry of mitral valve annulus in adult human cadavers. This cross-sectional study was performed on 50 post-mortem human adult hearts in the Department of Anatomy, Sylhet M. A. G. Osmani Medical College, Sylhet during the period between July 2007 and June 2008. The hearts were dissected by conventional dissection method to expose the mitral annulus. The annulus and attached margin of the leaflets of valves were measured. Length of annulus of mitral orifice was 7.49 ± 0.94 cm in males and 7.31 ± 1.58 cm in females; difference was not significant ($p > 0.05$). The attached margin of the anterior leaflets was significantly greater ($p<0.05$) in male (3.37 ± 0.48 cm) than in female (2.93 ± 0.85 cm; whereas the posterior leaflets valve did not differ significantly ($p>0.05$) between male (4.11 ± 0.52 cm) and female (4.38 ± 0.79 cm). This study provides the morphometry of the mitral valve annulus which may aid the surgeon in understanding valve pathophysiology and in designing reconstructive procedures. Mitral valve, Annulus, Atrio ventricular Orifice, Anterior leaflet, Posterior leaflet

[OMTAJ 2018; 17 (1)]

Introduction

Cardiovascular system is the earliest system to develop in the body. Development begins between 2nd to 4th weeks of intra-uterine life. Heart develops from splanchnopleuric mesoderm, coelomic epithelium and neural crest cells. Valves of the heart develop from the proliferation of the endocardium. The valves of the heart maintain the unidirectional blood flow which are four in number viz, aortic, pulmonary, tricuspid and mitral. Tricuspid valve situated between right atrium and right ventricle. Mitral valve is between left atrium and left ventricle. Pulmonary valve regulates blood flow through the pulmonary trunk, where as aortic valve regulates through the aorta.[1]

Mitral valve is a complex structure comprising of supporting annulus, two leaflets, chordae tendineae and papillary muscles. Mitral annulus is an area where muscular fibers of atrium and the ventricle are attached with the two leaflets - anterior and posterior. Chordae tendineae from the papillary muscles are attached to both leaflets of the mitral valve Standring.[2] The posterior leaflet is divided into three scallops (segments) by two indentations which are described as P_1 (lateral segment), P_2 (central segment), and P_3 (medial segment).[3] The corresponding parts of the anterior leaflet are A_1, A_2 and A_3 segments.[4]

Anatomy of bicuspid valve is complex is altered by various disease states. Data on dimensions of bicuspid valve may be of interest to anatomists and cardio-thoracic surgeons to assess the exact mechanical reason for valve insufficiency. Anatomists and researchers are frequently interested to study bicuspid valve because of its clinical importance in mitral valve repairs and in severe cardiac malformations. There are many diseases of the heart which affects the valves and result in valve insufficiency. They are stenosis and regurgitation of the valves or prolapse of the leaflets. Mitral valve diseases require repair of the valve and when repair is not possible, valve replacement surgery will be attempted.[5]

The function of mitral valve depends on the anatomical and mechanical integrity of the atrioventricular ring, the valve leaflets, chordate tendinae and the papillary muscles. Advances in echocardiography, invasive cardiology (including balloon mitral valvuloplasty) and surgical reconstruction of mitral valves necessitate an appreciation of many variations in the anatomy of the mitral valve.

The classical description of the mitral valve found in the textbooks of anatomy is inadequate for the need of the cardiac surgeons. Similarly the importance of the valvular structures and the myocardium in the mechanism of valve closure requires a new appraisal in

1. Associate Professor, Department of Anatomy, Jalalabad Ragib Rabeya Medical College, Sylhet.
2. Professor and Head, Department of Anatomy, Sylhet M A G Osmani Medical College, Sylhet.
3. Assistant Professor, Department of Medicine, Sylhet M A G Osmani Medical College, Sylhet.
4. Associate Professor, Department of Medicine, Sylhet M A G Osmani Medical College, Sylhet.

view of recent observations. The present study proposes to characterize the leaflet morphology of mitral valve of Bangladeshi subjects. Knowledge of the leaflets and their annular attachment is necessary for operative procedures like mitral valve annuloplasties.

Material and Methods

This cross-sectional study was performed in the Department of Anatomy, Department of Sylhet M. A. G. Osmani Medical College, Sylhet during the period between July 2007 and Jun 2008. A total 50 post-mortem human hearts of both sexes aging from 18 to 60 years in Sylhet region were collected from unclaimed dead bodies autopsied at the autopsy laboratory of Forensic Medicine Department of Sylhet M. A. G. Osmani Medical College. No heart was taken from a person who died from known cardiac cause .Only fresh hearts of persons who died within the preceding 12 to 24 hours were chosen.

The particulars of the body (age, sex) were recorded in a record book against respective specimen numbers. The hearts along with the pericardium and great blood vessels and adjacent structures were collected from each cadaver with great care during routine postmortem examination.

The specimen was washed thoroughly with tap water and gently squeezed to remove the blood clots from the cavity of the heart and from the lumen of the blood vessels as much as possible. The procedure was repeated several times. Each specimen was tagged by a piece of waxed cloths which bore an identifying number. Then the specimen was brought to the Department of Anatomy and kept in 10% formol saline solution for fixation and preservation.

To getting the interior of the heart the position and orientation of the heart and its chambers were confirmed. Left atrium was then opened by an incision through the right and left inferior pulmonary veins and the upper part of left atrial auricle was dissected. The heart thus opened was emptied of blood clots inside, washed thoroughly in running tap water. The mitral valve was inspected from above. Out flow tract of the left ventricle was opened by an incision on the sternocostal surface of the heart extending from the apex, parallel and close to the interventricular septum up to the aortic orifice. The heart thus opened was emptied of blood clots inside, washed thoroughly in running tap water.

In each heart a detailed examination of the mitral valve annulus was made. The circumference of the annulus was measured with the help of a thread. The thread was placed along the boundary of the annulus conforming to its shape and is cut where the ends of the thread meet and then measured with a ruler after it is straightened. The measurement of was expressed in millimeter. Digital vernier caliper was used to measure the attached margin of leaflets of mitral valve and expressed in millimeter.

Results

The present study was performed on fifty (50) human apparently normal hearts of Bangladeshi people in Sylhet region, among them thirty eight (38) were males and twelve (12) were females. The length of annulus of the mitral (bicuspid) orifice was (mean ± SD) 7.49 ± 0.94 cm in males and 7.31 ± 1.58 cm in females. The length of annulus of the mitral orifice was found to greater in male but statistical analysis showed the difference is non-significant ($p > 0.05$) between males and females (Figure-I).

The length of attached margin of the anterior leaflets of bicuspid valve (mean ± SD) was 3.37 ± 0.48 cm in males and 2.93 ± 0.85 cm in females. The length of attached margin of the of the anterior leaflets of bicuspid valve was found to greater in male and statistical analysis showed the difference is significant ($p < 0.05$) between males and females (Figure-II).

The length of attached margin of the posterior leaflets of bicuspid valve (mean ± SD) was 4.11 ± 0.52 cm in males and 4.38 ± 0.79 cm in females. The length of attached margin of the posterior leaflets of bicuspid valve was greater in females than in males. The statistical analysis showed the difference is non-significant ($p > 0.05$) between males and females (Figure-II).

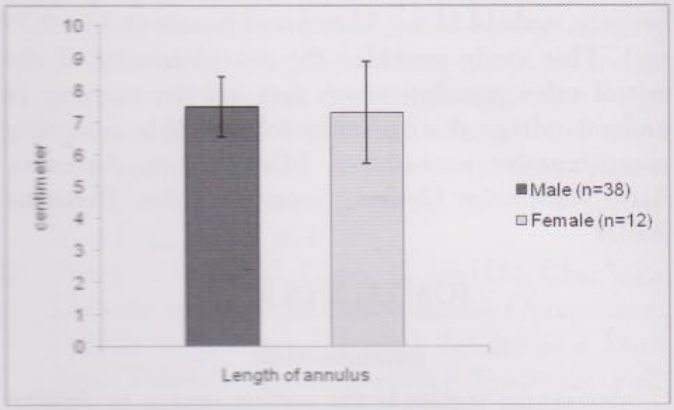

Figure-I. Length of annulus of the mitral orifice

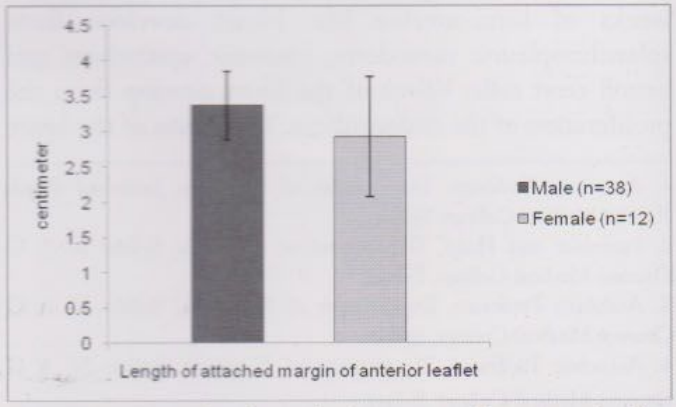

Figure II. Length of attached margin of anterior leaflet

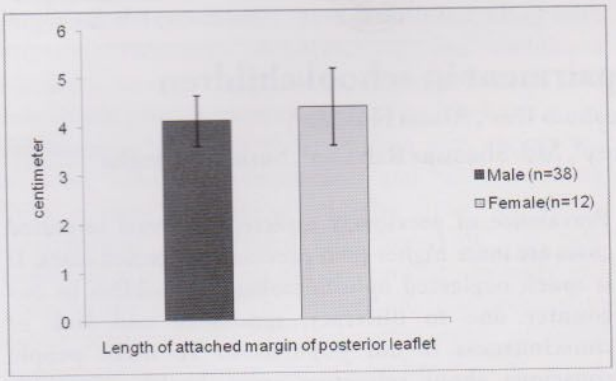

Figure III. Length of attached margin of anterior leaflet

Discussion

In this study the mean circumference of the mitral orifice was 7.49 ± 0.94 cm in males and 7.31 ±1.58 cm in females in the present study. This value was consistent with the study of Mannan,[6] who reported the mean circumference of the mitral orifice was 7.54 cm in males and 7.50 cm in females. This result was also correlated with the study of Begum,[7] that the mean circumference of mitral valve in males was 7.68 ± 0.67 cm and in females 7.54 ± 0.30 cm. These values are somewhat lesser than the following values described by various authors, for example about 10.15 ±1.24 cm in males and 9.11 ± 0.86 cm in females.[8] about 9cm in males and 7.2cm in females.[2]

In the present study the length of attached margin of the anterior leaflets of bicuspid valve was 3.37 ± 0.48 cm in males and 2.93 ± 0.85 cm in females. The length of attached margin of the of the anterior leaflets of bicuspid valve was found to greater in male and statistical analysis showed the difference is significant ($p < 0.05$) between males and females. This result was concordant with the study of Begum,[7] who observed the average length of attached margin of the anterior leaflets of bicuspid valve was 3.15 ± 0.35 cm in males and 3.10 ± 0.78 cm in females. Mannan,[6] also found the similar observation that length of attached margin of the anterior leaflets of bicuspid valve was 3.51 cm in males and in females 3.12 cm. But the findings of the present study are lesser than the values observed by Cheichi et al.[9] who found that their observations were in males 3.7cm and in females 3.3cm.

In the present study mean length of attached margin of the posterior leaflets of bicuspid valve was 4.11 ± 0.52 cm in males and 4.38 ± 0.79 cm in females. The length of attached margin of the posterior leaflets of bicuspid valve was greater in females than in males. The statistical analysis showed the difference is non-significant ($p > 0.05$) between males and females. This finding was supported by Begum,[7] who found that the mean length of attached margin of the posterior leaflets of bicuspid valve in males was 4.46 ± 0.65 cm and in females it was 4.65 ± 0.67 cm. This finding was also correlated with Mannan,[6] that the mean length of attached margin of the posterior leaflets of bicuspid valve was 4.45 cm in males and 4.48 cm in females. The findings of the present study are more than the values observed by Cheichi et al.[9] Their observations were in males 3.3cm and in females 3cm.

Conclusion

This study provides the morphometry of the mitral valve annulus which may aid the surgeon in understanding valve pathophysiology. It can also be used as an important tool in the anthropological studies, for better understanding of surgical anatomy of heart and designing of tissue-engineered cardiac valves.

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ORIGINAL ARTICLE

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Previously undetected visual impairment in school children

Paritush Kanti Talukder[1], Nandan Kushum Das[2], Almas Hossain[3], Syed Taufique Elahi[4], Shariar Ahmed Khalil Chowdhury[5], Md. Shamsur Rahman[6], Sushanta Singha[7]

Abstract

Bangladesh is a densely populated country and children of 5-15 years age group constitute a major bulk of our population. Though there are lot of health problems of children in our country, like diarrhea, malnutrition, infectious disease etc. Visual impairment like as refractive error, amblyopia etc is not less important. Refractive error is one of the major cause of visual impairment in children. It is also important that most of the sequelae of visual impairments are preventable, if detected and treated in proper time. Uncorrected and undetected refractive error may lead to amblyopia, squint etc. This current study is designed to detect refractive error of undetected cause of visual impairment in 5 to 15 years school children. This is a descriptive cross sectional study constructed in eye outpatient department of Sylhet MAG Osmani Medical College Hospital, Sylhet from January 2017 to December 2017 to time out the pattern of refractive errors in children between 5 to 15 years. Sample were selected purposively. A total 500 patients, aged 5 to 15 years visited the ophthalmology out patient department during the study period out of these 500 patients. Prevalence of previously undetected visual impaired cases were 5% of school children. Among them percentage of myopic cases were 2.6% percentage of hypermatropic cases were 1.4% and percentage of astigmatic cases were 1%. New cases of refractive errors and cases diagnosed previously were also included in the study. Each child was Examined thoroughly visual acuity test using snellen's chart for distance vision, "N" Series chart for near 'vision' slit lamp biomicroscopy and retinoscopy. cycloplegic refection was done and auto refractometer A was used for retractions. Detailed history including family history was recorded. Post mydriatic test fundoscopic examination finding and appropriate management including optical management are also included in the proforma.

Prevalence of previously undetected visual impaired cases are more higher than previously detected cases, It is much neglected ophthalmological problem in our country due to illiteracy, ignorance and lack of consciousness in our population. To make people conscious about refractive error, health education should get the due importance. Knowledge about refractive error should be incorporated into primary eye care programme, which is an integral part of the primary health care. Refractive error, myopia, hypermetropia, Astigmatism, amblyopia

[OMTAJ 2018; 17 (1)]

Introduction

Bangladesh is a densely populated country and children of 5 to 15 years age group constitute a major bulk of our population. Though there are lot of health problems of children in our country like diarrhea, malnutrition, infectious disease etc. Visual impairment like as refractive error, amblyopia etc, is not less important. Refractive error is one of the major cause of visual impairment in children. It is also important that most of the sequelae of visual impairments are preventable. If detected and treated in proper time, Uncorrected and undetected refractive error may lead to (Ambyopia, squint etc).

Beside refractive error congenital cataract, corneal opacities, vitamin A deficiency (VAD) are also permanent cause of visual impairment, visual impaired children has less access to education, employment, becomes social economical burden the family and above all to the country. For this reason, the early detection and prompt treatment of refractive error in children is very important, Because 0-8 years is critical period for development of vision. In this period when children are not detected and treated accordingly then those patients undergo permanent visual impairment. The number of visually impaired persons in the world is about 259 million.

This estimate includes 98 million persons with visual impairment due to uncorrected refracted error[1]. Refractive error is a major contributor to visual impairment which is a significant cause of morbidity in children world wide[2]. "Vision 2020 the right to sight" Programe. This is a global initiate, which was launched by who in 1999 to eliminate avoidable blindness from world by the year 20203,4. under "Vision 2020! The right to sight"

1. Assistant Professor(Eye), Sylhet MAG Osmani Medical College, Sylhet.
2. Associate Professor(Eye), Jalalabad Ragib Rabeya Medical College, Sylhet.
3. Associate Professor(Eye), Sylhet MAG Osmani Medical College, Sylhet.
4. Medical officer (Eye), Sylhet MAG Osmani Medical College, Sylhet.
5. Resident Surgeon (Eye), Sylhet MAG Osmani Medical College, Sylhet.
6. Associate Professor (Maxillo-facial surgery), Sylhet MAG Osmani Medical College, Sylhet.
7. Registrar, Dept. Of Ent, Sylhet MAG Osmani Medical College, Sylhet.

Programe, refractive errors. have been listed, along with cataract, trachoma, onchocerciasis. and childhood blindness, among eye problems whose prevention and cure should provide enormous savings and facilitate social developments[4,5]. Most of the children with uncorrected refractive error are asymptomatic and hence screening helps in early detection of refractive errors, and timely interventions. Uncorrected refractive error may have impact to a larger extent on the learning capability and potential the student. This current study is designed to detect refractive error of undetected cause of visual impairment in 5-15 years school Children.

Materials and Methods

This is a descriptive cross sectional study constructed in eye outpatient department of Sylhet MAG Osmani Medical College Hospital, Sylhet from January 2017 to December 2017 to time out the pattern of refractive errors in children between 5 to 15 years. Sample were selected purposively. A total 500 patients, aged 5 to 15 years visited the ophthalmology outpatient department during the study period out of these 500 patients. It is also contained the present and past ocular history, refractive condition of the family and socio economic condition of guardian. Beside these significant finding related to visual impairment like refractive error, facial asymmetry, head posture, estimate of ocular muscle balance for distance and near. Ocular motility test and B.S.V test, all are included in the proforma. Test of visual acuity including unaided with the existing glass, with pin hole and corrected visual acuity was noted. Retionscopic finding without cycoplegia with cycloplogia at a working distance of 2/3rd meter also included. When cycloplogic refraction was done, the name of cyclopbegic used also noted. Post mydriatic test fundoscopic examination, finding and appropriate management including optical management are also included in the proforma.

Results

Total 500 Students, aged 5-15 years were examined during the study period

Table-I: Gender distribution of the sample

Total number	Boys		Girls	
	Total number	Percentage	Total number	Percentage
500	260	52%	240	48%

Table-1 Shows that a total of 500 students were examined out of them which 260 (52%) were boys and 240 (48%) were girls.

Table II: Percentage of refractive errors according gender distribution.

Boys			Girls			Total		
No of Subjects	No of Refractive errors	%	No of Subjects	No of Errors	%	No of Subject	No of Errors	%
260	23	8.85	240	22	9.17	500	45	9

Table II shows the percentage of refractive errors according to gender distribution of the students. Refraction Errors were found in 8.85% of boys and 9.17% of the girls. So the difference was not significant. Both sexes combined had the incidence of 9%.

Table III: Percentage of previous undetected visual Impaired cases according to gender distribution.

Boys			Girls			Total		
No of Subjects	No of Errors	%	No of Subjects	No of Errors	%	No of Subject	No of Errors	%
260	13	5%	240	12	5%	500	25	5%

Table III: showing the percentage of previously undetected visual impaired students according to gender distribution of the students. Previous undetected cases were found in 5% of boys and 5% off the girls. So there was no difference between both sexes. Prevalence of both gender distributions of the School students were 5%.

Table IV: Percentage of different types of refractive Errors.

Pattern of refractive	Total no of students	No of refractive Error	Percentage
Myopia	500	22	4.4
Hypermetropia	500	13	2.6
Astigmatism	500	10	2.0
Total	500	45	9

This table shows that total Number of students are 500 Among them was 22(4.4%) were myopic, 13 (2.6%) were Hypermetropia and 10 were (2.0%) Astigmatism.

Table V: Percentage of previously undetected visual impaired cases.

Pattern of refractive	Total no of students	No of previously undetected refractive error	Percentage %
Myopia	500	13	2.6
Hypermetropia	500	7	1.4
Astigmatism	500	5	1
Total	500	25	5

This table shows that total number of students are 500. Among them previously undetected cases. 13 (2.6%) were myopic, 7 (1.4%) were Hypermetropia and 5 (1%) were Astigmatism.

Table VI: Percentage of previously undetected and detected cases.

Types of error	Total of cases	No of Previously	%	No of Previously	%
Myopia	22	13	28.89%	9	20%
Hypermetropia	13	7	15.56%	6	13.33%
Astigmatism	10	5	11.11%	5	11.11%
Total	45	25	55.56%	20	44.44%

This table shows the number of previously undetected and detected cases. Out of the total 45 ametropic cases 25 were Undetected previously, the percentage being 55.56% of them the number of myopic cases was 13 (28.89%), Hypermetropia cases were 7 (15.56) and astigmatic cases were 5 (11.11%). Number of previously detected cases were 20 the percentage being 44.44% among them 9 (20%) were myopic, 6 (13.33%) were Hypermetropic and 5 (11.11%) were Astigmatic.

Table VII: Distribution of Previously Undetected refractive errors in Dioptre.

Pattern of Refractive errors	No of Refractive errors	Dioptric range	Average dioptre
Myopia	12	0.5-7 Dioptre	1.25 Dioptre
Hypermatropia	7	0.5-4 Dioptre	0.75
Astigmatism	5	0.5-2.25 Dioptre	1.0 Dioptre

This table shows dioptre range of previously Undetected Myopia was 0.5 to 7 dioptre. Dioptric range of Undetected Hypermetropia was 0.5 to diptre and that of astigmatism was 0.5 to 2.25 dioptre.

Table VIII: Distribution of Different types of Astigmatism.

Types of Astigmatism	Number of cases	Percentage
Simple myopic	2	30
Simple Hypermetropic	2	20
Compound myopic	3	30
Compound hypermetropic	1	10
Mixed	1	10

This table shows the distribution of different types of astigmatism out of 10 astigmatic cases 3 (30%) had compound myopic astigmatism, 2 (20%) had simple hypermetropic astigmatism and and 3 (30%) had compound myopic simple hypermetropic astigmatism and 3 (30%) had compound myopic astigmatism, Only 1 (10%) had compound hypermetropic and mixed astigmatism.

Table IX: Distribution of Different types of Previously Undetected Astigmatism.

Sl.No.	Types of Astigmatism	Number of cases	Percentage
1	Simple myopic	2	40%
2	Simple Hypermetropic	1	20%
3	Compound myopic	1	20%
4	Compound hypermetropic	1	20%
5	Mixed	0	00%

This table shows the distribution of different types of previously undetected astigmatism. Out of 5 astigmatic cases 2 (40%) has simple myopic astigmatism, 1 (20%) had simple hypermetropic astigmatism 1 (20%) had compound myopic 1 (20%) had compound hypermetropic astigmatism.

Table X: Undetected Visual acuity of refractive error cases with percentage.

Visual acuity	No of refractive errors	Parentage
6/6	4	8.89%
6/9	11	24.44%
6/12	16	35.56%
6/18	5	11.11%
6/24	4	8.89%
6/36	2	4.44%
6/60	2	4.44%
<6/60	1	2.22%
Total	45	100.00

This table shows the distribution of uncorrected visual acuity of all refractive error cases. 8.89% students had uncorrected visual acuity of 6/6 24.44% had 6/9 visual acuity while 35.56% of the refractive error cases has an uncorrected visual acuity of 6/12 11.11% of the students had visual acuity of 6/18 8.89% had 6/24 4.44% had 6/36 and 6/60 while 8.89% had 6/24, 4.44% had 6/36 and 6/60 while 2.22% had an uncorrected visual acuity of <6/60.

Table XI: Complication of myopia due to refractive error found during this study.

Type of errors	5-7	8-10	11-13	14-15	Total	%
Myopic Crescent	0	0	1 (4:55%)	0	0	4.55%
Chorioretinal Atrophy	0	0	0	0	0	0
Fuch's Spot	0	0	0	0	0	0
Exotropia	0	0	1 (4.55%)	2 (9.09%)	3 (13.63%)	13.63%
Total-22	0	0	2 (9.09%)	2 (9.09%)	4 (18.18%)	18.18%

This table shows complications in myopic cases. Myopic crescent was found in 1 case. Exotropia was found in 3 cases. Complications were more in older age group. The percentage of complications in myopic cases was 18.18%.

Table XII: Previously diagnosed cases wearing their refractive correction

Types of error	No of Previously detected cases	Wearing refractive Correction	%	No wearing refractive correction	%
Myopia	9	7	77.78%	2	22.22%
Hypermetropia	5	4	66.67%	3	33.33%
Astigmatism	5	2	40%	3	60%
Total	20	13	65%	7	35%

This table shows the number of previously detected cases wearing their refractiv4e correction. Out of the total previously detected ametropic cases 13 (65%) cases were wearing their refractive correction and 7 (35%) cases did not refractive correction.

Discussion

The objective of study was to determine the patterns of refractive errors in school children of rural areas of Bangladesh. The schools were selected randomly. 500 children were tested for their visual acuity. All the 500 children performed retinoscopy, if needed ophthalmoscopy also performed. In the study the percentage of refractive errors is 9% (Table-II) Previous studies carried out by Prof Muktadir8 and Prof. Sharif and Amanullah[9] and Moula[20] shows the values to be 14.29%,6.35 and 8.19% respectively. The difference of these values with that of my study may be due to the fact that the first study was done only in a girls' school, while the second study was done on the urban school children of Dhaka city, The study carried out by Moula[20] shows the values to be 8.19%, in a remote district which included children both from the town and the village, is similar with my study.

Considering the different patterns of refractive errors, it was found that myopia was the commonest among the refractive errors in all age groups in the present study. In this study the percentage of refractive errors were as follows: Myopia (48.89%) hypermeteopia (28.89%) and astigmatism (22.22%) (Table-VI) Identical findings are seen in other studies in our country by Sharif et al[9], Muktadir[8], Hossain[10] Rahman[11] and Moula[20] Similer findings were found in India in the report of Dutta et al[12]. Which was as follows; Myopia 46%, hypermetropia 25% and astigmatism 27%. Outsite the subcontinent, Hess and Diederich13 found 65% refractive error in the school children. It has also been suggested that astigmatism when, uncorrected could induce myopic progression in my study most of the children with myopia was undiagnosed previously. This is also true for the astigmatic patients. So the above factors may be responsible for the relative increase percentage myopia than hypermetropia or astigmatism in the present study.

A considerably greater incidence of myopia occurs in Japan, and China, found 53% of Chinese students are myopia. It has been shown that due to racial variation, there is considerably greater incidence of myopia in japan and China, about 4 times the incidence in British and American. In West Indies myopia is as common as in Europe. It is also true for Egypt, but the Sudanese are almost free of short sight. Among the Arabs and in Jews, myopia is very common. In my study only 4.4% of the children screened were myopia (Table-IV). This observation has resemblance with the study in Bangladesh done by Mannaf SK. and Islam Nazrul[21] (3.2%) and others previously cited. So it is probable that the low percentage of myopia found in my study is due to racial factor.

The relative percentage of astigmatism in the present study was 22.22% (Table-VI). The percentage of compound myopia and simple myopia astigmatisms was found higher in the present study. It has suggested that astigmatism when uncorrected could induce myopia progression, in another study it has been shown that children with astigmatism have higher degree of myopia, then the children without astigmatism. As most of the both myopia and astigmatic children were undiagnosed before the present study, it may study. it is quite surprising to note that, in present study 55.56% of the refractive error cases were undiagnosed previously (Table-VI). This observation is Lower the study of Sharif[9] and Moula[20]. This shows that the awareness about the refractive error is much improved both in urban areas (as cited by Sharif [9] and in the rural areas of a Bangladesh.

From the present study, another interesting observation was found. Among the previously diagnosed patients 65% of the children were wearing their correcting glasses (Table-XII). It is the much better than previous study. Analyzing the different types of refractive error cases,33.33% of the previously diagnosed hypermetropic cases were no wearing their correcting lenses. On the contrary 22.22% of the previously diagnosed myopia cases were not wearing their correcting lenses (XII). This may be due to the fact that, many of the hypermetropic cases can improve their visual acuity by accommodation and they have no difficulty in distant vision. So they were not wearing correcting lenses. But myopia patients are unable to see blackboard clearly in the class. So majority of them were using their correcting lens after being diagnosed. But in the study of Sharif[19] showed 100% of previously diagnosed patients and Moula[20] showed 74-80% of previously diagnosed patients was wearing their correcting lenses.

Regarding visual acuity, it was found that 8.89% of children had an uncorrected visual acuity of 6/6 or better.

Again 4 children had uncorrected visual acuity of 6/6 but complained of significant symptoms and was later found to be low hypermetropic. Majority of the patients has visual acuity ranging from 6/12 were 16 cases (35.56%) (Table-X).

Regarding complications (18.18%) of the ametropic cases found to have complications associated with refractive error. In myopia, out of 22 cases 4 (18.18%) have complications (XI). It was found that complications of myopia. Complications were common in relatively older age group. It may be due to the fact that degenerative complications of myopia occur usually after its full development. In astigmatism, out of 10 cases 1 (10%) had amblyopia (Table-VIII). These finding can be compared with the studies of Hossain and Mula. It was found that although the type of complications were more or less same, but the number of complication was much less in my study than that of the other two. This may be due to the fact that in rural areas of Bangladesh the parents are not so much aware of the education of the children. So the children with complications of refractive error do not go to the school. So it might be possible that the actual number of children with complications might have missed due to their non-availability in the schools. General management of refractive error consisted of improvement of general physical and nervous state. The children were advised for maintenance of general health with the abundance of fresh air, exercise and balanced diet. This is very import because of improvement of general health is not less important than provision of spectacles, particularly in children. In case of myopia advice was given regarding adequate illumination for close work, avoidance of undue ocular fatigue and clarity of print for close work.

Optical treatment be spectacle lens was prescribed to 22 myopia 13 hypermetropic and 10 astigamtic cases. In low degree of myopia (up to-6D), a full correction was given and advised for constant wear. Patients having exophoria was given full correction and those with esophotia was under corrected. The reason for giving full correction in low myopia that by giving him full correction to stimulate convergence by the effort of accommodation. The reverse is true in case of esophoria.

Conclusion

Prevalence of previously undetected visual Impaired cases are more higher than previously detected cases. It is much neglected ophthalmological problem in our country due to illiteracy, Ignorance, and lack of consciousness in our population. To make people consciousness about refractive error, health education should get the due importance knowledge about refractive error should be incorporated into primary eye care programme, which is and integral part of the primary health care. People should know that spectacles are needed not only to supplement near vision in elderly but also may essential for the children to save their sight. They should know that deviation of eyes, how minor or temporary maybe, contrary to their belief is never a good sing.As statistics about the refractive error in school going children in rural & urban areas of our country is not at all adequate, further study is suggested. Above all our ophthalmogists, government and no-government organizations should come forward and collaborate with each other to help the ametropic children.

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ORIGINAL ARTICLE

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Incidence of Sarcoma of Jaw & Orofacial Soft Tissue, patient attending in Dhaka dental college hospital.

Shamsur Rahman[1], Shafkat Mamun[2], Paritush Kanti Talukder[3], S.A.M Imran Hossain[4], Muhammad Alam Sikder[5], Muminul Haque[6], Sanjoy Roy Choudhury[7],

Abstract

An observational descriptive study (March' 2007 to Feb' 2011) was performed at Oral and Maxillofacial Surgery department, Dhaka Dental College and Hospital. This study presents 20 cases of sarcoma collected over 4 years at a tertiary oral care center in Dhaka, Bangladesh.Sarcoma of jaw and orofacial soft tissue is rare, constituting between 4-8% of all malignancies in the region. To find out the age, sex, site, thehistological types of these tumors Histopathological types of the sarcomas were analyzed to indicate the numbers that occurred; and also the pattern of occurrence according to age, gender and site. There were 138 maxillofacial malignancies of which 20 (14%) were sarcomas. Seven histopathologic types were found of which osteosarcoma (30%), fibrosarcoma (20%), Ewing's sarcoma (20%), malignant fibrous histocytoma (15%) were predominant. The male to female ratio was 1.86:1. Patients with sarcoma were between 3.5 years and 70 years (mean age 34.3±20.3 years) with most patients (35%) in 35 to 45 years of life. In Dhaka Dental college hospital, sarcomas account for 14% of all maxillofacial malignancies with the osteosarcoma as the predominant type. Most affected were people in the fourth decade of life.

[OMTAJ 2018; 17 (1)]

Introduction

Sarcomas are malignant neoplasm derived from cells of mesenchymal origin.The originating tissue is diverse and includes bone, cartilage, and muscular, fibrous, vascular, fatty and neural tissue. In the oral and maxillofacial region, sarcomas are uncommon. Compared to carcinomas, sarcomas are rare. Incidence of sarcoma in jaw and orofacial soft tissue area varied depending upon different population reported by researchers.139 cases were reviewed of oral malignancies from Bangladeshi population among which sarcomas were 12.9%.[1]14% sarcoma were found while squamous cell carcinoma made up 70% from East Java, Indonesia.[(2)] 406 maxillofacial malignancies from Kaduna, Nigeria of which 80 (20%) were sarcoma.[3] Sarcomas may appear at any age, the earliest reported being in a 16 months old baby, reported in one 24 months old baby, while other reported one in patient 84 years old. It tends to affect considerably younger group than that of carcinomas. [(4, 3, 5)] Male are slightly more affected than female by jaw and orofacial soft tissue sarcoma. According to one author, mean age was 42 years; male to female ratio was 3:1.[6] the median age was 46 years and male to female ratio was 2:1in 36 head and neck soft tissue sarcoma.[7]

31.3 ±14.1 years mean age and male to female ratio was 2.3:1.[8] Any type of sarcoma can affect the oral tissue. Sarcoma in the maxillofacialarea has wide variety of histological types. The most common soft tissue sarcoma in the head and neckarea is rhabdomyoasarcoma (RMS), followed by malignant fibroushistocytoma (MFH), fibrosarcoma and neurofibrosarcoma.[9] Osteosarcoma isregarded as the tumor most frequently manifested in the bones and the lowerjaw, chondroma one half as frequent asthe osteosarcoma but twice as common as Ewing's tumor.[(10,11)] One author found maxillofacial sarcoma as osteosarcoma (28%), chondrosarcoma (17%), rhabdomyosarcoma (12%) and fibrosarcoma (12%).[3]

Hard tissues are more affected (72%) than soft tissue (11%) by sarcoma inmaxillofacial region.[3] The primary sites of sarcoma is the maxilla, maxillary sinus,mandible, buccal mucosa, temporomandibular fossa and submandibularregion.[6] Sarcomas grow rapidly, are invasive destroy surrounding tissues andusually spread by the blood stream. Their occurrence result in considerablemorbidity and mortality. Head and neck sarcomas have high mortality ratewith a high risk of recurrence. 2 years overall survival was 71% and the 5-year overall survival was 52.3%.[12] Overall survival was 49% at 5 year.[7] Treatmentusually consists of wide surgical excision with or without (neo) adjuvantchemotherapy and radiotherapy.Because of their diversity of the originating tissue and their rarity, there aremany open questions about sarcoma of the oral and maxillofacial regionregarding clinicopathologic

1. Associate Professor (Oral & Maxilofacial Surgery), Sylhet MAG Osmani Medical College, sylhet.
2. Assistant Professor (Oral & Maxilofacial Surgery), Sylhet MAG Osmani Medical College, sylhet.
3. Assistant Professor (Eye), Sylhet MAG Osmani Medical College, sylhet.
4. Associate Professor (Oral & Maxilofacial Surgery), North East Medical College, sylhet.
5. Assistant Professor and Head , Science of Dental Materials ,Dental Unit, Sylhet MAG Osmani Medical College, sylhet.
6. Assistant Professor (Neurology), Sylhet MAG Osmani Medical College, sylhet.
7. Assistant Professor (Dentistry) & Head, Department of Oral Pathology & Periodontology, Sylhet MAG Osmani Medical College, sylhet.

characteristics, treatment option and prognosis. In Bangladesh, few reports of maxillofacial sarcoma have been published butdetailed studies are lacking. So this present study was designed to evaluatethe clinicopathologic characteristics of sarcoma in maxillofacial region whichwould shed some more light on this lesion and enrich our knowledge.

Materials and Methods

The study was carried out in the department of Oral and Maxillofacial Surgery, Dhaka Dental College Hospital from March 2007 to February 2011.Patients admitted with maxillofacial sarcoma irrespective of age and sex was selected for the study. Sample size of the study was 20, of them 13 were male and 7 cases were female.Histopathological types of the sarcomas were analyzed to indicate the numbers that occurred; and also the pattern of occurrence according to age, gender and site.Astandardized structured data collection sheet was used to collect necessary information of the subject group. Data sheet included all of the variables regarding to the study.Data were screened and cleaned for any discrepancy. After cleaning data were entered in to template of SPSS@16 software. Descriptive statistics were generated to see the distribution of baseline characteristics of the patient.

Results

Table I: Distribution of orofacial sarcoma in maxillofacial Region.

Type	Number	Percentage (%)
Squamous Cell Carcinoma	110	79.71
Maxillofacial Sarcoma	20	14.49
Other Malignancies	8	5.79
Total	138	100

There were 138 cases of malignant neoplasm of the oral and maxillofacial region within the study period of which 20 (14%) were sarcoma as compared to 110 (80%) cases of squamous cell carcinoma.

Table II: Distribution of the respondents by Age

Age in group	Frequency	Percent
Less than 15 years	4	20.0
15 to 30 years	5	25.0
30 to 45 years	7	35.0
45 to 60 years	1	5.0
More than 60 years	3	15.0
Total	20	100
Mean 34.3±20.3, Min-3.50 and Max-70.00		

Majority of the respondents (35%) were in the age between 30 to 45 years, 5(25%) were aged between 15 to 30 years, 4(20%) were less than 15 years of age 3 (15%) were more than 60 years of age and only 1(5%) were found at the age between 45 to 60 years. Mean age was 34.3±20.3, min-3.5 years and max-70 years.

Table III: Distribution of the respondents by sex

Histopathological diagnosis	Male	Female	Total
Osteosarcoma	4(20%)	2(10%)	6(30%)
Malignant-fibrous histocytoma	2(10%)	1(5%)	3(15%)
Fibrosarcoma	3(15%)	1(5%)	4(20%)
Chondrosarcoma	1(5%)	-	1(5%)
Ewing's sarcoma	2(10%)	2(10%)	4(20%)
Rhabdomyosarcoma	-	1(5%)	1(5%)
Others	1(5%)	-	1(5%)
Total	13(65%)	7(35%)	20 (100%)

Among the 20 respondents 13(65%) were male and rest 35% were female. *Others- Ameloblastic fibrosarcoma

Table IV: Distribution of the Lesion in Maxillofacial region

Histopathological diagnosis	Mandible	Maxilla	Buccal mucosa	Oral cavity	Sinus	TM joint
Osteosarcoma	4	2	-	-	-	-
Malignent fibrous histocytoma	3	-	-	-	-	-
Fibrosarcoma	3	-	1	-	-	-
Chondrosarcoma	-	-	-	-	-	1
Ewing's sarcoma	3	-	-	-	1	-
Rhabdomyosarcoma	-	-	-	1	-	-
Ameloblastic fibrosarcoma	1	-	-	-	-	-
Total (20)	14(70%)	2 (10%)	1(5%)	1(5%)	1(5%)	1(5%)

By the site, most 14(70%) of the lesion were found at mandible, 2(10%) at maxilla and 1(5%) each at the site of buccal mucosa, oral cavity, sinus and TM joint.

Table 5: Distribution of the respondents by Histopathological diagnosis

Histopathlogical Diagnosis	Frequency	Percentage
Osteosarcoma	6	30.0
Malignent fibrous histocytoma	3	15.0
Fibrosarcoma	4	20.0
Chondrosarcoma	1	5.0
Ewing's sarcoma	4	20.0
Rhabdomyosarcoma	1	5.0
Others	1	5.0
Total	20	100.0

Among the 20 respondents majority (30%) were diagnosed as Osteosarcoma, 3(15.0%) were found Malignant fibrous histocytoma, 4(20%) were diagnosed as fibrosarcoma, 1(5%) was chondrosarcoma, 4(20%) were Ewing's sarcoma, 1(5%) rhabdomyosarcoma and 1(5%) was other

characteristics, treatment option and prognosis. In Bangladesh, few reports of maxillofacial sarcoma have been published butdetailed studies are lacking. So this present study was designed to evaluatethe clinicopathologic characteristics of sarcoma in maxillofacial region whichwould shed some more light on this lesion and enrich our knowledge.

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Table IV: Distribution of the Lesion in Maxillofacial region

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Fibrosarcoma	3	-	1	-	-	-
Chondrosarcoma	-	-	-	-	-	1
Ewing's sarcoma	3	-	-	-	1	-
Rhabdomyosarcoma	-	-	-	1	-	-
Ameloblastic fibrosarcoma	1	-	-	-	-	-
Total (20)	14(70%)	2 (10%)	1(5%)	1(5%)	1(5%)	1(5%)

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Osteosarcoma	6	30.0
Malignent fibrous histocytoma	3	15.0
Fibrosarcoma	4	20.0
Chondrosarcoma	1	5.0
Ewing's sarcoma	4	20.0
Rhabdomyosarcoma	1	5.0
Others	1	5.0
Total	20	100.0

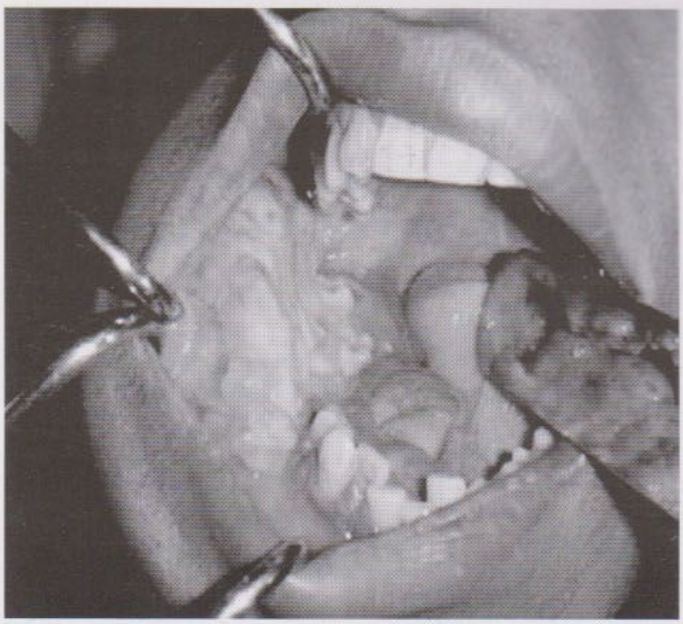
Among the 20 respondents majority (30%) were diagnosed as Osteosarcoma, 3(15.0%) were found Malignant fibrous histocytoma, 4(20%) were diagnosed as fibrosarcoma, 1(5%) was chondrosarcoma, 4(20%) were Ewing's sarcoma, 1(5%) rhabdomyosarcoma and 1(5%) was other

Discussion

The incidence of maxillofacial sarcoma is unknown.one author examined 994 histopathological specimens of maxillofacial malignancies from East Java, Indonesia.[2] they found 42 (4%) sarcomas in their sample. Another author examined 406 maxillofacial malignancies from Kaduna, Nigeria of which 80(20%) were sarcoma.[3] 139 cases of oral malignancies reviewed from Bangladeshi population among which sarcoma were 12.9%.[1] In this study out of 138 maxillofacial malignancies seen at our center within the last 4 years, 20 (14%) were sarcomas. However we believe that a yearly sarcoma incidence of 5 cases in the estimated population served by our center shows rarity of this lesion in the population.

The most common sarcoma is controversial. It depends on age group, site and possibly racial factors. Rhabdomyosarcoma is the commonest oral and maxillofacial sarcoma of childhood while in adults; osteogenic sarcoma (osteosarcoma) is predominant (13, 10) it is the belief that rhabdomyosarcomas are commoner among Caucasians than Negroes speculating a genetic factor in the Caucasoid stock.[15]

In Ibadan, Nigeria, osteosarcoma accounts for 37% of sarcomas over a 15 years period.[16] 32 cases sarcomas involving the oral and maxillofacial region of them 9 (28%) cases of osteosarecoma.[6] as with other reports, the most common sarcoma in our series was osteosarcoma (30%) (Table4). This is similar to the 30% incidence from Pretoria, South Africa.[17] among 6 cases of osteosarcoma found in our series, there were fewer females than males, and ratio was 1:2. This is slightly higher than male to female ratio of 5:3 found from 8 cases.[18]



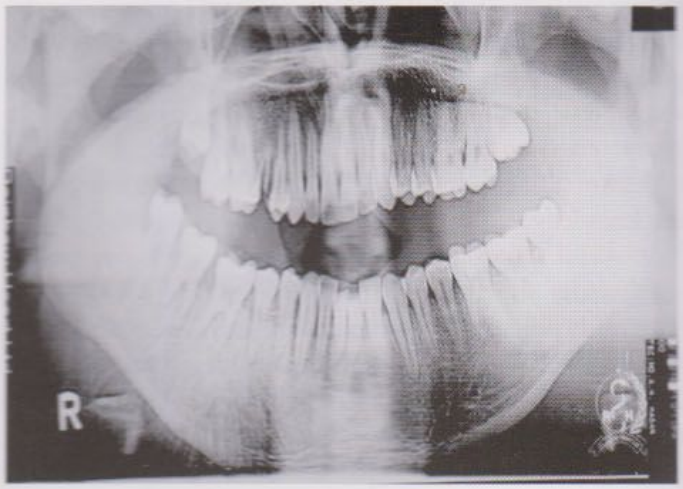


Fig : Clinical& Radiological Image of a case of Osteosarcoma.

Unlike in the rest of the human body where osteosarcoma occurs mostly in the 2nddecade, that of the maxillofacial region occurs in older persons (mean age 38years).[19] Six patients (30%) in our series with osteosarcoma were between 18-60 years old showing its bias for occurrence in adults (table 2). Sarcomas can originate in any part of the body but certain types show a predilection for some parts of the maxillofacial region. Considering specific neoplasms, osteosarcoma occurs more in the maxilla 8(58%) than the mandible 6 (42%).[20] though soft tissue involvement by the tumor can occur it is rare. Table 4 showed that among 6 cases of osteogenic sarcoma more occurred in the mandible (66%) than maxilla (34%).

Following adequate investigations and appropriate workup, treatment is individualized for each patient with sarcoma. Surgery, chemotherapy and radiotherapy are treatment strategies for malignancies. Regarding osteosarcoma, surgery is the gold standard for its treatment in the maxillofacial region, while the results of radiation therapy have been unacceptable.[21,22] Resection with clear margins is the most important prognostic factor in treatment.[23] more favorable outcome in patients without residual disease after surgery.[24]

Patients and surgeons need to dialogue to arrive at the acceptable treatment with tolerable side effects. In the light of our current knowledge, about 70% of the cases treated at our center during the study period received adequate curative surgery i.e. those who had "radical resection ", 15% had no treatment at all due to self-discharge and inoperable cases. There was no follow-up record for the cases treated at our center. While there is controversy on the benefit of adjuvant chemotherapy in the treatment of maxillofacial osteosarcoma, some insist there is survival advantage in such patients.[25,24]

Chondrosarcoma is less common than osteosarcoma from reports, had 12% incidence of chondrosarcoma.[14] this is found higher (5%) than our study (Table 5). The lesion occurs more in males than females, ratio 2:1, but in our study only one case was found out of 20 maxillofacial sarcomas (Table 5). [26,27] In the mouth and jaws, the lesion afflicts younger persons than in other parts of the body.[19] Our one chondrosarcoms male patient was 65 years old. Primary chondrosarcoma affects the maxilla more than the mandible.[28] The site of the lesion in our patient was mandible which was presented with painful swelling and limitation of mouth opening. Larger series are needed to ascertain the actual site predisposition for chondrosarcoma among our population.

Adequate radical surgery remains the primary treatment, with tumor size and histological grade as important.[26] Adequate surgery is surgical excision beyond the lesion.[29] The use of chemotherapy and radiation treatment either alone or with surgery may cause tumor regression especially when given for recurrent disease.[30] the maxillofacial region found in our series which contrasts with the slight female predominance by a ratio of 1.3:1 in the Dutch report.[31] Fibrosarcomas occur in the soft tissues of the maxillofacial region followed by the maxillary sinus, other paranasal sinuse and the nasopharynx.[32] considered the lesion in the jaws of a Dutch population and found more in mandible (n=5) than maxilla (n=2).[31] Our 4 cases were distributed between the mandible 75% and buccal mucosa 25%. Harrison and Lund, noted that difficulties occur in distinguishing maxillary lesions on the basis of origin from soft tissues.[19]

Among three forms of sarcomafibrosarcoma accounted for 38%.[14] this is much higher than our result. It is generally agreed that wide radical excision is the treatment of choicefor fibrosarcoma as no form of limited excision would avoid recurrence and radiotherapy should be reserved for palliation.[25] Threefibrosarcomas had resection alone, threeothers had resection and irradiation ± chemotherapyrespectively while one was managed by radiotherapy alone.[31] Alldied within 6 months to 5.5years of primary treatment with local Dutch experience. Lifelong review is necessary as recurrence after 22 yearsrecurrence/metastatic disease. There does not appear to be improved disease-free interval for fibrosarcoma treated using multimodality treatment than those treated by a single modality from the Dutch study possibly due to poor tumor grading. Following from the general acceptance of resection in treating this sarcoma, 75% of our cases had curative treatment though we doubt if any survived without disease for long considering has been recorded.

Tumor rarity makes incidence of malignant fibrous histiocytoma among other oral and maxillofacial sarcomas difficult to find. It accounted for 15% of sarcomas in this study. There are slightly more males than females with malignant fibrous histiocytoma in the maxillofacial region.[33] we had three patients among them two were male and one were female. Harrison and Lund stated that the lesion occurs mostly in the 6thdecade. Cases of malignant fibrous histiocytoma were between 13 and 54 years old (mean 34).[19] In our series, one patient was 9 years, one was 45 years and another was 70 years old (mean 41) demonstrating its predilection for older people unlike rhabdomyosarcoma.

Malignant fibrous histiocytoma was found more in the hard tissues such as bone than in soft tissues .[8] Out of three lesions they reported, two were in the jaws while one occurred in the scalp. Our three cases were in the mandible (n=3) (Table 4). Two cases of malignant fibrous histiocytoma were managed by combination of surgical excision, adjuvant radiotherapy and chemotherapy with survival for 1-65 months after treatment, while one was lost to follow-up.[8] Surgical excision is the main treatment for malignant fibrous histiocytoma hence 2 of 3 of our cases were adequately managed though no follow-up record was available while one case was inoperable. Local recurrence after 9 years has been reported, hence prolonged follow-up is essential after treatment of malignant fibrous histiocytoma.[34]

Ewing's sarcoma is a highly malignant tumor which develops from medullary tissue of bone. It accounts for 4 to 5 percent of all primary bone tumors.[11] Ewing's sarcoma is the second most common malignant bone tumor of childhood and adolescent, yet it is a rare tumor. Less than 3% of all Ewing's sarcoma originates in the maxillofacial region, usually involving the mandible, 90% occur in the first three decades oflife and males are more often affected than females. We had 4 cases of Ewing's sarcoma patients of them 2 cases were male and 2 cases were female. Three cases were involved in the mandible and rest was in the sinus. Patients age range was 3.5 years to 45 years (mean age was 25 years), we had two patients those age were above 40 years which is similar to this study.[35]

Rhabdomyosarcomas can occur at any age but the lesion is commonest in the first decade of life making it the commonest maxillofacial sarcoma of childhood.[13] five cases were recorded in India, whose mean age was 16 years (range 4-33years) with 80% in the 1stand 2nddecades. We had one case of rhabdomyosarcoma which involved in the oral cavity and patient age was 12 years.[36] Five cases of ameloblastic fibrosarcoma, the malignant counterpart of the ameloblastic fibroma, is

a rare odontogenic tumor characterized by benign epithelium and malignant fibrous stroma.37 The mean age of the patients was 14.6 to22 years. A highly malignant ameloblastic fibrosarcoma located in the right retromolar region.[38] The patient was 17-years old male and his complaint was painful mass in this region. Clinically, the patient had an exophytic strawberry-appearing mass in the right retromolar area. The lower right second molar was loose. We had a male case of ameloblastic fibrosarcoma that was involved in the right retromolar area, presented with painless swelling with loose tooth; size was about 3×3cm. The patient was treated by partial mandibulectomy.

Especially in developing countries such as Bangladesh, poverty, ignorance about medical problems and poorly developed medical infrastructure contribute to morbidity and mortality from malignant conditions such as sarcomas and carcinomas. While patient management is improved with adequate diagnostic and treatment facilities, health care must be accessible for the population to benefit. To improve the patient survival and freedom from recurrence, there is need for increased cancer awareness and funding for the health sector in Bangladesh. Also, regional cancer treatment centers are necessary to cope with the prevalence of malignancies in our environment.

Conclusion

In Dhaka Dental college hospital, sarcomas account for 14% of all maxillofaciamalignancies with the osteosarcoma as the predominant type. Most affected people were in the fourth decade of life. Surgery was the main modality used for treatment while some patients had no treatment due to self-discharge and late presentation. The need for improved medical awareness and upgrading of infrastructure was stressed.

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ORIGINAL ARTICLE

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Study on outcome of closed intra medullary interlocking nailing in segmental fracture shaft of femur in adult

Mohammad Asaduzzaman[1], Ishtiaque Ul Fattah[2], Faruqul Islam[3], Abdul Latif[4], Adnan Choudhury[5], Mohammad Musa[6].

Abstract

Segmental fracture shaft femur is often treated at tertiary level centre's requiring adequate radiological assistance. It is most often result from high energy trauma. There are various treatment modalities in adults like traction, brace, plating, intramedullary nail, external fixators and interlocking nails. But the main stay of the treatment has been interlocking intramedullary nailing. This was a prospective study carried out in Sylhet MAG Osmani Medical College Hospital from March 2016 to March 2017. The study was done to evaluate the outcome of closed intramedullary interlocking nailing in segmental fracture shaft of femur in adult. Data was analyzed both with regards to evaluate the effectiveness, functional outcome and morbidity associated with the procedure. Average age of the patient was 37 years with male preponderance. Road traffic accidnents were the most common mode of injury (75%). Difficulty in entry point was encountered in 1(12.5%), difficulty in reduction of fracture in 2(25%) and difficulty in guide wire insertion was encountered 1(12.5%) cases. The union rate was 87.5%. One patient had superficial infection. According to Friedman and Wyman scoring 6(75%) good, 1(12.5%) fair and 1(12.5%) poor results. Closed intramedullary interlocking nailing has now become the treatment of choice for closed diaphyseal segmental fractures of femur in adults. Interlocking nail offers the added advantages of early joint mobilization, early weight bearing, early muscle rehabilitation, segmental fracture, IL nail.

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Introduction

Segmental femoral shaft fractures are uncommon and usually causedby high-energy violence[1]. The reported incidence is 1-5% of femoral shaft fractures[2]. Femoral shaft fractures were classified using Winquist and Hansen Classification of Fracture Comminution. Segmental femoral shaft fractureis Winquist type IV. The treatment for closed fractures in adults ranging from closed manipulation skeletal traction application on bholer braun splint, closed reduction and internal fixation with intramedullary interlocking nailing, open reduction internal fixation with intramedullary interlocking nailing, open reduction intrernal fixation using dynamic compression or locking plates. Closed reduction and internal fixation or open reduction and internal fixation using intramedullary interlocking nailing is the surgical technique of choice in diaphyseal fracture. Interlocking nailing is the treatment of choice for all femoral fractures from 5cm below lesser trochanter to 15 cm above the knee joint. The intervention of intramedullary interlocking nail made a revolution in the management of fractures[3].

The commonest treatment at present is closed intramedullary nailing usually with an interlocking nail. Closed interlocking nailing technique was introduced after the advent of C- arm. With this technique, a high union rate with few complications has been reported[1]. Open interlocking nailing is the one of the modality to treat femur shaft fractures[4]. Long surgical skin scar, increased blood loss, loss of fracture hematoma, increased infection rate, and complication rate particularly in comminuted fracture and decreased rate of union in open IL nailing procedure. Fracture hematoma has a potential osteogenic factors which is evacuated in open nailing[5].

Materials and Methods

This was a prospective study carried out in Sylhet MAG Osmani Medical College Hospital from March 2016 to March 2017.Eight patients were selected through purposive sampling according to inclusion and exclusion criteria. Inclusion criteria are age group more than 18 years, closed fracture, winquist type lV. Exclusion criteria are pathological fracture, fracture shaft with supracondylar extension, old age not fit for surgery. All patients were evaluated through history, physical examination and investigations. Data were collected with pre-tested structured questionnaire containing history, clinical examination, laboratory Investigations, pre-operative, post-operative follow up findings and complications.

1. Junior consultant, Orthopaedic Surgery. Upazilla Health Complex, Beanibazar, Sylhet.
2. Head of the Department, Orthopaedic Surgery. Sylhet M.A.G Osmani Medical College, sylhet.
3. Junior consultant, Orthopaedic Surgery, Sylhet M.A.G Osmani Medical College, sylhet.
4. Assistant Professor, Orthopaedic Surgery. Park view Medical College Hospital, Sylhet.
5. Medical Officer (OSD), Deputation in BSMMU.
6. Medical Officer (OSD), Deputation in Sylhet M.A.G Osmani Medical College, sylhet.

Operative procedure

A fracture table and image intensifier were routinely used. All patient were in supine position on a fracture table. The piriformis fossa was exposed through gluteal approach. Curved bone awi positioned over the piriformis fossa, confirmed by C-arm. Guide wire passed through the entry point and upto distal fragment. Position of guide wire was confirmed on AP and lateral imaging. Reaming was done over the guide wire. The nail length was confirmed by measuring the length of guide wire. After reaming a static interlocking nail was inserted. Post operative intravenous antibiotics were used in all the patients for 5 days. Post operative check X-ray were taken on 3rd post operative day after removing drain tube. Static quadriceps exercises started within 24 hours of surgery followed by knee flextion extension exercises within 48 hours of surgery.Patients were mobilized on 2nd post operative day with toe touch weight bearing. Stitches were removed on 14th post operative day. Full weight bearing was allowed after clinical and radiological evaluation the follow up of patients was done at 1 month, 2, 3 and 6 months and were assessed clinically and radiologically.

Results

Among 8 patients mean age was 37 years, ranged from 20 to 55 years. Most of them were male 7(87.5%) and 01(12.5%) were female. Majority of the injuries were due toroad traffic accident, 6 (75%) followed by fall from height in 1 (12.5%) and history of assault in 1(12.5%) case. The right femur was affected in 5 cases (62.5%) and the left leg in remaining 3(37.5%). Difficulty in entry point was encountered in 1(12.5%), difficulty in reduction of fracture in 2(25%) and difficulty in guide wire insertion was encountered 1(12.5%) cases (Table 1). Superficial wound infection occurred in 1(12.5%) and nonunion encountered in 1(12.5%) patient (Table 2). Union occurred in 7 (87.5%) by six months. According to Friedman and Wyman scoring 6(75%) good, 1(12.5%) fair and 1(12.5%) poor results (Table 3).

Table I: Complications during surgery

Complications	% of cases
Difficulty in entry point	12.5
Difficulty in fracture reduction	25
Difficulty in guide wire insertion	12.5

Table II: Post operative complications

Complications	% of cases
Superficial wound infections	12.5
Nonunion	12.5

Table III: Friedman and Wyman scoring

Results	Activity of daily living	Pain	Range of motion(hip or Knee)	% of cases
Good	No limitation	Nil	<20%	75
Fair	Mild limitation	Mild to moderate	20-50%	12.5
Poor	Moderate limitation	Severe	>50%	12.5

Preoperative 3 months after operation 6 months after operation

Discussion

A segmental femoral shaft fracture is caused by high velocity trauma and there is always a substantial soft tissue injury[6]. Clinically patient was on pain, swelling, deformity, unable to walk an in some shock. Examination show tenderness, swelling, abnormal mobility at the femoral fracture site. X- Ray of the femur including hip and knee joint, anteroposterior and lateral views. Interlocking nailing is the treatment of choice for all femoral shaft fractures. Open interlocking procedure is associated with increased blood loss, loss of fracture hematoma, increased infection rate and decreased rate of union. Closed interlocking procedure effective method in segmental fractures after the advent of C- arm. In this study among 8 patients mean age was 37 years and majority were male (87.5%).out of 30 patients[7] most of them were males 19 (63.34%), females 11(36.67%). In our study post operative complication encountered in the form of superficial wound infection 1(12.5%).

Overall union rates 7(87.5%) and nonunion 1(12.5%) with the duration of six months in this study. Out of 60 patients 8 100% union rates in both the groups by 8

months. The union in there study group A and B were 16 weeks and 20 weeks respectively. According to Friedman and Wyman scoring system we achieved 6(75%) good, 1(12.5%) fair and 1(12.5%) poor results. Among 30 patients[8] 83.34% good, 6.67% fair and 10% poor results. 44/56 cases[9] healed without dynamization after 6 (4-8)months.

Conclusion

Closed interlocking intramedullary nailing is a very successful method of treatment in segmental fracture shaft of femur. It allows early weight bearing, early rehabilitation and early return to work. It controls rotational and longitudinal deforming forces. Although closed nailing requres more surgical expertise, sophisticated instruments and increased expousure to radiation. But closed intramedullary nailing is an excellent method of treatment for this difficult fracture.

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ORIGINAL ARTICLE

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Evaluation of ultrasound guided fine needle aspiration cytology in the diagnosis of intra-abdominal lesions.

Md. Abdul Mazid Khan[1], MM Ashiqur Rahman[2], Md. Jahangir Alam[3], Ajoy Roy Chowdhury[4]. Mahfisa Mazid Bonni [5].

Abstract

Ultrasonography guided fine needle aspiration cytology has an important role in the diagnosis of intra-abdominal mass lesions. It has diagnostic accuracy of 70-90%. This is a cross sectional study was done in the department of pathology, Sylhet MAG Osmani Medical college Hospital, between july 2012 and june 2013. The study included 80 abdominal mass. The cytological diagnosis was correlated with clinical and radiological finding. Fine needle aspiration cytology was performed in various intra-abdominal sites. liver (46 cases), pancreas (6 cases), lymph node (7 cases). omentum (3 cases), gall bladder mass (3 cases), gastro intestinal tract (01 cases). The most common malignancy encountered in the abdomen was metastatic adenocarcinoma in liver 34 cases. Ultrasonography guided fine needle aspiration cytology had a high sensitivity and specificity in the diagnosis of deep seated intraabdominal lesions. Ultrasound; Fine needle aspiration cytology; Intra-abdominal mass.

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Introduction

With increased sophistication of radiologic imaging procedure, the sensitivity of diagnosing deep seated intra-abdominal lump has greatly increased.[1] Single or multiple space occupying lesions demonstrated by ultrasonography (USG) is the indication for fine needle aspiration cytology (FNAC).[2] Ultrasonography (USG) do not always differentiate between benign and malignant lesions. A confirmed tissue diagnosis is essential for treatment planning.[3] FNAC is the well establish method for the diagnosis of benign and malignant lesions in the abdomen. The procedure has low complication rate and an additional advantage which allows FNAC to be performed as an outpatient procedure. The procedure is also suitable when patients are debilitated or have multiple lesions.[4] Complications that have been reported are haemorrhage, biliary peritonitis and acute pancreatitis. Needle tract tumour implantation after FNAC has been reported but the survival outcome of these patients has not been studied detail.[5] The objective of this study was to evaluate the usefulness of USG-guided FNAC in the diagnosis of intra-abdominal lesions.

Materials and Methods

This cross sectional study was carried out at the department of Pathology with collaboration of the department Radiology and Imaging Sylhet MAG Osmani medical college Hospital during the period of July 2012 to June 2013. All patients who were clinically and radiologically diagnosed with intra-abdominal lesions were included in the study. The aspirations were done by the radiologist or in conjunction with pathologist. A total of 80 patients were included in this study that had intra-abdominal lesions that were suspected to be neoplastic lesions in most of the cases in abdominal ultrasonography. The aspirates were obtained from various anatomic sites such as liver, pancreas, lymph node, omentum and gallbladder mass. 14 out of 80 aspirations were excluded from the study as they were unsatisfactory aspirates. The 95% alcohol fixed smears were prepared for Papanicolaou stains. Clinical and radiological data were obtained from medical records. The FNAC diagnosis was correlated with clinical and radiological findings. The lesions were divided into inflammatory, benign and malignant lesions. Acellular and inadequate smears were excluded from the study. Consecutive USG- guided FNAC of intra-abdominal lesions of these patients were performed in Labaid diagnostic limited in Sylhet town and MAG Osmani Medical College Hospital from July 2012 to June 2013 with immediate cytological assessment.

Exclusion criteria were patients, who were previously diagnosed histopathologically, or patients receieving chemotherapy or radiotherapy and patients having bleeding disorder. Proper aseptic care was taken by cleaning the skin surface with iodine before every

1. Assistant Professor, Department of Pathology MAG Osmani Medical College, Sylhet
2. Associate Profesor, Department of Radiology and Imaging MAG Osmani Medical College, Sylhet
3. Associate Profesor, Department of Gastroenterology MAG Osmani Medical College, Sylhet
4. Assistant Professor, Department of Pathology MAG Osmani Medical College, Sylhet
5. Clinical Pathologist, Department of Pathology MAG Osmani Medical College, Sylhet

FNAC. Aspiration was done by using 21g, 88 mm long spinal needle through percutaneaous transabdominal approaches, identifying the lesions by ultrasonography (USG) after the measurement of the site of entry of the needle, route of the needle, and the distance between the skin and the lesion of the USG monitor. The patient's position was supine, prone, or lateral decubitus depending on the site of location of the lesions.

Results

Out of 80 cases 45 (56.25%) were male and 35(43.75%) were female the youngest patient was female of 30 years whereas oldest patient was male of 80 years, mean ages of patients 59.1 years. A genderwise distribution shows that mean age was 57.2 years for the male patients and 47.3 years for the female patients. The significant findings of the present study is maximum male patients were in the age group 51-60 years and lowest number female patients were found in the age group 71-80years.

Table I: Age and sex distribution of patients (n=80)

Age group in years	Male (%)	Female(%)
31-40	1(1.25%)	3 (3.75%)
41-50	9(11.25%)	4(5.0 %)
51-60	19(23.75%)	22 (27.5%)
61-70	10(12.5%)	5(6.25%)
71-80	6(7.5%)	1(1.25%)
Total	4 5(56.25%)	35(43.75%)

Out of 80 cases definitive cytological diagnosis was obtained in 66 cases and rest 14 cases were inconclusive and descriptive reports were given to the patients. Among 66 cytological diagnosed cases 61(92.42%) were malignant and 5 (7.57%) were benign lesions. Out of 61 malignant cases, largest number of malignant cases was seen in the age group 61-70 years. The most common malignancies encountered in liver were 46(69.69%). Among the hepatic malignancies, largest number of cases were metastatic adenocarcinoma 34 (51.51%) followed by hepatocellular carcinoma 7(10.60%). Benign neoplasm included 3(4.54%) were liver cell adenoma. The most common malignancies in the gall bladder was adenocarcinoma 3 (4.54%).The common malignancy in the intraabdominal lymph node were Non-Hodgkin's lymphoma 3(4.54%) follwed by metastatic adencarcinma 2(3.03%). Common malignancy in the pancreas were adenocarcinoma5(7.5%).

Table II: Cytological diagnsis of intra-abdominal lesions

Intraabdominal lesion	Cytological diagnosis	Number of cases	Percentage (%)
1. Liver (46 cases)	Metast atic adenocarcinoma	34	51.51%
	Hepatocellular carcinoma	7	10.60%
	Liver cell adenoma	3	4.54%
	Non-Hodgkin's lymphoma	2	3.03%
2. Gall bladder (3 cases)	Adenocarcinoma	2	3.03%
	Poorly differentiated carcinoma	1	1.51%
3.Lymph node (7cases)	Non-Hodgkin'slymphoma	3	4.54%
	Metastatic adenocarcinoma	2	3.03%
	Granulomatous inflammation cytologically consistent with tuberculosis	2	3.03%
4. Pancreas (6 cases)	Well differentiated adenocarcinoma	3	4.54%
	Poorly differentiated adenocarcinoma	2	3.03%
	Benigncystic lesion	1	1.51%
5.Omentum (3 cases)	Metastatic adenocarcinoma	2	3.03%
	Non-Hodgkin's lymphoma	1	1.51%
6. Gastro-intestinal tract (1cases)	Adencarcinoma	1	1.51%
Total		66	

Figure 1: (A, B): Smears showing metastatic adenocarcinoma liver

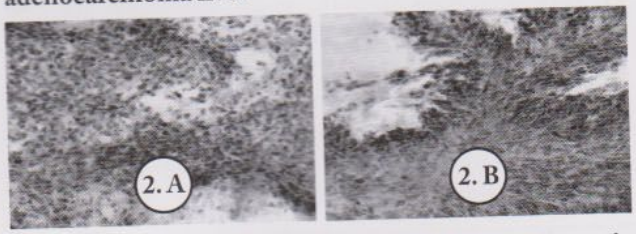

Figure II: (A): Smears showing pancreatic adenocarcinoma.

Figure II (B) : Smears showing poorly differentiated carcinoma of gallbladder.

Discussion

Ultrasound guided FNAC has facilitated easy collection of cellular material with grater diagnostic accuracy. Inaccessible intraabdominal sites like hepatic, pancreatic, gallbladder, renal and omental mass lesions can be safely

sampled and are now routinely aspirated under ultrasound guidance to obtain cellular material.[1] When the procedure is jointly done by a pathologist and the radiologist the accuracy rate of obtaining adequate sample is very high.[2] The immediate assessment of the specimen by the pathologist along with further passes when necessary improves the adequacy rate of the technique. Liver was the common sites for as shown in table II which was he comparable to the study done by the J Nobrega et al. 7 In the study done by the Pranjoli S et al[1], the ages between 19-83 years. In our study malignant lesions most common in the age group 61-70 years. Adhikari RC et al.[4] found the maximum incidence of malignant lesion in the age group 40-70 years.

In our study most common malignancies encountered in the abdomen are the metastatic adenocarcinoma in liver 34(51.51%) followed by hepatocellular carcinoma 7(10.60%). RC Adhikari[8] et al found metastatic tumour of the liver as the most common malignancies encountered in the abdomen (38.43% followed by hepatocellular carcinoma (24.8%). There were pancreatic lesion 6 cases (9.0 %) pancreatic lesions in our study. Sheikh et a[13] found 6 pancreatic lesions lesions among 120 cases which were almost similar finding in our study. Among the intra-abdminal lymph node aspirate in our study; out of 7 cases 2 cases were diagnosed as granulomatous lesions consistent with tuberculosis and 5 caeses were diagnosed as malignant leions ; 2 metastatic adenocarcinoma; 3 Non Hodgkin's lymphoma. Porter B et al[13] found 58.9% inflammatory lesions and 41.7% malignant lesions. In this study, FNAC has diagnosed not only benign and malignant lesions but also non neoplastic diseases like tuberculosis.

In this study Cclinico -radiological parameters showed no false positive results but two false negative results. Two cases were clinico-rdilogically diagnosed as benign lesions but cytologically diagnosed malignant on ultra-sound guided FNAC. 1 cases of hepatocellular carcinoma, 1 cases of Non- Hodgkin's lymphoma of intra-abdominal lymph node Therefore, USG Guided FNAC should be used as a routine procedure in the diagnosis of abdominal lesions due to high sensitivity and specificity rate and low complication rate.

Conclusion

USG-guided FNAC of intra-abdominal lesions is a safe, rapid and reliable out patient procedure with lowest cost to the patient as compared to higher cost, morbidity and lengthy hospital stay in surgical biopsies.

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ORIGINAL ARTICLE

The Osmani Medical Teachers Association Journal Volume 11 Number 1

Correlation of Magnitude of ST Segment Depression in Leads V_1 to V_4 in Acute Inferior Myocardial Infarction with Angiographic Severity of Coronary Artery Disease

Md. Shuaib Ahmed[1], Muhammad Shahabuddin[2], S M Habibullah.[3], Md Anisul Goni Khan[4], Md Sajjadur Rahman[5], Bhabani Prashad Roy[6]

Abstract

Anterior precordial ST-segment depression is common in the setting of inferior myocardial infarction. This reciprocal change is a marker for increased morbidity, mortality, and complications compared to patients without reciprocal changes. The etiology of precordial lead ST segment depression during the acute phase of an inferior myocardial infarction has been extensively investigated, with conflicting results. To evaluate the correlation between the magnitude of ST segment depression in leads V1 to V4 in acute inferior myocardial infarction with angiographic severity of coronary artery disease. This cross-sectional study was conducted in the Department of Cardiology SOMCH during the period from January 2014 to December 2015. Fifty patients who had acute inferior myocardial infarction with ST depression of >1mm in at least two contiguous leads of V1 to V4 in 12 leads on admission ECG were selected consecutive and convenient sampling. All the patients had undergone coronary angiography. The mean age of patients was 53.28 (SD 9.40) years and majority of the patients were male (88%) with ratio of male to female was 7.33:1. ST depression in leads V3 and V2 were more frequent (86.0% and 84.0% respectively); while lead V4 and V1 was in 62.0% and 32.0% of the patients respectively. The mean value of magnitude of ST depression was 6.84 (SD 4.16) mm and 64% of patients had sum of ST depression with in 6 mm. Double vessels and triple vessel involvement was found in 42.0% and 32.0% respectively. Right coronary artery was involved in 84.0%, left anterior descending involvement was in 56.0%, left circumflex in 54.0% and left main involvement in 4.0% of patients. A significant positive correlation was observed between sum of ST segment depression inV1 to V4 and vessel score (r=0.758, p<0.001) and Friesinger score (r=0.750, p<0.001). From the study it may be concluded that magnitude of ST segment depression in lead V1 to V4 is directly proportional to the severity and extent of coronary artery disease in acute inferior myocardial infarction. Precordial ST depression, Inferior MI, Coronary angiography, severity

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Introduction

Cardiovascular disease is one of the leading causes of morbidity and mortality in the world. It is responsible for about 30% of deaths worldwide. Among all death due to cardiovascular diseases, half are attributed to myocardial infarction[1,8]. In Bangladesh coronary artery disease is the third largest cause of death today.[17] AMI is usually due to anterior and or inferior wall involvement. The presentation of acute myocardial infarction is different depending on the coronary artery involved. Inferior wall MI results from either right coronary artery (RCA) or left circumflex coronary artery (LCX) occlusion. The LCX perfuses the posterior wall and variably the inferior and lateral segments. Lesion of it causes arrhythmias, heart failure and sudden death. [2, 10]

Acute inferior myocardial infarction accounts for 40-50% of all AMI . The prognosis of inferior AMI is adversely affected when it is associated with proximal occlusion of RCA which leads to right ventricular infarction (RVI) with hypotension, high degree Atrio-ventricular (AV) conduction disturbances, sinus bradycardia and ventricular tachycardia.[5] Acute inferior myocardial infarction is considered a more favorable prognosis than anterior myocardial infarction, but includes high risk subgroups with increased mortality and morbidity.[4, 6]

Over the past 2 decades, ECG has attained the diagnosis of myocardial injury and a rapid assessment of myocardium at risk proved pivotal to implementing effective reperfusion therapies during acute myocardial infarction. The analysis of patterns of ST-T segment in precordial leads may influence decisions regarding the treatment strategy, prediction of prognosis and outcome. A study conducted in Bangladesh showed that a

1. Medical Officer, cardiology dept, Sylhet MAG Osmani Medical College, Sylhet.
2. Professor (cardiology), Sylhet MAG Osmani Medical College, Sylhet.
3. Associate Professor (Cardiology). Sylhet MAG Osmani Medical College, Sylhet.
4. Junior Consultant Cardiology, NICVD
5. Junior Consultant, UHC, Louhajong, Munshigonj
6. Senior Consultant, Sadar Hospital, Laxmipur.

Table II: Distribution of Patients by Risk Factors (n=50)

Risk Factors	Frequency	Percentage
Smoker	26	52.0
Hypertension	25	50.0
Diabetes mellitus	19	38.0
Dyslipidemia	14	28.0
Family history of IHD	12	24.0

Table III: Distribution of ST Depression in Terms of Lead Involvement (n=50)

Lead Involvement	Frequency	Percentage
V_1	16	32.0
V_2	42	84.0
V_3	43	86.0
V_4	31	62.0

Table III. showed that most of the patients had ST depression in leads V3 (86.0%) and V2 (84.0%). ST depression in lead V1 and V4 was 32.0% and 62.0% of the patients respectively.

Table IV: Distribution of Patients by Sum of ST Depression (n=50)

Sum of ST Depression	Frequency	Percentage
<4 mm	17	34.0
4.1-6 mm	15	30.0
6.1-8 mm	3	6.0
8.1-10 mm	8	16.0
10.1-12 mm	1	2.0
>12 mm	6	12.0
Mean (SD) mm	6.84 (SD 4.16)	

Table V: Distribution of Patient by Number of Stenosed Vessels (n=50)

Stenosed Vessels	Frequency	Percentage
No	1	2.0
Single	12	24.0
Double	21	42.0
Triple	16	32.0
Total	50	100.0

Table VI: Distribution of Patient by Main Vessel Involvement (n=49)

Main vessel involvement	Frequency	Percentage
Left main	2	4.0
Left anterior descending	31	62.0
left circumflex	27	54.0
Right coronary artery	42	84.0

Table VI . showed that 84.0% patients had stenosis in right coronary artery (RCA), 62.0% of patients had lesions in LAD (left anterior descending), 54.0% of patients had lesions in LCx (left circumflex) and 4.0% of patients had LM (left main) involvement.

Figure 2. Scattered Diagram showing Correlation between Sum of ST Segment Depression and Vessel Score (n=50)

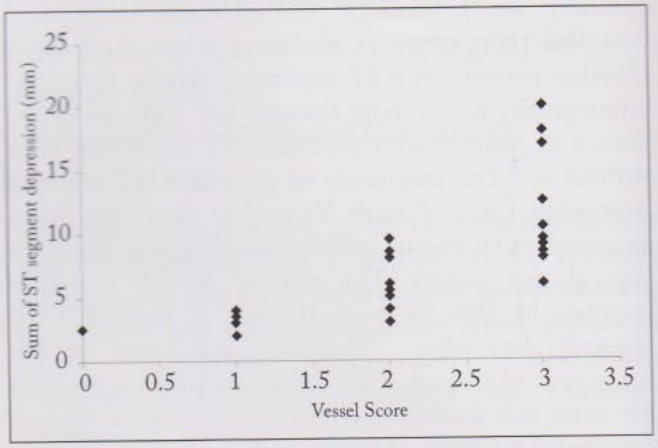
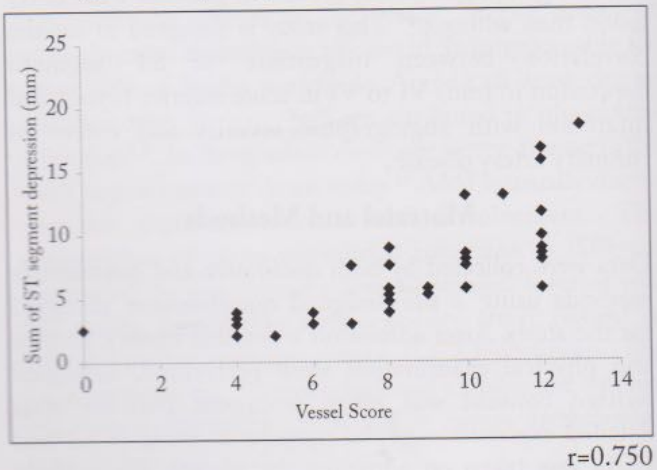


Figure 3. Scattered Diagram Showing Correlation between Sum of ST Segment Depression and Friesinger score (n=50)



r=0.750

Figure-3 showed that there was a significant positive correlation between the sum of ST segment depression and Friesinger score (Pearson correlation coefficient, r=0.750, p<0.001).

Discussion

In this study the age of the patients ranged from 35 to 72 years with the mean age of 53.28 (SD 9.40) years. Study found that the mean age of the patients with acute inferior myocardial infarction was 53.6±10.3 years.[2]

This study also showed that there were 23 (46.0%) patients in the age group of 51-60 years, 13 (26.0%) patients in the age group of 41-50 years, 7 (14.0%) patients in the age group of 61-70 years and 1 (2.0%) patients in the age group of 71-80 years. This results were almost similar to the study that age of the patients was 50 to 59 years in 34% of patients, 40 to 49 years in 22% of patients, 60 to 69 years in 19.5% of patients, under 40 years in 15.5% of patients and above 70 years in 9% of patients of their series.[16]

In the present study there were 44 (88.0%) male and 6 (12.0%) female with a ratio of male to female was 7.33:1. Man had greater risk of MI than woman. This might be due to natural sex hormone balance of the reproductive period of those. The risk of cardiovascular disease i.e. MI are greater in man than woman.[16] Gender variation of MI of this study coincided with the studies of others. Study found that 67 patients were male (82.7%) and 14 patients were female (17.3%) with male and female ratio was 4.78:1 in their series of AIMI patients.[2] Study reported that 71.1% male and 28.9% female among their patients with acute inferior myocardial infarction with a ratio of male to female of was 2.46:1.[6] Another study reported 73.8% of patients with acute inferior myocardial infarction were male and rest (26.8%) were female with a ratio of male to female of was 2.82:1. [15]

In this study smoking was the most prevalent risk factor (52.0%) followed by hypertension (50.0%), diabetes mellitus (38.0%), dyslipidemia (28.0%) and family history of IHD (24.0%). Nearly similar distribution of risk factors reported in the studies of others. Study found smoking was most prevalent and more than half of the patients had history of smoking (56.8%) followed by hypertension (46.9%), diabetes mellitus (35.8%), family history of CAD (18.5%) and dyslipidemia (14.8%) in acute inferior myocardial infarction.[2] Another study reported smoking (56.7%), hypertension (53.3%), diabetes mellitus (43.3%), dyslipidemia (23.3%) and family history of CAD (13.3%) among their series of acute inferior myocardial infarction precordial lead ST segment depression.[11] The current study showed that most of the patients had ST depression in leads V3 (86.0%) and V2 (84.0%). ST depression in lead V1 and V4 was 32.0% and 62.0% of the patients respectively. This was possibly due to less number of LCX lesions in our study which was supported in the study.[7,13]

This study showed that 42.0% of the patients were affected by double vessel disease, 32.0% of the patients were affected by triple vessel disease, 24.0% of the patient was affected by single vessel disease and 2.0% of patients had normal epicardial vessels. Study reported single vessel disease in most of the cases (80.0%), followed by double vessel disease (10.0%), triple vessel disease (6.7%) and 3.3% of patients had normal epicardial vessels. [11] In this study that 84.0% patients had stenosis in right coronary artery (RCA), 62.0% of patients had lesions in LAD (left anterior descending), 54.0% of patients had lesions in LCx (left circumflex) and 4.0% of patients had LM (left main) involvement.In this Study found that left circumflex involved in 100.0% of cases, proximal right coronary artery involved in 31.3% of cases, distal right coronary artery involved in 18.8% of cases, left anterior descending involved in 18.8% of cases.[2] Study reported left main lesions branch involved in 4.1% of their series of patients with acute inferior myocardial infarction. Correlation between sum of ST segment depression and vessel score in the present study showed the two variables exhibit significantly positive correlation ($r=0.758$, $p<0.001$). Extensive literature searched did not reveal such correlation between sum of ST segment depression and vessel score. Correlation between sum of ST segment depression and Friesinger score in the current study revealed the two variables exhibit significantly positive correlation ($r=0.750$, $p<0.001$). Scarcity of literature in this regards this finding could not be compared. But study found that sum of ST segment depression correlated with angiographic severity as determined by Gensini score ($r=0.68$; $p<0.05$) and Reardon score ($r=0.88$, $p<0.05$).[12]

Conclusion

The data provided in this study strongly support that precordial ST-segment depression during acute inferior infarction is a marker for larger infarction as a result of either ischemia or due to the presence of multi vessel disease or a greater amount of myocardium supplied by the infarct-related artery. It may be concluded that the magnitude of ST segment depression in lead V1 to V4 is directly proportional to the severity and extent of coronary artery disease in acute inferior myocardial infarction.

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ORIGINAL ARTICLE

The Osmani Medical Teachers Association Journal Volume 11 Number 1

Correlation of Magnitude of ST Segment Depression in Leads V_1 to V_4 in Acute Inferior Myocardial Infarction with Angiographic Severity of Coronary Artery Disease

Md. Shuaib Ahmed[1], Muhammad Shahabuddin[2], S M Habibullah.[3], Md Anisul Goni Khan[4], Md Sajjadur Rahman[5], Bhabani Prashad Roy[6]

Abstract

Anterior precordial ST-segment depression is common in the setting of inferior myocardial infarction. This reciprocal change is a marker for increased morbidity, mortality, and complications compared to patients without reciprocal changes. The etiology of precordial lead ST segment depression during the acute phase of an inferior myocardial infarction has been extensively investigated, with conflicting results. To evaluate the correlation between the magnitude of ST segment depression in leads V1 to V4 in acute inferior myocardial infarction with angiographic severity of coronary artery disease. This cross-sectional study was conducted in the Department of Cardiology SOMCH during the period from January 2014 to December 2015. Fifty patients who had acute inferior myocardial infarction with ST depression of >1mm in at least two contiguous leads of V1 to V4 in 12 leads on admission ECG were selected consecutive and convenient sampling. All the patients had undergone coronary angiography. The mean age of patients was 53.28 (SD 9.40) years and majority of the patients were male (88%) with ratio of male to female was 7.33:1. ST depression in leads V3 and V2 were more frequent (86.0% and 84.0% respectively); while lead V4 and V1 was in 62.0% and 32.0% of the patients respectively. The mean value of magnitude of ST depression was 6.84 (SD 4.16) mm and 64% of patients had sum of ST depression with in 6 mm. Double vessels and triple vessel involvement was found in 42.0% and 32.0% respectively. Right coronary artery was involved in 84.0%, left anterior descending involvement was in 56.0%, left circumflex in 54.0% and left main involvement in 4.0% of patients. A significant positive correlation was observed between sum of ST segment depression inV1 to V4 and vessel score (r=0.758, p<0.001) and Friesinger score (r=0.750, p<0.001). From the study it may be concluded that magnitude of ST segment depression in lead V1 to V4 is directly proportional to the severity and extent of coronary artery disease in acute inferior myocardial infarction. Precordial ST depression, Inferior MI, Coronary angiography, severity

[OMTAJ 2018; 17 (1)]

Introduction

Cardiovascular disease is one of the leading causes of morbidity and mortality in the world. It is responsible for about 30% of deaths worldwide. Among all death due to cardiovascular diseases, half are attributed to myocardial infarction[1,8]. In Bangladesh coronary artery disease is the third largest cause of death today.[17] AMI is usually due to anterior and or inferior wall involvement. The presentation of acute myocardial infarction is different depending on the coronary artery involved. Inferior wall MI results from either right coronary artery (RCA) or left circumflex coronary artery (LCX) occlusion. The LCX perfuses the posterior wall and variably the inferior and lateral segments. Lesion of it causes arrhythmias, heart failure and sudden death. [2, 10]

Acute inferior myocardial infarction accounts for 40-50% of all AMI . The prognosis of inferior AMI is adversely affected when it is associated with proximal occlusion of RCA which leads to right ventricular infarction (RVI) with hypotension, high degree Atrio-ventricular (AV) conduction disturbances, sinus bradycardia and ventricular tachycardia.[5] Acute inferior myocardial infarction is considered a more favorable prognosis than anterior myocardial infarction, but includes high risk subgroups with increased mortality and morbidity.[4, 6]

Over the past 2 decades, ECG has attained the diagnosis of myocardial injury and a rapid assessment of myocardium at risk proved pivotal to implementing effective reperfusion therapies during acute myocardial infarction. The analysis of patterns of ST-T segment in precordial leads may influence decisions regarding the treatment strategy, prediction of prognosis and outcome. A study conducted in Bangladesh showed that a

1. Medical Officer, cardiology dept, Sylhet MAG Osmani Medical College, Sylhet.
2. Professor (cardiology), Sylhet MAG Osmani Medical College, Sylhet.
3. Associate Professor (Cardiology). Sylhet MAG Osmani Medical College, Sylhet.
4. Junior Consultant Cardiology, NICVD
5. Junior Consultant, UHC, Louhajong, Munshigonj
6. Senior Consultant, Sadar Hospital, Laxmipur.

Table II: Distribution of Patients by Risk Factors (n=50)

Risk Factors	Frequency	Percentage
Smoker	26	52.0
Hypertension	25	50.0
Diabetes mellitus	19	38.0
Dyslipidemia	14	28.0
Family history of IHD	12	24.0

Table III: Distribution of ST Depression in Terms of Lead Involvement (n=50)

Lead Involvement	Frequency	Percentage
V_1	16	32.0
V_2	42	84.0
V_3	43	86.0
V_4	31	62.0

Table III. showed that most of the patients had ST depression in leads V3 (86.0%) and V2 (84.0%). ST depression in lead V1 and V4 was 32.0% and 62.0% of the patients respectively.

Table IV: Distribution of Patients by Sum of ST Depression (n=50)

Sum of ST Depression	Frequency	Percentage
<4 mm	17	34.0
4.1-6 mm	15	30.0
6.1-8 mm	3	6.0
8.1-10 mm	8	16.0
10.1-12 mm	1	2.0
>12 mm	6	12.0
Mean (SD) mm	6.84 (SD 4.16)	

Table V: Distribution of Patient by Number of Stenosed Vessels (n=50)

Stenosed Vessels	Frequency	Percentage
No	1	2.0
Single	12	24.0
Double	21	42.0
Triple	16	32.0
Total	50	100.0

Table VI: Distribution of Patient by Main Vessel Involvement (n=49)

Main vessel involvement	Frequency	Percentage
Left main	2	4.0
Left anterior descending	31	62.0
left circumflex	27	54.0
Right coronary artery	42	84.0

Table VI . showed that 84.0% patients had stenosis in right coronary artery (RCA), 62.0% of patients had lesions in LAD (left anterior descending), 54.0% of patients had lesions in LCx (left circumflex) and 4.0% of patients had LM (left main) involvement.

Figure 2. Scattered Diagram showing Correlation between Sum of ST Segment Depression and Vessel Score (n=50)

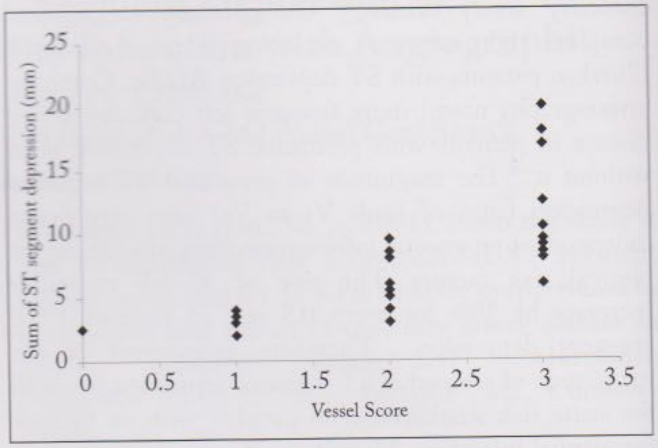
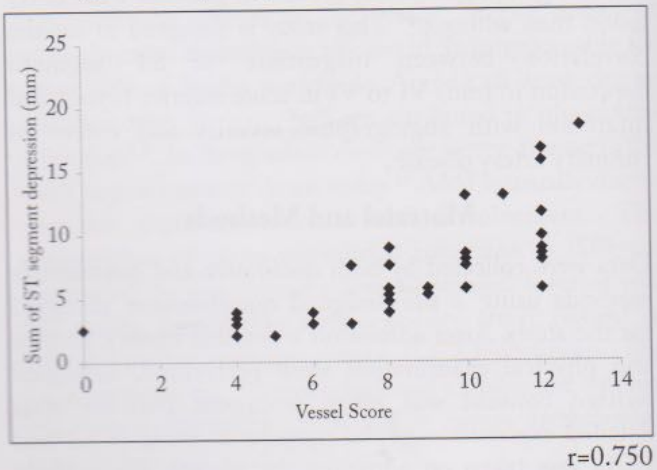


Figure 3. Scattered Diagram Showing Correlation between Sum of ST Segment Depression and Friesinger score (n=50)



r=0.750

Figure-3 showed that there was a significant positive correlation between the sum of ST segment depression and Friesinger score (Pearson correlation coefficient, r=0.750, p<0.001).

Discussion

In this study the age of the patients ranged from 35 to 72 years with the mean age of 53.28 (SD 9.40) years. Study found that the mean age of the patients with acute inferior myocardial infarction was 53.6±10.3 years.[2]

This study also showed that there were 23 (46.0%) patients in the age group of 51-60 years, 13 (26.0%) patients in the age group of 41-50 years, 7 (14.0%) patients in the age group of 61-70 years and 1 (2.0%) patients in the age group of 71-80 years. This results were almost similar to the study that age of the patients was 50 to 59 years in 34% of patients, 40 to 49 years in 22% of patients, 60 to 69 years in 19.5% of patients, under 40 years in 15.5% of patients and above 70 years in 9% of patients of their series.[16]

In the present study there were 44 (88.0%) male and 6 (12.0%) female with a ratio of male to female was 7.33:1. Man had greater risk of MI than woman. This might be due to natural sex hormone balance of the reproductive period of those. The risk of cardiovascular disease i.e. MI are greater in man than woman.[16] Gender variation of MI of this study coincided with the studies of others. Study found that 67 patients were male (82.7%) and 14 patients were female (17.3%) with male and female ratio was 4.78:1 in their series of AIMI patients.[2] Study reported that 71.1% male and 28.9% female among their patients with acute inferior myocardial infarction with a ratio of male to female of was 2.46:1.[6] Another study reported 73.8% of patients with acute inferior myocardial infarction were male and rest (26.8%) were female with a ratio of male to female of was 2.82:1. [15]

In this study smoking was the most prevalent risk factor (52.0%) followed by hypertension (50.0%), diabetes mellitus (38.0%), dyslipidemia (28.0%) and family history of IHD (24.0%). Nearly similar distribution of risk factors reported in the studies of others. Study found smoking was most prevalent and more than half of the patients had history of smoking (56.8%) followed by hypertension (46.9%), diabetes mellitus (35.8%), family history of CAD (18.5%) and dyslipidemia (14.8%) in acute inferior myocardial infarction.[2] Another study reported smoking (56.7%), hypertension (53.3%), diabetes mellitus (43.3%), dyslipidemia (23.3%) and family history of CAD (13.3%) among their series of acute inferior myocardial infarction precordial lead ST segment depression.[11] The current study showed that most of the patients had ST depression in leads V3 (86.0%) and V2 (84.0%). ST depression in lead V1 and V4 was 32.0% and 62.0% of the patients respectively. This was possibly due to less number of LCX lesions in our study which was supported in the study.[7,13]

This study showed that 42.0% of the patients were affected by double vessel disease, 32.0% of the patients were affected by triple vessel disease, 24.0% of the patient was affected by single vessel disease and 2.0% of patients had normal epicardial vessels. Study reported single vessel disease in most of the cases (80.0%), followed by double vessel disease (10.0%), triple vessel disease (6.7%) and 3.3% of patients had normal epicardial vessels. [11] In this study that 84.0% patients had stenosis in right coronary artery (RCA), 62.0% of patients had lesions in LAD (left anterior descending), 54.0% of patients had lesions in LCx (left circumflex) and 4.0% of patients had LM (left main) involvement.In this Study found that left circumflex involved in 100.0% of cases, proximal right coronary artery involved in 31.3% of cases, distal right coronary artery involved in 18.8% of cases, left anterior descending involved in 18.8% of cases.[2] Study reported left main lesions branch involved in 4.1% of their series of patients with acute inferior myocardial infarction. Correlation between sum of ST segment depression and vessel score in the present study showed the two variables exhibit significantly positive correlation ($r=0.758$, $p<0.001$). Extensive literature searched did not reveal such correlation between sum of ST segment depression and vessel score. Correlation between sum of ST segment depression and Friesinger score in the current study revealed the two variables exhibit significantly positive correlation ($r=0.750$, $p<0.001$). Scarcity of literature in this regards this finding could not be compared. But study found that sum of ST segment depression correlated with angiographic severity as determined by Gensini score ($r=0.68$; $p<0.05$) and Reardon score ($r=0.88$, $p<0.05$).[12]

Conclusion

The data provided in this study strongly support that precordial ST-segment depression during acute inferior infarction is a marker for larger infarction as a result of either ischemia or due to the presence of multi vessel disease or a greater amount of myocardium supplied by the infarct-related artery. It may be concluded that the magnitude of ST segment depression in lead V1 to V4 is directly proportional to the severity and extent of coronary artery disease in acute inferior myocardial infarction.

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ORIGINAL ARTICLE

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Injury Pattern and mode of death in Pedestrians in RTA

Misbah Ul Hoq Chowdhury[1], Kanta Deb[2], Atiq Mahmud[3], Chowdhury Rifat Jahan[4] Md. Samiruddin[5] Siddhartha Shankar Dutta[6]

Abstract

This is a retrospective study carried out in Forensic Medicine Department of Sylhet M.A.G. Osmani Medical College Hospital Sylhet from July, 2010 to July,2011 to observe different patterns of injuries and cause of death in Pedestrians - the group which is the most vulnerable group in road traffic accident (RTA).30 autopsies were included in this study using random sampling. Male(80%) are more victimized than female as Pedestrian. The pattern of injuries that found to be most common is the blunt force injury on the scalp with or without fracture of the skull. Coma is the most common mode of death and Head injury is the most common cause responsible for the majority of fatalities. Second and third common injury patterns are the multiple injuries on different parts of the body with the involvement of any vital organ and without the involvement of any vital organ respectively; most of the time with fracture of bones. The cause behind the head injury and coma being most common is not because that the primary impact is most of the time on the head; but because either in primary impact or in secondary impact, even in tertiary injuries, the head is the ultimate part of the body subjected to acceleration or deceleration force. Another cause is the sensitivity of the brain to any type of force, either axial or rotating.

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Introduction

Although injuries and fatalities occur in all forms of transportation but numerically RTA accounts for the great majority worldwide.[1] Bangladesh is a densely populated country where lack of awareness, lack of monitoring, poverty, corruption and failure of maintaining traffic laws strictly are major causes responsible for a lot number of fatalities in RTA. Not only for RTA, but also in any type of accident lack of awareness is a major factor that is responsible in Bangladesh to create higher risk because of the lower percentage of educated people. Lack of monitoring from the road traffic control authority is not uncommon in a developing country like Bangladesh where incompetent officers often failed to identify the scientific cause and its solution. Poverty, corruption and failure of maintaining traffic laws strictly are inter-related factors. Poverty still is a substantial cause for which the driver and the owner are not interested to abide by the rules and regulations of the traffic law, but more interested to bypass them. Corruption ensues from the disinterest to abide by the rules and regulations and lack of awareness about the danger make people disinterested.

Materials and Method

This study is carried out in Forensic Medicine Department of Sylhet M.A.G. Osmani Medical College Hospital Sylhet from July, 2010 to July,2011. Thirty autopsies were included in this study using random sampling. Necessary information gathered from police inquest report and accompanied friends, neighbors and relatives.[2] The study based on physical examination using the usual methods and instruments. No special technique or incision was employed. The variables that are analyzed were sex, age, position of the victim, injury pattern, cause of death and mode of death.[3]

Results

Among the thirty deceased, 24 were male and 6 were female and the male female ratio was 4:1. Age of them ranged between 7 years and 60 years. Among 30, 28 were adult and 2 were children (below 18 years). Sex and age distribution are shown in table I&II.

Table I : Sex distribution

Sex	Number	Percentage
Male	24	80%
Female	06	20%
Total = 30		

Table II : Age distribution

Age	Number	Percentage
Children (below 18 years)	02	6.66%
Adult (Above 18 years)	28	93.33%
Total = 30		

1. Assistant Professor of Forensic Medicine, Parkview Medical College, Sylhet.
2. Assistant Professor of Forensic Medicine, Sylhet Women's Medical College, Sylhet.
3. Retired Associate Professor of Forensic Medicine, Jalalabad Ragib Rabeya Medical College, Sylhet.
4. Associate Professor of Physiology, Parkview Medical College, Sylhet.
5. Professor of Anatomy, Parkview Medical College, Sylhet.
6. Assistant Professor of Dermatology, MAG Osmai Medical College Sylhet.

As mentioned earlier, The pattern of injuries that found to be most common is the blunt force injury on the scalp with or without fracture of the skull. Second and third common injury patterns are the multiple injuries on different parts of the body with the involvement of any vital organ and without the involvement of any vital organ respectively; but most of the time with fracture of bones(Table III).

Table III : Distribution according to the injury pattern

Injury pattern	Number	Percentage
Blunt force injury on the scalp with or without fracture of the skull	26	86.66%
Multiple injuries on different parts of the bodywith the involvement of any vital organ	03	10%
Multiple injuries on different parts of the body with outthe involvement of any vital organ	01	3.33%
Total= 30		

As mentioned earlier, Head injury found to be the most common cause of death with bruise, laceration or intracranial haemorrhage including extradural, subdural and intracranial haemorrhage.4&5 Second common cause is the combined effect of hypovolaemic shock and vital organ injury. Another cause is hypovolaemic shock resulting from multiple injuries on different parts of body(Table IV).

Table IV : Distribution according to the cause of death

Cause of death	Number	Percentage
Head injury	26	86.66%
Combined effect of hypovolaemic shock and vital organ injury	03	10%
Hypovolaemic shock	01	3.33%
Total= 30		

As mentioned earlier, Coma is the most common mode of death. Second common mode of death is syncope resulting from multiple injuries (Table V).

Table V : Distribution according to the mode of death

Mode of death	Number	Percentage
Coma	26	86.66%
Syncope	04	13.33%

Discussion

The male predominance is obviously due to their predominant role in socio-economic activities in Bangladesh, especially in rural area near the highway road. Children accidentally comes in highway due to lack of proper look after from their guardians which especially happened in rural area.

Considering the injury pattern and the cause of death following facts should be in mind that RTA is a complex and dynamic event. Primary impact injuries are the injuries sustained by the vehicle striking victim and secondary impact injuries are further injuries from the subsequent additional contacts of the vehicle following primary impact.[1,6,7] Secondary injuries or Tertiary injuries are suffered as a result of striking the ground or contact with other objects/obstacles. So, The pattern of injuries depends on sequence of injuries which variable due to variable factors such as type of vehicle, age of the pedestrian, the part of the vehicle comes in primary impact, the position of the body during the primary impact, subsequent secondary contact and obviously important is surrounding environment.[7]

The type of vehicle is important as the position of the bumper bar is changing with the type of vehicle and same important is the age of the pedestrian as counterpart from the same point of view. The typical bumper injuries of the legs and bumper fractures of the tibia and fibula are not found in this study.[8] The position of the fracture in hip bone as well as the injury of the left lung correlate with the type of vehicle, age of the pedestrian, the part of the vehicle comes in primary impact and the position of the body during the primary impact as a middle aged male struck by a truck while he was crossing the road from one side to another.

More common sequence of event is when a pedestrian struck while walking along the way of vehicle to be thrown cleared off forward by the front corner of the vehicle to one side in the direction of travel either by the front corner or side of the vehicle diagonally out of the path to sustain injuries like pressure or crushing abrasions, bruises, lacerations and fracture of ribs, arm and pelvis.[1] Another sequence of event is when a pedestrian struck on side of his body while he was crossing the road sustaining abrasions, bruises, laceration of lung and fracture of ribs and pelvis. Secondary injuries or Tertiary injuries are suffered as a result of striking the ground or contact with other objects/obstacles and these injuries include Graze or scraping abrasion, bruise, laceration, fracture of the different bones. In this sequence of accident same injury found on the both sides of the same region as the body strikes hard ground while it rolls over it. It is a further hazard of being knocked down to be run over by the same vehicle or other with a severe impact and in such case the typical Rolling injuries or Running over injuries are found and they are variable according to the side or part of the body involved. The pattern found in this study is one sided crushing effects on the chest with fracture of almost all ribs causing laceration of the lung.

Secondary injuries or tertiary injuries are often more serious and potentially lethal than the primary impact injuries or secondary impact injuries which also become

evident in this study. Split lacerations over the bony prominent areas is a common finding and most of the time it is accompanied by fracture.

Fissured fracture of the skull is the most common finding in this study that results from violent contact of the head with hard surface. Almost always the site is parieto-occipital region. Perforated fracture may result from violent striking of a stone or edge of vehicle. It is important to remember that the external injuries themselves are seldom lethal; it is their association with the internal injuries that is important. Without fractures of the skull, intracranial haemorrhage is found and without intracranial haemorrhage brain damage is the only possible cause of death. This may be due to diffuse damage to axons by rotational or shearing forces acting upon the brain inside the rapidly moving head. Fractures of the limbs are common and they are somewhat unpredictable because of the random flailing of the limbs.

Conclusion

The brain injury could not be detected through pathology as it is never practiced in the local setting; but in almost all cases it is accompanied by skull fracture, intracranial haemorrhage or petechial haemorrhage.

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Awareness about Risk Factors for Stroke: A Hospital Based Study

Iqbal Ahmed Chowdhury[1], Muhammed Abdullah Al Mamun[2], Ranjon Kumer Roy[3]
Md Motahar Hossain[4], Md. Moyeen Uddin[5], M A Azhar[6]

Abstract

Stroke is the third most common cause of death in the developed world and is the most common cause of physical disability. Regarding awareness about consequence of risk factors for stroke, there are few clinical studies. This scientific study will help us to prevent stroke more effectively. The aim of this study is to look into the awareness about risk factors of stroke among stroke patients in Bangladesh. This prospective hospital based study included hundred patients of stroke admitted in departments of medicine and neurology ,Sir Salimullah Medical College (SSMC) and Mitford Hospital, Dhaka. Diagnosis was confirmed by CT scan of brain. There were 65% male, 35% female and male female ratio was 1.86:1. 47% of patients were more than 60 years of age .Most of the patients were either illiterate or below SSC educational status. The most frequent risk factors were hypertension (75%), followed by Smoking (49%), diabetes mellitus (32%), cardiac problem (34%) , dyslipidemia (21%) ,oral contraceptive pill (27%), alcohol (8%) ,family history of stroke(26%). Awareness about relation of stroke with Hypertension 16.92%, Diabetes mellitus 30.4%, Smoking 28%, cardiac problem 8.82%, dyslipidemia 14.28%. Awareness about risk factors for stroke is less in Bangladesh than developed countries. So community based stroke education programs should be introduced to create awareness which could be helpful to reduce the incidence of stroke. Stroke, awareness, cardiac problem, hypertension.

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1. Assistant Professor, Department of Medicine, MAG Osmani Medical College, Sylhet, Bangladesh .
2. Assistant Professor, Department of Physical Medicine, MAG Osmani Medical College, Sylhet, Bangladesh .
3. Assistant Professor, Department of Medicine, MAG Osmani Medical College, Sylhet, Bangladesh .
4. Associate Professor, Department of Medicine, Colonel Malek Medical College, Manikganj, Bangladesh
5. Assistant Professor, Department of Medicine, MAG Osmani Medical College, Sylhet, Bangladesh .
6. Ex Professor & Head , Department of Medicine, Sir Salimullah Medical College & Mitford Hospital, Dhaka, Bang

Introduction

Stroke is the third most common cause of death after cancer and ischemic heart disease in the developed world and is the most common cause of physical disability[1]. According to WHO, it may become pandemic in coming years. Death from stroke in developing countries in 2001 accounted for 85.5% of stroke death worldwide and number of disability adjusted life years (DALY's) in these countries was almost 7 times than that of developed countries[2]. Current global burden of stroke accounts to16 million first ever stroke, 62 million stroke survivors, 51 million DALY's and 5.7 million deaths in 2005. Which is predicted to increase to a staggering 23 million first ever stroke, 77 million stroke survivors, 61 million DALY's and 7.8 million death by 2030. Stroke is a leading cause of death and disabilities in low and middle income countries[3].

In developed countries major risk factors for stroke is hypertension, diabetes mellitus, smoking, hyperlipidemia, atrial fibrillation, carotid stenosis and increasing age. But in our country peoples are not aware about healthy life style and their socioeconomic condition is poor. So risk factor like hyperlipidemia, old age may not be important risk factors in our population[4]. On the other hand, poor control of hypertension, diabetes mellitus, smoking and rheumatic heart disease that are common in our community may be more responsible. Treatment of stroke is expensive and health care facilities are not available everywhere. So death and disabilities impose a great burden for the family of affected person and nation.

Primary prevention of stroke reduces its incidence and long-term morbidity[5]. Life style modifications can be widely applied because of their low cost such as cessation of smoking, dieting, regular exercise which help to reduce hypertension, Diabetes mellitus , dyslipidemia and obesity and also decrease their fatal complication like stroke[6]. Evaluation of awareness about risk factor of stroke in our population can help us to determine which preventive measure should be emphasized. Lack of awareness about consequence of risk factors for stroke may be a vital factor for increasing stroke. So health education may become an important preventive strategy. There are few clinical studies have been performed regarding awareness about consequence of risk

factors for stroke [7-8]. This scientific study will help us to prevent stroke. Therefore, the aim of the present study was to know whether the stroke patients were conscious about the risk factors of stroke and their consequence.

Materials and Methods

This is a Prospective study. A total of 100 stroke patients were included in the study admitted in medicine and neurology unit Sir Salimullah Medical College and Mitford Hospital, Dhaka from March, 2008 to September 2008. Inclusion criteria was: All patients of stroke confirmed by CT scan of brain admitted in medicine and neurology unit of SSMC and Mitford Hospital during study period. Exclusion criteria were: i) Patient or his care giver who didn't give consent to participate in the study and ii) Those patients who died or absconded before relevant investigations were completed. Every aspect of the study was explained to the patient or his guardian and after that written consent was taken. Data was collected by using structured questionnaire, containing variable of interest. Detailed history was taken regarding awareness of risk factors for stroke from patients or care giver (in unconscious or aphasic patients).Hypertension was diagnosed using JNC- VII criteria, diabetes mellitus was diagnosed using WHO criteria and dyslipidemia according to ATP- III guide lines. All data were processed and analyzed by using the SPSS (statistical package for social science).

Results

A total of 100 stroke patients were included in the study .It was observed that only 8% patient's age were between 20 to 39 years of age. Most (47%) of the stroke patients were above 60 years of age .It was also found that 71% patients were suffering from ischemic stroke and the rest 29% were suffering from hemorrhagic stroke. There were 65% male and 35% female. The sex ratio in the study patients was 1.86: 1. Incidence of ischemic and hemorrhagic stroke was more in male than in female. Occuptional status of our study patients were house wife 36% businessman 27% labour/farmer 26% service Holder 9% and others 2%. Majority of the patients in our study was either housewife (36.6%) or businessman (28.2%) indicate sedentary life style is responsible for high incidence among these groups.

It was found that 75% patients were hypertensive and the rest (25%) were non-hypertensive. Risk of ischemic stroke was more among non-hypertensive patient (84%) in comparison to hypertensive patients (66.7%).Among hypertensive patients only 20% took regular treatment while majority (58.7%) of the patients dio not take regular treatment.13.3 % patient didn't know that they are hypertensive and 1st time detected in hospital after stroke .It was observed that most of the hypertensive patients (63%) did not know the methods for life style modification for hypertension and 21.5% patients did not practice in spite of having knowledge. (Table 1)

Table I: Life style Modification for hypertension among known hypertensive patients (n=65).

Life style Modification	Frequency	Percent
Practiced	10	15.4
Not Practiced	14	21.5
Not Known	41	63.0
Total	65	100.0

It was found that most of the hypertensive patients (83.7%) did not know and only 16.92% knew the relation of Hypertension with stroke. It was observed that 32% stroke patients were diabetic, most (81.3%) of them were ischemic stroke and 18.8 % were hemorrhagic stroke . 0ut of 32, most (46.88%) of the patients had uncontrolled diabetes mellitus and 30.3% of patients did not know that they are diabetic and 1st time detected in hospital after stroke (Table2)

Table II: Blood sugar status of diabetic mellitus patients (n=32)

	Frequency	Percent
Controlled	8	24.24
Uncontrolled	15	45.45
1st time detected after stroke	10	30.30
Total	32	100.0

It was found that most of the diabetic patient (47.83%) practiced life style modification for diabetes. About 35% Patients did not adopt life style modification in spite of having knowledge. Most of the known diabetic patients (69.6%) didn't know the relation of diabetes mellitus with stroke. It showed that 34% patients had cardiac abnormality (AF, IHD, valvular heart disease, left ventricular hypertrophy). Among cardiac problem 85.3% were ischemic stroke and 14.7% were hemorrhagic stroke (Table 3).

Table III: Association of cardiac problem with different types of stroke (n=100)

Final diagnosis	Cardiac Problem		Total (%)
	Absent (%)	Present (%)	
Ischemic	42 (63.6)	29 (85.3)	71 (71)
Hemorrhagic stroke	24 (36.4)	5 (14.7)	29 (29)
Total	66 (100)	34 (100)	100 (100)

Chi Square Value = 4.114, P Value =0.043

It was found that out of 34 cardiac patients 3(8.82%) could identified relation of cardiac problem with stroke, 10 (29.14%) didn't know the relation and 61.76% didn't know that they have cardiac problem and diagnosed after admission in hospital. It was observed that 49% patients were smokers and 51% were non-smokers. Among smoker 69.4% were ischemic stroke and 30.6% hemorrhagic stroke. Among non-smokers 72.5% were ischemic stroke and 27.5% hemorrhagic stroke.(Table 4)

Table IV. Relation of smoking with different types of stroke (n=100)

Smoking behaviour	Stroke		Total
	Ischemic stroke	Hemorrhagic stroke	
Yes	34(69.4)	15(30.6)	49(100)
no	37(72.5)	14(27.5)	51(100)
Total	71	29	100(100)

Chi-Square=. 016, P= .898

It was observed that out of 100 patients 21% had dyslipidemia. Out of 21 dyslipidemic patients 16 (76.2%) were ischemic stroke and 5 (23.8%) were hemorrhagic stroke (Table 5).

Table V. Relation of dyslipidemia with different types of stroke (n=100)

Final diagnosis	Dyslipidemia		Total (%)
	Yes (%)	No (%)	
Ischemic	16 (22.5)	55 (77.5)	71 (100)
Hemorrhagic stroke	5 (17.2)	24 (82.8)	29 (100)
Total	21 (21)	79(79)	100(100)

Chi-Square Value e =. 35, P Value = .555

It is observed that out of 21 dyslipidemic patients most 11 (52.38%) of them did not know about lifestyle modification for dyslipidemia and in spite of having knowledge 28.57% didn't adopt life style modification, only 4 (19.05%) practiced life style modification.It was observed that out of 21 dyslipidemic patients 3 (14.28%) knew & 18 (85.72%) didn't know the relation of dyslipidemia with stroke (Table 6).

Table VI: Awareness about influential factors of stroke

Characteristics	Categories	Frequency	Percent
Relation of Hypertension with stroke	known	11	16.92
	not known	54	83.07
Relation of Diabetes mellitus with stroke	known	7	30.4
	Not known	16	69.6
Relation of cardiac problem with stroke	Known	3	8.82
	Not Known	10	29.41
	1st time detected after admission	21	61.76
Relation of dyslipidemia with stroke	Known	3	14.28
	Not Known	18	85.72

Table VII: Awareness about relation of smoking with stroke among study patients (n=100)

Sex	Consequence of Smoking		Total (%)
	Known (%)	Not Known (%)	
Male	21(32.3)	44 (67.7)	65 (100)
Female	7 (20)	28 (80)	35 (100)
Total	28 (28)	72 (72)	100 (100)

Discussion

Lack of awareness about risk factors for stroke and absence of life style modification for those increase incidences of stroke in developing and underdeveloped countries[7-9]. The analysis revealed that only 16.9% patients identified hypertension as a cause of stroke and 83.7% didn't know the relation of hypertension with stroke .The study done in Gulf cooperation council countries shows awareness about hypertension is almost same (23.1%) with our study but high in developed countries like USA (51%), Canada[7] (36%). Majority of the hypertensive patient (63%) in the study didn't know about life style modification for hypertension. In spite of having knowledge 21.5% didn't adopt healthy life style.

In this study, 30.4% of diabetic patients identified diabetes mellitus as a risk factor for stroke. This result does not correlate with the study done in Gulf cooperation council countries[7] which shows awareness was less (10.9%) among them. In India, awareness was 42 percent[8]. So awareness about diabetes mellitus is more in our population than hypertension. Among diabetic patient most of them (82.6%) knew about life style modification for diabetes, 47.83% practiced healthy life style and 37.78% did not practice life style modification advice in spite of having knowledge.

This study revealed awareness about relation of stroke with smoking, cardiac problem and dyslipidemia in 28%, 8.82% and 14.28 % patients respectively. This result shows similarity with the study done in gulf cooperation council countries[7] but differs with the study done in India, which shows awareness about cardiac problem 33.3% and smoking 1.5 percent[8]. The present study gives us an idea regarding awareness of our people who have stroke risk factors. The most accurate measures of importance, etiological fraction and attributable risk can be estimated accurately only in large population or community based cohort study.

Conclusion

It is a clear message that awareness about risk factors for stroke is lacking in our patients having risk factors .The majority of patients did not know about the consequence of their own risk factors. The low level of knowledge found in this study clearly indicates that

there is an urgent need to provide national policy to improve educational system to provide adequate structured information to patient about stroke risk factors, danger of avoidance or irregular treatment and encourage them to adopt healthy life style.

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ORIGINAL ARTICLE

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A Clinical and Radiological study of Elongated Styloid process.

Hoque MM[1], Sinha NK[2], Hussain MM[3] Abbasi MZU,[4] Salam MU[5], Haque MR[6]

Abstract

The elongation of the styloid process is considerd an anomaly which can cause throat and cervicofacial pain and trigger series of symptoms such as odynophagia, dysphagia, neck pain, facial pain, otalgia,tinnitus and trismus.The present study was undertaken to find out frequency of elongation of styloid process and establish a 'new sign' which helps easy clinical diagnosis of symptomatic elongated styloid process. A prospective study was conducted among 100 patients .A detailed history and ENT examination was done apart from palpation of the styloid along the posterior faucial pillar, a tender point in the neck at the junction of the posterior 2/3rds and anterior 1/3rd in a line which was drawn from tip of the mastoid process to the most lateral palpable point of the hyoid bone (New sign) and by X-ray styloid process of skull (Lateral View) and digital panoramic radiographic images were done. Out of 100 cases 54 were females and 46 were males. The female and male ratio was found to be 1.2:1 . The severity of symptoms were directly proportional to the length of the styloid process.The symptoms ranged from foreign body sensation in the throat to cervico facial pain and otalgia.Among the districts highest area of distribution was in sylhet.Most reliable sign was 'new sign', which was positive in 71 cases . Elongation of the SP is being multifactorial. A strong suspicion should be ruled out by the clinicians and surgeons of their own merit. A simple palpation per orally and in the neck, X-Raystyloid process of skull(L/V) and digital panoramic radiographic image can establish the diagnosis of elongated SP. Cervicofacial pain, Eagle's syndrome, New sign, Styloid process(SP), Throat pain . radiographic image can establish the diagnosis of elongated SP. Cervicofacial pain, Eagle's syndrome, New sign, Styloid process(SP), Throat pain.

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1 . Associate Professor & Head, Department of Otolaryngology and Head-Neck Surgery, Sylhet Women's Medical College, Sylhet.
2. Professor & Head, Department of Otolaryngology and Head-Neck Surgery, MAG Osmai Medical College, Sylhet.
3 . Professor & Head, Department of Otolaryngology and Head Neck Surgery,Parkview Medical College, Sylhet.
4. Assistant Professor, Department of Otolaryngology and Head-Neck Surgery, Sylhet Women's Medical College, Sylhet.
5. Professor of Medicine, Sylhet Women's Medical College, Sylhet.
6. Professor of Paediatrics, Sylhet Women's Medical College, Sylhet.

Introduction

Styloid process is derived from the Greek word "stylos" means a pillar , which is normally a cylindrical structure arising from the lower surface of the temporal bone anterior to stylomastoid foramen. The apex of the styloid process is clinically important as it is located between internal and external carotid arteries.[1] The embryogenic origin of styloid process lies in the Reichert's cartilage of the second pharyngeal arch, together with the stylohyoid ligament and the lesser horn of hyoid bone forms an apparatus called stylohyoid apparatus or stylohyoid complex. The styloid process provides attachments to stylohyoid and stylomandibular ligaments and stylopharyngeus,stylohyoid and styloglossus muscles.[2]

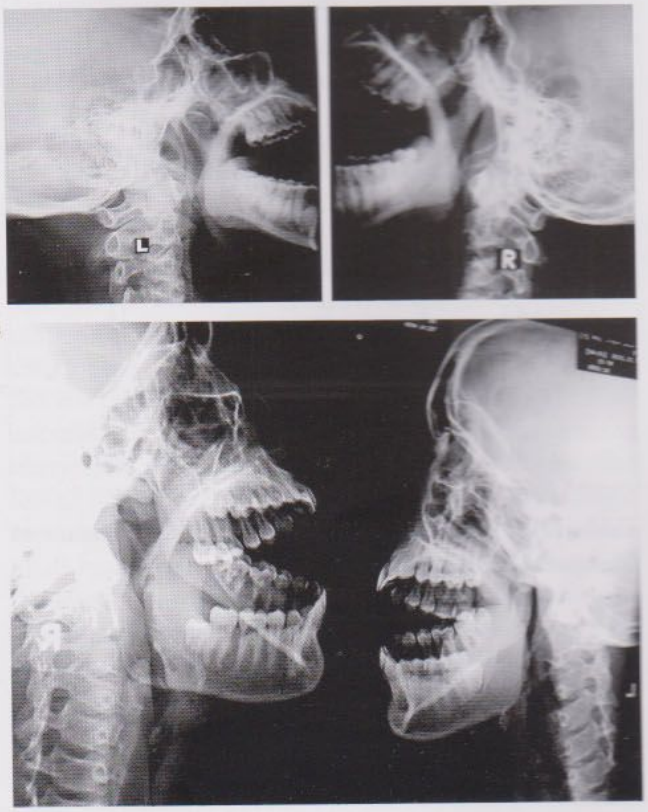
This is surrounded by glossopharyngeal nerve ,vagus nerve,accessory nerve,internal carotid artery and the z carotid plexus. The mean radiographical length of the styloid process is 20-30mm and more than 30mm is considered as an elongated styloid process.[3] The elongation of the styloid process is considered as an anomaly which can be accompanied by calcification of the stylohyoid and stylomandibular ligaments.In 1652 Pietro Marchetti ,an Italian surgeon first described the syndrome.The term styalgia was coined by Eagle,an otolaryngologist in 1937 to describe the pain associated with elongation of the styloid process.[4] The symptoms of elongated styloid process comprises dull aching pain localized in either or both sides of the throat ,dysphagia,odynophagia, facial pain,otalgia, headache, tinnitus and trismus.This set of symptoms associated with elongated styloid process is called Eagle's syndrome.[5] The clinical manifestation may occur due to compression of neural and vascular structures in the retrostyloid compartment.[6] The neural and vascular compression due to anatomical variations of styloid process which depends on sociodemographic factors such as age and geographic distribution.

Material and Methods

Present observational study was conducted in thedepartment of Otolaryngology and Head- Neck

Surgery, Sylhet Women's Medical College Hospital and radiology department IBN SINA HOSPITAL from july 2012 to June 2018. Total 100 patients were enrolled with age distribution ranged from 18 years to 60 years. There were 54 females and 46 males in this study.The patients who were reported with pain and foreign body sensation in the throat,otalgia and cervicofacial pain were selected for the study.Ethical permission was obtained from the institution and informed consent was obtained from the patients. The inclusion criteria consisted of patients with foreign body sensation and pain in the throat,otalgia and cervicofacial pain .The exclusion criteria were throat pain with pharyngitis, tonsillitis,oro-pharyngeal cancer, ulcers and temperomandibular joint arthritis.

Styloid process was assessed clinically, hardness can occasionally be felt in the tonsillar fossa , a tender point in the neck at the junction of the posterior 2/3rds and anterior 1/3rd in a line which is drawn from tip of the mastoid process to the most lateral palpable point of the hyoid bone (New sign) and by X-ray styloid process of skull(L/V) and digital panoramic radiographic images.The apparent length of SP on both sides were measured from caudal margin of tympanic plate to tip of the SP & considerd as elongated if it was measuring more than 30mm. The results were analysed and depicted by using bar diagrams.



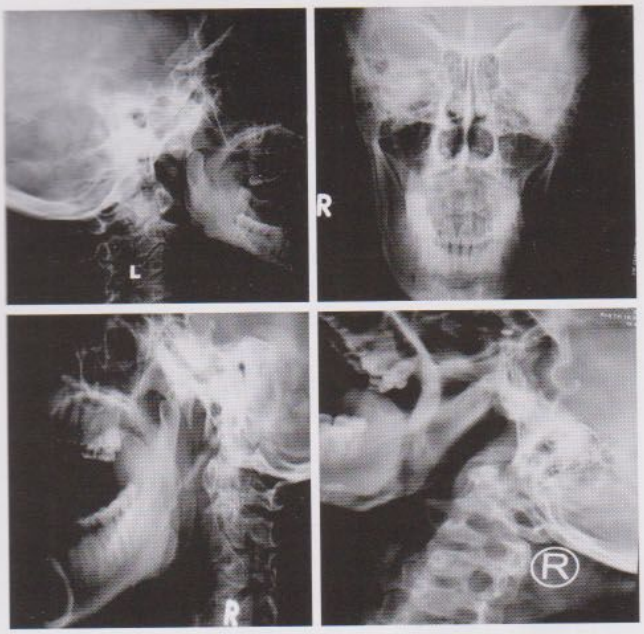


Figure 1: X-ray Styloid process of Skull (Lateral & Panoramic views) showing elongated SP ranging from 3 cms to 7 cms.

Results

Out of 100 cases ,ninety five were in sylhet and only five were in other districts.Out of the 100 cases 54 were females and 46 were males. The female to male ratio was found to be 1.2 :1. The severity of symptoms were directly proportional to the length of the styloid process.The symptoms ranged from foreign body sensation in the throat to cervico facial pain and otalgia.Table 1 showed the length of right sided styloid process in which length ranged between 2.5 cm to 3.5 cm in18 females and 14 males, ranged between 3.6 cm to 4.5 cm in 31 females and 17 males , ranged between 4.6cm to 5.5 cm in 04 females and 10 males ,ranged between 5.6cm to 6.5 cm in 01 female and 02 males and in none of female ranged more than 6.6 cm but 01 male patient revealed 6.6cm to 7.5cm of length of styloid process at right side(figure-2).

Table 2 showed the length of left sided styloid process in which length ranged between 2.5 cm to 3.5 cm in15 females and 15 males, ranged between 3.6 cm to 4.5 cm in 27 females and 14 males , ranged between 4.6cm to 5.5 cm in 08 females and 06 males ,ranged between 5.6cm to 6.5 cm in 01 female and 07 males but none of the either sex in the ranged of 6.6cm to 7.5cm (figure-3). Table 3 showed unilateral and bilateral distributions of elongated styloid processes In which 51 bilateral and 03 unilateral in famales , 40 bilateral and 06 unilateral in males.Table 4 showed among 100 patients ,95 were in Sylhet,1 in Cumilla,1 in Chandpur,1 in Barishal ,1 in

Netrokona and 1 in Gaibandha. Table 5 showed age ranged distribution of 100 patients, ranged between 15 to 25 years in 12 females and 05 males, ranged between 26 to 35 years in 22 females and 19 males, ranged between 36 to 45 years in13 females and 12 males ,ranged between 46 to 55 years in 06 females 08 males and ranged between 56 to 65 years in 01 female and 02 males(figure-4).Table 6 showed 'new sign' positive in female no- 42 and male no- 29 and total number is 71(figure-5).

Fig II: The male & female distribution and length of Styloid process in the right side.

Fig III: The male & female distribution and length of Styloid process in the left side.

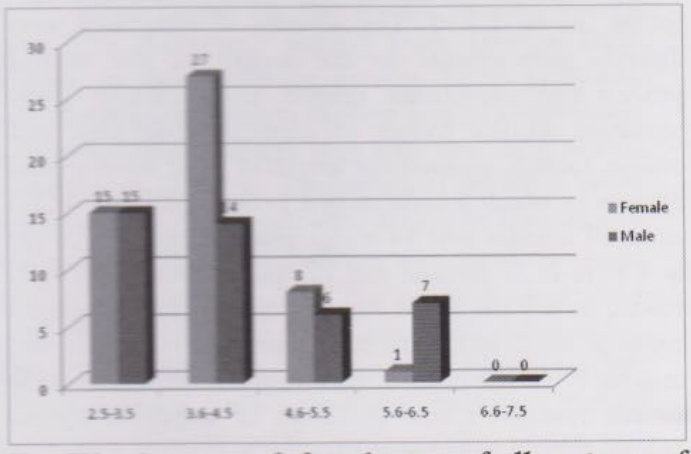


Fig IV: Age ranged distribution of all patients of Elongated Styloid process.

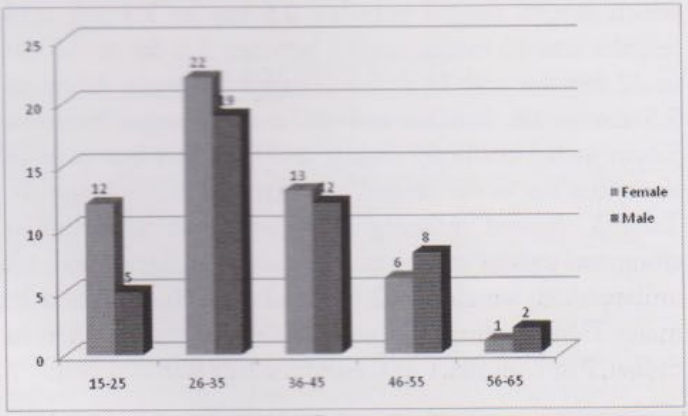


Fig V: Total no of positive 'New sign' in 100 patients.

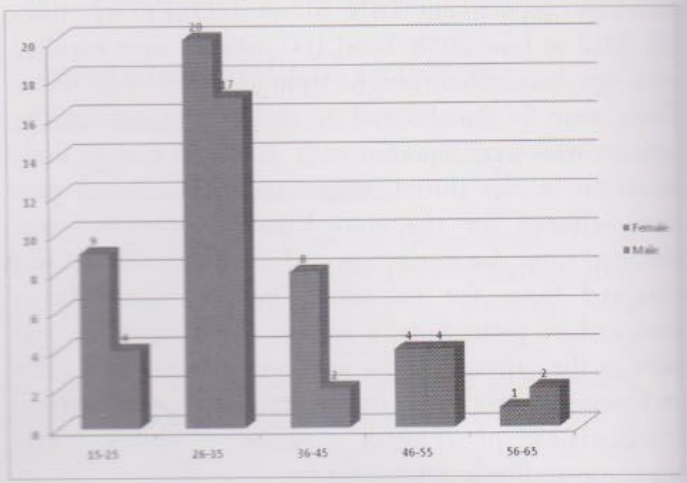


Table I:The males and females number of length ranged distribution of right sided elongated styloid process.

Right sided styloid process		
Range in cms	No of Female	No of Male
2.5-3.5	18	14
3.6-4.5	31	17
4.6-5.5	04	10
5.6-6.5	01	02
6.6-7.5	00	01

Table II:The males and females number of length ranged distribution of left sided elongated styloid process.

Left sided styloid process		
Range in cms	No of Female	No of Male
2.5-3.5	15	15
3.6-4.5	27	14
4.6-5.5	08	06
5.6-6.5	01	07
6.6-7.5	00	00

Table III: Unilateral and bilateral sex distribution of Elongated Styloid process

Sex	Unilateral	Bilateral
No of Female	03	51
No of Male	06	40
Total	09	91

Table 4: Number of patients distribution in the different districts.

Thana	District	Number	Total No.
Kanaighat	Sylhet	20	
Jakigonj	Sylhet	17	
Golapgonj	Sylhet	15	
Nabigonj	Sylhet	14	
Kulaura	Sylhet	10	
Barolekha	Sylhet	08	
Goainghat	Sylhet	06	
Sador Sylhet	Sylhet	05	95
Chandina	Cumilla	01	01
Shahrasti	Cahndpur	01	01
Agoiljara	Barishal	01	01
Purbodhala	Netrokona	01	01
Gabindogonj	Gaibandha	01	01

Table V: Age range distribution of patients with Elongated Styloid process.

Age range (in years)	No of Female	No of Male
15-25	12	05
26-35	22	19
36-45	13	12
46-55	06	08
56-65	01	02
Total no of patients	54	46

Table VI: ' New sign' positive total number of patients

Age range (in years)	No of Female	No of Male	Total
15-25	09	04	13
26-35	20	17	37
36-45	08	02	10
46-55	04	04	08
56-65	01	02	03
Total no of patients	42	29	71

Discussion

The styloid process is normally a cylindrical structure arising from the lower surface of the temporal bone anterior to stylomastoid foramen.The apex of the styloid process is clinically important as it is located between internal and external carotid arteries,laterally from the pharyngeal wall and immediately behind the tonsillar fossa.[7] An awareness of clinical and radiologic presentation of styloid process elongation is important to all health practitioners involved in the diagnosis and treatment of throat and cervicofacial pain.Eagle's syndrome, sometimes called styloid or stylohyoid syndrome, is defined as the symptomatic elongation of the styloid process.[8]

Patients most often complain of pain and foreign body sensation in the throat, pain on swallowing, chewing,coughing and head movement which occasionally radiates to the ear in the same side. Clinically, hardness can occasionally be felt in the tonsillar fossa which is painful on palpation but process with normal length is not palpable usually.[9]

Another important sign is a tender point in the neck at the junction of the posterior 2/3rds and anterior 1/3rd in a line which is drawn from tip of the mastoid process to the most lateral palpable point of the hyoid bone(New sign).It is the most reliable sign, which is fond out by the first author.It is supposed that these symptoms and signs are due to the compression of the elongated SP on the some neural and vascular structures.[6] More uncommonly symptoms, such as dysphagia,tinnitus and otalgia may occur in patients with syndrome.[10] Diagnosis is made by both physical examination and radiological investigation.

Our study mainly emphasized on finding out the most frequent area of distribution in our country, commonest age of presentation and finding out a reliable 'new sign' for easy diagnosis of elongated SP. This study revealed out of 100 cases ,95 were in Sylhet division and only 5 cases were in other districts. We discussed with other ENT colleagues in different districts about elongated SP but most of them said that they found very few cases in their practicing life. This high frequency in Sylhet is possibly due to genetic and geographical variations from other districts but there was no study conducted to compare with this study in our country.

Present study showed the highest incidence in female no-22 , male no-19 and total no-41 in the age ranged of 26 to 35 years. According to the study by Choudhari SY et al.was more in 26-33 years of age at presentation of elongated SP which is in approximation with our study group.[11] In this study our key aim was clinical to find out a 'new sign' that could be helpful for easy diagnosis of symptomatic elongated SP.We have found this 'new sign' positive in 71 patients out of 100 patients. In this study revealed highest number of patients in bilateral elongated SP in the length ranged of 3.6- 4.5 cm and maximum length was 7cm of right sided styloid process in a male patients. Unilateral and bilateral distributions of elongated styloid processes in which 51 bilateral and 03 unilateral in females , 40 bilateral and 06 unilateral in males. Although the elongated SP is usually bilateral but symptoms and disturbances are most frequently unilateral.[9]

The elongated styloid process showed the female preponderance with 54% cases reported in this study.This was comparable with the study conducted by Bafaqeeh SA.[12] It has been suspected that an elongated styloid process could be caused by congenital elongation of the styloid process due to persistence of cartilaginous analogue of the styloid ,calcification of the stylohyoid

household food insecurity, lack of resources to obtain sufficient micronutrient rich-foods, micronutrient supplements, treatment for parasitic disease (eg. hookworm infection, malaria etc), shoes, insecticide treated bed-nets, and other preventative measures,stylohyoid ligament by unknown mechanism and growth of osseous tissue at the insertion of the stylohyoid ligament.[13] Rathva et al determined the mean length of the styloid process on 150 dry skull to investigate the incidence of the elongated styloid process and the relations of the styloid process to other structures at the base of the skull and found elongated SP in upto 2% of dry skull [14]. The incidence of Eagle's syndrome in the general population is underestimated since only 6% of those with an elongated styloid process have symptoms.[15]

Elongated styloid process is frequently misdiagnosed and are often treated by family physicians, otolaryngologists, neurologists,neurosurgeons,dentists, maxillofacial surgeons and psychiatrists with little success. So to improve the diagnostic aspect of the styloid process diseases need uniform diagnostic tools for all. We may use important signs and advanced imaging modalities such as computed tomography and cone beam computed tomography.[16] Hence further studies with larger sample size in different areas of the country should be considered to evaluate the elongated styloid process incidence in Bangladesh and higher frequency in Sylhet than in comparison with other districts.

Conclusion

The styloid process is an anatomical structure, whose clinical importance is not well understood.Elongated SP can be source of craniofacial and cervical pain remains diagnostic challenge to concern many specialists.17 The diagnosis could be established by detailed history ,palpation of the styloid per orally,point of tenderness in the neck at the junction of the posterior 2/3rds and anterior 1/3rd in a line which is drawn from tip of the mastoid process to the most lateral palpable point of the hyoid bone(New sign) and radiological views.Panoramic radiography is the best imaging modality to view the styloid process bilaterally.So presence of the elongated styloid process can be detected easily by using 'new sign' in routine clinical practice.

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ORIGINAL ARTICLE

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Study on Risk Factors Associated with Nonalcoholic Fatty Liver Disease in an Eastern area of Bangladesh

Syed Abul Foez,[1] Md. Abdur Rahim,[2] Md. Zia Hayder Bosunia,[3] Mohammad Iftekhar Hassib,[4] Abul Kalam Mohammed Shoab,[5] Shishir Ranjan Chakraborty[6], KMJ Zaki[7]

Abstract

This cross sectional descriptive study included 129 adult patients with sonologically defined nonalcoholic fatty liver disease (NAFLD) was aimed to describe the relationship of risk factors associated with NAFLD in terms of demographic, epidemiological and biochemical variables. Males were predominant (67.44%), male: female = 2.07:1. Fatty liver was found more commonly in 31-40 years of age (46.51%), 23.25% found in 21-30 and 41-50 years group, 6.07% were more than 50 years of age. Regarding risk factors dyslipidaemia found in 88.37% of individuals, high body mass index (BMI) in 75.19%, diabetes mellitus (DM) in 30.23%, impaired glucose tolerance (IGT) in 11.62% and hypothyroid in 9.3% of study subjects. High blood pressure and ischemic heart disease (IHD) found in 30.23% and 6.97% of study subjects respectively. Raised SGPT found in 48.83% of study subjects. The results suggest that the risk of developing NAFLD were higher among men, among patients who were obese, who had DM and dyslipidaemia. Patients at risk merit biochemical molecular study and a definitive diagnosis.

[OMTAJ 2018; 17 (1)]

Introduction

Ludwig & colleagues in 1980 coined the term 'Non Alcoholic Steatohepatitis' to describe a form of liver disease with abnormal liver biochemical results & histologic evidence of alcoholic hepatitis but no history of alcohol abuse.[1] Non Alcoholic Fatty Liver Disease (NAFLD) which includes fatty liver, Non Alcoholic Steatohepatitis (NASH) & NAFLD associated 1. cirrhosis. Most frequently associated risk factor for NAFLD is obesity & insulin resistance. Other major risk factors include metabolic syndrome, type 2 DM and dyslipidaemia.[2]

Biochemical mechanism involves in NAFLD are complex and including accumulation of triglycerides, insulin resistance, dysregulation of lipid metabolism, oxidative stress, lipid peroxida-tion, mitochondrial dysfunction, and innate immune response dysfunction.[3,4] Genetics can be a determinant of risk and severity and are associated with multiple polymorphisms.[5] For diagnosis requires histological images or imaging including ultrasound, computed tomography, MRI and Fibroscan (transient elastography). Biochemical tests such as transaminases (ALT/AST), triglycerides and cholesterol are sensitive for simple steatosis. It is the most common liver disorder in western countries, affecting 20 to 30% of general population and recent study suggest fatty liver is an emerging problem in Asia-pacific region.[6-8] NAFLD now considered to be a common cause of chronic liver disease with high risk of development to hepatocellular carcinoma and an increasing indication of liver transplantation in western countries.[9] Data regarding various aspects of NAFLD in different region of Bangladesh are few. This study was done to find out the risk factors of NAFLD in an eastern area of Bangladesh.

materials and methods

This cross sectional descriptive pilot study included 129 adult patients with risk factors associated with NAFLD in Moulvibazar district, Sylhet division of Bangladesh from September 2016 to April 2017. The exclusion criteria were alcohol consumption of 20 g/day for men and 10 g/day for women, viral hepatitis, use of hepatotoxic drugs and the presence of other known liver diseases. All the subjects were ultrasonographically defined as fatty liver by the presence of: 1. diffusely increased echogenicity of liver parenchyma which was greater than kidney echogenicity 2. vascular blurring and 3. deep attenuation of ultrasound signal. Determination of enzymatic activity of transaminases, triglycerides and cholesterol was performed according to manufacturer (Biosystems). The reference values established for evaluating enzyme activity of SGPT, cholesterol and

1.Assistant Professor, Department of Hepatology, Sylhet MAG Osmani Medical College, Sylhet.
2. Assistant Professor, Department of Hepatology, Abdul Malek Ukil Medical College, Noakhali.
3. Assistant Professor, Department of Hepatology, Rangpur Medical College, Sylhet.
4. Senior consultant (Eye), General (Victoria) Hospital, Narayangonj.
5. Assistant Professor, Department of Neurology, Sylhet MAG Osmani Medical College, Sylhet.
6. Associate Professor, Department of Medicine, Sylhet MAG Osmani Medical College, Sylhet.
7. Professor, Department of Hepatology, Sylhet MAG Osmani Medical College, Sylhet.

triglycerides were 40 U/L, 200 mg/dl, 150 mg/dl respectively. Demographic characteristics, medical history, physical examination data and laboratory test results were all recorded. All data in this study were collected and used in accordance with the principles stated in the Eighteenth World Medical Assembly (Helsinki, 1964). Statistical analysis was done using SPSS-16 (statistical package for social sciences) win version 16 software programme.

Results

Out of 129 NAFLD individuals 67.44% were male, male: female = 2.07:1; which accord well with data found in Indian studies.8,9 Fatty liver was found more commonly in 31-40 years of age group (46.51%) and it was worrying that 23.25% were 21-30 years of age because of the livers of these patients will be exposed for long periods of time to metabolic changes which ultimately can cause increased risk of progression and complications.

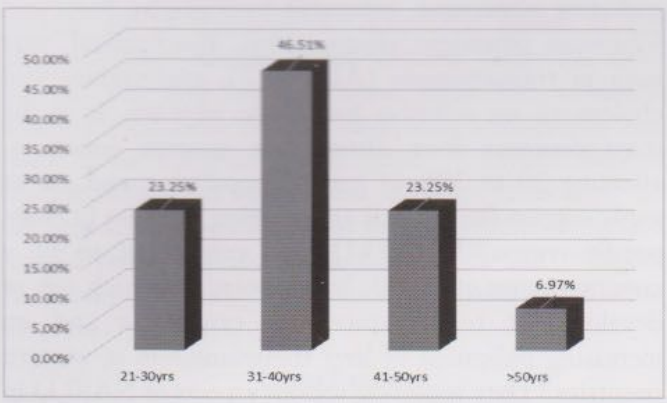

Figure I: Age distribution of study population (n=129)

There was evidence from mouse models of hyperlipidemia in which free cholesterol was a major risk factor for the transition from steatosis to NASH.[10-13] In our study dyslipidaemia was found in 88.37% individuals; raised triglycerides (TG) in 81.39% and mixed pattern in 58.13% of study subjeccts.

Table1: Pattern of fasting lipid profile of study subjects (n=129)

	Number (n)	%
↑ Total cholesterol	45	34.88
↑ LDL	33	25.58
↓ HDL	72	55.81
↑ TG	105	81.39
Mixed pattern	75	58.13
Normal	15	11.62

It should be noted that obesity is correlated with the prevalence and severity of NAFLD demonstrated by recent American studies in which the prevalence of obesity combined with severe NAFLD was 23.5% among men and 29.7% among women.[14] In our study, high BMI (>25) found in 75.19% of study subjects. A fact that is also highlighted by a report from Japan which found a prevalence of obesity approximately 25% in patients with NAFLD.[15]

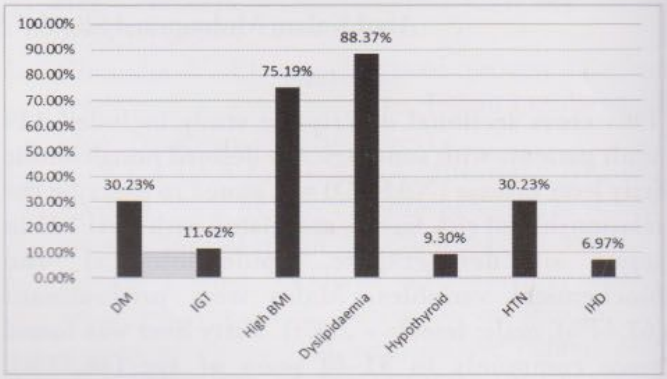

Figure II: Risk factors and other comorbidities of study subjects

Diabetes mellitus (DM) is an important determinant of presence and severity of fatty liver.16 In our study, DM found in 30.23% and impaired glucose tolerance (IGT) in 11.62% of study individuals. Hypothyroid found in 9.3% individuals. High blood pressure and ischemic heart disease (IHD) found in 30.23% and 6.97% of study subjects respectively. Our results accords well with data presented in clinical practice guidelines for NAFLD and warrants a comprehensive biochemical-molecular study that includes diagnosis of NAFLD in order to improve our understanding of this disease.[17]

Raised SGPT found in 48.83% of study subjects. This changes in transaminase levels precede NAFLD and tend to be associated with insulin resistance.7 Elevated transaminase levels in NAFLD is not always evidence of the degree of a hepatocellular condition but indicate the progression of liver fibrosis.8 Therefore, it is important that biochemical results be followed up with a comprehen-sive study to elucidate the molecular mechanisms underlying NAFLD and provide new bases for the treatment of liver inflammation.

conclusion

NAFLD is a major public health problem which has been extensively studied worldwide. Due to the changing pattern of lifestyle a significant number of young individuals even in developing countries are now suffering from fatty liver disease. Moreover regional data regarding fatty liver in Bangladesh are lacking. These highlights the need for a more comprehensive biochemical-molecular study.

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ORIGINAL ARTICLE

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Cemented Versus Cementless Total Hip Replacement (THR) In The Treatment Of Advanced Osteonecrosis Of The Femoral Head

Mohsenuzzaman Khan[1], Abu Zaffor Chowdhury[2], M.A. Hannan[3], Md Kamrul Alam[4], Mirza Omar Beg[5], S.M. Mahfuz Anwar[6], Badsha Mia[7], Monowar Tarik[8]

Abstract

Objective of this study is to observe the subjective and functional outcome of the patients suffering from stage 3 and 4 osteonecrosis treated by total hip replacement by cemented and cementless prosthesis. This prospective interventional study was carried out in the department of Orthopaedic Surgery, Bangabandhu Sheikh Mujib Medical University from July, 2011 to June, 2013. In this study on 30 hips of 30 patients, mean age was 46.55 years ranging from 21 to 65 years. Among them 18 patients was less than 35 years and 12 were more than 35 years and 21 were male, 9 were female with male female ratio of 2.3:1. Average duration of post-operative hospital stay was 14.95 days ranging from 12 to 25 days. 21 (70%) patients had marked pre-operative hip pain, but 25(83.3%) patients became pain free post-operatively, rest of the patients noticed transient slight and mild pain during the post-operative period. Limping and distance of walking were improved significantly after operation. Capacity to climb stairs and to put on shoes also improved significantly. 25 (83.3%), 28 (93.3%) patients regained full range of movement of the affected hip after operation in cemented and cementless group Regarding the functional outcome, 11(74%) and 12(80%) cases were excellent, 2(13.32%), 2(13.32%) were good and 2(13.32%), 1(6.66%) were fair in group A and B respectively so 13(88%) and 14(93.2%) cases in group A and B respectively shows satisfactory result. Total hip replacement is the rational option for advanced osteonecrosis of the femoral head Ficat and Arlet (stage 3 and 4) either by cemented or cementless prosthesis.

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1. Jr. consultant of ortho surgery, Golapganj upozila health complex, Sylhet
2. Associate professor of ortho surgery, BSMMU
3. Jr. consultant of ortho surgery, Gowainghat upozila health complex, Sylhet
4. Assistant professor of ortho surgery, Sylhet MAG Osmani medical College, Sylhet.
5. Registrar of ortho surgery, Sylhet MAG Osmani medical College Sylhet.
6. Registrar of ortho surgery, Sylhet MAG Osmani medical College, Sylhet.
7. Jr. consultant of ortho surgery, Golapganj upozila health complex, Sylhet
8. Jr. consultant of ortho surgery, Tanor upozila health complex, Rajshahi

Introduction

Among the painful hip disorders, osteonecrosis is an important cause of musculoskeletal disability. It is the death of the cell components of bone; both the osteocytes and the bone marrow cells. Being the final common pathway of various conditions that impair the blood supply to the femoral head, osteonecrosis is frequently termed as avascular necrosis 1. Although any age group may develop osteonecrosis, most patients are in the 3rd to 6th decades of life. The most common risk factor is a history of treatment by corticosteroids. The other common conditions are: trauma, excess alcohol intake, Perthe's disease, sickle cell disease, lipid disorders, Gaucher's disease, Caisson disease, pregnancy, chemotherapy, irradiation, etc. 2. In 25-30% of the cases, no risk factor could not be detected. This group is termed the primary or idiopathic variety.

The exposure threshold for steroid induced osteonecrosis is not known with certainty. The exposure threshold for alcohol intake appears to be a daily intake of about 150 ml of ethanol for men 3.

Osteonecrosis of the femoral head is a progressive disease. Which has been classified radiologically by Ficat and Arlet in 1980 into 4-main stages. It's treatment depends on: a) stage of osteonecrosis, b) Age of the patient and, c) Facilities available. A large number of treatment modalities show that, this condition is difficult to treat. Non surgical treatment options usually result in poor prognosis, even in the pre-collapse stage. These do not abolish the muscle tone around the joint, even when the patient is in lying down 4.

Total hip replacement has completely revolutionized the nature in which the arthritic hip is treated, and considered to be one of the most successful orthopedics interventions of its generation 5.

Patients who become candidates for total hip replacement commonly present with groin pain, lateral hip pain upon weight-bearing and restricted range of motion due to pain. Physical examination and radiographic imaging illustrate the intra-articular processes responsible for these complaints. When patients are unable to obtain symptom control with medical management and have significant impairment of daily activities due to pain, total hip replacement is indicated for symptom relief.

Osteonecrosis makes the hip painful, so the patients can not walk properly, become disabled, unemployed and unproductive; become burdens to the family and to the society. Total hip replacement provides a painless and mobile life. Primary total hip replacement offers the best chances of success for the patients with painful stiff hip.

Methods

This prospective observational study was carried out at Department of Orthopaedic Surgery, Bangabandhu Sheikh Mujib Medical University, Dhaka, Bangladesh and Private Hospitals of the Dhaka City, Dhaka, Bangladesh from July 2011 to June 2013. The patients with Bilateral or unilateral hip Advanced osteonecrosis of the femoral head Ficat and Arlet stage III and IV diagnosed on the basis of presenting complaints clinical examination and investigations age of the patient more than 21 years who was admitted in the above mentioned hospital during the study period was selected for the studyTotal 30 cases were selected clinically and radiologically diagnosed cases for studied and all patients were followed up ranging from 6 weeks to 20 months. The salient results based on minimum 6 months follow-up.A questionnaire was prepared by the researcher considering the key variables like sex, presenting symptoms, clinical findings, associated pathological investigations, preoperative findings, outcome of the surgery was carefully assessed. The data was collected by the researcher himself. Aim, objective, procedures, risk and benefits of the treatment was explained to the selected patients. The patient was encouraged for voluntary participation. They were also be assured about the secrecy of information and records. An informed written consent in both English and Bengali was taken from patients. Functional outcome was evaluated by modified Harries hip evaluation score and was expressed as- Excellent, Good, Fair and Poor.Collected data were compiled and tabulated according to the key variables, were edited manually, and they were evaluated by unpaired student t-test and chi-square test analyzed by SPSS, version- 20.0.

Modified Harris Hip Evaluation Score 6

Variables	
Pain:	**Rating**
No/ignored	44
Slight, activities not compromised	40
Mild, average activities not compromised	30
Moderate, ordinary activities limited	20
Marked, serious limitation of activities	10
Totally disabled, crippled, bedridden with bed pain	0
Limping:	
No	11
Slight	8
Moderate	5
Severe	0
Support function:	
No support	11
Cane for long walk	7
Cane most of the time	5
One crutch	3
Two canes	2
Two crutch	0
Unable to walk	0
Distance of walking:	
Normal, unlimited	11
6 blocks	8
2 or 3 blocks	5
Indoors only	2
Bed & chair	0
Stairs:	
Normally	4
Normally using a railing	2
In any manner	1
Unable	0

Pain:	Rating
Wearing shoes:	
With ease	4
With difficulty	2
Unable	0
Sitting:	
In ordinary chair for 1 hour	5
On a high chair for ½ hour	3
Unable	0
Use of public transport:	
Able	1
Unable	0
Fixed deformity:	**4**
<30° Fixed flexion	
<10° Fixed adduction	
<10° Fixed internal rotation	
<3.2 cm Limb length discrepancy	
If all 4 present, rating is 4; If <4, rating is	0
Range of motion (total):	
211°-300°	5
161°-210°	4
101°-160°	3
61°-100°	2
31°-60°	1
0°-30°	0
Range of Motion Score:	
Total Harris Hip Score:	
Functional outcome:	
Excellent	90-100
Good	80-89
Fair	70-79
Poor	<70

Operative Procedure:

Among the 30 patients, 19 were operated under spinal anaesthesia and 11 were operated under epidural anaesthesia.True lateral position with affected hip upper most and secured in position with sand bag on both side of the trunk and pillow in between the thigh. Patient was anchored to the table by large rubber belt.From umbilicus to entire lower limb (to be operated) was scrubbed and draped by adhesive drape..23 cases were operated by posterolateral (modified Gibson) approach and 5 cases were operated by posterior (Moore or Southern) approach.

A slightly curved skin incision of 10 to 15 cm, centered on the posterior aspect of the greater trochanter was given starting from 6 to 8 cm above and posterior to the posterior aspect of the greater trochanter. Subcutaneous tissue and the fascia were incised along the line.

Then gluteus maximus was splitted proximally along the direction of it's fibres. Bleeding vessels were coagulated. After blunt dissection of the fascia covering gluteus medius, hip was maintained in extension, internal rotation by knee flexion to make short external rotators under tension. Then the short external rotators and the proximal half of quadratus femoris were divided. After blunt dissection of the interval between gluteus minimus and the capsule, capsule was divided along it's femoral attachment. Acetabular labrum was excised. Then the hip was dislocated posteriorly by flexion, adduction and internal rotation.

Femoral neck was divided by oscillating saw and the head was removed. Residual soft tissue was excised.

Acetabular component insertion: Acetabulum was reamed with Mira type reamers, beginning with smaller size. Then multiple 6 mm holes in subchondral bone plates of the ilium and ischium were drilled for cement intrusion. Acetabulum was dried, haemostasis was ensured with gel-foam. Then polymethyl methacrylate was mixed by vacuum mixing and injected early in to the Acetabulum along with the holes created. Acetabular cement was pressurized with rubber impacetor. Then the polyethylene acetabular component was inserted using appropriate positioning device. Femoral component insertion: Femur was reamed and broached. Broach was rotated to control anteversion. Then the cavity was dried. Bone cement was mixed by vacuum mixing and was inserted inside the medullary cavity of the femur by the cement gun. Any blood or debris was sucked that was extruded from the canal as the cement was injected. Femoral component was inserted when cement has entered a medium dough phase, typically at about 6 minutes after the start of mixing by a cement gun. Desired amount of anteversion (10 to 15°) was determined and medio-lateral position of the stem was maintained before insertion. Firm pressure on the head was maintained. As the cement entered a late dough phase, cement was cut around the edge of the prosthesis and removed from operative field. A cement mantle thickness of 2 to 5 mm proximally and 2 mm distally is satisfactory.

Closure of the wound:

After reduction of the hip, capsule was closed by two or three interrupted absorbable sutures. The short external rotators were sutured. The gluteal aponeurosis, where it blends with the fascia lata, was sutured securely with interrupted sutures. A close suction romovac drain was inserted deep to the gluteus maximus muscle. Skin was closed by skin stappler. Suture line was covered with sterile dressing.

Results:

The mean age of the patients was 44.33±12.27 in Group A and 42.0±14.94 in Group B. Years ranging from 25-65 in group A and 21-65 in group B and 10(66.6%) cases were male and 5(43.4%) cases were female in both groups. (table 1) Among the patients 15 (50%) had right hip lesion and 15 (50%) had left hip lesion. The cause of osteonecrosis was 25 (83.3%) were steroid induced osteonecrosis, 2 (6.67%) were post traumatic, 2 (6.67%) was idiopathic and 1 (3.3%) were due to other causes. (table II) Pre-operative mean pain score was 14.00 in group A and 13.33 in group B. Post-operative mean pain score was 43.47 in group A and 43.73 in group B. But 27 (90.0%) patient became pain free post-operatively, 3 (10.0%) noticed slight pain post-operatively. Pre-operatively all patients had to walk with support (cane or crutch) both in group A and group B, but post-operatively 10 (66.7%) patients could walk without support in group A and 12 (80.0%) in group B. On the other hand 5(33.3%) needed cane for long walk in group A and 3(20.0%) in group B during early post-operative period Distance of walking significantly increased post-operatively in both group. 11 patients in Group A and 12 patients in Group B were able to walk normally and do everyday work after operation. 18 (60%) patients were unable to climb stairs but after operation, 7 (23.3%) could climb stairs without difficulty and 21 (70%) could do it normally using a railing. 15(100.0%) patients in each group recovered from preoperative all deformity. Sitting capacity was improved significantly in all patients after operation. Range of motion improved significantly after operation in both group. 11(73.3%) patients in group A and 13(86.7%) in group B had near normal range of motion According to the Harris Hip score, post-operative score of >90 was termed excellent, 80-89 was good, 70-79 was fair and <70 was termed as poor outcome. In our study 11 (73.3%) patients in group A and 12(80.0%) in group B recovered with excellent outcome. 2 (13.3%) with good outcome in each group and 2 (10%) with fair outcome in group A and 1(6.7%) patients fair in group B. For valid statistical analysis, excellent and good results were grouped as satisfactory; and fair and poor results were grouped as unsatisfactory. According to Harris hip score, 13 (86.7%) patients had satisfactory outcome in group A and 14 (93.3%) in group B. 2(13.3%) patients in group A and 1(6.7%) in group B had unsatisfactory outcome post-operatively.

Table-I:
Age distribution of the patients (n=30)

Age in years	Group A (Cemented) (n=15) Mean±SD	Group B (Cementless) (n=15) Mean±SD	P value
Age	44.33±12.27	42.00±14.94	0.64^{NS}
Range	2565	21-65	
Sex	Group A (Cemented) (n=15) n(%)	Group B (Cementless) (n=15) n(%)	P value
Male	10 (66.6%)	10 (66.6%)	0.1NS
Female	5 (43.4%)	5 (43.4%)	
Total	15(100 .0%)	15(100.0%)	

Data was expressed as mean±SD
Statistical analysis was done by t-test
NS = Not significant
n = Number of cases

Table-II:
Distribution of the cause of osteonecrosis (n=30)

Causes	Group A (Cemented) (n=15) No/ (%)	Group B (Cementless) (n=15) No/ (%)	P value
Steroid	12 (80.0%)	13 (86.7%)	0.38^{NS}
Post-traumatic	2 (13.3%)	0 (0.0%)	
Idiopathic	1 (6.7%)	1 (6.7%)	
Others	0 (0.0%)	1 (6.7%)	
Total	15 (100.0%)	15 (100.0%)	

Table-III:
Distribution of the patients by complication types within 6 months of follow up period (n=30)

Type of Complications	Group A (Cemented) (n=15) n(%)	Group B (Cementless) (n=15) n(%)	P value
Early postoperative Superficial skin infection	1 (6.7%)	1(6.7%)	1.0^{NS}
Late postoperative	0	0	
No complication	14 (93.3%)	14 (93.3%)	
Total	15(100.0%)	15 (100.0%)	

Table-IV:
Distribution of the patients by Harris hip score on fixed deformity within 6 months of follow up period (n=30)

Fixed deformity	Group A (Cemented) (n=15) n(%)	Group B (Cementless) (n=15) n(%)
Preoperative		
No deformity	0	0
Fixed flexion	15 (100.0%)	15 (100.0%)
Fixed adduction	15 (100.0%)	15 (100.0%)
Fixed internal rotation	13 (86.7%)	12 (80.0%)
Limb length discrepancy	12 (80.0%)	14 (93.3%)
All deformity	12 (80.0%)	12 (80.0%)
Postoperative		
No deformity	11 (73.3%)	12 (80.0%)
Fixed flexion	0	0
Fixed adduction	0	0
Fixed internal rotation	0	0
Limb length discrepancy	4(26.7%)	3(20.0%)
All deformity	0	0

Table-V:
Distribution of the patients by Harris hip score on range of motion within 6 months of follow up period (n=30)

Range of motion	Group A (Cemented) (n=15) n(%)	Group B (Cementless) (n=15) n(%)
Preoperative		
211-300°	0	0
161-210°	2(13.3%)	2(13.3%)
101-160°	5(33.3%)	6(40.0%)
61-100°	7(46.7%)	5(33.3%)
31-60°	1(6.7%)	2(13.3%)
0-30°	0	0
Total	15(100.0%)	15(100.0%)
Postoperative		
211-300°	11 (73.3%)	13(86.7%)
161-210°	4(26.7%)	2(13.3%)
101-160°	0	0
61-100°	0	0
31-60°	0	0
0-30°	0	0
Total	15(100.0%)	15(100.0%)
P value	<0.001^{S}	<0.001^{S}

Table-VI:
Distribution of the patients by satisfactory and unsatisfactory outcome according to Harris hip score within 6 months of follow up period (n=30)

Functional outcome	Group A (Cemented) (n=15) n(%)	Group B (Cementless) (n=15) n(%)	P value
Satisfactory	13(86.7%)	14(93.3%)	0.54^{NS}
Unsatisfactory	2(13.3%)	1(6.7%)	
Total	15(100.0%)	15(100.0%)	

Discussion

Among the painful hip disorders, osteonecrosis is an important cause of musculoskeletal disability. The most common risk factor is a history of taking corticosteroids. For the management of stage 3 and 4 osteonecrosis of the head of the femur, total hip replacement is the most viable option. Total hip replacement could be of cemented variety and cementless variety. Two types of devices could be used according to the necessity and feasibility of the patients.

In present study, the sample size was 30, of which 15 were in group A as cemented and 15 were in group B as cementless of 30 hips of so patients suffering from stage 3 and 4 osteonecrosis were treated by primary total hip replacement by cemented and cementless prosthesis. Among the 30 patients (30 hips) and 30 patients were available for follow up.

In this study the mean age of the patients were 44.33 years in Group A and 42.0 years in Group B ranging from 25-65 and 21-65 years in group A and group B respectively.

Our follow up period was 6 weeks to 20 months. During this period we did not notice any significance difference in the outcome between these two age group.

Kaplan-Meier survival analysis showed that revision-free component survival at 10 years was lower for cementless total hip replacement than for cemented total hip replacement when revision of any component and for any reason was the endpoint (85% vs. 94%, p<0.001. At 15 years, survival dropped to 70% (CI: 67-73) in the group of cementless total hip replacement and to 88% (CI: 88-89) in the group of cemented total hip replacement. After 15 years, there were 245 total hip replacements at risk in the group of cementless total hip replacement whereas 3,147 total hip replacement were at risk among the cemented total hip replacement 7.

The higher percentage of revisions due to dislocations in Denmark might possibly reflect the more common use of a posterior approach in Denmark, compared to Sweden and Norway. In most publications, a higher risk of dislocation has been found with the posterior surgical approach than with alternative approaches 8.

In our study we did not found any hip dislocation in this short follow up period.

In Sweden, the Swedish Hip Arthroplasty Register (SHAR) has well-documented low revision rates after cemented total hip replacement (87% survival after 17 years), and this prevented Sweden from swiftly introducing cementless total hip replacement -which became frequently used in many other European countries and in North America. Although the use of cementless total hip replacement has increased steadily and slowly for many years in Sweden, the proportion of cementless total hip replacement relative to cemented total hip replacement is still low by international standards 9. Cemented total hip replacement remains the gold standard for older patients (> 65 yrs) and for almost all patients with cervical neck fractures, whereas cementless total hip replacement is more commonly used in younger patients.

In contrast, after adjustment for sex, age, and underlying diagnosis, cementless stem components had a lower risk of stem revision due to aseptic loosening than cemented stems (RR = 0.4, CI: 0.3-0.5).

The risk of revision of any component for any reason was still higher for cementless total hip replacement than for cemented total hip replacement (RR = 1.5, CI: 1.2-1.8.

In contrast to the inferior performance of cementless cups, they found superior survival of cementless stems compared to cemented stems.

It has been proposed that hip arthroplasties fixed with antibiotic-laden cement should be less prone to deep infection than cemented implants fixed with conventional cement that contains no additional antibiotics 10.

Considerable improvement in health-related quality of life could be obtained in both cemented and cementless groups at different follow-up periods, but no significant difference could be found between the 2 groups .

Within postoperative 6 months, hip pain, thigh pain, and less hip score were found in the cementless group. Six months later, the cemented side was still superior in terms of pain.

In review shows that for a short term outcome, almost all the relevant studies reported superiority of the cemented fixation to the cementless in terms of pain reduction, thigh pain, hip score, walking with support, gait analysis, etc. Only one study reported equal results at the one-year follow up.

Some thought that the cemented total hip replacement had a gradual but discernible diminution in quality over time, and one of the advantages of the cementless fixation was its potential of making a permanent bond with bone.

The success of total hip replacement and the frequency in which it is performed are largely due to the development of the cemented low-friction arthroplasty 11; its survival rate of 80% at 25 years 5 remains unsurpassed. The improved survival of circumferentially coated cementless cups and stems that allow bone to grow into or onto the prosthesis 12 has supported their growing use in the United States, despite the higher costs 13In 2003, an estimated two-thirds of all primary total hip replacement were performed with cementless fixation 13 This contrasts with some European countries such as Sweden, which have adopted these newer cementless technologies more cautiously and have much lower revision rates14

In our study for valid statistical analysis, excellent and good results were grouped as satisfactory; and fair and poor results were grouped as unsatisfactory. According to Harris hip score, 13 (86.7%) patients had satisfactory outcome in group A and 14 (93.3%) in group B. 2(13.3%) patients in group A and 1(6.7%) in group B had unsatisfactory outcome post-operatively. The results of the literature and results of our study almost similar.

Conclusion

From this prospective interventional study, THR by cemented & cementless prosthesis in advanced osteonecrosis, no one is superior, still it can be consider as rational choice in the treatment of advanced osteonecrosis of the femoral head Ficat and Arlet stage III and stage IV by cemented and cementless prosthesis.

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ORIGINAL ARTICLE

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Marsupialization reduces perianal wound morbidity in fistulectomy patient with fistula in ano.

Kazi Zana Alam[1], Md.Mahbubur Rahman[2], Bishwajit Golder[3], Md. Babul Akter[4], Shahidul Hoque[5], Anuj Kanti Dash[6]

Abstract

Marsupialization reduces wound size, results in less raw surface wound and speeds up healing. This study is designed to see the wound related morbidity in patient with fistulectomy done for fistula in ano.This study conducted at Sylhet MAG Osmani Medical College, Hospital and other private clinics of Sylhet. Twenty five patients with simple fistula in ano underwent fistulectomy with marsupialization. Recurrent fistula, patients with associated co morbid conditions like anal fissure, hemorrhoids, chronic colitis or if the etiology is tuberculosis or malignancy were excluded.

[OMTAJ 2018; 17 (1)]

Introduction

Fistula in ano is a common surgical problem which is a chronic abnormal communication usually lined by granulation tissue which runs outwards from anorectal lumen to external opening on the skin of perineum or buttock. The mainstay of treatment is eradication of sepsis with preservation of anorectal function1,2. Conventional surgical options for a low fistula in ano include fistulotomy & fistlectomy3, 4. Fistulectomy involves complete excision of fistulous tract leaving behind a large raw area which to be left for healing. Healing of this large area reveals a larger time with daily dressing in hip bath. And chance of wound infection and wound pain is also more in this large defect. So colo-proctologist around the world are in search of such a procedure that can reduce the wound related morbidity in fistulectomy patient. Marsupialization is such a procedure that reduces wound size, results in less raw surface wound and speeds up healing. And reduces the rate of infection and pain. It enables the patient to resume daily activity earlier.

A fistulotomy lays open the fistulous tract from its termination thus leaving smaller unepithelialized wound which hastens the wound healing5. Marsupialization of fistula is a technique of suturing the cut mucosal edges to respective edges of fistula floor. Marsupialization reduces wound size, results in less raw surface wound and speeds up healing6.

Material and methods

It is an observational study conducted on twenty five patients diagnosed as simple fistula in ano from 2015 who were admitted into Sylhet MAG Osmani Medical College and Hospital and different private clinics of Sylhet. Inclusion criteria was simple fistula in ano which was defined as the fistula that had single external opening and single internal opening with a completely palpable tract and no abnormality in upper anal canal or lower rectum. Low trans sphincteric fistula involving less than lower third of anal sphincter, inter sphincteric fistula and subcutaneous fistula were included. Exclusion criteria were recurrent fistula, patients with associated co morbid conditions like anal fissure, hemorrhoids, chronic colitis or if the etiology is tuberculosis or malignancy.

1. Associate Professor, Department of Surgery, Sylhet MAG Osmani Medical College, Sylhet.
2. Assistant Professor, Dept. of Surgery, Mugda Medical College, Sylhet.
3. Senior Consultant, SunamganjSadar Hospital
4. Assistant Professor, Dept. of Surgery, Sylhet MAG Osmani Medical College, Sylhet.
5. Associate Professor, Dept. of Surgery, Chittagong Medical College, Sylhet.
6. Assistant Registrar, Dept. of Surgery, Sylhet MAG Osmani Medical College, Sylhet.

Operative procedure

Prophylactic antibiotic with Ciprofloxacin and Metronidazole were given intravenously within 120 mins of incision. The operation is performed under spinal anesthesia and patient is positioned in jack-knife position or lithotomy position with buttocks strapped apart to expose the perianal region. Following successful passage of probe through fistula tract, the tissue superficial to the probe is incised with cutting diathermy until the probe is entirely exposed. The floor of the fistula tract is curetted and the tissue is sent for histology. The external fistula opening is excised but trimming of overlying mucosal and skin edges is not necessary. After achieving hemostasis, the cut mucosal edges are sutured to the respective edges of the fistula floor which is known as marsupialization with interrupted 3-0 vicryl sutures.

The operating time was calculated from the start of fistula identification under anesthesia to beginning of dressing of post operative wound. All patients were administered ciprofloxacin and metronidazole postoperatively for a duration of 3 days.

Patients were discharged on first postoperative day with advice of antibiotic and sitz bath. Patients were followed for a period of 12 weeks for postoperative complications like pain, discharge, incontinence and recurrence. Pain was recorded by using visual analogue scale. Healing time was the primary outcome measure while size of operative wound, operating time, post operative bleeding, post operative pain, incontinence and recurrence were secondary outcomes. Discharge was defined as any serous secretion from wound. Incontinence was categorized as inability to distinguish gas or stool, unable to hold gas and soiling of undergarments.

Results

During the study period 25 patients were enrolled. All patients underwent fistulectomy with marsupialization. Male was predominant in this study constituting 23(92%) with M:F of 8:1. The mean age of patients was 38.5 years.

Table I patient demographics

Parameter	Frequency	Percentage
Age (years)		
15-25 yrs	03	12%
26-35 yrs	06	24%
36-45 yrs	08	32%
46- 55 yrs	04	16%
56- 65 yrs	02	8%
>65 yrs	02	8%
Gender		
Male	23	92%
Female	02	8%

In this study, most patients were between age of 36-45 years and 92% of the patients were male with M:F ratio of 8:1.

Table 2 Operating room findings

Parameter	Frequency	Percentage
Types of Fistula		
Subcutaneous	05	20%
Intersphincteric	14	56%
Low Transphincteric	06	24%
Fistula tract length(cm)		
<2cm	07	28%
2-3cm	14	56%
>3cm	04	16%
Operating Time		
<30mins	04	16%
30-45 mins	15	60%
>45mins	06	24%

Intersphincteric type of fistula was most common (56%) with fistula length between 2-3cm (56%). Operating time was 10-15mins in 60% of cases.

Table 3 Post operative complications in patients with fistulectomy followed by marsupialization

Parameter	Frequency	Percentage
Post operative bleeding	03	12%
Post operative pain in VAS		
In 24hours	6.3	
In 48 hours	4.5	
Healing time		
0-4 weeks	04	16%
5-7 weeks	17	68%
8-10 weeks	04	16%
Post operative infection	02	8%
Incontinence	00	
Recurrence	00	

Post operatively, 12% patients complaints of bleeding from wound. Median score of post operative pain according to visual analogue scale (VAS) was 6.3 in first 24 hours and 4.5 in 48 hours. In 68% patients, healing time was between 6-9 weeks. Eight percent (8%) patients suffered from post operative infection following surgery. No patient developed incontinence as well as no recurrence was encountered.

Discussion

Though variety of treatment modalities are available for management of fistula in ano, there is lack of consensus for the gold standard therapy. Here we conducted the observation study on marsupialization following fistulectomy in patient with fistula in ano.

Most patients were between 36-35 years which corresponds to Bhatti Y et al study. In our study male female ratio was 8:1 which contradicts with study of Jain BK where ratio is 2.75:1.

Intersphincteric fistula was most common type of fistula which corresponds to most of the studies. Fistula tract was between 2-3cm in most cases which corresponds to Sahakitrungruang C et al study. Operating time was mostly between 30-45 mins which contradicts with study of Pascator M et al where operating time was between 9-11 mins.

Post operative bleeding recorded in 12% patients. On VAS score, median pain score was 6.3 in most patient in 24 hrs which deceased to 4.5 in 48 hours. It took 5-7 weeks in most cases(68%) to heal with median

healing time of 35 days which corresponds to study of Sheikh IA.

The frequency of post operative infection was 2(8%) which corresponds to Lindsy I et al study.

Conclusion

Marsupilialization in fistula in ano takes longer operating time but heals wound significantly faster. Neither incontinence nor recurrence develops following marsupialization

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ORIGINAL ARTICLE

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Evaluation of Brain imaging to the diagnosis of Tuberculous Meningitis : a retrospective study.

Abul Kalam Mohammed Shoab[1], Mostafa Hosen[1], Syed Abul Foez[2], Habibur Rahman[3], Biplob Kumar Roy[4], Md. Babul Akter[5]

Abstract

Tuberculous Meningitis is a serious health problem and difficult to diagnose. We observe the role of CT/MRI in TBM diagnosis. This was a retrospective study done between January 2010 to December 2011 in which we reviewed 30 patients of TBM in a medical college hospital of Bangladesh. We revised 30 TBM patients; among them 11 cases were confirmed TBM patients and 19 were probable patients. Brain imaging (CT/MRI) was performed in 15 cases. The use of brain imaging allowed the Brain lesions in 93.3 % patients. Brain imaging either CT or MRI should be performed in suspected TBM patient to aid in diagnosis and for further management.

[OMTAJ 2018; 17 (1)]

Introduction

TBM is the severe form of extrapulmonary tuberculosis occurring 7-12% of TB patients1. Delay in diagnosis and so in the start of effective treatment results in poor prognosis and sequlae in up to 25% of cases2. Diagnosis is difficult and based on clinical and biological features, and disease progression3. A good prognosis depends on early diagnosis and treatment; therefore we focus herein the importance of radiological findings.

Patients and methods

In this retrospective study, we revised 30 TBM patients diagnosed and treated at the department of Medicine, Sir Salimullah Medical College and Mitford Hospital, Dhaka, Bangladesh, between January 2010 to December 2011. Among these 30 patients, 15 patients had done brain imaging (CT/MRI) with or without contrast according to findings. CT was done in the axial plane and MRI 1 tesla strength with T1, T2, and T2 inversion sequlae with Gadolinium IV injection as needed.

The diagnosis of TBM was made on the basis of following criteria: clinically confirmed cases: Mycobacterium tuberculosis in CSF by staining and/or culture. Clinically probable patients (TBM): negative cultures with subacute or chronic fever with meningeal irritation (headache, neck stiffness) and vomiting, with or without other features of CNS involvement. CSF: raised protein levels, and/or decreased glucose (CSF: blood glucose ratio <0.5), and/or pleocytosis with lymphocytic predominance and clinical response to antituberculous drugs.

The stage of TBM was determined by the method of Gordon and Parson4: at stage 1 the patient is fully conscious, at stage 2 the patient is drowsy or has focal neurological signs, and at stage 3 the patient is comatose or nearly so.

Patients were monitored with monthly clinical examination for three months and finally follow up was done at medicine OPD and over the telephone.

Results

Patients

Thirty patients (18 men and 12 women), age range 16-85 years (mean 30.57 years) with TBM. Only eleven patients were diagnosed as confirmed TBM by culture positivity and rest 19 patients were probable TBM.

1. Assistant professor, department of neurology, Sylhet M A G Osmani Medical College, Sylhet, Bangladesh;
2. Assistant professor, department of hepatology, Sylhet M A G Osmani Medical College, Sylhet, Bangladesh;
3. Assistant professor, department of Endocrinology, Sylhet M A G Osmani Medical College, Sylhet, Bangladesh;
4. Professor, department of neurology, Sylhet M A G Osmani Medical College, Sylhet, Bangladesh;
5. Assistant professor, department of Surgery, Sylhet M A G Osmani Medical College, Sylhet, Bangladesh;

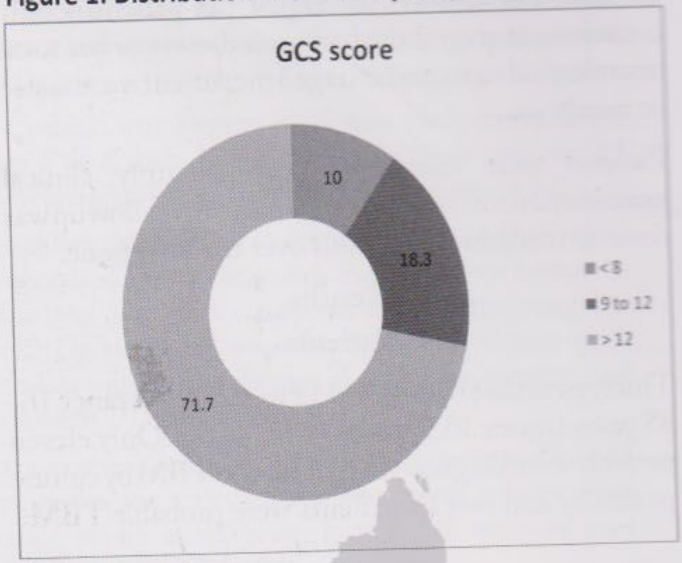
Table-1: Distribution of the respondents by age.

Age group (years)	TBM (n =30) No (%)
15-20	11(36.67)
21-29	6(20)
30-39	6(20)
40-50	5(16.67)
>50	2(6.67)
Total	30 (100)
Mean± SD, Range	30.57±15.70,16-85

Clinical data

At presentation, fourteen (14) patients were classified as being at Gordon and Parson Stage 1, 12 at stage 2 and 4 at stage 3. Cranial nerve palsies were noted before therapy in six cases, mostly VI cranial nerve (3/6); other focal neurological signs were noted in eleven patients. Neck rigidity and Kerning's sign were present in 27 (90%) and 15(50%) respectively. Among the study subjects 10% had GCS score less than 8, 18.3% had within 9-12 and 71.7% had over >12. Neurological deterioration was noted in 2 patients under treatment and died eventually due to delay of treatment and stage 3 presentations. The study subjects showed papilloedema in 8 patients and bilateral optic atrophy in 2 patients. There were one or more tuberculous location in 8 patients; 1 in cervical lymph node, 5 in pulmonary tuberculosis and 2 retinal involvements.

Figure 1: Distribution of the study subjects by GCS score



Laboratory data

The CSF was clear or xanthochromic in all cases with the total WBC count ranging from 5 to 6400/cmm (484.7 ± 1317) with a lymphocytic predominance in all cases. The CSF glucose level was low in all cases, and CSF protein level was elevated in most cases with a range of 37 - 1440 mg/dl at presentation. CSF culture (Lowenstein-Jensen media) was positive in 11 patients.

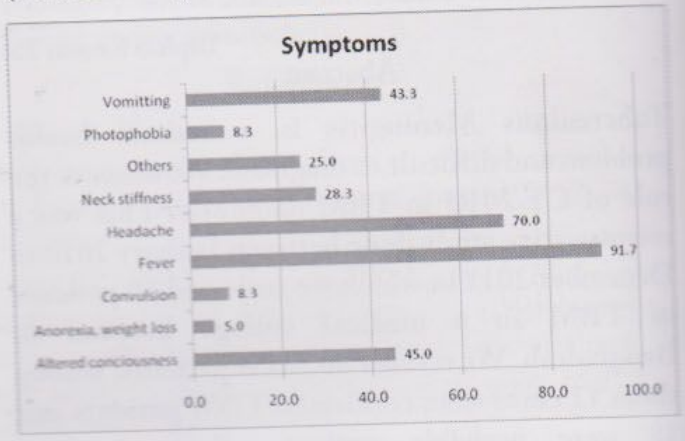


Figure 2 depicts the distribution of the study subjects by presenting symptoms
Most prevalent symptom was fever (91.7%).

Table 2: Biochemical parameters of CSF in TBM

	Tuberculous meningitis (n-30)	
Sugar(mmol/L)	2.6 ± 1.2	0.8 – 6.5
Protein(mg/dl)	212.3± 275.1	37 – 1440
TC(/cmm)	484.7± 1317	5 – 6400
lymphocyte(%)	72.08±31.2	10 – 100
Polymorph (%)	28.12±31.6	0 – 95

Radiological data

CT/MRI of brain was done in 15 out of 30 patients of TBM and most of them (14/15) had got radiological abnormalities (93.3%). CT was done in 7 patients on the other hand MRI in 8 patients and Isolated hydrocephalus was seen in 5 ,tuberculoma in 4,inarct in 1, mixed lesion(hydrocephalus with infarct/ tubeculoma) in 4 patients. Tubeculoma , arachnoiditis, external pachymeningitis had a low T1 image, a high signal in T2, and were enhanced after gadolinium injection.

Clinical outcome

Stage 1 patients (14) had a good outcome without any complications; stage 2 patients (12) improved after an initial neurological deterioration and stage 3 patients (4) had poor outcome - 2 died during the treatment period.

Discussion

TBM remains a life-threatening disease with the prognosis dependent on initial presentation and on treatment delay4,5. This is why we emphasize herein the importance of early diagnosis. Bangladesh ranks 6th out the list of 22 countries where burden imposed by TB is high (WHO 2009)6. TBM is the severe form of extrapulmonary TB and in the absence of an early diagnosis and treatment, high mortality (20-30%) Kumar et al, 1999,7.

In this study clinical presentation was classic: sub acute course, disorientation, history of fever in most cases (91.7%) that was low grade, evening rising, associated with night sweats. In other study the incidence was 87% and 58.9%.8,9. Meningeal irritation was seen in 27 (90%) patients as neck rigidity and 15 (50%) as Kernig's sign that was 54% and 40% in other study 8.

Early diagnosis is important to avoid morbidity and mortality 8. When a definite diagnosis relies on a CSF positive culture for mycobacterium tuberclous (20-50%), on the presence of AFB on CSF smear (12.5-45%), diagnosis is frequently presumptive3,4. To improve on these, and make a definite diagnosis, many methods can be used. These require specialist laboratories, incurring high costs - a barrier for developing countries. PCR of CSF is a good sensitivity 80-91%; but is limited due to high expense and unavailability3. Brain imaging (MRI of Brain) findings are not specific but when associated with clinical and biological parameter, they are suggestive and can be a good method of diagnosis assessment 11.

In our study we have found brain imaging (CT/MRI) were done in 15/30 patients due raised ICP with focal neurological deficit and initial poor response to anti-TB. CT was done in 7 patients on the other hand MRI in 8 patients with the findings of Isolated hydrocephalus in 5 , tuberculoma in 4, inarct in 1, mixed lesion (hydrocephalus with infarct/ tubeculoma) in 4 patients. Out of 9 hydrocephalus patients 5 had done VP shunt from neurosurgery department, one died at home after one month and rest of them improved. CT rather than MRI was done in 7 patients due to patient's poor compliance such as restless, economic solvency etc. In our study neurological lesion of brain imaging was found in fourteen patients (93.3%); similarly R Abdelmalek et al 12 got MRI abnormality in 89.6% The reason behind CT/MRI of brain was not done in 15 cases were followings: 5 patents had associated pulmonary TB, 1 had cervical lymph node TB (Biopsy positive for MTB), 9 were stage 1 with early response to Anti TB and lastly one died at very beginning due to ARDS; unfortunately that patient was a CSF culture positive TBM and diagnosed after 6 weeks of death.

When TBM is suspected, treatment should be started immediately, without waiting for a definite diagnosis 13. In this study, treatment delay was associated with death in two cases and with neurological worsening in 15 cases, two of them got permanent vision loss due to optic atrophy. Treatment duration is variable, ranging from 9 to 24 months 5,14. We consider 12 months to be the minimum treatment duration for TBM due to the poor diffusion of anti-tuberculous drugs into the CSF and in tuberculomas. Corticosteroids must be used for at least six weeks, mainly in patients at Gordon and Parson stage 2, to prevent complications, to reduce duration of symptoms and frequency of sequelae, and to improve survival 14 .

In this study there was a limitation that we could not collect CT /MRI films as patients party took it with them during discharge rather we have only the data of radilogical reports of both CT and MRI.

Conclusion

TBM is a severe disease with high morbidity and mortality. Early diagnosis and treatment can improve patients' outcome. MRI of the Brain is a good method to strengthen diagnosis and to monitor disease progression, especially in developing countries where definite diagnosis by laboratory testing is limited.

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