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"Excellence Through Peer Review"

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Contents Page

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INFORMATION TO AUTHORS

Focus

Chattagram International Medical College (CIMC) established on 2013 is one of the famous and reputed Medical College among the Private Medical Colleges in Bangladesh as reflected by the performances of students in examinations of Chittagong University. A very good number of academicians and researchers are performing in this institute.

Chattagram International Medical College commenced to publish a peer reviewed scientific Journal from 1st January 2016 which is recognized by BMDC and having International Standard Serial Number (ISSN) 2520-484X. The journal publishes article of authors from any part of the globe, but has a special interest in publishing research articles of authors from Bangladesh and of relevance to developing countries. It publishes Editorial, Original (Research) articles, Special articles, Review articles, Short Communications, Case report and letters on new findings of Medical Science.

Chattagram International Medical College journal is published in english, biannually eg. January and July with prior approval of Editorial board.

Appropriate measures has been taken to make the journal indexed / abstracted in major international indexing systems including the PubMed/MEDLINE, Index Medicus, Google Scholar, DOAJ, Hinari and Scopus etc.

The theme of Chattagram International Medical College Journal is

"Excellence Through Peer Review"

Submission of Manuscript

Manuscript (Papers) are submitted to the Editor-In-Chief or authorised persons at any time. Papers accepted for publication are subjected to peer review and editorial revision. With full title (Title should be concise and informative) two copies of papers (Along with CD) accompanied by a covering letter signed by Principal and Co-authors including name, academic degrees, designation, the departmental and institutional affiliation. Complete address, Cell number including Email address of Corresponding author should be mentioned. Not more than 7 (Seven) authors will be accepted for all manuscripts.

Manuscript should be typed in English (Font size and style : 10, Times New Roman) on one side of white bond paper of A4 size with margins of at least 2.5 cm, using double space throughout.

Manuscript may be additionally submitted by email also. Email : info.cimchbd@gmail.com (Ms word 2003/2007). Rejected manuscript will not be returned.

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A structured abstract should not be of more than 250 words. It should be a factual description of the study performed organized with the heading of Background (Includes aim or objectives) Methods (Includes patient population, procedures and data analysis) Result and Conclusion. The abstract should contain the data to support the key findings or conclusions of the study and this should be self explanatory without references to the text. the first time an abbreviated term is used it should be spelled out in full form and follow with the abbreviation in parentheses for example :- BPH (Benign Prostatic Hyperplasia). Please do not cite any references in the abstract.

3 (Three) to 10 (Ten) key words may be provided below the abstract using terms from the medical subject heading (Index Medicus, NLM, USA).

Types of Manuscripts

Editorial : Its a invited article. Based on current affairs of Medical Science with any disciplines. Maxium length of the editorial may be with in 1000 words and number of references maxium in 10 (Ten).

Original Article : A research, observational and experimental article should be devided into the following sections with headings :

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- Recommendation (If any)
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Single digit numbers used in the text should be in words except datas and reference numbers. Maximum length of text may be with in 2500 words (Excluding abstract, table, figure and references). The total number of reference should not be less than 15 (Fifteen) for the original article.

Special Article / Short Communication

Its a medical based text of any disciplines. Maximum length of the Special article / Short Communication may be with in 2500 words (Excluding abstract, table, figure and references). The total number of reference should not be less than 10 (Ten).

Review Article

Its a prestigious article, which is divided into the following sections with headings

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- Search Strategy
- Discussion
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Review article should not generally exceed 3500 words, including illustrations and the number of references should not be more than 30 (Thirty).

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Text of Case report with the following section

- Introduction
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Maximum length of the text may be with in 1500 words (Excluding abstract and references). The total number of reference should not be less than 10 (Ten).

Letter

Letter should be brief and to the point with in 500-600 words only.

It is noted that standard abbreviations should be used whenever. The full form for which the abbreviations stands followed by the abbreviation in parenthesis should preceede the use of the abbreviation in the text except for standard ones like 45^{o}c, 35mg/L etc in all types of text.

References

Regarding references please follow the Vancouver style (Uniform requirements for manuscripts submitted to biomedical journals prepared by the International Committee of Medical Journal Editors (ICMJE guideline http://www.icmje.org).

Reference citations in the text should be numbered in arabic numerals at the end of the sentence eg [1,2] consecutively in order in which they are mentioned in the text.

Book references should have the name of the authors, chapter title, editors, Book name, the edition, place of publication, the publisher, the year and the relevant pages.

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The first six authors of a work should be named, followed by 'et al' if there are more than six. If less than six authors the name of the all authors may be mentioned.

Examples

Book reference : Meltzer PS, Kallioniemi A, Trent JM. Chromosome alterations in human solid tumors. In : Vogelstein B, Kinzler KW, editors. The genetic basis of human cancer. New York, USA : McGraw Hill. 2002; 6:93-113.

Journal reference : Halpern SD, Ubel PA, Caplan AL. Solid organ transplantation in HIV infected patients. N EngL J Med. 2012; 34(4) : 284-287.

Citation from a website : Cancer - Pain.org [Internet]. New York : Association of Cancer Online Resource, Inc, c 2000 - 2001 Available from : http : //www.cancer-pain.org/.

Table

- All tables should be numbered using Roman numerals (I, II).
- Table should always be cited in text in consecutively using Roman numericals (eg Table I, II).
- Mentioned the caption at the top of table. Table should be planned as brief as possible.
- Significance values and other statistical data should be included beneath the table.

Figures / Graphs

- All Figures / Graphs are to be numbered using Arabic numerals (1, 2).
- Figures / Graphs always to be cited in text in consecutively using Arabic numerical (eg figure 1, 2).
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According to guidelines of the Internation committee of Medical Journal Editors (http:// www.icmje.org) please provide only 4/5 table with Roman numerical I, II with caption at the top of the table and only 4/5 figures / graphs with Arabic numerical 1, 2, with caption at the bottom of the figures / graphs.

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Unmounted glossy print, B-2 size with good contrast (600 pixels). 3 Images / Photographys / Legends are allowed for whole text.

Declaration

The article should accompany a declaration signed by author and co-authors which includes a statement that neither the article nor any part of its essential subtance table or figures is published in any journal nor submitted elsewhere for consideration of publication before appearing in this journal. The declaration form must be collected from the office of Editor-In-Chief

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Competing Interests

Chattagram International Medical College Journal requires authors to declare any competing financial or other interest in relation to their work. Where an author gives no competing interests, the listing will read the author (s) declare that they have no competing interests.

Editorial

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Obesity: Another Ongoing Pandemic of Concern

Md Shafiqur Rahman[1*]

Obesity – derived from the Latin word 'Obesitas' meaning 'fatness' or 'Corpulence' which was first described around 1610 AD. Obesity is the excessive or abnormal accumulation of fat or adipose tissue in the body that may impair health.

Obesity have become major health problems worldwide and obesity is currently ranked as the fifth most common leading cause of death globally. The increasing prevalence of overweight/obesity is a leading public health concern in high-, middle-, and low-income countries. More than 1 billion people worldwide are obese – 650 million adults, 340 million adolescents and 39 million children. This number is still increasing. The World Obesity Atlas 2022, published by the World Obesity Federation, predicts that one billion people globally, including 1 in 5 women and 1 in 7 men, will be living with obesity by 2030. The findings highlight that countries will not only miss the 2025 WHO target to halt the rise in obesity at 2010 levels, but that the number of people with obesity is on course to double across the globe. Alarmingly, recent studies indicated an increasing trend in overweight and obesity among Bangladeshi children, adolescents and adults over time.

Obesity interweaves biologic, developmental, environmental, behavioral and genetic factors. It promotes a chronic, low-grade, inflammation, with vascular dysfunction, thrombotic disorders, multiple organ damage, and metabolic derangement. The most common cause of obesity throughout childhood and adolescence is an inequity in energy balance and caloric expenditure.

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Obese patients are at risk of developing diabetes, prediabetes, metabolic syndrome, dyslipidemia, hypertension, cardiovascular disease, nonalcoholic fatty liver disease/nonalcoholic steatohepatitis, Polycystic Ovary Syndrome (PCOS) female infertility, male hypogonadism, obstructive sleep apnea, asthma/reactive airway disease, osteoarthritis, urinary stress incontinence, Gastroesophageal Reflux Disease (GERD) and psychological issues like depression.

Body Mass Index (BMI) is a simple index of weight for height that is commonly used to classify obesity in adults. It is defined as a person's weight in kilograms divided by the square of his height in meters (kg/m^2). The said simple index intended to classify adults into one of three categories: 'Underweight,' 'Overweight,' & 'Obese.'Category individuals as having overweight (25 to 29.9 kg/m^2) or obesity (≥30 kg/m^2) after considering age, gender, ethnicity, fluid status and muscularity. In United States (U.S.) and Canada, crossing healthy limit of the waist circumference to be ≥102 cm for men and ≥88 cm for women. World Health Organization (WHO) determines the BMI cutoff point value of ≥23 kg/m^2 for overweight and waist circumference cutoff to be 90 cm for men and 80 cm for women among Asian population.

Management targets both weight-related complications and adiposity. Reduced-calorie meal plan and increased physical activity goal should be ≥150 min/week of moderate exercise during 3 to 5 days/week. Resistance training 2 to 3 times/week. Encourage to reduce sedentary behavior.Early weight reduction is a key predictor of long-term weight-loss success. Food and Drug Administration (FDA) approved five following anti-obesity pharmacotherapies (Orlistat, Phentermine-topiramate, Naltrexone-bupropion, Liraglutide, Semaglutide, etc), which are used as adjunct to life style therapy.

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Finally, it may be concluded that obesity is a concern for developed and developing countries, which deserves serious consideration and attention from policymakers, healthcare providers and researchers alike. Further research on motivations for individual and societal behavioural changes is crucial in this case.

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Original Article

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Volume 8 Number 2 July 2023; 3-8

Correlation between Femoral Neck-Shaft Angle and Body Habitus among Adult Bangladeshi Population through Radiographic Study

Baishakhi Bhowmick[1*] Sonia Sultana[2] Urmilla Chowdhury[3]
Sabrina Tasnim[4] Rakesh Das[5] Jehan Hasem[6]

Abstract

Background: Femoral Neck-Shaft Angle (FNSA) is an important prognosticator of fracture neck femur. The femoral neck-shaft angle decreases from 150^0 during birth to 125^0 in the adult due to the result of changes in body proportions. There may be significant increase or decrease of NSA along with body habitus such as height, weight, BMI, waist circumferenceetc. So, the present study aims to find out the correlation between NSA along with height, weight, BMI on both sides and in both sexes.

Materials and methods: This cross sectional observational study was conducted in Department of Anatomy, Chittagong Medical College, Chattogram from July 2020 to June 2021. A total number of 200 participants with age ranging from 21-75 years were selected from Radiology Department of Chittagong Medical College Hospital (CMCH) according to enrolment criteria. Then height, weight and BMI of all participants were recorded. After that plain pelvic X-ray A/P view were taken by using the systematized order and all recorded data were analyzed by using SPSS version 25.

Results: In this study, in case of male there was significant negative correlation of both side FNSA along with height and highly significant negative correlation along with weight and BMI with both side FNSA but in case of female there was no significant correlation found along with height and weight and both side FSNA but significant negative correlation found with BMI and FNSA on both sides.

Conclusion: The study will guide the surgeons to figure out proximal femur deformity which is a major hindrance of our community.

Key words: BMI; FNSA; Height; Weight.

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Introduction

The femur is the largest bone in the human body which is the bone of the thigh region. It consists of two ends. The proximal end and the distal end with the intermediate shaft. Although the femur bone is structurally and functionally important in all of its parts, the proximal femur in human is subjected to large variety and magnitude of force during day-to-day activities.[1]

The prominent features of the proximal end are the head, neck, greater and lesser trochanters, inter-trochanteric line and inter-trochanteric crest. In bipeds, the hips have a great responsibility of transmitting the ground reaction against the body weight, while at the same time preserving mobility. To mechanically accommodate these postural changes, the head and neck of the femur undergo angulation and rotation from the intra uterine life.[2] The femoral head is two thirds of a sphere with an indent, the fovea capitisfemoris, just below and behind its center where the ligamentumteresfemoris is attached. The femoral neck joins the head to the body of the femur, merging with the lesser trochanter at its inferior limit and with the base of the greater trochanter at its lateral limit. The neck is about 5 cm long, connects the head to the shaft and is directed

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upward, medially and slightly forward and making an angle known as Neck- Shaft Angle (NSA) which is defined as the angle formed by intersection of longitudinal axis of femoral neck with that of longitudinal axis of femoral shaft. It is also named as angle of inclination.[3]

Fracture in the proximal part of femur is a major health hazard in our country which causes disability of both adult male and female. NSA is an important risk factor of this deformity. There is benchmark diversity of femoral NSA among populations and these differences are related to genetic predisposition and environmental factors such as geographic pattern, dietary habit, body habitus such as height, weight, BMI etc. and way of living. It may also have the racial characteristics of population.[4] Moreover several studies found that there was significant positive or negative correlation between NSA along with body habitus such as height, weight, BMI, waist circumference etc. in both sexes.[5-7] Among these Body Mass Index (BMI) as well as height is an important determinant of fracture neck of femur.[8-9]

Study of the femoral neck-shaft angle is important to convey the information regarding the race to which they belong and also useful for surgeons, for treatment of fractures by internal fixation[10]. The measurement of FNSA can be carried out by direct methods such as from the dry bonewith the help of traditional instruments (eg: Sliding and spreading calipers).[11] To get more accurate result include CT scan, MRI, plain pelvic radiograph, biplanar radiographic method etc.[12,5,13] Among all the new technologies plain pelvic radiograph method seems to be better than other methods because it is easily available, less costly and noninvasive. From radiograph femoral neck-shaft angle can be measured by using 360^0 handhold goniometers or by protractor.[14,15]

Keeping the above background and knowledge in mind, in this present study we opted to find out the correlation between NSA along with height, weight, BMI in right and left sides of both male and female.

Materials and methods

It was a cross sectional observational study carried out by Department of Anatomy, Chittagong Medical College (CMC) Chattogram. After getting permission from ethical review committee of CMC and concerned departments 200 adult participants were selected from Radiology Department of CMCH according to enrolment criteria. There were 119 male participants and 81 female participants. The age ranged between 21-75 years. Participants having normal radiograph reported by an expert radiologist, no hip disorders, no previous hip surgery, no history of previous hip fracture were included in the study where as patient with abnormal radiograph, hip deformity, previous history of hip fracture, history of rheumatoid arthritis, osteoarthritis and osteonecrosis of femoral head were excluded from the study.After taking informed written consent of all participants age, sex, height, weight, BMI was recorded. For measuring height each participant was requested to be barefooted to stand on his /her heel together toes apart and back as straight as possible. So that his/her heels, buttock, shoulders and the head touched the wall to measure the stature. Participant was asked to remove any hair ornaments, jewelry, buns or braids from the top of the head.

The participant's head was positioned in the Frankfort horizontal plane and the arms were hung freely by the sides with the palm facing towards the thighs. A steel plate/ measuring tape were placed against the head and wall to determine maximum height/stature on the wall and this was marked by black pencil (Figure: 2). Weight was measured by digital weighting scale in kilograms to the nearest 0.5, without footwear with the scale being placed on a farm flat surface (Figure: 3). BMI of each participant was calculated according to formula of WHO such as a person's weight in kilograms divided by square of person's height in meters (kg/m^2). Then plain X-ray pelvis A/P view was taken with 15-30 degrees internal rotation of hips in the supine position. Here beam centered on the symphysis pubis with a film focus distance of 100 cm.[14-15] For measuring femoral neck-shaft angle, femoral neck axis and shaft axis were drawn over all radiographs by the help of black permanent marker and measuring scale (Figure-1). In this study the long axis of neck was drawn by taking two points, one at the center of the head and other at the midpoint of the narrowest part of neck. Then join the two points this line represents the axis of neck. Long axis of the shaft was drawn by taking the midpoint of the shaft just below the lesser trochanter. This line was extended at the upper end to cut the long axis of neck. Thus Femoral Neck

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Shaft Angle (FNSA) is formed.[15] The angle was measured with the help of protractor and was noted.[14] Then all collected data were analyzed by SPSS version-25. The correlation of height, weight, BMI with femoral NSA of both sides and in both genders has been studied by using simple linear Pearson's correlation coefficient test. p <0.05 was considered as statistical significance in 95% level of confidence interval.

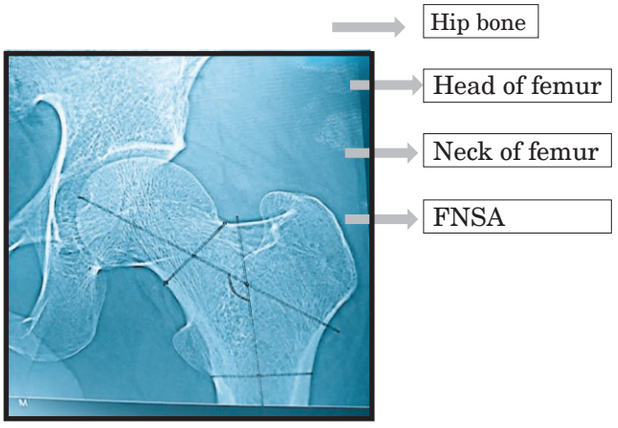

Figure 1 Measurement of femoral NSA on left side

Figure 2 Height measurement

Figure 3 Weight measurement

Results

Table I Mean height, weight, BMI and femoral NSA of both male and female (n=200)

Measurements	Male	Female
Height (cm)	161.340±4.96	149.564±3.983
Weight (kg)	66.844±7.273	58.296±6.052
BMI (kg/m^2)	25.715±2.210	26.074±2.354
FNSA in degree (Right)	126.105±3.108	125.209±3.164
FNSA in degree (Left)	125.117±3.065	124.308±3.056

Table I shows mean height, weight, BMI & femoral NSA on both sides of all respondents.

Table II Correlation of coefficients of some selected parameters (Height, weight, BMI) with FNS Aamong male and female on right side

Right side	Male (n=119)			Female (n=81)		
	r	r^2	P value	r	r^2	p value
Correlation with NSA and height	-0.166	0.027	0.042*	0.178	0.032	0.112 (Ns)
Correlation with NSA and weight	-0.351	0.123	<0.001***	-0.114	0.013	0.311 (Ns)
Correlation with NSA and BMI	-0.318	0.101	<0.001***	-0.232	0.054	0.037*

Table II shows correlation analysis of height, weight, BMI with femoral neck-shaft angle (Rt. Side). In case of male there was significant negative correlation of right sided FNSA with height (r=-0.166 r^2=0.027, p=0.042) and very highly significant negative correlation along with right sided FNSA with weight (r= -0.351, r^2= 0.123, p <0.001) and also BMI (r= -0.318, r2= 0.101, p<0.001). Table II also reveals no significant correlation of right sided FNSA along with height (r=0.178, r2= 0.032, p=0.012) and weight (r=-0.114, r2= 0.013, p=0.311) in case of female but significant negative correlation along with BMI (r= -0.232, r2= 0.054, p=0.037) and right sided femoral neck shaft angle in female.

Table III Correlation of coefficients of some selected parameters (Height, weight, BMI) FNSA among male and female on left side (n=200)

Left side	Male (n=119)			Female (n=81)		
	r	r^2	p value	r	r^2	p value
Correlation with NSA and height	-0.188	0.035	0.041*	0.181	0.033	0.106 (Ns)
Correlation with NSA and weight	-0.364	0.133	<0.001***	-0.141	0.020	0.210 (Ns)
Correlation with NSA & BMI	-0.317	0.101	<0.001***	-0.261	0.068	0.019*

Table III shows correlation analysis of height, weight, BMI with femoral neck-shaft angle (Left side). In case of male there was significant negative correlation of femoral neck-shaft angle of left side with height (r=-0.188 r^2=0.035, p=0.041) and very highly significant negative correlation along with left sided FNSA with weight (r= -0.364, r^2= 0.133, p <0.001) and also BMI (r= -0.317, r2= 0.101, p<0.001). Table III also reveals no significant correlation of left sided FNSA along with height

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(r=0.181, r2= 0.033, p=0.106) and weight (r=-0.141, r2= 0.020, p=0.210) in case of female but significant negative correlation along with BMI (r= -0.261, r2= 0.068, p=0.019) and left sided FNSA in female.

Discussion

Correlation of Femoral NSA with Height

Correlation analysis of height with femoral neck-shaft angle in case of male showed that significant negative correlation of femoral neck-shaft angle of right side with height (r=-0.166 r^2=0.027, p=0.042) and statistically significant negative correlation of femoral neck-shaft angle of left side with height (r=-0.188, r^2=0.035, p=0.041). Correlation analysis of height with femoral neck-shaft angle in case of female reveals non-significant positive correlation in both right and left side. Here for right femoral NSA the values are as (r=0.178; r^2 =0.032, p=0.112) and for left femoral NSA (r=0.181, r^2=0.033, p=0.106). Bhattacharya et al. revealed the correlation of NSA with height. Non-significant positive correlation found in both right and left sided cases and in both genders. Correlation coefficient for NSA with height was 0.22 and p value 0.25.[14] Ahmed et al had shown the correlation between height and NSA where there was a statistically non-significant decrease in NSA with increasing height (p= 0.129) in both genders. Both the studies have shown similarity with my present study.[6] Nissen et al. revealed non-significant positive correlation (p>0.05) with femoral NSA and height on both sides in case of male but significant positive correlation (r= 0.20, p<0.05) in case of female on both sides which has shown dissimilarity with the present study.[16] This dissimilarity may be due to their different technique of measurement of FNSA.

Correlation of Femoral Neck-Shaft Angle with Weight

This present study showed highly significant negative correlation of femoral neck-shaft angle of right side with weight (r= -0.351, r^2=0.123, p<0.001) and also femoral neck-shaft angle of left side with weight (r= -0.364, r^2=0.133, p<0.001) in case of male but statistically non-significant negative correlation of right and left sided femoral neck-shaft angle with weight in case of female respectively. Here for right side the values are as (r=-0.114, r^2=0.013, p=0.311) and for left side (r= -0.141, r^2=0.020, p=0.210). Ahmed et al. found the difference in femoral NSA which was inversely related to change in body weight in both sexes and was found to be statistically significant (p= 0.043).[6] Nissen et al. also found non-significant negative correlation (p>0.05) between NSA and body weight in both sides in case of male but statistically significant (r=-0.30, p<0.01) negative correlation with femoral NSA and body weight in case of female.[16] Fischer et al. revealed a non-significant negative correlation between body weight and NSA (p=0.2) in both sides and in both genders.[17] They also revealed that the angle decreased with increasing weight. These studies have shown similarity with the present study. Bhattacharya et al. also found the correlation of NSA with body weight, non-significant positive correlation was found in both sides and in both sexes. Overall correlation coefficient for NSA with weight was 0.14. So, non-significant correlation was obtained with weight[14]. The study has shown dissimilarity with the present study. The dissimilarity may be due to their very small sample size.

Correlation of Femoral Neck-Shaft Angle with BMI

In the present study the correlation of femoral neck-shaft angle with BMI in case of male shown there was a very highly significant negative correlation of femoral neck-shaft angle of right side with BMI (r= -0.318, r^2=0.101, p<0.001) and very highly significant negative correlation of femoral neck-shaft angle of left side with BMI (r= -0.317, r^2=0.101, p<0.001). It also revealed that in case of female there was a significant negative correlation of femoral neck shaft angle of right side with BMI (r=-0.232, r^2=0.054, p=0.037) and also with left sided femoral neck shaft angle with BMI (r=-0.261, r^2=0.068, p=0.019). Ahmed et al. described that, the difference in both sides of NSA was inversely related to change in BMI and was found to be statistically highly significant (p<0.001) in both sides and in both sexes.[6] Fischer et al. also found a very highly significant negative correlation between BMI and NSA of both sides (p<0.001) and in both genders.[17] Both the studies have shown similarity with the present study. Elbuken et al. revealed that there was no significant correlation found between NSA and BMI (p= 0.377) in both sides and both male and female.[18] This finding has shown dissimilarity along with this present study. The dissimilarity may be due to different technique of measurement of NSA as well as their large sample size.

Limitation

This study results should be interpreted considering the following limitations:

- Sample size is relatively small.
- The sample obtained only from the Radiology Department of CMCH and analyzed, the present study may not be truly representative of Bangladeshi population.

Conclusion

The present study revealed in case of height, there was significant negative correlation found on both sides in male but not female. However a very highly significant negative correlation found between NSA and body weight on both sides only in case of male. The study also reported a very highly significant negative correlation between BMI and NSA on both sides in case of male but a significant negative correlation found between NSA and BMI in case of female. The information obtained from the study will help the orthopedic surgeons for future prognostic purpose of the patient regarding proximal femur related health issues.

Recommendation

Based on the understanding of the research problems and considering the experience gained from the present study, the following suggestions can be made regarding future studies

- Studies on larger samples are required to confirm the finding such type of study.
- Multicenter based study can be performed.

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Disclosure

All the authors declared no competing interests.

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Original Article

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Analysis of Bacteriological Profile and Antibiotic Susceptibility of Neonatal Sepsis in Neonatal intensive Care Unit of a Tertiary Care Hospital in Chattogram, Bangladesh

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Abstract

Background: Neonatal sepsis is a major cause of neonatal morbidity and mortality worldwide, especially in developing countries like Bangladesh. Overcrowding, antibiotic abuses and increasing antimicrobial resistance negatively affect neonatal survival rates in this region. The present study is conducted with the objectives of determining clinico-bacteriological profile and antibiotic susceptibility among isolated bacteria in a neonatal intensive care unit.

Materials and methods: This was a hospital based descriptive cross-sectional study comprising seventy (70) neonates with sepsis in NICU of Institute of Applied Health Sciencein Chittagong, Bangladesh. Samples were taken by non-probability convenience sampling. Blood culture was done using conventional blood culture system. Bacteria isolates were identified by Gram staining and conventional biochemical methods. Antimicrobial susceptibility testing was done by Kirby–Bauer's disc diffusion method, and interpretations were carried out according to clinical and laboratory standards. Culture and antibiotic sensitivity reports were obtained and the data subsequently analysed.

Results: This study showed that Pseudomonas is the most frequent causative organisms of neonatal sepsis which exhibited high resistance to amoxicillin (81%) and moderate resistance to amikacin (67%), cefuroxime (55%), cefixime (57%) and clarithromycin (69%), while remaining sensitive to doxycycline, pipercillin/tazobactam and linezolid. This study also showed that male cases were predominant (81%) for neonatal sepsis and EONS cases were more common than LONS (63% vs 37%).

Conclusion: In this study Pseudomonas is the most frequent causative organisms of neonatal sepsis which exhibited high resistance to first line antibiotics. So judicious use of antibiotics based on treatment guidelines and their antibiotic sensitivity pattern is of utmost importance for the effective treatment of neonatal sepsis.

Key words: Antibiotic susceptibility; Bacteriological profile; Neonatal sepsis.

Introduction

Neonatal sepsis refers to an infection involving the bloodstream in newborn infants less than 28 days old.[1] It remains a leading cause of morbidity and mortality among neonates, especially in middle and lower-income countries.[2] It is estimated that 26% of newborn infants who die do so as a result of infections that occur around birth.[3] After the first week of life, infections are the main cause of neonatal death in many countries. These are mostly acquired either inhospital as a complication of treatment for other perinatal conditions or at home.[3]

Neonatal sepsis is divided into two groups based on the time of presentation after birth: Early-Onset Sepsis (EOS) and Late-Onset Sepsis (LOS). EOS refers to sepsis in neonates at or before 72 hours of life (some experts use seven days) and LOS is defined as sepsis occurring at or after 72 hours of life.[4] The common organisms responsible for neonatal sepsis are Group B Streptococcus, Gram negative enteric organisms particularly E.coli, other organisms such as Staphylococcus, Streptococcus, Listeria monocytogens, Haemophilus influenzae, Gram negative rods such as Klebsiella,

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Pseudomonas, Serrata and Proteus.[5] Since the spectrum of organisms that cause neonatal sepsis changes overtime and varies from region to region and hospital to hospital even in the same city/country.

Antibiotic resistance has become a global problem. The increasing trend of multidrug-resistant bacteria causing neonatal sepsis in developing countries, particularly in intensive care, poses new challenges in their treatment. Premature babies, those receiving mechanical ventilation, intravenous fluids, central lines and prolonged hospital stay, are at major risk.[6-8] The updated knowledge about antibiotics susceptibility pattern among the micro-organisms in hospitals isimportant for the effective treatment of neonatal sepsis.

Hence, the present study is conducted with the aim of determining clinico-bacteriological profile and antibiotic susceptibility pattern among the isolated bacteria in the neonatal intensive care unit of Institute of Applied Health Science in Chattogram, Bangladesh.

Materials and methods

This descriptive cross-sectional study was conducted in the Neonatal Intensive Care Unit (NICU) of Institute of Applied Health Science, Chittagong over a period of eight months from August 2021 to March 2022, after obtaining ethical approval from Institutional Review Committee (Reference Number: 2020-064). Of all the cases of clinically suspected neonatal sepsis admitted in the NICU, only neonates with culture-proven sepsis were included in the study. Non-probability convenient sampling was done. During the study period, 70 neonates were enrolled for the study. Informed consent from each patient's mother was taken before the collection of samples. All the data were processed and analyzed using Microsoft Excel and IBM-SPSS v 22.0 for Windows. Statistical inference was based on 95% confidence interval and p value ≤0.05 was considered statistically significant. Variables were expressed as mean ± Standard Deviation (SD). The distributions were expressed in percentages. The summarized data were presented in the form of tables.

Results

Table I General characteristics of the enrolled neonates (n=70)

Variables		Number (n)	Percentage (%)
Gender	Male	57	81%
	Female	13	19%
Age	1-10 days	59	84%
	11-20 days	7	10%
	21-30 days	4	06%
Category of sepsis	EOS	44	63%
	LOS	26	37%

Table I shows that male patients were predominant (81%) in this study and most of cases were early onset neonatal sepsis.

Table II Bacterial isolates and its distribution (n=70)

Variables		Number (n)	Percentage (%)
Gram positive	Staphylococcus	6	9
	Streptococcus	4	6
	Enterococcus	3	4
	Total	13	19%
Gram negative	Pseudomonas	42	60
	Klebsiella	8	11
	Acinetobacter	3	4
	E. coli	2	3
	Coliform	2	3
	Total	57	81%

Table II shows that Pseudomonas is the most common organism causing neonatal sepsis followed by Klebsiella and Staphylococcus the study cases.

Table III Pattern of micro-organisms according to types of neonatal sepsis (n=70)

Variables	EOS (n=44)	Percentage (%)	LOS (n=26)	Percentage (%)	Total
Pseudomonas	30	67	12	46	42
Staphylococcus	01	02	05	19	06
Klebsiella	04	09	04	15	08
Streptococcus	02	05	02	08	04
Enterococcus	02	05	01	04	03
Acinetobacter	02	05	01	04	03
E. coli	01	02	01	04	02
Coliform	02	05	00	00	02

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Table III shows the distribution of organisms in early and late onset sepsis in this study. In the early onset sepsis, Pseudomonas infection is the most common (67%) followed by Klebsiella (9%), whereasin late onset sepsis, Pseudomonas infection is also common(46%) followed by staphylococcus (19%).

Table IV Antibiotics resistance among the major isolates

Antibiotic	Pseudomonas (n=42)		Klebsiella (n=08)		Staphylococcus (n=06)		Streptococcus (n=04)	
	R/S	R%	R/S	R%	R/S	R%	R/S	R%
AMX	34/8	81	6/2	75	5/1	83	4/0	100
AK	28/14	67	6/2	75	0/6	00	0/4	00
AZM	15/27	36	6/2	75	5/1	83	4/0	100
CXM	23/19	55	4/4	50	5/1	83	3/1	75
CRO	15/27	36	6/2	75	3/3	50	0/4	00
CFM	24/18	57	7/1	87	3/3	50	2/2	50
CIP	8/34	19	7/1	87	3/3	50	1/3	25
COT	4/38	10	5/3	62	3/3	50	0/4	00
DO	5/37	12	1/7	12	1/5	16	0/4	00
GEN	9/33	21	4/4	50	0/6	00	0/4	00
MEM	10/32	23	5/3	63	3/3	50	1/3	25
CT	29/13	69	1/7	12	4/2	66	2/2	50
TZP	2/40	05	5/3	62	1/5	16	1/3	25
FEP	8/34	19	4/4	50	1/5	16	0/4	00
LZD	5/37	12	2/6	25	0/6	00	0/4	00

Table III shows the distribution of antibiotics susceptibility pattern among the major isolates in the study.

Discussion

Neonatal sepsis is a common cause of morbidity and mortality among neonates in NICU. The maternal risk factors, prematurity, low immunity, invasive procedures, inadequate hand hygiene may contribute to the neonatal sepsis. Bacteria are the most common etiological agents implicated in neonatal sepsis, however, other organisms other than bacteria like adenovirus, enterovirus, coxsackievirus, rubella virus, Toxoplasma species and Candida species have been implicated.[9] In our study growth positivity rate was high among male neonates (81%) than female neonates (19%). Similar finding were reported from various studies.[10-12] Male preponderance this could be because of the priority given to male babies for medical care in our society.

The bacteriological profile of septicemia keeps changing with the passage of time from region to region and hospital to hospital, in the same city or country. Gram negative bacteria were the most common organisms isolated in present study accounting 81% and amongst them Pseudomonas was the most often encountered followed by Klebsiella. There are earlier study in agreement to present findings, which reported Pseudomonas as the most common gram negative organism causes bacteremia.[13] Hence, in other studies, gram positive organisms have taken over the gram negative organisms especially in hospital settings.[14-16] The variation in the major isolate could be due to differences in study setting, study population and adherence to hand hygiene practices.

The present study showed EONS to be more common than LONS which accords to the studies done by Thapa, et al. Pokhrel et al. and Patel et al.[6,17-18] whereas contrasts to the studies done by Yadav et al. and Shehab, et al. where LONS was more common.[19-20] This may be because, most of the neonates with EONS in the present study were out born (76.5%) and horizontal transmission of bacteria might have occurred from the delivery rooms, NICU rooms, during transportation or vertical transmission from mother's genital tract colonized with the pathogens.

The present study showed high resistance among gram-positive isolates to amoxicillin, azithromycin, cefuroxime and clarithromycin. Further analysis of the antibiotic susceptibility data showed that coagulasenegative staphylococci exhibited resistance to amoxicillin (83%), azithromycin (83%), cefuroxime (83%) and clarithromycin (66%). In addition, streptococcus exhibited resistance to amoxicillin (100%), azithromycin (100%), cefuroxime (75%) and clarithromycin (50%). High resistance exhibited by gram-positive organisms to amoxicillin and penicillin corroborates other similar studies.[21-23]On the other hand amikacin, doxycycline, gentamycin, cefepime and linezolid showed good sensitivity against staphylococcus and streptococcus in our study. In the studies by Mullah SA, et al. and Singh HK, et al. suggested that Vancomycin and Linezolid had high susceptibility towards gram-positive isolates.[24-25]

The data in this study showed that Pseudomonas is the most frequent causative organisms of neonatal sepsis which exhibited high resistance to amoxicillin (81%) and moderate resistance to amikacin (67%), cefuroxime (55%), cefixime (57%)

and clarithromycin (69%), while remaining sensitive to doxycycline, piperacillin/tazobactam and linezolid. The second common gram-negative organism causing neonatal sepsis in our study is Klebsiella which showed high resistance to amoxicillin (75%), amikacin (75%), azithromycin (75%), chloramphenicol (75%), cefixime (87%), ciprofloxacin(87%) with moderate resistance to piperacillin/tazobactam (62%) and also meropenem (63%). Shrestha NJ et al. in their study showed that among gram negative isolates 87.5% and 77.2% were resistance to ampicillin and gentamycin respectively 58.5% and 31.5%.[11]

Antimicrobial sensitivity patterns differ in studies and at different times. This is due to emergence of resistant strains as a result of indiscriminate use of antibiotics.[26-27] The high resistance rates in this study may be associated with frequent use of antibiotics for both prophylaxis and treatments of neonates in hospital.

Limitation

The limitations of this study are that, it is single centered cross sectional study with small study population. Large scale and multi-centered study are needed to generalize the findings.

Conclusion

In this study Pseudomonas is the most frequent causative organisms of neonatal sepsis which exhibited high resistance to first line antibiotics. So judicious use of antibiotics based on treatment guidelines and their antibiotic sensitivity pattern is of utmost importance for the effective treatment of neonatal sepsis.

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Disclosure

All the authors declared no competing interest.

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Original Article

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Clinicopathological Pattern of Cholelithiasis in a Tertiary Care Hospital: A Prospective Study of 91 Cases

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Abstract

Background: World wide cholelithiasis is one of the commonest disease leading to surgical treatment affecting 10-15% of the population. It also has a big impact on national resources. Better understanding of the clinical presentation can help in making decision in a resource poor country. Routine histopathological examination is another burning issue as Incidental carcinoma; dysplasia, hyperplasia etc are not uncommon in apparently benign looking gall bladder. That's why we are intended to conduct this study to see the clinicopathological pattern of cholelithiasis in our tertiary care hospital.

Materials and methods: This prospective observational study was conducted in the Chattagram International Medical College Hospital for the duration of one year from April, 2022 to March, 2023 included total 91 diagnosed cases of symptomatic cholelithiasis who were admitted in the surgery department and undergone surgical treatment.

Results: Among 91 cases mean age was 39.66 ± 11.72 years with the range of 19-75 years. 72.53% were female. Pain in the upper abdomen (epigastric/right hypochondriac) was the most commonly presented symptom (86.81%) followed by Intolerance to fatty food (24.17%) and Nausea/ Vomiting (16.49%). Laparoscopic cholecystectomy was done in 75.82% patient with the conversion rate of 4.4%. Chronic cholecystitis was the most common histopathology findings found in 73.64% patient followed by acute cholecystitis (19.75%). Incidental carcinoma was found in one patient (1.1%).

Conclusion: All health care professionals in every corner of the country need to have good understanding of various clinical presentation and management option for cholelithiasis. Routine histopathology for gall bladder specimen should be done as Incidental carcinoma; dysplasia and hyperplasia are not uncommon. Further multi centre study needed to find out the exact scenario of prevalence, risk factors and consequence of cholelithiasis.

Key words: Cholelithiasis; Clinicopathogical pattern; Cholecystitis; Incidental carcinoma gall bladder.

Introduction

One of the most commonly occurred disease in the world is cholelithiasis which causes major abdominal morbidity. Cholelithiasis affects 10-15% of the world population. Due to major changes in the diet and life habits incidence of the cholelithiasis is increasing globally.[1] Underlying pathogenesis responsible for gall stone formation mainly pigmented and cholesterol stone are variable, such as changes in the bile composition, infection, and decrease motility of gall bladder.[2] Precisely common risk factors are obesity, female sex and increasing age.[3] Many of the patients with cholelithiasis are asymptomatic but when symptom develop patients are often suffer from symptom like upper abdominal pain, fever etc.[4] The rise in the incidence of cholelithiasis may be associated with increase in the metabolic abnormality such as Insulin resistance, Type -2 DM, and overall metabolic syndrome.[5] Neighborhood country has the overall prevalence is 2-29% and mostly common in northern India.[6] Overall scenarios are

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now changing mainly due to availability of investigations like Ultrasonography and also may be due to increasing affordability of population. But unfortunately in our country we don't have enough study regarding this aspect. Thus we conduct this study in our tertiary care hospital to see the clinicopathological pattern of cholelithiasis in our country mainly in our region.

Materials and methods

This is a prospective study done in Chattagram International Medical College to see the clinicopathological pattern of cholelithiasis in our tertiary care hospital. Study population was all the patient had symptomatic cholelithiasis admitted in the surgery department. Total 91 patients were selected by purposive sampling method according to inclusion and exclusion criteria. All patients were evaluated clinically and diagnosis was confirmed by appropriate investigation. All the selected patient undergone either laparoscopic cholecystectomy or open cholecystectomy. Every gall bladder sample was evaluated histopathologically. All data were collected after proper counseling and after taking informed written consent.

Inclusion criteria: All the diagnosed case of symptomatic cholelithiasis admitted in the surgery dept and underwent surgical treatment either by laparoscopy or open cholecystectomy. Patient who gives consent and willing to comply with the study procedure were included.

Exclusion criteria: patient who refused to included in this study.

Results

According to selection criteria total 91 patients were selected. The age range of total population is 19-75 years with a mean age of 39.66 ± 11.72 years. Among them male was 27.47% and mean age of them was 41.44 ± 10.24 years. Among the female mean age was 38.98 ± 12.16 years and they were 72.53% of total study sample (Table I).

Table I age and sex distribution (n=91)

Age (years)	Male n (%)	Female n (%)	Total
<20	0 (0%)	2 (2.2%)	2 (2.2%)
20-29	3 (3.3%)	11 (12.1%)	14 (15.4%)
30-39	9 (9.89%)	24 (26.37%)	33 (36.26%)
40-49	6 (6.59%)	16 (17.58%)	22 (24.17%)
50-59	6 (6.59%)	5 (5.49%)	11 (12.08%)
>60	1 (1.1%)	8 (8.79%)	9 (9.89%)
Total	25 (27.47%)	66 (72.53%)	91 (100%)
Range (Years)	21 – 60	19 – 75	19 – 75
Mean ± SD (Years)	41.44 ± 10.24	38.98 ± 12.16	39.66 ± 11.72

Most frequent (79 patient, 86.81%) symptom among the population was upper abdominal pain which include both epigastric and right hypochondriac pain followed by intolerance to fatty food (24.17%) and nausea/vomiting (16.49%) (Table - II).

Table II Frequency of presenting feature (n=91)*

Feature	Male n (%)	Female n (%)	Total n (%)
Upper abdominal or RHQ pain	23 (25.24%)	56 (61.54%)	79 (86.81%)
Intolerance to fatty food	7 (7.69%)	15 (16.48%)	22 (24.17%)
Nausea/vomiting	4 (4.4%)	11 (12.09%)	15 (16.49%)
Flatulence	2 (2.2%)	4 (4.4%)	6 (6.6%)
Anemia	0 (0%)	5 (5.49%)	5 (5.49%)
Jaundice	0 (0%)	2 (2.2%)	2 (2.2%)
Wt. loss	0 (0%)	1 (1.1%)	1 (1.1%)

* = Multiple response.

Ultrasonography is the most commonly used diagnostic tool and all cases were confirmed by USG. Fifty patients (54.95%) had multiple stone and wall thickness was found within normal limit (≤3mm) only in 27 patients which was 29.67% of total population (Table III).

Table III USG findings of the population (n=91)

Findings	Frequency (%)
Wall thickness	
Normal(3mm)	27 (29.67%)
Abnormal	59 (64.83%)
<1cm	25 (27.47%)
<2cm	23 (25.27%)
<3cm	08 (8.79%)
≥3cm	03 (3.3%)
Fibrosed, Contracted	05 (5.5%)
Stone	
Multiple	50 (54.95%)
Single	39 (42.86%)
Sludge	02 (2.19%)

Total 55 patient operated due to cholecystitis including acute, chronic, and acute on chronic. During operation six patients had concomitant choledocholithiasis. 29.67% (27 patients) were operated for biliary colic (Table IV).

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Table IV Indication of operation (n=91)

Indication	Frequency (%)
Biliary colic	27(29.67%)
Acute cholecystitis	17(18.68%)
Chronic cholecystitis	25(27.47%)
Acute on chronic cholecystitis	13(14.29%)
Choledocolithiasis with cholelithiasis	6(6.59%)
GB polyp with cholelithiasis	2(2.12%)
Adenomatosis with cholelithiasis	1(1.18%)

Most of the patient (75.82%) undergone laparoscopic surgery and only 4 patient need conversion (Table- 5)

Table V Mode of operation among the population (n= 91)

Mode	Frequency (%)
Open	18 (19.78%)
Laparoscopic	69(75.82%)
Converted	4(4.4%)

Most common histopathological findings were chronic cholecystitis (73.64%) followed by acute cholecystitis which was found in 18 patients (Table VI).

Table VI Histopathological findings of population (n=91)*

Findings	Frequency (%)
Acute cholecystitis	18 (19.78%)
Chronic cholecystitis	38 (73.64%)
Eosonophilic cholecystitis	1 (1.1%)
Adenomatous hyperplasia	2 (2.2%)
Focal low grade dysplasis	1 (1.1%)
Calcified/Porceline	3 (3.3%)
Carcinoma	1 (1.1%)

* = Multiple response

Discussion

Cholelithiasis is one of the most common diseases encountered in surgery ward. It affects the life style of patients and not only has an economic impact on symptomatic patient but also on national economy. In our country we have not much data regarding this, therefore we conducted this study to see the clinicopathological pattern of cholelithiasis in our tertiary care hospital. Total 91 patients were included in our study and the mean age of the population was 39.66% ± 11.72 years. Among them mean age of male was 41.44 ± 10.24 years and for female it was 38.98 ± 12.16 years. Most of the patient (36.26%) belongs to age range of 30 - 39 years. There was a saying that cholelithiasis is a disease of female in there forties. But, similar to our study recently many other studies found it was occurring in earlier age. Naseem et al in 2022 found mean age was 39.01 years and maximum were within 30 – 39 years range.[7] Another study from Pakistan in 2020 conducted by Shabbir et al also found similar result.[8] Some Indian study also found more or less similar result such as Malik et al in 2021 found 31.85% are within 31-40 years of age.[9] Other Asian country also found same result. A study from Kim HS in 2019 found maximum patient from the age group of 26-35 years.[10] From this result it seems the peak age range for cholelithiasis is declining. Though some study from different corner of the world found different result. Mohanty et al. from Bihar, India in 2023 found peak incidence of cholelithiasis among 5th and 6th decade of life.[3] In a Brazilian study, mean age at presentation was 60.2 years.[11] Though the age range was declining, worldwide cholelithiasis is still has more prevalence in female. In our study 66 patients (72.53%) was female as compare to male (27.47%). Cholelithiasis is definitely a disease of female predominance. We didn't found any single study with male predominance. On the other hand Mohanty et al. in 2023, VR vaddula et al in 2020, Naseem et al in 2022, Pimpale et al in 2019 found 65.86%, 61.5%, 87.8% and 68.88% female respectively.[3,4,7,6] This female predominance is somehow related to female hormone.[6] The South Asian culture makes it difficult for female to leave as per their need. Therefore screening programs in remote and poorer areas where non affording, logistically challenging individual can be approached and helped. As expected most common symptom (86.81%) in our study was upper abdominal pain which includes epigastric and right hypochondriac region followed by Intolerance to fatty food (24.18%), Nausea/vomiting (16.48%). Nassem et al in 2022 found pain is the chief complain in 79.32% patient where as Mohanty et al in 2023 found much higher frequency (95.12%).[7,3] Malik et el. in 2021, VR vaddula et al. in 2020 was found pain as main symptom in 79.23% and 93.59%

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respectively.[9,4] Dyspepsia was found in 66.30% patient by Pimpale et al. but we found it only in six patient (6.66%).[6] This also similar to Malik et al. (10.77%).[9] We found Jaundice in two patient but Pimpale et al. found in 17.40% patient.[6] Ultrasonography is the commonly used first line investigation to confirm the diagnosis of cholelithiasis as it is easily available and comparatively cheap. Among the 91 patient in our study 50 patients (54.95%) had multiple stone whereas 39 patients (42.86%) had single stone. All the recent study also found higher frequency of multiple stone. Although range of frequency were varying in different studies. Vigna sai potula in 2018 found multiple stone in 66% patient.[12] Mohanty et al and Pimpale et al found much higher frequency for multiple stone which was 95% and 92.4% respectively.[3,6] These results are also consistent with studies by Singh et al in 2018 and Gupta vet et al in 2019.[14,13] We found choledocolithiasis in six patients (6.59%) which is consistent with some other studies such as Mohanty et al. Pimple et al. and Vigna Sai Patula who found cholelithiasis in 9.71%, 14.13% and in 16% patients.[3,6,12]

Another important factor is wall thickness of gall bladder as it may increase in both neoplastic and non neoplastic condition. We found 29.67% had normal thickness (≤3mm) and 64.83% had thickening more than 3mm. this result is not consistent with several other studies. Kumari et al. in 2018 found 68.18% cases in between 1-3mm and 31.82% cases had thickening of the gall bladder wall.[15] Abnormal thickening of gall bladder wall was found in 22% cases by Mohanty et al. and Jenna p et al. in 2017 found abnormal thickening in 26% cases.[3,16] As there is a pressure change within the gall bladder and gall bladder itself tries to evacuate the formed stone, gall bladder will be thicker if stone remains for long time. We have low socio economic condition and our patients usually seek surgical treatment very lately. This may be the factor for finding more frequent abnormal thickening of gall bladder wall in this study. Among the 91 patient we performed laparoscopic cholecystectomy in 69 patients (75.82%). Only four patients needed conversion due to gross adhesion. In the study of Mohanty et al. laparoscopic cholecystectomy was done in 78% patient whereas conversion rate was 4.8%.[3] Other study was also found similar result. In study from Pimpale et al. 77.17% patient undergone laparoscopic cholecystectomy with a conversion rate of 6.57%.[6] These results are consistent with Vigna Sai Patula and Muthalaisamy DP et al.[12]. We found chronic cholecystitis was the commonest (73.46%) pathology in histopathology followed by acute cholecystitis (19.78%). Most of the study also found similar type of result though few of them found little bit higher percentage of chronic cholecystitis. Pimpale et al. in 2019 found frequency of chronic cholecystitis in 77.78% cases.[6] Malik et al. and Thapa et al. both found chronic cholecystitis in 80% patient in 2021 and 2017 respectively.[9,18] Naseem et al. and Vaddula et al. found in 89.72% and 88.8% respectively.[7,4] Although Palit et al. in 2018 found much more higher frequency of chronic cholecystitis (98%).[19] Acute cholecystitis was found in 13.3% patient by Pimpale et al. 2.5% by Vaddula et al. and in 2.9% patient by Patil et al.[6,4] In our center higher frequency of acute cholecystitis in histopathology most probably due to increasing rate of operation performed in acute stage. We found one case which was diagnosed as Incidental Carcinoma of Gall bladder. There was no preoperative and per operative suspicion such as focal mass, nodule in that patient. Interestingly those five patients who had macroscopic focal mass and nodule peroperatively finally weren't diagnosed as carcinoma. This result is consistent with many other studies though few studies show higher frequency. Patil et al. found incidental carcinoma in 1.1% patient, Thapa et al. in 0.8%, Naseem et al. in 0.42%, Pimpale et al. and Malik et al. found Incidental carcinoma in relatively in higher rate as respectively in 5.5% and 2.31% cases.[19,18,7,6,9] Other than this we found one case (1.1%) of eosinophilic cholecystitis, two cases (2.2%) of adenomatous hyperplasia. Vaddula et al. and Patil et al. found eosinophilic cholecystitis in 5.1% and 0.18% patient.[4,9] Thapa et al. Patil et al. and Malik et al. found adenomatous hyperplasia respectively in 2.5%, 0.27%, and in 2.31% patient.[18,19,9] We found dysplasia in one patient (1.1%) which is consistent with Thapa et al.[18] This picture of incidental carcinoma, dysplasia, hyperplasia arouse the question about routine histopathology of gall bladder specimen those have apparently benign look.

Limitation

This is a single centre study done with small sample size and only focused on confirmed cases of symptomatic cholelithiasis who was admitted in hospital and undergone surgical treatment. So it doesn't reflect the nationwide actual scenario of cholelithiasis.

Conclusion

Cholelithiasis has a female preponderance and mostly occurred in 3rd and 4th decade of life. Upper abdominal pain is the commonest symptom though other symptoms are not uncommon. Ultrasonography is the main modality of investigation. Health care practitioner from every corner of the country should have clear knowledge about the presentation and different management option of cholelithiasis. Though cholecystitis is the main histopathological findings but findings like dysplasia, hyperplasia and carcinoma are not uncommon. These findings arouse the question regarding routine histopathology of gall bladder specimen.

Recommendation

Our study focused only on admitted patient in surgery ward therefore large scale study needed to found out the exact prevalence, risk factor of cholelithiasis and its consequences.

Disclosure

All the authors declared no competing interest.

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Original Article

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Asymptomatic Bacteriuria in Hospitalized Patients

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Abstract

Background: Asymptomatic Bacteriuria (ASB) is a common finding in hospitalized patients. Elderly patients have an increased risk of developing asymptomatic bacteriuria, usually attributable to concomitant diseases such as indwelling urinary catheter, diabetes, urinary retention and urinary incontinence. ASB is also frequent in patients who are in early pregnancy states, urinary tract obstruction by stone or others. Our study is aimed at to identify ASB in hospitalized patients.

Materials and methods: A cross-sectional study was done on 100 patients who were admitted in Medicine and Gynaecology & Obstetrics Department of Chattagram International Medical College & Hospital (CIMCH). All the demographic and clinical data were reviewed and recorded. Data were analysed by SPSS-25 and p value <0.05 was considered statistically significant.

Results: The prevalence of asymptomatic bacteriuria was 52% (n=100) in hospitalized patients. E-coli was the most prevalent (65%) followed by Klebsiella (21%) , Pseudomonas (10%), and Staphylococcus (4%). ASB was found more in female (55.2%), most of the patient was housewife (43%). Regarding age group maximum patients were within (21-40) years of age. Although more patients were in lower age group but they had less urine culture positivity, (28.6% in age <20 years) and high in older age group (63.2%). Presenting features included, Weakness (28%) followed by Pregnancy (23%), Cough (22%), Abdominal pain (15%), and loose stool (12%). Most of the patients presented with the past history of Diabetes Mellitus (DM) (28%) and Hypertension (23%) although mixed complaints comprised the highest (Others 32%).

Microscope examination of urine revealed, most patient (46%) had upto 5 pus cell, 11-20 pus cell in 20% population, plenty pus cell in 12% population.

Conclusion: Asymptomatic bacteriuria was common inhospital settings. Incidence of infection was more in subjects with co-morbidities (DM), indwelling urinary catheter, early pregnancy.

Key words: Asymptomatic bacteriuria; Hospital admission;Risk factors; Urinary tract infection.

Introduction

Asymptomatic Bacteriuria (ASB) denotes existence of bacteria when urine of a person with no symptoms of a Urinary Tract Infection (UTI) is collected.[1] It also defined as the presence of bacteria in the urine in the absence of urinary symptoms, is a common clinical finding that often warrants a decision about whether to initiate antimicrobial therapy. There are few indications to treat ASB, and inappropriate treatment contributes to the development of antimicrobial resistance. In 2019, the infectious diseases society of America revised its 2005 guidelines on ASB, incorporating new evidence. The updated guidelines recommend screening and appropriate treatment for ASB in pregnant women and individuals undergoing endourological procedures associated with mucosal trauma. Antimicrobial resistance is increasing around the world, and antimicrobial stewardship programs have identified inappropriate treatment of ASB as an important reason for unnecessary antimicrobial use.[2] ASB is more common among female than male probably because of the shorter female urethra. Incidence of ASB in up to 5% of healthy premenopausal women, 2.8% to 8.6% of postmenopausal women, and 1.9% to 9.5% of pregnant women. ASB occurs in 100% of patients

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with long term indwelling catheters.[2] At any age ,the incidence of ASB is higher among females than males. E-coli is the most common bacteria identified in asymptomatic bacteriuria.[3] Screening and treatment ofasymptomatic bacteriuria is generally recommended only during pregnancy and in thepreoperativeevaluation of men before selected urological procedure.[4,5] In about 70% of the case,ASB is a majorrisk factor for the occurrence of UTI in women while they are pregnant.[6]During pregnancy, ASBincreases the possibility of the case progression to UTI with symptoms,which may further lead to pyelonephritis and premature delivery, low birth weight and increase fetal mortality.[7]

Asymptomatic bacteriuria in hospitalized patients is relatively common and is mainly associated with the presence of comorbidities. Patients with diabetes have increased risk of urinary tract infections. ASB is often diagnosed by routine urine examination. Other host factors that enhance the risk of UTI indiabetics include age, poor metabolic control and long term complications such asdiabetic nephropathy and neuropathy. Autonomic neuropathy involving the genitourinary tract as aconsequence of diabetes may result in dysfunctional voiding and urinary retention which decrease the physical bacterial clearance through micturition, thereby facilitating bacterial growth.[8] It is often seen in elderly people and in patients with urinary tract obstruction and or urinary incontinence, many of whom are candidates for urological surgical procedures. Host variables and bacteria related virulence factors may be associated with an increased risk of developing ASB in hospitalized patients. The current study represents the scenario of prevalence of asymptomatic bacteriuria in Medicine and Gynaecology and obstetrics Department of CIMCH.

Materials and methods

This cross-sectional observational study done on 100 patients, who were admitted in Medicine and Gynaecology & Obstetrics Department of CIMCH. We included all patients of both genders aged 18 or more admitted in Medicine and Gynaecology and Obstetrics Department of CIMCH due to any cause. But we excluded those who were admitted due to UTI, Pelvic inflammatory disease, early post operative patient, those were on antibiotic (Oral or injectable). A preformed standard case record form was used for data collection. All demographic informations and clinical data, including pregnancy, associated co-morbidities (Diabetes mellitus, Hypertension, Lung disease) indwelling catheter were recorded.

ASB was defined as the presence of at least 10^5 colony forming units (CFU/ml) of bacterial species in clean-voided midstream urine sample without symptoms of UTI. UTI was an infection that affects part of the urinary tract, when it affects the lower urinary tract it was known as cystitis.[9] When it affects the upper urinary tract it was known as pyelonephritis. As per ADA guideline 2021.[10] Diabetes was defined as Fasting plasma glucose equal or more than 7.0 mmol/L or 2-h plasma glucose equal or more than 11.1mmol/L.

The patient with blood pressure equal or more than 140/90 mm of Hg twice with or without antihypertensive drug or normotensive on optimum dosage and good compliances with drug considered hypertensive.[11] All 100 patients underwent for urine routine examination and urine for culture and sensitivity. A midstream clean-catch urine sample was collected in the clean, sterile, dry container by standard procedure. Urine samples were tested by using multiple reagent strips and microscopic analysis. The cut-off value of value for pyuria was determined >10 pus cell/HPF by cell count method. All samples were inoculated on Blood agar and Mac-Conkey agar by the semi-quantative culture technique using a standard wire loop and incubated at 37^0C for 24-48 hours in an incubator in microbiology laboratory. Ethical committee approval (Memo No. CIMC/ IRB/ 05/ 21-12) was duly obtained from the Institutional Review Board of CIMC. Chattogram prior commencement of the study.

Data were collected by interview and recording reports of laboratory investigations. All the collected data were checked and compiled and then tabulated. The data were entered into SPSS for Windows 25. All data were evaluated by using chi-square test for categorical variables and t-test for continuous variables. The results were presented in tables and figures. Statistical significance was set at $p<0.05$.

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Results

Table I Demographic and clinical profile of sample

Characteristics	Overall Percentage	Among Urine CS positive	Among Urine CS negative	p-value
Age in years				
20 years	14	4(28.6)	10(71.4)	0.236
21-40 years	49	27 (55.1)	22 (44.9)	
41-60 years	18	9 (50)	9 (50)	
> 60 years	19	12 (63.2)	7 (36.8)	
Mean Age (SD)	39.95 (21)			
Sex				
Male	33	15 (45.5)	18 (54.5)	0.358
Female	67	37 (55.2)	30 (44.8)	
Hospital stay in days				
Mean Hospital stay	4.38	5.12	3.58	<0.001
Indwelling catheter	16	14	2	0.002

Value in parentheses indicate percentage.

Total 100 patients was taken as sample. Mean age was 39.95 years, SD. Table I described that most patients were admitted at the age group of 21-40 years. Although more patient in lower age group, they had less urine CS positive (28.6% in age ≤20 years)than the older age group (63.2%). But the result was not significant (p-vale 0.236). Female patients were more admitted (67%) even though it was not significant (p-value 0.358). Mean hospital stay (p-value <0.001) and indwelling catheter requirement (p-value 0.002) was significantly higher among the patient having positive urine CS.

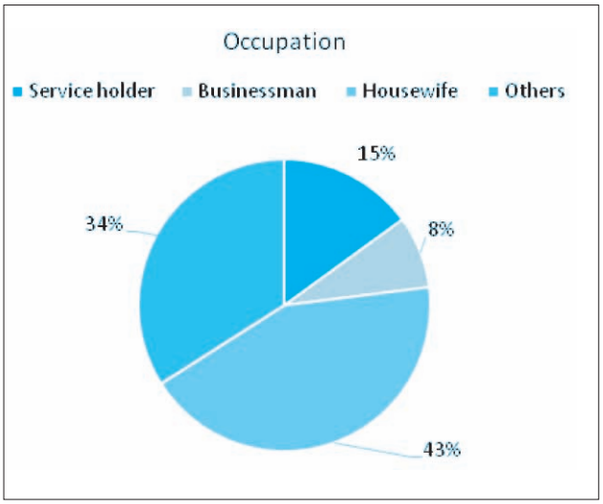

Figure 1 Occupation of the patients (n=100)

Most of the patient were housewife (43%) (Figure 1) followed by Others (34%).

Table II Presenting complaints of the participants (n=100)

Complaints	Percentage
Cough	22
Pregnancy	23
Loose stool	12
Weakness	28
Abdominal pain	15

Presenting complaints of participants was represented in Table II where most of them presented with weakness (28%) followed by pregnancy (23%), cough (22%), abdominal pain (15%) and loose stool (12%).

Most of the participants presented with the past history of DM (28%) and HTN (23%) although mixed complaints comprised the highest (Others 32%) (Figure 2).

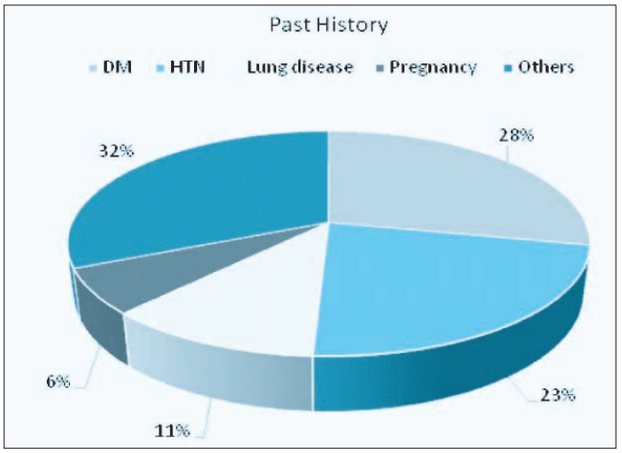

Figure 2 Past history of participants (n=100)

Number of pus cell present in urine represented in Table III. Most patient (46%) had upto 5 pus cell, 11 to 20 pus cell in 20% population, plenty pus cell in 12% population.

Table III Number of pus cell present in Urine (n=100)

Pus cell	Percentage
Absent	8
0 to 5	46
6 to 10	15
11 to 20	20
21 to 40	7
Plenty	12

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In urine CS report, it was found positive among the 52% of the population (Figure 3). Colony count was also significantly raised among the 52% of patients.

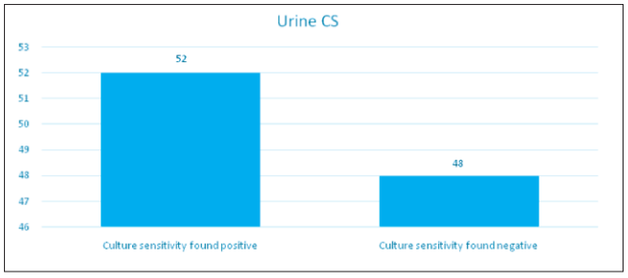

Figure III Presence of microorganisms in Urine CS (n=100)

Those who was found positive urine CS report the colony was analysed (Figure 4). It was found E-coli was the most prevalent one (65%), followed by Klebsiella (21%), Pseudomonas (10%) and Staphylococcus (4%).

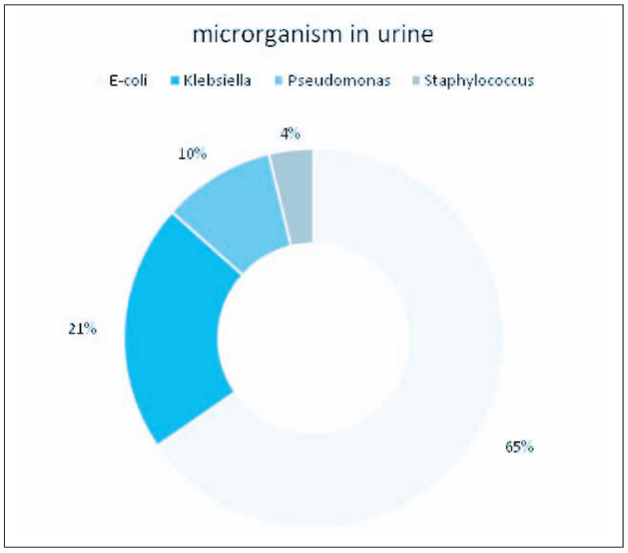

Figure 4 Distribution of microorganisms in Urine (n=100)

Discussion

In the study among 100 patients male was 33% and female was 67%, indicating that women suffer more from asymptomatic bacteriuria andmost of the patients were housewife 43%. Asymptomatic bacteriuria is more common among women than among men probably because of the shorter female urethra, which gives bacteria from the urethral meatus and the perinium a shorter distance to the bladder.Mean age was 39.95%. Our study showed ASB was highest 27 (55.1)% in the age group of (21-40) years.

Although more patient in lower age group but they have less urine CS positive (28.6% in age <20 years) and high in older age group (63.2%). In the elderly, it is thought thatincomplete bladder emptying contributes to the increased incidence of asymptomatic bacteriuria.[12] Mean hospital stay was 4.38%, p-value <0.001 and indwelling catheter requirement (p-value 0.002) was significantly higher among the patient having positive urine CS. As it was found that urine culture positivity has significantly higher in patient having indwelling catheter, so indwelling catheter may be responsible for higher urine culture positivity. Several factors are thought to increase the likelihood of ASB.[13] These include, obstructive uropathy, indwelling urinary catheter and frequent instrumentation of the urinary tract. Asymptomatic UTI is more common in pregnancy. In our study which was 23%. There is sufficient evidence that a pregnant woman with asymptomatic bacteriuria should be treated.[14-16] Prospective randomized studies have shown that antimicrobial treatment of asymptomatic bacteriuria decreases the incidence of pyelonephritis in pregnant women with ASB (20% to 35% vs.1% to 4%).[17] Treatment may also reduce the risk of preterm birth and very low birth weight.

According to this study, the overall prevalence of asymptomatic bacteriuria in hospitalized patients was 52%. Which is higher than other study indicating that people in our country is suffering more in this illness. Prevalence of asymptomatic bacteriuria varies from 9-27% in various studies.[18]

Limitations

- Small sample size
- Single Centre study.

Conclusion

Asymptomatic bacteriuria was common inhospital settings. Incidence of infection was more in those with comorbidities (DM) indwelling urinary catheter and early pregnancy.

Recommendation

- Large scale multicenter study should be done to get the national scenario.
- Study involving long duration follow up with cohort fashion might explore more practical information.

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Disclosure

All the authors declared no conflicts of interest.

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Original Article

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A Case Series of Parathyroid Adenoma: Our Institute Experience

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Abstract

Background: Parathyroid adenoma is the commonest cause of primary hyperparathyroidism. For appropriate diagnosis clinical history, biochemical and radiological investigations, finally histopathologic confirmation is essential. The objective of the study to reach correct diagnosis by clinical, biochemical, radiological evidences and finally confirmation by histopathological examination and to assess patient outcome after excision of the diseased gland.

Materials and methods: We conducted a retrospective case analysis by selecting 03 patients with biochemically and radiologically proven to be parathyroid adenoma who came to Department of Otolaryngology-Head & Neck Surgery, Chittagong Medical College Hospital, Chattogram from period of January 2022 to December 2022, who underwent surgical excision and had post-operative histological confirmation and followed up by biochemical investigation.

Results: There were 3 operated patients of parathyroid adenoma at our center in the year 2022. Two of them were female, one was male. All patients presented with skeletal and abdominal signs and symptoms. All patients were proved to be parathyroid adenoma by biochemical and radiological evidences preoperatively and confirmed postoperatively by histopathology. All patients showed symptomatic improvement after surgery.

Conclusion: Parathyroid adenoma should always be suspected in patients with pathological bone fracture and recurrent abdominal pain. Early diagnosis is essential for the proper management of patients with parathyroid adenoma.

Key words: Parathyroid adenoma; Pathological bone fracture; Primary hyperparathyroidism.

Introduction

In 1907, Halsted commented, 'it seems hardly credible that the, loss of bodies so tiny should be followed by a result so disastrous'.[1] The parathyroid glands were first described by Sir Richard Owen in a neck dissection of an Indian rhinoceros at the London Zoological Gardens in 1850. In 1890, Gley at first associated tetany following thyroid surgery with removal of the parathyroid glands.[2] Most cases of primary hyper-parathyroidism caused by a single parathyroid adenoma (85–95%).[3] The correct diagnosis is often arrived at by taking into account the pathologic findings, clinical settings, biochemical and radiological investigations, and the status of other glands assessed intraoperatively.[4] The prevalence of PHPT in the general population is 22 per 100,000.[5] Considering its rare presentation we have analyzed 3 cases of Parathyroid adenoma admitted in Chittagong Medical College Hospital in year 2022. The objective of the study to reach correct diagnosis by clinical, biochemical, radiological evidences and finally confirmation by histopathological examination and to assess patient outcome after excision of the diseased gland.

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Materials and methods

This is a retrospective analysis of parathyroid adenoma cases, operated in the Department of Otolaryngology-Head & Neck Surgery, Chittagong Medical College Hospital at year 2022. Clinical, biochemical, radiological and post operative histopathological data were obtained from patients' medical records.

Results

During the study period, there were three cases of operated parathyroid adenomas. Case 1 was a young school going girl of 15 years of age came from Rangamati Hill District. Case 2 was a middle-aged housewife of 50 years of age came from Fatikchari, Chattogram. Case 3 was a young male of 32 years of age who is a driver by profession. All patients were symptomatic at presentation. Case 1, 2 and 3 patients admitted to our department after 6 months, 2 years and 4 months after appearance of their symptoms respectively. One patient was diabetic (Case 2), rest are non-diabetic. The symptoms were variable and included abdominal, skeletal, renal and neuromuscular. Initially all patients presented with generalized body ache. Both case 1 and 2 gave history of bone fracture of lower limb after falling from standing height. Case 3 also presented with bone pain but no history of fracture. All cases presented with swelling in front of neck on left side, mobile, painless, firm, 2 to 4 cm size in greatest dimension. All cases gave the history of abdominal pain which was occasional, epigastric, mild to moderate in severity, associated with anorexia, relieved by medication, except in case 2 patient. Case 2 has admitted to hospital several times for abdominal pain and was diagnosed as a case of recurrent pancreatitis for which she underwent ERCP but her pain did not relieve completely. All cases complained of generalized weakness and weight loss, case 3 having significant. Radiological evidence showed fracture pelvis in case 1, fracture neck and shaft of femur in case 2 and granular 'salt and paper' appearance in skull with multiple bony osteolytic expansile lesions suggestive of brown's tumor of hyperparathyroidism in case 3. USG of abdomen showed bilateral nephrocalcinosis in case 2 and 3. BMD (Bone Marrow Density) of case 1 measured at whole body was 0.442 gm/cm2 with a T-score -5(-53%) which corresponds to osteoporosis. BMD of case 2 measured at spine {0.451 gm/cm^2 with a T-score -4.9 (-53%)} and right forearm {0.324 gm/cm2 with a T-score -4.4 (-35%)} was severely low. All cases were in euthyroid status at preoperative period. Parathyroid scintigraphy was done only by case 3 and it was found negative for parathyroid adenoma or hyperplasia. By USG of neck, parathyroid adenoma could be identified and localized in case 1 and 2, but could not be separated from thyroid nodule in case 3. During surgery, all the four glands were assessed and care was taken to preserve the recurrent laryngeal nerve. In case of, case 2 and 3, parathyroid gland could not be separated from thyroid gland and removed along with ipsilateral thyroid lobe. In case 1, diseased parathyroid gland could be removed isolatedly. Postoperative period of all patients was uneventful except case 2, who developed hypocalcemic tetany for several episodes. Histopathology of all the excised specimen showed parathyroid adenomas. In all cases, there was definitive symptomatic improvement after parathyroidectomy.

Serum PTH at Different Timepoint

Timepoint	Case 1 Normal range (18.5 -88 pg/ml)	Case 2 (pg/ml)	Case 3 (pg/ml)
Pre-operative	1230 ↑	2241 ↑↑↑	943
Per-operative (After 10 mins of removal of diseased gland)	24	217.8 ↑	419 ↑↑
Post-operative (After 7 days)	71.3	43	32 ↑

Serum Calcium at Different Timepoint

Timepoint	Case 1 (Normal range 8.6 to 10.2 mg/dl)	Case 2 (mg/dl)	Case 3 (mg/dl)
Pre-operative	12.8 ↑	13.4 ↑	14.3
Post-operative	8	9.76	10.2 ↑

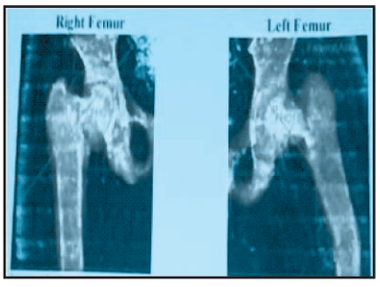

Figure 1 Bone scan Image of case 1 patient showing fracture of neck and shaft of left femur (Arrow)

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Figure 2 Xray pelvis of case 2 patient shows fracture of left pubic bone (Arrow)

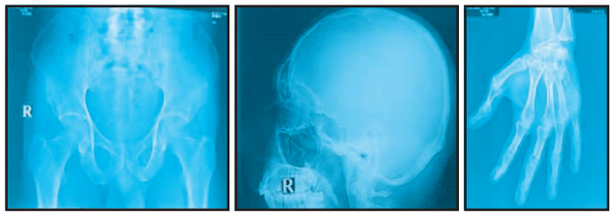


Figure 3 In Case 3-Multiple bony osteolytic expansile lesions (Arrow)

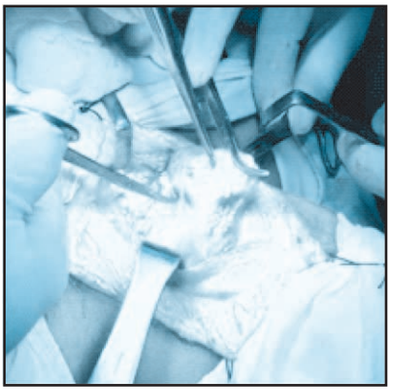


Figure 4 In case 1, per-operative view of abnormal gland (Arrow) being separated from thyroid gland

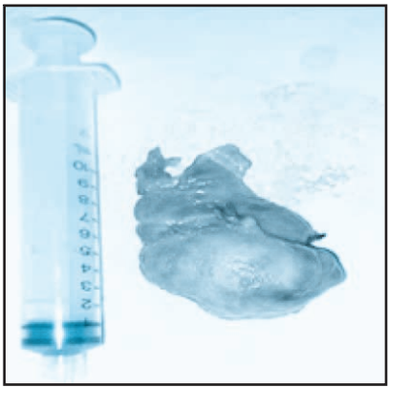
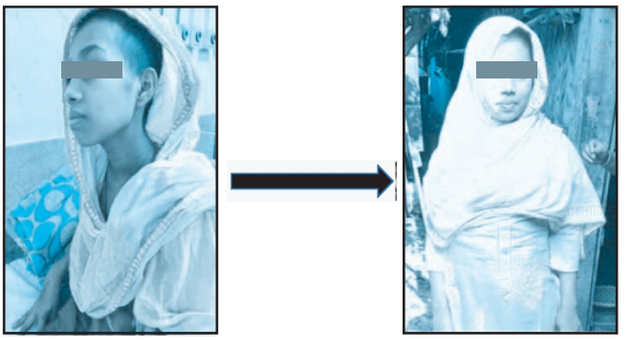


Figure 5 In case 2, ipsilateral thyroid lobe parathyroid was removed along with abnormal parathyroid gland



Before Operation 6 months after operation

Figure 6 Shows case 1 patient got healthier after operation

Discussion

Eighty to eighty five percent of primary hyperparathyroidism is caused by parathyroid adenoma followed by primary parathyroid hyperplasia (15%) and parathyroid carcinoma (5%).[6] Incidence of PHPT a bit higher in females.[7] In our study 2 cases were female rest 1 was male, 2 cases were of under 45 years of age, rest 1 was of 50 years of age. The classic pentad of hypercalcemia symptoms is kidney stones, painful bones, abdominal groans, psychic moans, and fatigue overtones. Reduced bone mineral density causing osteopenia, osteoporosis, and fractures is a frequent complication in late-diagnosed hypercalcemia.[8] In our study all cases presented with abdominal pain, bone pain and generalized weakness while 2 cases presented with multiple bone fractures and bilateral nephrocalcinosis. Hypercalcemia may mediate the development of pancreatitis although minority of patients with PHPT would develop it.[9] One of our patients gave the history of recurrent attack of acute pancreatitis which was not relieved even by ERCP, but she didn't experience any further episode of acute pancreatitis after surgery. One of our patients presented with diabetes mellitus along with hyperparathyroidism. Glycemic controlled improved after surgery as described by some study.[10] The diagnosis of primary hyperparathyroidism rests on the laboratory confirmation of increased serum calcium levels and inappropriately elevated intact parathyroid hormone concentrations. If surgical intervention is planned, neck ultrasonography and parathyroid-scintigraphy are indicated for the exact localization of hyper functioning parathyroid gland.[11] In our study, all 3 cases were diagnosed by increased

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serum calcium and parathormone level. Parathyroid scintigraphy was done only by case 3 and it was found negative for parathyroid adenoma or hyperplasia. By USG of neck, parathyroid adenoma could be identified and localized in case 1 and 2, but could not be separated from thyroid nodule in case 3. Authors have described parathyroidectomy as an efficient and safe operation with excellent normalization of serum calcium and parathyroid hormone and a high rate of patient satisfaction.[12] All of our patients showed similar results. Case 1 and 2 patients were bedridden before operation among them case 1 can walk with stick after surgery and both cases experienced no further fracture after surgery. Above all, all patients showed significant overall symptomatic improvement after surgery.

Limitation

The major limitation of this study was the small number of cases. All relevant investigations could not be done due to financial constraints of the patients.

Conclusion

Parathyroid adenoma should be excluded in any patient with recurrent abdominal pain or multiple fracture with history of no or trivial trauma. By early diagnosis and proper treatment, in case of parathyroid adenoma, most of the major complications can be avoided.

Acknowledgment

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Disclosure

All the authors declared no conflicts of interest.

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Original Article

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Clinical Presentation and Outcome of Enteric Fever in Dhaka Shishu Hospital

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Abstract

Background: Enteric fever represents a spectrum of acute systemic febrile illness with a myriad of presentations and complications. The present study aimed to identify the clinical presentation and outcome of children with enteric fever admitted to a tertiary care hospital.

Materials and methods: This prospective observational study was carried out in the Department of Pediatric, Dhaka Shishu Hospital & Bangladesh Institute of Child Health over a period of September 2020 to February 2021. A total of 73 children (2-12 years), with a clinical diagnosis of enteric fever and confirmed by blood culture or by at least 4-fold rise of antibody titer on WidalTest were included.

Results: The mean age of the patients was 4.8years and 61.6% were male. Fever was high grade in 67.1% and low-grade in 32.9% of the children. Other common symptoms were loss of appetite (86.3%), nausea/vomiting (78.1%), diarrhoea (43.8%), constipation (34.2%) and headache (19.2%). About two-thirds (65%) had coated tongue, 52.1% relative bradycardia, 35.6% splenomegaly, 13.7% hepatomegaly, 24.7% abdominal discomfort and 16.4% were in a state of toxemia. Nearly 30% of the patients had absolute leucopenia and 27.4% relative and 43.8% had leukocytosis. Only 23.3% of the patients had anaemia. Over 42% had raised ESR. Of the 60 patients subjected to culture positive cases, 28(46.7%) were found positive for Salmonella. Most (87.7%) of the patients were cured and the rest were (12.3%) improved. The average period of defervescence was 5.6 ± 3.3 days. About 29% of the children had prolonged hospital stay (> 7 days).

Conclusion: Children with enteric fever mainly present with high grade continuous fever and outcome is favourable with majority being cured within one week time.

Key words: Clinical presentation; Outcome; Enteric fever.

Introduction

Enteric fever is a systemic infection caused by Salmonella enteric including S. enteric serotype Typhi (S. typhi) and serotype paratyphi (S. paratyphi). Enteric fever, being transmissible by feco-oral route, is primarily a disease of regions where overcrowding, poor sanitation and untreated water are the norm.[1] In endemic areas such as Bangladesh and India, young children under 5 years of age bear a large burden of S. Typhi infection.[2] The incubation period of typhoid fever is usually 7–14 days but is also dependent on the infecting dose (range 3–30 days).[3]

The clinical presentation varies from a mild illness with low-grade fever, malaise, and slight dry cough to a severe clinical picture with abdominal discomfort and multiple complications with a considerable diversity in the clinical spectrum of typhoid fever.[3-11] As there are wide variations in the presentation of typhoid fever, the study of the clinical pattern of typhoid fever in the context of our country is of paramount importance in making the present day physicians updated about its mode of presentation. The current study aimed to describe the clinical features, laboratory findings, and outcome of children admitted with a diagnosis enteric fever.

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Materials and methods

It was a prospective observational study. The study was carried out in the Department of Pediatric, Dhaka Shishu Hospital & Bangladesh Institute of Child Health over a period of 6 months from September 2020 to February 2021. The study protocol was approved by the institutional ethical review committee. Verbal consent was obtained from the parents or care givers of the children.

The children with following characteristics were included in the study 1)Age 2 years to 12 years 2)Children admitted with a diagnosis of enteric fever and was confirmed by positive blood culture for Salmonella typhi or paratyphi or Widal Test revealed at least a 4-fold rise of antibody titre, or fever more than 3days. Patients with following characteristics were excluded from the study:1) If the child is suffering from any other chronic disease 2) Very sick child3) Parents refused to give consent.

In each case, history was taken in details especially regarding Fever, abdominal pain, nausea/vomiting, loss of appetite, headache, diarrhoea, constipation, cough, pain in the right hypochondrium, muscle cramp, coated tongue, splenomegaly, hepatomegaly, relative bradycardia, abdominal distension, anaemia (haemoglobin< 10g/dl) and toxaemia were the clinical variables studied. Examination of each case was done with especial reference to vital signs, hemodynamic stability and abdominal status like tenderness.

Data processing and analysis were done using SPSS (statistical package for social sciences), version 17. Only descriptive statistics were used to present the results in the form of frequency and percentage or mean and standard deviation.

Results

A total 73 patient were enrolled in this study. Age range at diagnosis was 2 years to 12 years, mean(+SD) age being 4.8±2.6 years. A male predominance (61.6%) was observed giving a male to female ratio of roughly 3:2. Majority of the children were from urban area (68.5%) and belonged to lower middle- and middle-class family (83.6%).

Table I Sociodemographic characteristics of the children (n=73)

Variables		Frequency	Percentage
Age, years, mean±SD		4.8±2.6	
Sex	Male	45	61.6
	Female	28	38.4
Residence	Rural	23	31.5
	Urban	50	68.5
Socioeconomic class	Lower class	31	42.5
	Lower middle	30	41.1
	Middle class	12	16.4

Fever was invariably present with (45.2%) of the children having high grade continued fever, (21.9%) high grade intermittent fever and the rest (32.9%) low-grade fever. Abdominal symptoms were also common that include loss of appetite (86.3%), nausea/vomiting (78.1%), diarrhoea (43.8%) and constipation (34.2%). On examination too gastrointestinal manifestation was most common with (65%) coated tongue, (35.6%) splenomegaly, (13.7%) hepatomegaly and (24.7%) abdominal discomfort. Majority (84.9%) of the children received antibiotics before they admitted in the hospital. Eight patients had atypical presentation; of them 3(4.1%) had jaundice, 2(2.7%) had bleeding per rectum 1(1.4%) dehydration, 1(1.4%) burning micturition and 1(1.4%) joint pain (Table IV).

Table II Distribution of children by mode of clinical presentation (n = 73)

Clinical findings	Frequency	Percentage
Pattern of fever:		
High grade intermittent	16	21.9
Low grade intermittent	7	9.6
High grade continued	33	45.2
Low grade continued	17	23.3
Loss of appetite	63	86.3
Nausea/vomiting	57	78.1
Diarrhoea	32	43.8
Constipation	25	34.2
Headache	14	19.2
Coated tongue	47	64.4
Splenomegaly	26	35.6
Hepatomegaly	10	13.7
Abdominal discomfort	18	24.7

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Clinical findings	Frequency	Percentage
Relative bradycardia	38	52.1
Toxemia	12	16.4
Abdominal distension	5	6.8
Cough	5	6.8
Pain in right hypochondrium	3	4.1
Jaundice	3	4.1
Bleeding per rectum	2	2.7
Dehydration	1	1.4
Burning micturation	1	1.4
Joint pain	1	1.4
Antibiotic received prior to admission	62	84.9

About 29% of the patients had leucopenia and 43.8% had leukocytosis. Only 23.3% of the patients had anaemia. Over 42% had raised ESR. Sixty children underwent blood culture; of them 28(46.7%) were found positive for Salmonella typhi (n = 22) and paratyphi A (n = 6) (Table III).

Table III Haematological parameters amongst studied children (n = 73)

Pathological investigations	Frequency	Percentage
WBC count		
Leucopenia (< 4000/mm^3)	21	28.8
Leucocytosis (> 11000/mm^3)	32	43.8
Anaemia (Hb< 10 gm/dl)	17	23.3
Raised ESR	31	42.4
Positive blood culture	28	46.7
Widal test findings		
4-fold increase	30	41.1
8-fold increase	20	27.4
16-fold increase	11	15.1

Most (87.7%) of the patients were cured and the rest were(12.3%) improved. The average period of defervescence (the period taken to come to a normal temperature) was 5.6 ± 3.3 days. About 29% of the children had prolonged hospital stay (> 7 days) (Table IV).

Table IV Distribution of patients by outcome (n = 73)

Outcome variables	Frequency	Percentage
Discharge deposition		
Cured	64	87.7
Improved and DOR	9	12.3
Defervescence (Days) mean±SD	5.6 ± 3.3	
Hospital stay (Days) mean±SD	6.3 ± 3.8	
≤ 7 (usual)	52	71.2
> 7 (prolonged)	21	28.8

Discussion

The classical typhoid fever is characterized by insidious onset of sustained fever, severe headache, malaise, anorexia, non-productive cough (in the early stage of the illness), a relative bradycardia, and hepatosplenomegaly (50%).[11] In a similar study in Bangladesh on clinical presentation of typhoid fever in children demonstrated that most of the children presented with classical pattern of typhoid fever, very few had atypical presentation which does not conform to the findings of the present study.[12] Common features of typhoid fever found in the study of Haq et al. were step-ladder pattern of rise of temperature, loose motion, relative bradycardia, and coated tongue.[13] Contrasting with these findings, we primarily found high grade continued fever (45.2%), loss of appetite (98.7%), coated tongue (85.2%), nausea or vomiting (88.6%), diarrhoea (50%), relative bradycardia (43.2%), hepatomegaly (78.4%) and splenomegaly (60.2%). Thus, most of the patients in the present series had not had classic presentation. Dutta et al. observed atypical manifestations in nearly half (46.9%) of the total culture positive cases in their study.[4] Atypical manifestations were burning micturition with normal urine examination (15.6%), diarrhoea (6.2%) and encephalopathy (3.1 %) in the first week, isolated hepatomegaly (6.2%), pneumonitis (3.1%) and bone marrow depression (6.2%). The records of 104 patients with culture-proven enteric fever were reviewed and evaluated by Nasrallah and Nassar to study the clinical signs, laboratory findings, pathologic features, and complications of the disease.[15] Fever and bradycardia were the leading clinical signs followed by splenomegaly, hepatomegaly and rose spots. The principal complications of enteric fever included anemia, hepatitis and bleeding. Rozkiewicz however, reported a case of typhoid fever in a 5-year-old boy presented with respiratory tract infection.[16] Islam et al., measured serum ALT and serum billirubin level as signs of liver involvement and showed that nearly three-quarters (73.4%) of the patients had raised ALT (> 40 IU/L), 2.3% had raised serum billirubin (> 3 mg/dl) and 9.1% had mildly raised serum bilirubin (1-3 mg/dl).[15] In this study main complication was pneumonia (8.2%) and hepatitis was rare (2.7%). Morgenstern and Hayes studied the course of liver involvement during the first three weeks of typhoid fever on 20 patients and found a quite different result with present study.[14]

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In his study, hepatomegaly was found during the 2nd or 3rd week more often than in the 1st week (36% vs. 11 %), whereas jaundice was detectable in 9% of patients after the 1stweek, but never before. SGPT was raised in 91% of cases, during the 2nd and 3rd week but not during the 1st week. We found leukocytosis (about 44%) as a common feature but Islam et al.[12] in their study found relative leucopenia as common feature (64.8%).

Limitations

Present study was only of moderate size; the study was hospital-based and did not involve active community-based case detection.

Conclusion

The study concluded that the pattern of fever in children with enteric fever is mainly continuous, but high-grade intermittent fever is no less. Majority of the patients suffers from loss of appetite and nausea/vomiting. The second most common presentations are diarrhoea, constipation, and headache. The predominant signs are coated tongue, relative bradycardia, splenomegaly, hepatomegaly. Atypical presentations are rare and may be manifested as jaundice, bleeding per rectum, dehydration, burning micturition and joint pain.

Recommendation

Further large-scale community-based study are needed to get the actual scenario of enteric fever in children in Bangladesh.

Disclosure

All the authors declared no conflicts of interest.

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Original Article

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Comparison between Effects of Midazolam and Fenofol as Sedative in Elective Caesarean Section Under Subarachnoid Anaesthesia

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Abstract

Background: Regional anaesthesia has become an important anaesthetic technique now a days. The use of spinal anaesthesia is often limited by the unwillingness of patients to remain awake during surgery. Pharmacologically induced tranquility improves acceptance of regional technique. This study compares Midazolam and Fenofol (Fentanyl+Propofol) in terms of onset and recovery from sedation, haemodynamic and respiratory effects and adverse effects of both the drugs during elective caesarian section under spinal anaesthesia.

Materials and methods: This randomized clinical trial included 60 ASA (American Society of Anaesthesiologists) grade I patients between age 20-40 years underwent elective Caesarean sections under Subarachnoid anaesthesia during the period October 2019 to March 2020. Patients were randomly allocated to one of two groups: Midazolam group (Group M, n=30), who received Midazolam in a single dose of 0.1mg/kg and Fenofol group (Group FP, n=30) who received Fenofol in a single dose of Fentanyl-0.5mcg/kg+Propofol-0.5mg/kg.

Results: There was no significant difference of mean blood pressure and mean heart rate between the two groups (p>0.05). Midazolam had significantly longer duration of sedation than Fenofol (p<0.001). Significant percentage of patients was satisfied with Midazolam than Fenofol (83.33% vs 60%, p<0.05). Incidence of oxygen supplementation was significantly more with Fenofol (66.66% vs 10%, p<0.001). Incidence of complication like pain in arm was significantly more with Fenofol (46.66% vs 0%, p<0.001).

Conclusion: Both Midazolam and Fenofol have satisfactory haemodynamic stability in single dose technique during spinal anaesthesia for caesarean section. Duration of sedation was significantly shorter with Fenofol than Midazolam which is not beneficial for the patient in single dose technique.

Key words: Fenofol; Midazolam; Sedation; Subarachnoid anaesthesia.

Introduction

Spinal anaesthesia is the method of choice for elective Caesarean section. It allows mother to be involved in the child's delivery but also exposes them to awareness related stress during the procedure. The stress intensity is higher in women underwent a caesarean section compared with women delivering spontaneously.[1] The use of pharmacological sedation after extraction of the foetus by caesarean section under subarachnoid anaesthesia is useful in some patients e.g. those presenting with high stress. Enhanced stress can result from poor foetal health after delivery, discomfort associated with immobilization on the operating table, chills that accompany anatethesia, nausea, vomiting and environment of operating room.[2]

Sedation is a valuable tool to provide general comfort for the patient. Oversedation may jeopardize the safety of the patient. While levels of sedation progress in a dose response continuum, it is not always possible to predict precisely how an individual patient will respond to a particular dose.[3]Oversedation may be associated with

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untoward effect of respiratory and cardiovascular depression resulting in higher chances of airway instrumentation and hypotension leading to a prolonged stay in the post anaesthetic care unit, entailing increased burden on staff, bed availability and associated costs.[4,5] Thus judicious use of sedation can make surgeries under spinal anaesthesia more comfortable for the patient, the surgeon and the anaesthesiologist. As a result, it can increase the patient's acceptance of regional anaesthetic technique.[6]

Midazolam, a short acting benzodiazepine, is frequently used as a sedative during procedures under spinal anaesthesia. It has a property of rapid onset and offset of action after Intravenous (IV) injection. It has the advantage of producing anxiolysis and amnesia.[7] Fenofol is a combination of drugs Fentanyl and Propofol. Propofol is a short acting, sedative, intravenous anaesthetic drug which causes fall in blood pressure in some patients. Fentanyl is an opioid analgesic with longer duration of action which also has sedative properties and cardiovascular stability. Using Fentanyl with Propofol reduces dose amount of both the drugs.[8]

The aim of this study was to find out the time of onset and recovery from sedation with Midazolam and Fenofol (Fentanyl+Propofol), to evaluate and compare the properties of both drugs in terms of haemodynamics, respiratory and adverse effects, as adjuncts to spinal anaesthesia.

Methods and materials

This randomized clinical trial included 60 ASA (American Society of Anesthesiologists) grade I patients between age 20-40 years underwent elective caesarean sections under subarachnoid anaesthesia during the period October 2019 to March 2020. The exclusion criteria were positive history of drug allergies, patients suffering from heart disease, hypertension, diabetes, spinal deformity, neurological disorder, any bleeding disorder and unwilling to accept sedation during spinal anaesthesia. Patients were randomly allocated to one of two groups: Midazolam group (Group M, n=30) who received Midazolam in a single dose of 0.1mg/kg and Fenofol group (Group FP, n=30) who received Fenofol in a single dose of Fentanyl 0.5mcg/kg and Propofol 0.5mg/kg. Fenofol solution was prepared in 10ml syringe containing Fentanyl 5mcg/ml and Propofol 5mg/ml. Written informed consent were taken from all participants. Ethical approval was obtained from proper authority. They were fasted for a minimum of 6 hours before surgery. No preoperative opioid or prophylactic antiemetic were given. No other preoperative medication was allowed. All patients were monitored with electrocardiograph, non-invasive blood pressure and pulse oximeter monitor. Baseline vital parameters were recorded. Preloading was done with 300ml Ringer lactate within 5-10 minutes prior to block. Spinal anaesthesia was conducted by injecting a hyperbaric solution of 0.5% bupivacaine 3ml through a 25G spinal needle at L3-4 level. After spinal block, patients were placed on the operating table in horizontal position. Sedation with Midazolam or Fenofol was administered after extraction of the foetus.O_2 inhalation by ventimask was given when SpO_2 (Saturation percentage of arterial oxygen) came down below 90% and vasopressor was given if MAP (Mean arterial pressure) decreased beyond 20% of baseline. MAP was measured continually at 5 min interval and Heart Rate (HR) SpO_2 were monitored throughout the surgery. All parameters were documented at 5 min intervals until arousal of the patient. The onset of sedation i.e. time from iv injection of Midazolam or Fenofol to closure of eye lids (OAA/S score of 3) and the arousal time from sedation i.e. time from closing of the eye lids to OAA/S (Observer's Assessment of Alertness/ Sedation) score of 5 (Patient is awake clinically) were noted. Any complication during operation was documented. The patient's satisfaction with the sedation was assessed by the 5 point 'Likert verbal rating scale' with some questions like 'where will you put your experience with this sedation on the scale?' in a language which the patient understands, at a point of time when the patient had a mental state suitable for communication.

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Observer's Assessment of Alertness/ Sedation (OAA/S) Scale

Category	Observation	Score Level
Responsoveness	Responds readily to name spoken in normal tone	5
	Lethargic response to name spoken in normal tone	4
	Responds only after name is called loudly and/or repeatedly	3
	Responds only after mild prodding or shaking	2
	Does not respond to mild prodding or shaking	1
Speech	Normal	5
	Mild slowing or thickening	4
	Slurring or prominent slowing	3
	Few recognizable words	2
Facial expression	Normal	5
	Mild relaxation	4
	Marked relaxation (Slack jaw)	3
Eyes	Clear, no ptosis	5
	Glazed, or mild ptosis (Less than half the eye)	4
	Glazed and marked ptosis (Half of the eye or more)	3

Figure 1 Likert Scale for satisfaction

Data were analysed using Statistical Package for the Social Science (SPSS) for Windows (Version 12.0,SPSS Inc,. Chicago, IL, USA). Independent 't' test was used for age, weight, duration of surgery, time for recovery, heart rate, mean arterial pressure and SpO_2 at various time intervals. Chi square test was applied for adverse effects and oxygen supplimentation. Paired 't' test was applied for intra-group variation in heart rate and mean arterial pressure. Data were expressed in mean, SD and percentage. $p<0.05$ was taken to be of statistically significant.

Results

60 respondents (30 in each group) were included in this randomized clinical trial. The Group M (Midazolam group) and Group FP (Fenofol group) were found to be comparable in respect of age, weight, duration of surgery (Time from surgical incision to surgical closure). In Group FP, significant percentage of patients required oxygen supplementation after sedation (Table I).

There was no significant difference in Mean arterial pressure between the two groups before Spinal anaesthesia (baseline), after spinal block and before sedative drug administration. Fall in mean arterial pressure was observed in both the groupsafter drug administration but that was not statistically significant (Table II).

There was no significant difference in mean heart rate between the two groups before spinal anaesthesia (Baseline) after spinal block and before sedative drug administration. Rise in mean heart rate was observed inboth the groups after drug administration but that was not statistically significant (Table III).

Although onset of sedation was comparable between the two groups, duration of sedation was significantly less in Fenofol group. Significant percentage of patient was satisfied with Midazolam than Fenofol (Table IV).

Pain in arm during administration of drug was significantly more in Fenofol group (Table V).

Table I Demographic data of the patients under study (n=60)

Variable	Group M(n=30)	Group FP (n=30)	p value
Age (Years)	29.33±5.9	30.10±5.4	0.81
Weight (kg)	68.13±8.7	67.53±8.8	0.76
Duration of surgery (min)	48.0±5.1	50.60±5.6	0.624
Patient required O_2 supplimentation	3 (10%)	20 (66.66%)	<0.001

Values are expressed in mean±SD
SD- Standard Deviation.

Table II Comparison of MAP (mmHg) in study groups at various time intervals (n=60)

Time Interval	Group M (n=30)	Group FP (n=30)	p value
Before Anaesthesia (Baseline)	81.7±6.82	82.1±8.54	0.463
After Spinal block	76.8±6.97	75.4±6.47	0.643
Before drug administration	76.1±9.38	74.4±6.41	0.304
After drug administration	71.1±7.28	67.7±8.41	0.536

Values are expressed in mean±SD
SD- Standard Deviation.

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Table III Comparison of mean heart rate (bpm) in study groups at various time intervals (n=60)

Time Interval	Group M (n=30)	Group FP (n=30)	p value
Before Anaesthesia (Baseline)	77.8±12.97	78.9±12.69	0.845
After Spinal block	86.8±11.97	88.3±11.97	0.557
Before drug administration	79.1±18.82	76.6±12.71	0.557
After drug administration	88.0±16.60	87.5±10.08	0.385

Values are expressed in mean±SD
SD- Standard Deviation.

Table IV Comparison of Sedation characteristics in study groups (n=60)

Variable	Group M (n=30)	Group FP (n=30)	p value
Time required for onset of sedation (Eye closure) (min)	1.41±0.39	1.54±0.51	0.682
Arousal time from sedation in min (OAA/S score of 5)	42.1±7.3	12.3±2.37	<0.001
Satisfaction with sedation (good)	25 (83.33%)	18 (60%)	<0.05

Values are expressed in mean±SD
SD- Standard Deviation.

Table V Incidence of complications in study groups (n=60)

Variable	Group M (n=30)	Group FP (n=30)	p value
Nausea and Vomiting	6 (20%)	8 (26.66%)	0.86
Chills	4 (13.33%)	3 (10%)	0.88
Restlessness	3 (10%)	4 (13.33%)	0.926
Pain in arm	0%	14 (46.66%)	<0.001

Discussion

The most widely used technique for administering sedation in regional anaesthesia is the intermittent bolus dose technique. This technique has been shown to be associated with peaks and troughs in plasma concentration producing significant side effects and delayed recovery.[9] Continuous infusions have been proved to produce, lesser side effects, faster recovery, easy controllability over the desired depth of sedation but requires some especial equipments e.g. syringe pump, BIS monitor etc, which is expensive and not available everywhere. Moreover, it needs more expertise like interpretation of EEG.[10]

The assessment of depth of sedation has been traditionally performed by observing clinical parameters such as appearance, response to voice, and pain on surgical stimulation. These parameters are qualitative and assessment of response to voice requires patient stimulation, which may itself alter depth of sedation.[11]

We chose the OAA/S scale for assessment of sedation over other scales as it was easier to use, comprehensive and inclusive of parameters such as facial expression and eyelid ptosis in addition to speech and responsiveness, which are not there in other sedation scales.[12]

Kurdi et al. conducted a prospective randomized double-blind study on 60 adult female scheduled for elective tubal sterilization. Patients were divided into 3 groups: Group A (Kermine: Propofol-1:1), Group B (Ketamine : Propofol- 1:2) and Group C (Fentanyl:Propofol- 100mcg of Fentanyl mixed with 100mg Propofol). Group A and Group B were comparable in respect of onset of sedation, intraoperative sedation scores, recovery time, haemodynamic and respiratory profile. Group C (Fentanyl-Propofol) patients were less sedated and had poor analgesia compared to Group A and B.[13] In our study, duration of sedation was significantly less in Fenofol group. Analgesic effect was not included in our study.

Shetabi et al. conducted a randomized clinical trial on 68 adult patients who were candidates for placement and removal of port catheter for chemotherapy. Anesthetic induction was done in Ketofol group with Propofol (1mg/kg) and Ketamine (0.5mg/kg), Fenofol group with Propofol (1mg/kg) and Fentanyl (1.5mcg/kg). Sedation, analgesia and hemodynamic changes were reported better in Ketofol group.[14] In our study, dose of Fentanyl and Propofol were different from the above study but we also found less sedative effect with Fenofol. Although there was fall in MAP in Fenofol group after drug administration, that was not statistically significant.

Limitation

The intervention was not placebo controlled and blinded to neither clinicians nor patients. Additionally, group sizes were small.

Conclusion

The study showed that duration of sedation was much shorter with Fenofol than Midazolam which is not beneficial for the patient in single dose technique. Moreover, sedation with Fenofol was associated with high incidence of oxygen supplementation and adverse effect like pain in

arm during intravenous injection than Midazolam. Thus it is recommended that Midazolam is a better choice than Fenofol for sedation during subarachnoid block for caesarean section.

Recommendation

Consequently the clinical relevance remains undetermined and further studies are necessary to confirm potential benefits between the two sedatives.

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Disclosure

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Original Article

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Correlation of Troponin-I Level with in-Hospital Outcome among the Non-ST Elevation Myocardial Infarction Patients

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Abstract

Background: It is important to identify subset of patients with Non-ST Elevation Myocardial Infarction (NSTEMI) at initial admission so that appropriate early pharmacologic measures may be directed towards preventing further life-threatening events or may be referred to an institution where interventional facilities and expertise is available. This study aimed to correlate the troponin-I level with different in-hospital outcome amongthe NSTEMI patients and also to identify patient at high risk for developing adverse outcome on the basis of troponin-I.

Materials and methods: This prospective observational study included 100 patients with NSTEMI from the Cardiology Department of Chittagong Medical College Hospital. Based on the admission troponin-I concentration, patients were grouped into two groups:Group A (n=50) [troponin-I level ≥10 folds of upper limit of normal (ULN) (≥ 3.0ng/mL)]and Group B: (n=50) [Troponin-I level<10 folds of ULN (<3.0ng/mL)]. Patients were closely monitored during hospital stay for any of the predefined complications like STEMI, heart Failure, cardiogenic shock, arrhythmia, recurrent angina, conduction defects, or death.

Results: The most common symptom was chest pain (74%) followed by dyspnea (10%). Major risk factors were smoking (73%), hypertension (57%), dyslipidemia (52%) and family history of coronary artery disease (38%) anddiabetes mellitus (35%). Among those withtroponin-I level ≥10 folds of ULN, 94% of patients developed one or more predefined complication whereas 50% of patients with troponin-I level <10 folds of ULN developed complications.Three patients (6%) of group-A and one patient of group-B (2%) expired due to cardiogenic shock (p=0.251).

Conclusion: Patients with high level of troponin-Ihad higher in-hospital mortality and morbidity.Cardiac troponin-Iis able to predict adverse prognosis as its level increases.

Key words: Non-ST elevation myocardial infarction; Outcome; Troponin-I.

Introduction

Patients with NSTEMI constitute a definitive group with distinctive management strategy including catheter based interventional procedure as dictated by patient's hemodynamic status, availability of treatment modalities and other logistic considerations.[1] Several studies have shown that patients with NSTEMI are a heterogeneous group with a variable subsequent adverse outcome. At the time of presentation patients with unstable angina and NSTEMI may be indistinguishable and are managed in similar lines.[2,3] Early risk stratification is therefore important to identify high risk patients requiring aggressive management strategies including early revascularization procedures.[4]

Cardiac specific troponin-T and troponin-I assays are highly sensitive in detecting myocardial damage.[5] Clinical data has suggested troponin-I as an independent predictor for short and long term adverse cardiac events.[6] Most of the prognostic studies done on troponin-I have been reported from west.[7] Reports from the developing world addressing the role of troponin-I in patients with

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acute coronary syndrome are scarce.[4,8] The current study aimed to correlate the troponin-I level with different in-hospital outcome among the NSTEMI patients. It was important to identify this high-risk subset of patients at initial admission so that appropriate early pharmacological measures may be directed towards preventing further life-threatening events or may be referred to an institution where interventional facilities and expertise is available.

Materials and methods

This was a single center, prospective, observational study conducted at Cardiology Department of Chittagong Medical College Hospital, a tertiary care referral cardiac center. All consecutive patients admitted to Cardiology Department between January to December 2018 with the diagnosis of Acute Coronary Syndrome (ACS) without ST-segment elevations were screened for eligibility.

Patients with ischemic chest pain (or equivalent type of ischemic discomfort) occurring at rest and usually lasting >20 minutes or being severe (CCS Class 3-4) and of new onset (i.e., within 1 month) or occurring with a crescendo pattern, with persistent or transient ST-segment depression (≥0.5mm) or symmetrical T-wave inversion (≥2mm) or no ECG changes at presentation, with elevated Troponin-I level (>0.30 ng/ml) were included in the study. Patients having STEMI, Renal failure, Pulmonary embolism, Septic shock, Myocarditis and patients unwilling to give consent were excluded from the study.

In this study, 100 cases of NSTEMI were categorized based on the troponin-I values to Group A: have ≥10 fold of ULNand Group B: <10 folds of ULN.Troponin-I were estimated in patients at admission and at 12 hours after admission.

All data were collected using a structured questionnaire containing all the variable of interest. On the date of admission, detailed history and physical examination were done in all selected patients. All the patients were clinically evaluated daily during their hospital stay. Clinical status of the patient was evaluated daily during hospital stay. Following specified outcomes were sought, such as STEMI, heart failure, cardiogenic shock, death, arrhythmia, recurrent angina, conduction defect

Data were processed and analyzed by using computer-based software SPSS-19 (Statistical Package for Social Science). Continuous variable was expressed as mean ± SD and categorical variables were were presented as frequencies and percentages.Discrete or qualitative variables were analyzed by Chi-square test and continuous variables were analyzed by unpaired t test. The results were considered statistically significant when p value was < 0.05.

Results

Mean age in group-A was 53.98±11.90 years and 54.90+8.58 years in group-B. In the present study, males accounted for larger group compared to females with M: F being 3.54:1. Study also showed male dominance in Troponin-I ≥10 folds of UNL group. Among the study population 84% of group-A and 62% of group-B were smoker which is statistically significant. 52% of group-A and 62% of group-B were hypertensive,64% of group-A and 40% of group-B have dyslipidemia, 32% of group-A and 54% of group-B were obese. 86% of group-A and 82% of group-B presented with rest angina (Table I).

Table I Baseline demographic and clinical characteristics of the patients (n=100)

Variables	Group A (n=50)		Group B (n=50)		p-value
	n	%	n	%	
Age, years, mean±SD	53.98±11.90		54.90+8.5		0.174**
Sex					
Male	42	84	36	72	<0.001*
Female	8	16	14	28	
Risk factors					
Smoking	42	84	31	62	0.023*
Hypertension	26	52	31	62	0.313*
Dyslipidemia	32	64	20	40	0.016*
Family H/O CAD	18	36	20	40	0.580*
Diabetes Mellitus	17	34	18	36	0.814*
Obesity	16	32	27	54	0.026*
Type of Angina					
Recent onset	19	38	21	42	0.312*
Prolonged	44	88	34	68	0.123*
At rest	43	86	41	82	0.043*

Group-A: Cardiac troponin-I level ≥10 fold of ULN (≥3.0ng/mL), Group-B: Cardiac troponin-I level<10 fold of ULN (<3.0 ng/mL), **Unpaired t test, *Chi-square tests.

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The in-hospital outcome in group A and group B were arrhythmia (14% vs 6%), congestive heart failure (12% vs 4%), cardiogenic shock (18% vs 4%), STEMI (6% vs 4%) and conduction defect (6%vs 4%), recurrent angina (42% vs 26%). Among these complications only the difference cardiogenic shock were statistically significant (Table II).

Table II In-hospital complications among the study population (n=100)

Complications	Group A (n = 50)		Group B (n = 50)		p-value*
	n	%	n	%	
Arrhythmias	7	14	3	6	0.217
Heart Failure	6	12	2	4	0.137
Cardiogenic Shock	9	18	2	4	0.025
Recurrent Angina	21	42	13	26	0.09
STEMI	3	6	2	4	0.097
Conduction defect	3	6	2	4	0.215
Any complications	47	94	25	50	<0.001

*Chi-square tests.

Among the different types of arrhythmia PVC were 4% in group A followed by 1st degree heart block (4%) and ventricular tachycardia (2%). In group B 2% patients developed PVC, 2% developed sinus bradycardia and nodal rhythm (2%). PVC were the commonest arrhythmias in both groups (Table III).

Table III Arrhythmias among the study population (n=100)

Arrhythmias	Group A (n = 50)		Group B (n = 50)		p-value*
	n	%	n	%	
PVC	2	4	1	2	0.129
Ventricular tachycardia	1	2	0	0	0.330
1st Degree heart block	2	4	0	0	0.173
Sinus bradycardia	0	0	1	2	0.218
Supra-ventricularectopic	0	0	0	0	0.116
Ventricular fibrillation	1	2	0	0	0.268
Nodal rhythm	1	2	1	2	1.0

PVC: Premature Ventricular Contraction, *p values reached from unpaired Chi-square tests.

Three patients (6%) in group-A and one patient in group-B (2%) expired due to cardiogenic shock during the study period (Table IV).

Table IV In-hospital mortality among the study population (n = 100)

In-hospital mortality	Group A (n = 50)		Group B (n = 50)		p-value*
	n	%	n	%	
Yes	3	6	1	2	0.251
No	47	94	49	98	

*Chi-square tests.

Discussion

The mean age of the studied patients was around 54 years with male predominance. Major risk factors were smoking (73%), hypertension (57%), diabetes mellitus (35%), dyslipidemia (52%) and family history of CAD (38%).The demographic and risk factors distributions were in line with the other previous studies conducted in Bangladesh.[9,10] Among those withtroponin-I level ≥10 folds of ULN, 94% of patients developed one or more predefined complication whereas 50% of patients with Troponin-I level <10 folds of ULN developed complications.Different types of arrhythmias were documented either on admission or during hospital stay. In our study no significant differences were found between two groups regarding different types of arrhythmias. Arrhythmia is more prevalent in Group-A. Nadeem et al. found similar findings in their study (8.8% vs 3.1%).[4] Among the different types of arrhythmias PVC was the commonest arrhythmia. In this study, ventricular tachycardia and ventricular fibrillation occurs in a small percentage of patients and showed no significant difference between two groups. Conduction defects occurred in 6% of Group-A and 4% of Group-B patients. A-V block occurs in a small percentage of patients of group A(4%) and none of the patients of group B and was not statistically significant.

In our study heart failure were 12% vs 4% and showed no significant difference. Incidence of congestive heart failure were more in group A.Nadeem et al. found that incidence of heart failure was 44.1% vs 13.7% which is statistically significant. In the current study, congestive heart failure were more prevalent in group A which is consistent with our study. Cardiogenic shocks were more prevalent in group A (8% vs 4%) and was statistically significant. All the studies found more prevalence of Cardiogenic shock in group A.In our study STEMI developed in 6% of group-A and 4% of group-B and showed no significant difference.

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Lopez et al. found that 5% of group-A and 3% group-B developed STEMI which is consistent with our study.[11] 42% of group-A and 26% group-B patients developed recurrent angina which was comparable with Lopezet al. (46%vs. 32%) and Nadeem et al. (29.4% vs 19.8%).[11,3] Recurrent angina was more prevalent in group-A. Mortality was significantly more in group-A (6% vs 2%) which was consistent with Lopez et al. (5% vs 1%) and Nadeem et al. (2.9% vs 0%).[9,3]

Previous studies demonstrated that in-hospital mortality was comparatively higher in patients with STEMI than NSTEMI.[12] In the present study overall in-hospital mortality rate was 8%, which was consistent with the prior studies.[12] We found a non-significant higher trend of in-hospital mortality in patients with higher baseline troponin-I. Khan et al. found that in patients with first attack of NSTEMI, troponin-I level was markedly elevated and had a negative correlation with left ventricular ejection fraction as well as in-hospital outcome in first attack of NSTEMI patients.[13]

Limitation

Number of the study population was small. Only 100 patients were included in this study. The study was not a multi-center based study and the follow up period was short.

Conclusion

Cardiac troponin-I is a very good short term prognostic indicator in patients with NSTEMI. The ability of cardiac troponin-I to predict adverse prognosis increases as its level increases.

Recommendations

Further study are necessary to determine the independent prognostic significance of other early available clinical risk indicators after adjustment for troponin-I status.

Disclosure

The authors declare no conflicts of interest.

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Original Article

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Evaluation of Posterior Capsular Opacification : Phacoemulsification versus Small Incision Cataract Surgery

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Abstract

Background: Posterior Capsular Opcification (PCO) is the most common late complication of uncomplicated cataract surgery, occurring in upto 20-25% of patients by two years postoperatively. PCO is caused by lens epithelial cells that remain in the capsular bag after cataract surgery. They migrate, proliferate and transform to produce Elsching's pearls and capsular fibrosis. When PCO encroaches on to the visual axis, it produces light scattering and visual deterioration. Visually significant PCO is usually managed by creating an opening within the opaque posterior capsule using the Neodymium: Yttrium Aluminum Garnet (Nd: YAG) laser. With modern techniques and Intra Ocular Lens (IOLs) the expected rate and subsequent Nd: YAG laser posterior capsulotomy rate is decreasing to less than 10%.
To compare the rate of PCO in Small Incision Cataract Surgery (SICS) and phacoemulsification.

Materials and methods: It was a prospective randomized study conducted on three hundred patients (300 eyes) at CMH Chattogram, Chattogram during the period from December 2020 to December 2022. Three hundred patients were divided into two groups. Group A consists of 150 patients (150 eyes) for SICS. Group B consists of 150 patients (150 eyes) for phacoemulsification. On postoperative follow up development of posterior capsular opacification and Nd: YAG laser capsulotomy rate was evaluated.

Results: Study shows that after 2nd month postoperatively no patient of either group developed PCO. In Group A (SICS) after 3rd month follow up 9(6%) patients had PCO and after 6th month follow up 28(18.66%) had PCO. In Group B (Phaco) after 3rd month follow up 3(2%) patients had PCO and after 6th month follow up 17(11.33%) had PCO.Comparing the both group by SPSS version 16, p value was <0.002 which indicates the result is statistically significant.

Conclusion: PCO after cataract operation is more in SICS than phacoemulsification.

Key words: Elsching's pearls; Neodymium: Yttrium Aluminum Garnet (Nd: YAG) laser; Posterior capsular opacification; Phacoemulsification; Small Incision Cataract Surgery (SICS).

Introduction

Any opacification of lens substance or its capsule at any age is called cataract. It is the most common cause of visual impairment and blindness throughout the world. There are wide variety of causes for development of cataract where age related cataract due to aging processis most common.[1] Other frequently associated risk factors are ocular trauma, certain eye diseases (eg. Uveitis, highmyopia, retinitis pigmentosa etc) some drugs (eg. steroid, gold) diabetes, ultraviolet radiation and smoking.[3] Here lenticular opacification blocks transmission of light resulting in visual impairment,difficulty in colour appreciation and changes in contrast and glare from bright lights.[3].
It causes reversible blindness more than 18 million people all over the world, representing almost leading cause amoungall causes of blindness due to ocular diseases globally.[3] However, surgical treatment is the only treatment option for improvement of the visual acuity due to cataract.

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Thereare two main surgical techniquesfor removal ofcataractous lens by Extra Capsular Cataract Extraction (ECCE): Small Incision Cataract Surgery (SICS) and Phacoemulsification. In SICS, After opening anterior lenscapsule,nucleus and cortical matter of the lens are removed, leaving the posterior lens capsule intact to place the artificial Intra Ocular Lens (IOL) within it. This can be done through a small incision, where suture is not required.[4] Phacoemulsification is a modified and modern version of ECCE for removal of cataractus lens. Here,Ultrasound is used for emulsification of cataractus lens then aspirated while leaving posterior lens capsule intact to hold IOL in place. In phacoemulsification a smaller incision isrequired than that by SICS, so faster healing and early rehabilitation occur in this procedure.[5]

The most common late complication of modern cataract surgery by means of SICS or phacoemulsification is posterior capsular opacification.The prevalence of occurring isupto 50% of patients by two years postoperatively.[5] Capsular opacification results from continued proliferation of viable remaining epithelial cells after removal of the nucleus and cortical matter. These cells proliferate in several patterns eg,Elsching's pearls ,fibrous metaplasia and capsular fibrosis.[6] When PCO encroaches on to the visual axis, it causes scattering of light rays resulting in visual impairment. It is usually managed by creating a circular or cruciate opening into posterior capsule by using the Neodymium: Yttrium Aluminum Garnet (Nd: YAG) laser. The expected rate of posterior capsular opacifictionsand subsequent Nd: YAG laser posterior capsulotomy rate is decreasing to less than 10%. By using modern surgical techniques and IOLs.[7,8] The aim of the study to compare the rate of PCO in small incision cataract surgery and phacomulsification.

Materials and methods

It was a prospective randomized study conducted on three hundred patients (300 eyes) at Combined Military Hospital (CMH) Chattogram, during the period from December 2020 to December 2022. Three hundred patients were divided into two groups. Group A consists of 150 patients (150 eyes) for SICS. Group B consists of 150 patients (150 eyes) for phacoemulsification. Randomization was done on the desire of the patients after explaining them the two methods of surgery, benefits and cost of either method. Patients who opted for SICS (Group A=150 patients) mainly due to financial reason as it is cheap. Some patients were also placed in Group A by the surgeon as they were not indicated for phacoemulsification because of too hard cataracts. Patients having no financial crisis and not developed too hard cataracts were placed for Phacoemulcification (Group B=150 patients). In group A, hard PMMA lens were used and in group B, acrylic and silicon lens were used for all the patients. All the included patients were age related cataract and age of the patients were more than 50 years. Patients with complicated cataract, previous history of intra-ocular surgery, posterior capsular tear, vitreo-retinal diseases, prior laser treatment, uveitis, ocular trauma etc. were excluded from the study groups.

Patients to be studied were well explained in details about the diseases process, methods and risksof techniques and then informed written consent was taken before conducting the study maintaining the principles of Helsinki declaration. On postoperative follow up development of posterior capsular opacification and Nd: YAG laser capsulotomy rate were evaluated. Every patient was followed up on 1st, 7th, 15th and 30th postoperative day. In each follow up visual acuity, anterior and posterior segment examination was done. Then every patient was evaluated at one, two, three and six months interval after surgery for the development of PCO. Eyes which lose 2 or more lines of visual acuity with a clinically significant opaque posterior capsule evaluated by slit lamp biomicroscopy were labeled as clinically significant PCO were treated with Nd: YAG laser capsulotomy. Data were recorded in apre-designed data collection sheet and were analyzed by computer based software SPSS. Data was compared by Z test. A probability p value of equal or less than 0.05 was considered as significant.

Results

Out of 150 patients in Group A, 73 (48.66%) were male and 77 (51.33%) were female. In Group B, 72 (48%) were male and 78 (52%) were female. In both group age of the patients were within 50-70 years.

In Group A, after 1 month follow up 9(6%) had visual acuity (VA) <6/60; 39(26%) had VA 6/60 to 6/18, 102 (68%) had VA 6/12 to 6/6. After 2 months

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follow up 6(4%) patients had VA <6/60, 27(18%) had VA 6/60 to 6/18, 117(78%) had VA 6/12 to 6/6, After 3 months follow up 5(3.33%) patients had VA <6/60, 30(20%) had VA 6/60 to 6/18, 115(76.66%) had VA 6/12 to 6/6. After 6 months follow up 2(1.33%) patients had VA <6/60, 39(26%) had VA 6/60 to 6/18, 109(72.66%) had VA 6/12 to 6/6 (Table-I).

In Group B, after 1 month follow up 6 (4%) had Visual Acuity (VA) <6/60, 30 (20%) had VA 6/60 to 6/18, 114 (76%) had VA 6/18 to 6/6. After 2 months follow up 3 (2%) patients had VA <6/60, 21 (14%) had VA 6/60 to 6/18, 126 (84%) had VA 6/18 to 6/6, After 3 months follow up 3 (2%) patients had VA <6/60, 23 (15.33%) had VA 6/60 to 6/18, 124 (82.66%) had VA 6/18 to 6/6. After 6 months follow up 2 (1.33%) patients had VA <6/60; 16 (10.66%) had VA 6/60 to 6/18; 132 (88%) had VA 6/18 to 6/6 (Table-II).

In Group A (SICS), after 1 month and 2 months follow up no patient had PCO. After 3 months follow up 9 (6%) patients had PCO. After 6 months follow up 28 (18.66%) had PCO (Table III). In Group B (Phaco) after 1 month and 2 months follow up no patient had PCO. After 3 months follow up 2 (1.33%) patients had PCO. After 6 months follow up 11 (7.33%) had PCO (Table-IV).

Comparing the rate of development of PCO among the patients under study in both group, we found that no patient developed PCO after 1 month & 2 months follow up. In Group A (SICS), after 3 months follow up 9 (6%) patients had PCO and after 6 months follow up 28 (18.66%) had PCO. In Group B (Phaco), after 3 months follow up 2 (1.33%) patients had PCO and after 6 months follow up 11 (7.33%) had PCO (Table-V).

We assessed that number of patients had gone through the procedure Nd: YAG laser capsulotomy in both the groups also varied. In Group A (SICS), after 3 months follow up 3 (2%) patients had gone through this procedure. After 6 months follow up 25 (16.66%) had gone through this procedure. In Group B (Phaco), after 3 months follow up 2 (1.33%) patients had gone through this procedure. After 6 months follow up 10 (6.66%) had gone through this procedure (Table VI).

Table I Visual acuity of Group A (SICS) in postoperative follow up

Follow up	Number of eyes	Visual acuity (Aided)	Number of eyes (%)
1 month	150	<6/60	9(6)
		6/60 to 6/18	39(26)
		6/12 to 6/6	102(68)
2 months	150	<6/60	6(4)
		6/60 to 6/18	27(18)
		6/12 to 6/6	117(78)
3 months	150	<6/60	5(3.33)
		6/60 to 6/18	30(20)
		6/12 to 6/6	115(76.67)
6 months	150	<6/60	2(1.33)
		6/60 to 6/18	39(26)
		6/12 to 6/6	109(72.67)

Table II Visual acuity of Group B (Phaco) in postoperative follow up

Follow up	Number of eyes	Visual acuity (aided)	Number of eyes (%)
1 month	150	<6/60	6(4)
		6/60 to 6/18	30(20)
		6/12 to 6/6	114(76)
2 months	150	<6/60	3(2)
		6/60 to 6/18	21(14)
		6/12 to 6/6	126(84)
3 months	150	<6/60	3(2)
		6/60 to 6/18	23(15.33)
		6/12 to 6/6	124(82.67)
6 months	150	<6/60	2(1.33)
		6/60 to 6/18	16(10.67)
		6/12 to 6/6	132(88)

Table III PCO present in number of eyes in Group A (SICS) in postoperative follow up

Follow up	Number of eyes number of eyes (%)	PCO present in
1 month	150	nil
2 months	150	nil
3 months	150	9(6)
6 months	150	28(18.66)

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Table IV PCO present in number of eyes in Group B (Phaco) in postoperative follow up

Follow up	Number of eyes	PCO present in number of eyes (%)
1 month	150	nil
2 months	150	nil
3 months	150	2(1.33)
6 months	150	11(7.33)

Table V Comparison of PCO between Group A (SICS) and Group B (Phaco)

Group	Number of PCO after 3 months	Number of PCO after 6 months
A (SICS)	9(6)	28(18.66)
B (Phaco)	2(1.33)	11(7.33)

Table VI Number of Nd: YAG laser capsulotomies done in PCO in Group A (SICS) and Group B (Phaco)

Group	Follow up	Number of eyes	Number of Nd: YAG laser capsulotomies
A (SICS)	3 months	150	3(2)
	6 months	150	25(16.66)
B (Phaco)	3 months	150	2(1.33)
	6 months	150	10(6.66)

Discussion

Usually the first five years after surgery, visually significant PCO develops in more than 25% of patients had undergone SICS with PC IOL implantation.[9] Some studies correlate that a larger incision causes more blood-aqueous barrier damage resulting in increaserisk of PCO.[10] Cortical separation by hydro dissection from nucleus followed by its rotation during SICS &Phacoemulsification, causes removal of maximum lens fibers and epithelial cells at the equater of the capsular bag, thereby reducing the chance of developing PCO.[11]

Migration of equatorial epithelial cells across the visual axis, creating PCO is not significantly influenced by the haptic fixation pattern. It is much more dependent on the quality and thoroughness of surgical cortical cleanup.[12] The study revealed that using bimanual irrigation and aspiration technique in phacoemulsification,PCO rate was marginally less than in SICS. The reason may be using bimanual irrigation and aspiration technique enables the surgeon to remove equatorial lens cells and fibres there by reducing the incidence of PCO formation.

In 30% cases of non-phaco cataract surgery in bag IOLs fixation could not be achieved. Some cases one or both haptics are not placed in the capsular bag, a potential space is created allowing cells to grow posteriorly towards the visual axis. With modern foldable lens implantation, in-the-bag fixation has increased to over 90% which creates a barrier effect of IOL prevents the migration of equatorial lens epithelial cells over posterior capsule.[13] Continuous curvilinear capsulorrhexis of moderate diameter by a ”shrink wrap” effectcreates a barrier effect for formation of PCO.[14]

In some authors have reported a PCO rate of 11.1% two years after phacoemulsification and acrylic IOL implantation, which is comparable with our study showing PCO rate of 9.1% at six months.[15] In our study, in group A, hard PMMA lens were used and in group B, acrylic and silicon lens were used for all the patients. In some study visual acuity after 6 months follow up was better in Group B (Phaco) from Group A (SICS). In Group A(SICS) after 6 months follow up 25(16.66%) had gone through Nd: YAG lase capsulotomies. In Group B (Phaco) after 6 months follow up 10(6.66%) had gone through this procedure, p value >0.002. It is not significant. The limitation of the present study is the short term follow up of the patients. The researcher acknowledges the need for longer follow up of the patients.

Conclusion

The findings of the present study indicates that PCO is one of the complications cataract surgery which can be minimized by the technique of phacoemulsification rather than SICS. This is probably due to three important steps being followed in phacoemulsification mis less cortical matter remaining and capsular bag polishing. Moreover visual outcome is also better in phacoemulsification (p value <0.002).

Disclosure

All the authors declare no conflicts of interest.

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Original Article

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Sociodemographic and Clinical Profile with Outcome of Suspected and Confirmed COVID-19 Neonatal Cases Admitted in Special Care Neonatal Unit, Chittagong Medical College Hospital

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Abstract

Background: During pandemic years, Coronavirus disease 2019 (COVID-19) affects adult as well as children. This virus also affects newborns as part of it. Because little is known about neonatal COVID-19 diseases, particularly in Bangladesh, the goal of this study was to describe the clinical manifestations, diagnostic findings, and outcomes of suspected and confirmed neonatal COVID-19 patients admitted to one of the country's largest Special Care Neonatal Unit (SCANU)by analyzing hospital records.

Materials and methods: This retrospective record review study was conducted in Special Care Neonatal Unit (SCANU) Chittagong Medical College Hospital, Chattogram. Medical records of 78 neonates delivered by COVID-19 RTPCR or antigen positive mother, admitted in SCANU from March 2021 to February 2022 were reviewed. Eleven neonates were tested RTPCR positive for COVID-19 and diagnosed as Confirmed case, rest were diagnosed as suspected Neonatal COVID-19 casesas born to COVID-19 positive mother. Data regardingage, sex, symptoms and signs on admission, laboratory parameters and outcome were noted and statistical analysis were done.

Results: Among 78 admitted suspected cases, 14% neonates were found RTPCR positive, overall median age was 5 days (3- 26 days). Two-third of the cases (69%) were in 0-48 hours age group with 76%,78%, 73% cases were preterm, low birth weight and male respectively.Seventy eight percent cases had history of contact with suspected or confirmed COVID-19 cases. On admission Almost more than half (55%) of the newborns were symptomatic with fever, cough, Delayed cry, fastbreathing, Tachypnoea, Tachycardia, lethargy, reluctant to feed were the predominant symptoms with few(16%) newborns had comorbid disease. In Sixty-one Chest X-Ray, 44% cases had radiological pattern of pneumonia. Overall, 12% newborns were died and 60% newborns were discharged with average length of hospital stay 5-9 days.

Conclusions: This small-scale retrospective study revealed that newborn are also in risk of COVID-19 infections as a part of pandemics, may remain asymptomatic or can develop serious diseases require hospitalization.

Key words: COVID-19; Neonates; SARS-COV-2.

Introduction

Coronavirus Infectious Disease-2019 (COVID-19) is primarily a respiratory tract infection caused by the newly emerged Severe Acute Respiratory Syndrome Coronavirus-2 (SARS-CoV-2).[1] While children experienced less severe illness than adults during pandemic years, young children, particularly infants, are more vulnerable to disease and experience more severe illness than older children.[2] The majority of pediatric COVID-19 cases are due to a family cluster or a close contact history. During the course of their disease, the vast majority of pediatric patients (>90%) presented asymptomatically, mildly, or moderately.[2]

In comparison to adults, the prevalence of COVID-19 in children is very low, and it is extremely rare in neonates.[3] The first neonate infected with COVID-19 was identified in February 2020,

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according to Wang et al.[4] Different publications on neonates with COVID-19 revealed that the global number of neonates with COVID-19 is increasing. [5,6]

According to reports, approximately 3% of neonates born to COVID-19 mothers tested positive for SARS-CoV-2.[7] Despite a high requirement for mechanical ventilation, current data on neonates with COVID-19 suggest that neonatal COVID-19 has a relatively benign course.[7] In Bangladesh, 3% of confirmed cases are under the age of ten years.[8] Recent reviews revealed a wealth of published information on children with SARS-CoV-2 infection,while data on neonatal COVID-19 infection are scarce.[9,10]

COVID-19 transmission occurs primarily through respiratory droplets or direct contact with infected subjects or contaminated surfaces.[11] In neonates, vertical (Intrauterine) transmission has also been proposed, but evidence to support this hypothesis is insufficient.[12,13] There is no evidence of transmission through breast milk to date.[14] Neonatal cases with COVID-19, whether suspected or confirmed, are primarily infected through droplet contact with COVID-19 positive mothers.[14]

A systematic review concluded that the majority of neonates with COVID-19 infection were found to be asymptomatic or mildly symptomatic and were generally left in spontaneous breathing with a good prognosis after a median of 10 days of hospitalization.[15] Another study in the United States diagnosed neonatal COVID-19 infection in 91.1 per thousand encounters, with 7.7% having severe infection with tachypnoea and fever as the most common signs and 93.6% neonates were discharged home after cure.[16]

According to various studies, newborns are susceptible to this disease from COVID-19 positive mothers and communities and viruses are detected for an extended period of time; thus, newborns may play a role in community transmission.[17] Because the clinical manifestations of COVID-19 in neonates are nonspecific, it is difficult to diagnose such cases; additionally, data on neonates infected with COVID-19 in our country are relatively scarce. As a result, this research can help to reveal many unanswered questions in the neonatal population. The purpose of this study is to describe the clinical presentation, diagnostic observations and outcome of neonatal cases with suspected and confirmed COVID-19 disease admitted to Chittagong Medical College Hospital's Special Care Neonatal Unit. Updated local evidence will aid clinicians in making decisions during the management of COVID-19 neonatal cases, minimizing morbidity, mortality and community transmission among families.

Materials and methods

This retrospective record review study was conducted in Special Care Neonatal Unit (SCANU) of Chittagong Medical College Hospital, Chattogram. All the neonates delivered by COVID-19 RTPCR or antigen positive mother, admitted in SCANU were enrolled in the study. The review was carried out from March 2022 to May 2022. All the file records of suspected and confirmed neonatal cases from the period of March 2021 to February 2022 admitted in SCANU were taken as sample. According to inclusion/exclusion criteria, 78 neonates of COVID-19 positive mother (Either RTPCR or antigen positive) admitted here, were taken as sample by consecutive sampling technique. Nasopharyngeal swab for RTPCR were taken from all those neonates, only 11 neonates were tested RTPCR positive for COVID-19 and diagnosed as Confirmed case, rest of the neonates were found RTPCR negative for COVID-19, diagnosed as suspected Neonatal COVID-19 case as per case definition as they were born to Covid positive mother and was in contact or rooming in.Case definition and severity categorization was done in accordance with the National Guideline for providing essential Maternal, Newborn and Child Health Services in the context of COVID-19[14]. Neonatal record files with incomplete report were excluded from the study. Data were collected by a predesigned structured case record form containing all the variables of interest. The demographic (Age, sex) and clinical data (Symptoms on admission, Comorbidities and laboratory parameters done during treatment period) and outcome (Improved and discharged or died during hospital stay) were collected from the previous record files.

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The SCANU Admission register was used as a beginning point to compile a list of neonates admitted during the study period who had COVID-19 positive mothers. The pertinent patient record files were then tracked down. Telephone conversations were conducted where necessary to increase reliability, using the cell number obtained from the record files. The relevant data as per case record forms were collected using the register, patient files and telephonic conversation. Statistical analysiswas performed using SPSS version 23 software. Patient were categorized according to their age in two groups. Categorical variables were summarized as frequencies and percentages. Continuous data were expressedas median and Interquartile Range (IQR). Fisher's exact test was used to compare the categorical variable and Mann Whitney U tests were used to compare the median value between survived and deceased cases. p value <0.05 was considered as statistical significance.

Due to the anonymity of the data and the retrospective nature of this study, informed written consent was waived. However, permission from the hospital administration was obtained prior to data collection. The researchers and institutions involved in the study ensured the anonymity of the patients and the confidentiality of the secondary data. In additionthis study did not present any individual data.

Results

All suspected and confirmed COVID-19 cases of newborn admitted here were enrolled as study population. Among them 78 cases were eligible, as incomplete record were rejected. Out of 78 admitted suspected cases, (11cases) 14% were found RTPCR positive,overall median age was 5 days (3- 26 days).

Table I describes that almost two-third of the cases (69%) were in the age group of 1-2 days (0-48 hours) followed by 30% in the age group 3-28 days, where two-third (76%) were found preterm, 78% cases were low birth weight, 18% cases were found term newborn and 73% newborns were male. In this study 61(78%) cases of newborn were delivered in this hospital and directly referred here, 21% children came from locality termed as out-born and 44% neonates were rural. Among 78 neonates, 61% were delivered by caesarean section, 43% children were breast fed at birth and rooming -in was practiced in almost half (47%) of the cases.

Table I Summery of demographic variable

Variables	Level	Frequency (Percentage %)
Post Natal Age	0-48 Hours	54 (69.2)
	3-28 Days	24 (30.7)
Median Age (IQR)	6 days (3-26 Days)	
Gestational age	37-42 Weeks	18 (23.2)
	34-37 Weeks	37 (47.2)
	28-34 Weeks	23 (29.4)
Gender	Male	57 (73.0)
	Female	21 (26.9)
Place of delivery	Inborn	61(78.2)
	Outborn	17 (21.7)
Residence	Urban	45 (57.6)
	Rural	33 (42.3)
Birth weight (Grams)	<1000	01
	1000-1500	15 (21.4)
	1500-2500	45 (57.7)
	>2500	17 (21.5)
Mode of Delivery	NVD	29 (37.6)
	Cesarian Section	48 (61.5)
	Instrumental	01
Breast feeding at birth	37 (47.5)	
Rooming in		34 (43.4)

All cases were sent Nasopharyngeal swab for RTPCR of COVID-19. Table II shows 14.9% cases were RTPCR positive, 76.8% cases were RTPCR negative and reports were not foundin 7 cases. Sixty-one Chest X-Ray were found with the record file where 44% cases had radiological pattern of pneumonia. In 78% cases, there was history of contact with suspected or confirmed COVID-19 cases, rest cases were unknown about their contact.

Table II Summery of diagnosis of newborn with confirmed and suspected COVID-19 infection

Variable	Level	Frequency (Percentage%)
Nasopharyngeal Swab	RTPCR (+) ve	11 (14.9)
	RTPCR (-) ve	60 (76.8)
	Report not available	07 (8.9)
CXR	Radiological pattern of Pneumonia On CXR	27/61* (44.2)
Contact With Infected Mother/ Care giver		61(78.0)

*Data available in 61 Newborns.

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Table III Clinical characteristics of newborns with confirmed and suspected COVID-19 infection

Variable	Frequency	Percentage (%)
Symptomatic neonates	43	55.5
Fever	37	47.4
Cough	17	21.7
H/O Delayed Cry	38	48.7
Hypoxia	12	15.3
Nasal discharge	6	7.6
Fast breathing	39	50.0
S Chest indrawing	32	41.0
Tachycardia	43	55.5
Tachypnoea	39	50.0
Lethargy	31	39
Reluctant to feeding	35	44
Vomiting	17	21
Abdominal distension	23	29
Convulsion	17	21.7
Conjunctivitis	9	11.5
Crepitation or wheeze	27	34
Jaundice	23	29
Comorbidity	13	16
Cong Anomaly	03	4%

Data are expressed as frequency (Percent of cases) Multiple response variable.

Table III shows more than half of (55%) newborns were symptomatic, fever (47%), cough (47%), Delayed cry (48%), first breathing (50%), tachypnoea (50%), tachycardia (55%), lethargy (39%), reluctant to feed (44%) were the predominant symptoms. Convulsion (21%), crepitation (34%), jaundice (29%), abdominal distension (29%) and conjunctivitis (11.5%) were also found in some cases.Sixteen percent of the patient has comorbid disease, one of which were bilateral hydronephrosis, rest were congenital heart diseases. Four percent of neonates had othercongenital anomaly.

Table IV describes the available investigations of the newborns. Mean ± SD Hb % (gm/dl) was 15.2 ± 1.92gm/dl, Median (IQR) WBC (/cumm) was 11500(6000-18000), median (IQR) neutrophil (%) was 52, median (IQR) lymphocyte(%) was 45, median (IQR) platelet count(/Cumm) was 220000, CRP, D-dimer, S ferritin level were found raised 58(74%), 9 (47%), 17(68%), 6 (75%) cases respectively. Sixty-one Chest Xay were found showing 7(11%) cases had bilateral patchy opacity, 20(32%) cases had unilateral consolidation and no significant abnormality was found in 34 (55%) cases.

Table IV Investigation profile of the study patient (n=78)

Variable		
Hb%	Mean±SD	15.02 1.92
	Range	9-19
WBC(/Cumm)	Median (IQR)	11500 (6000-18000)
	Range	3000-25000
Neutrophil(%)	Median(IQR)	52(45-65)
	Range	25-85
Lymphocyte(%)	Medial (IQR)	45(33-56)
	Range	15-70
Platelet Count(/Cmm)	Medial (IQR)	220000 (152000-260000)
	Range	20000- 480000
CRP	Raised	58 (74.5%)
D- Dimer*	Raised	09 (47%)
S ferritin**	Raised	17 (68%)
SGPT***	Raised	6 (75%)
CXR#		
Radiological evidence (n=27)	Bilateral Opacity on CXR	07 (11%)
	Unilateral consolidation	20 (32%)
Normal		34 (55%)

* Data available in19 Newborns
** Data available in 25 newborns
*** Data available in 8 Newborns
# Data available in 61 Newborns
Data are expressed as mean±SD Median (IQR) and range.

Table V describes that most of (88+5=93%) the neonates required O2 supplementation and 5% of neonates was given to CPAP. All neonates treated with injectable antibiotics where 84% treated with third line antibiotics. All patients were on intravenous 10% baby saline and 47.5% newborns were given breast milk and no formula milk was given to any newborn. Average length of hospital stay remain 5-9 days. Regarding outcome, 60% newborn were improved and discharged, 9% newborn referred to dedicated hospital, 30% newborn were left against medical advice and 12% newborn were died.

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Table V Treatment and outcome of newborns with confirmed and suspected COVID-19 infection

Variable	Level	Frequency	Percentage
Respiratory Management	Oxygen Supplementation	69	88
	Invasive support (CPAP)	4	5
Antibiotics	First line (Ampicillin/Gentamicin)	78	100
	Second line (Ceftazidime /Amikacin)	74	94
	Third line	66	84
Nutrition	Breast feeding	62	47
	Expressed milk	42	53
	Formula	00	
Length of Hospital Stay		5-8 days	
Outcome	Improved and discharged	47	60
	Referred to dedicated Hospital	07	9
	Leave against Medical advice	24	30
	Died	10	12

Data are expressed as frequency (Percent of cases) Multiple response variable.

Table VI Comparison of demographic and clinical characteristics in survived and deceased patients

Variable	Survived (n=68)	Deceased (n=10)	p value
Gestational age			
Preterm	42(61.7)	08(80.2)	0.385*
Sex			
Male	50(73.5)	07(70.0)	0.296*
Comorbidity			
Present	09(13.8)	04(40.0)	0.189*
RTPCR (n=11)			
Positive	05(6.44)	06(60.0)	0.123*
Negative	63 (80.3)	04(40.0)	1.89*
CXR (n=27)			
Normal	06(35.2)	04(40.0)	0.189*
Unilateral	09(52.9)	01(10.0)	0.721*
Bilateral	02(11.7)	05(50.0)	0.133*

Data expressed in number (Percentages).

*p value were obtained from Fisher exact test.

Table Vl shows among 10 deceased cases, 80% neonates were preterm without any statistical significance (p=0.385). Similar nonsignificant higher trend of mortality was observed among male newborns, newborn with comorbidity, having positive RTPCR test and bilateral consolidation on chest X-ray.

Discussion

The sociodemographic characteristics of such patients were reflected in an overview of the RTPCR positive and suspected neonates with COVID-19 in this study. Among 78 admitted suspected cases in the neonatal isolation ward, 14% were found to be RTPCR positive, the overall median age was 5 days (3- 26 days), which is consistent with the findings of Trevisanuto D.'s systematic review.[18]

The neonates with COVID-19 were divided into two groups, according to the definition provided by Shah et al.[19] The first group included two-thirds (69%) of neonates diagnosed within 48 hours of birth, indicating the possibility of intrapartum infection. The second group, consisting of 30% neonates, was diagnosed after 48 hours of life; such infections were thought to have occurred during the postpartum period. This finding is consistent with Kim D H.'s review.[20]

Neonatal COVID-19 infections were found to be more common in preterm (76%), low birth weight (78%) and male neonates (73%). This finding is also consistent with the findings of the review study, except that, they discovered term predominance (81.6%).[20] Another study conducted at Dhaka Shishu Hospital discovered that males (67%) and term babies (88%) predominated in neonatal COVID-19 infection.[21] The reason for the higher number of male cases is unknown, but it is likely that male babies were hospitalized more than female babies due to our social stigma. Another study conducted in China found no significant sex predominance in children.[22]A Multinational cohort study found overall, 83% of preterm births in women with COVID-19 infection were medically indicated.[23] Which finding is in agreement with us.Womenwith COVID-19 diagnosis had a higher low birth weight rate (RR, 1.58, 95% CI, 1.29-1.94) in that study, which finding also match with our study (79% low birth weight baby).[23]

We also found that caesarean section (61%) was more frequent mode of delivery herethan vaginal delivery. This finding also matched with the previous study.[21] The multicentercohort study involving 18 countries also foundhigher cesarean delivery rate, reflecting the higher rates of pregnancy complications in COVID-19 positive mother.[23]

More than half (57%) of our patient were from urban area or city area. Other studies also found

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same type of finding.[22,23] We also found 78% cases of newborn were delivered in this hospital and directly referred here from labour ward.

In this study,more than two third (78%) of the neonates had history of contact with infected mother or other care-giver, same type of finding was seen in previous study.[15] It may imply that most of the cases were affected from community or from family members.

Breast feeding from infected mothers remains a controversial aspect, with some institutions advocating for it while taking appropriate precautions, as well as other institutions, recommend milk formula.[24-27] Our findings reflect some disparities, with 47.5% of neonates receiving breast milk and 43% receiving rooming-in. Though several recommendations of the American Academy of Pediatrics, the Chinese researcher consensus and some studies advocate, rooming with the mother and breastfeeding are safe if associated with adequate parental education of safe infection control practices, such as wearing surgical masks at all times and practicing frequent hand hygiene.[28-30]

It is note worthy that more than half (55%) of infected neonates were asymptomatic, while the majority showed mild symptoms typical of acute respiratory infections such as fever, hypoxia and cough, in agreement with available data on children.[9,10]A study done in Dhaka CMH by Sultana M found 66% symptomatic cases among RTPCR positive children.[31] Predominant signs and symptomsat admission were fast breathing (50%), severe chest indrawing (41%), tachypnoea (50%), tachycardia (55%), fever (47.4%), convulsion (21.7%), reluctant to feed (44.4%) and abdominal distension (29%). In neonate, twoor more diseases coexist in same cases. Sepsis was present in most of thecases with COVID-19 but could not be ruled out. Perinatal asphyxia was present in half of the cases and jaundice was found in one third cases. This finding has similarities with previous study.[21,31] In this study it was not found whether associated conditions like sepsis, pneumonia, perinatal asphyxia, jaundice were caused by COVID-19 or these conditions were associated with neonatal COVID-19. Overall, 16.5% had comorbidities, one of which was bilateral hydronephrosis, rest were congenital heart diseases. Congenital anomalies were found in 3(4%) cases, two cases of down syndrome, one had cleft palate.

This study also compiles the available investigations found with newborn's record file. Mean± SD Hb % (gm/dl) was 15.2± 1.92gm/dl, median (IQR) WBC (/cumm) was 11500(6000-18000), median (IQR) neutrophil (%) was 52, median (IQR) lymphocyte (%) was 45, median (IQR) platelet count(/Cumm) was 220000. This finding has some similarities with the data found in the epidemiological study in United States.[32] CRP, D-dimer, S ferritin level were found raised 74%,17%, 26%, 10% cases respectively.

In this study twenty-seven Chest Xay were found with record file, of which more than half of cases had opacity in lung either unilateral or bilateral. Among 12% deceased neonates, 60% of deceased neonates had bilateral opacity.

Regarding management, oxygen supplementation, invasive support, fluid therapy and antibiotics were the main line of treatment, no newborn were given remdesivir, steroid, anticoagulant here. Respiratory management was performed according to the clinical status of infected neonates, with the majority ofthem left in oxygen-hood, only 5% neonates required CPAP, no patient is given in mechanical ventilation.

Overall, prognosis of neonates with COVID-19 infection was good, with 60% of them discharged alive after a median hospital stay of 5-8 days, 9% cases were referred to COVID-19 designated hospital, 30% newborn were left against medical advice. Twelve percentcases died at ourhospital, among which 60% cases were RTPCR positive.

The hospital deceased cases were comparatively preterm. Similar higher trend of mortality was observed among male child, newborn with comorbidity, having positive RTPCR test and bilateral opacity on chest X-ray. The mortality rate was comparatively higher in comparison to western country but matched with published data of our country. Rahman M reported 12% death among 32 positive cases in Dhaka Shishu Hospital, but in an US survey, they encountered only one (0.1%) death with presentation suggestive of Multisystem Inflammatory Syndrome (MIS-C) in children who died after 11 days of hospitalization.[33] In our study, we did not get any cases of MIS-C in SCANU. The information presented in this study is part of an effort to describe the clinical spectrum of COVID-19 infection in newborns, as well as the accomplishments of demographic and clinical dimensions to hospitalizations and outcomes associated with these parameters, and to organize the hospital management system for suspected and confirmed COVID-19 neonatal cases.

Limitation

The study's main limitation was its retrospective design. Furthermore, the study included a small number of children from a single tertiary care hospital, which may limit the study's ability to generalize the findings. Furthermore, the clinical and laboratory parameters for the entire group were not available in detail.

Conclusion

The study concluded that neonates infected with COVID-19 can suffer from severe illness, and mortality seems to be much higher in confirmed cases.Ongoing monitoring of hospitalization rates, clinical characteristics, NICU admission and outcomes in this population is important to further characterize the morbidity and mortality of COVID-19 infection in newborns.

Recommendation

Continued Study is necessary for further characterization of the demographic and clinical profile, hospital interventions and outcomes of COVID-19 infection among newborns. So, the study recommends extended studies in details are needed in order to thorough comprehensive conclusions regarding neonatal COVID-19 disease in Bangladeshi newborns.

Disclosure

All the authors declared no competing interest.

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Original Article

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Pattern of Workplace Violence against Nurses in a Tertiary Level Hospital

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Abstract

Background: Workplace violence is a multifaceted and insecure occupational hazard that nurses are facing in their workplace. Understanding the severity of the risks of violence depends on a variety of circumstances and the environment of the healthcare facility. The purpose of this study was to assess the pattern of workplace violence against nurses.

Materials and methods: This cross-sectional study was done to assess the pattern of workplace violence among the 220 nurses of Shaheed Suhrawardy Medical College Hospital, Dhaka.

Results: Most of the nurses (48.2%) were in the age group of 30-39 years. About half of the nurses (51.0%) faced violence, and among them, majorities (84.7%) encountered it in the workplace. A maximum of 93.6% encountered psychological violence at the workplace, whereas 3.2% encountered physicalviolence, and 3.2% encountered both psychological and physical violence. The association between socio-demographic characteristics and violence against nurses showed, the majority (50.9%) of nurses who faced violence were in the age group 30-39 years and there was a significant relationship between age and violence against nurses (p=0.002). The majority (52.3%) who faced no violence were married, and there was a significant relationship between marital status and violence against nurses (p=0.027).

Conclusion: Most of the nurses working in the different departments experienced some sort of violence. It is recommended that appropriate reporting and preventive strategies be implemented to reduce the problems.

Key words: Healthcare system; Nurses; Workplace violence.

Introduction

Nurses are the utmost prevalent personnel in the healthcare system. In the reduction of mortality, morbidity and disability, health promotion through healthy lifestyles they have a key role.[1] Hospital is the public place where most of the violence is observed toward staff.[2] Healthcare personnel are mostly vulnerable in different situations in their workplace.[3]

Workplace Violence (WPV) is characterized by physical and non-physical violence. Physical violence is categorized into physical injuries, dysfunctions, permanent disabilities, etc.[4] Psychological violence are including abuse, insults, threats, or sexual harassment.[5] It does not cause physical injury but causes mental impairment, such as anxiety, depression, mania, lack of concentration, and poor work value.[6,7]

WPV is a confronting occurrence that is increasing in low- and middle-income countries.[8] It demoralizes the worker's safety, motivation, dignity and well-being. It also affects healthcare organizations unpleasantly, through absenteeism, poor productivity and dissatisfaction, etc.[9,10]Severe injuries or death may occur infrequently resulting from physical violence.[11]

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In most cases, violent episodes are found verbal; some other constitute also identified such as assault, battery, domestic violence, stalking, or sexual harassment. This appraisal emphasizes the current situation in healthcare settings and the perception of nurses about violence. It also highlights the difficulty researchers have encountered in developing experimental models and the need for further evidence-based research.[12] The risk of violence, for instance, may be understood differently by people depending on their cultural backgrounds and position within the healthcare institution. Nurses are suffering from WPV most frequently; an effective effort can develop better interventions and preventive measures. The purpose of this study was to assess the pattern of workplace violence against nurses.

Materials and methods

This cross-sectional study was conducted to assess the pattern of workplace violence against nurses in a tertiary level hospital. The study was initiated from January 2018 to December 2018 at the purposively selected a tertiary level hospital named Shaheed Suhrawardy Medical College Hospital, Dhaka, Bangladesh.

Operational definition of 'Workplace violence':The International Labor Organization (ILO) defines workplace violence as "any action, incident or behavior that departs from reasonable conduct in which a person is assaulted, threatened, harmed, injured in the course of, or as a direct result of, his or her work".

Though the actual sample size was 376 but data were collected from 220 respondents due to some constraints. Therefore, eventual sample size was 220.

A pretested semi-structured questionnaire was used to collect data from the 220 nurses through face-to-face interviews at their convenience. Informed written consent was taken from each respondent, and informed about the objectives and probable outcomes of this study. Nurses who were working for at least 1 year in the hospital were included in this study.

The questionnaire was checked and cleaned after the completion of data collection. All data were computed and analyzed through IBM SPSS v23. Both descriptive and inferential statistics were carried out and the results were presented in tables and chart.

The study was validated by the 'Institutional Review Board' of the National Institute of Preventive and Social Medicine (NIPSOM), Dhaka 1212, Bangladesh.

Results

Table I represents, out of 220 nurses, the majority 106(48.2%) were in the age group of 30-39 years old. Majority of nurses 156(70.9%) were Muslim and married 193(88.2%). Based on educational qualification majority 134(60.9%) completed Diploma, 51(23.2%) completed B.Sc. and 35(15.9%) completed masters and above. Based on the length of services, the majority 123(55.9%) of nurses worked for 1-5 years. About 176(80.0%) came from nuclear family and 44(20.0%) from joint family. Based on monthly family income 57(25.9%) had less than 50,000 taka, and 59(26.8%) had more than 85,000 taka.

Table II shows among 220 nurses, about 111(51.0%) encountered violence and among them, 94(84.7%) encountered it in the workplace and 17(15.3%) were out of the workplace.

Figure I show among the total nurses, a maximum of 93.6% encountered psychological violence at the workplace whereas 3.2% encountered physical and 3.2% encountered both psychological and physical violence.

Table III demonstrates that regarding the characteristics of psychological violence perpetrators, the majority 72(79.1%) were patient's relatives, the majority 65(71.4%) were male and most of them 44(48.4%) were in the age group of 31-40 years. Based on characteristics of events associated with psychological workplace violence, 30(33.0%) faced psychological workplace violence for 2 to 3 and more than 4 times. The majority 62(68.15%) faced it during the morning shift and most of the nurses 40(44.0%) faced it in the Medicine ward. About 74(81.3%) of nurses faced it in other colleagues' presence and 17(18.7%) faced it alone. Based on knowledge regarding the existence of reporting procedures to the authority after the violence, the majority 84(92.3%) had whereas 7(7.7%) did not know. Most of the 34(37.4%) nurses said they did not have repeated disturbing memories, thoughts, or images of the attack as an effect of psychological workplace violence at all, and 5(5.5%) said they had it extremely. About 79(86.8%) did not take any action after the investigation and 12(13.1%) take action after the investigation. Male-female ratio was not calculated during data analysis.

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Table IV demonstrates that regarding the characteristics of physical violence perpetrators, the majority 3(50.0%) were patients' relatives, the majority 6(100%) were male and most of them 3(50.0%) were in the age group of 21-30 years. Based on characteristics of events associated with physical workplace violence, 5(83.3%) faced physical workplace violence once and the rest of 1(16.7%) 2 to 3 times. The majority 4(66.7%) faced it during the morning shift and most of the nurses 4(66.7%) faced it in the Medicine ward. About 3(50.0%) of nurses faced it in other colleague's presence and 3(50.0%) faced it alone. Based on knowledge regarding the existence of reporting procedures to the authority after the violence, the majority 5(83.3%) had whereas 1(16.7%) did not know. Most of the 3(50.0%) nurses said they had repeated disturbing memories, thoughts, or images of the attack as an effect of physical workplace violence quite a bit, and 2(33.3%) said they had it extremely. About 4(66.7%) did not take any action after the investigation and 2(33.3%) take action after the investigation.

Table V interprets the association between socio-demographic characteristics with violence against nurses shows, majority i.e. 54(50.9%) nurses who faced violence were in the 30-39 years age group and there was a significant relationship between age and violence against nurses (p=0.002). Majority i.e. 101(52.3%) who faced no violence were married and there was a significant relationship between marital status and violence against nurses (p=0.027). There were no significant relationship between violence against nurses and the other socio-demographic characteristics like education, length of services, type of family, and monthly income respectively.

Table I Socio-demographic characteristics (n=220)

Characteristics		Frequency	Percent
Age groups (Years)	20-29	72	32.7
	30-39	106	48.2
	>40	42	19.1
Religion	Muslim	156	70.9
	Hindu	53	24.1
	Christian	11	5.0
Marital status	Married	193	88.2
	Unmarried	24	10.9
	Widowed	3	0.9
Education	Diploma	134	60.9
	B.Sc.	51	23.2
	Masters and above	35	15.9
Length of services(years)	1-5	123	55.9
	5-10	49	22.3
	10-15	11	5.0
	15-20	20	10.0
	>20	15	6.8
Type of family	Nuclear	176	80.0
	Joint	44	20.0
Monthly family income (BDT)	<50,000	57	25.9
	50,001-65,000	45	20.5
	65,001-75,000	40	18.2
	75,001-85,000	19	8.6
	>85,000	59	26.8

Table II Prevalence of workplace violence (n=220)

Prevalence of workplace violence		Frequency	Percent
Respondents by encountered violence (n=220)	Yes	111	50.5
	No	109	49.5
Place of occurrence (n=111)	In the workplace	94	84.7
	Out of workplace	17	15.3

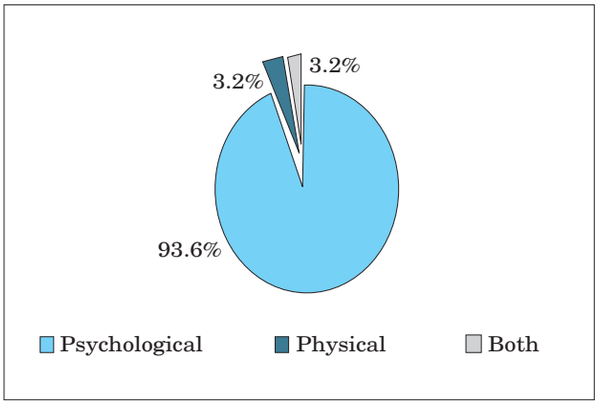

Figure I Type of workplace violence (n=94)

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Table III Characteristics of the workplace psychological violence (n=91)

Responses		Frequency	Percent
Characteristics of perpetrator			
Perpetrator	Patients	9	9.9
	Patient's relatives	72	79.1
	General public	2	2.2
	Colleagues	5	5.5
	Others	3	3.3
Gender of perpetrator	Male	65	71.4
	Female	26	28.6
Age of perpetrators (years)	<20	1	1.1
	21-30	10	11.0
	31-40	44	48.4
	41-50	34	37.4
	>50	2	2.2
Characteristics of events associated with psychological workplace violence			
Number of incidence	1 time	13	14.3
	2-3 times	30	33.0
	≥ 4 times	30	33.0
	Not remember	18	19.8
Time of occurrence	Morning shift	62	68.1
	Evening shift	16	17.6
	Night shift	13	14.3
Place of incidence	Medicine ward	40	44.0
	Emergency unit	16	17.6
	Gynecology ward	8	8.8
	Surgical ward	15	16.5
	Orthopedic ward	3	3.3
	Pediatric ward	5	5.5
	Post-operative ward	2	2.2
	Oncology ward	1	1.1
	Operation theater	1	1.1
When the event occurs	Alone	17	18.7
	Other colleague's presence	74	81.3
Knowledge regarding existence of reporting procedure to the authority after violence (n=91)	Yes	84	92.3
	No	7	7.7
Effects of psychological workplace violence			
Repeated disturbing memories, thoughts or images of the attack	Not at all	34	37.4
	A little bit	23	25.3
	Moderately	25	27.5
	Quite a bit	4	4.4
	Extremely	5	5.5
Action taken after investigation	Yes	12	13.1
	No	79	86.8

Table IV Characteristics of the workplacephysical violence (n=6)

Responses		Frequency	Percent
Characteristics of perpetrators			
Perpetrator	Patients	1	16.7
	Patients relatives	3	50.0
	General public	2	33.3
Gender of perpetrator	Male	6	100
	Female	0	0.0
Age of perpetrators (Years)	21-30	3	50.0
	31-40	2	33.3
	41-50	1	16.7
Characteristics of events associated with workplace physical violence			
Number of incidence	1 time	5	83.3
	2-3 times	1	16.7
Time of occurrence	Morning shift	4	66.7
	Evening shift	1	16.7
	Night shift	1	16.7
Place of incidence	Emergency unit	2	33.3
	Medicine ward	4	66.7
When the event occurs	Alone	3	50.0
	Other colleague's presence	3	50.0
Knowledge regarding existence of reporting procedure to the authority after violence (n=6)	Yes	5	83.3
	No	1	16.7
Effects of workplace physical violence			
Repeated disturbing memories, thoughts or images of the attack	A little bit	1	16.7
	Quite a bit	3	50.0
	Extremely	2	33.3
Action taken after investigation	Yes	2	33.3
	No	4	66.7

Table V Association of socio-demographic characteristics withviolence against nurses (n=220)

Traits		Violence against nurses			χ^2 value	p-value
		Yes	No	Total		
		n(%)	n(%)	n(%)		
Age groups (years)	20-29	45(62.5)	27(37.5)	72(100)	12.24	*0.002
	30-39	54(50.9)	52(49.1)	106(100)		
	>40	12(28.6)	30(71.4)	42(100)		
Marital status	Married	92(47.7)	101(52.3)	193(100)	4.88	*0.027
	Currently single	19(70.4)	8(29.6)	27(100)		
Education	Diploma	67(50.0)	67(50.0)	134(100)	0.87	0.646
	B.Sc.	24(47.1)	27(52.9)	51(100)		
	Masters and above	20(57.1)	15(42.9)	35(100)		

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Traits		Violence against nurses			χ^2 value	p-value
		Yes	No	Total		
		n(%)	n(%)	n(%)		
Length of services	1-5 years	68(61.3)	55(50.5)	123(100)	10.20	0.036
	5-10 years	28(25.2)	21(19.3)	49(100)		
	10-15 years	5(4.5)	6(5.5)	11(100)		
	15-20 years	6(5.4)	16(14.7)	20(100)		
	>20 years	4(3.6)	11(10.1)	15(100)		
Type of family	Nuclear	89(80.2)	87(79.8)	176(100)	0.01	0.946
	Joint	22(19.8)	22(20.2)	44(100)		
Monthly income (BDT)	<50,000	32(28.8)	25(22.9)	57(100)	8.68	0.070
	50,001-65,000	22(19.8)	23(21.1)	45(100)		
	65,001-75,000	24(21.6)	16(14.7)	40(100)		
	75,001-85,000	12(10.8)	7(6.4)	19(100)		
	>85,000	21(18.9)	38(34.9)	59(100)		

*Statistically significant value.

Discussion

All nation-states are adversely affected by the prevalent problem of workplace violence, which is intimately linked to poor healthcare outcomes. The purpose of this study was to assess the pattern of workplace violence against nurses. The findings of this study were compared with other relevant studies and logical arguments were done.

In this study among 220 nurses, the majority 106(48.2%) were in the age group of 30-39 years and it was seen that the majority of nurses 156(70.9%) were Muslim, and most of the nurses 193(88.2%) were married. Based on educational qualification and length of services majority 134(60.9%) completed a Diploma and the majority 123(55.9%) of nurses worked for 1-5 years. There were some similarities with other studies comprised of 391 nurses in Eastern Province, Saudi Arabia showed most 157 (40.2%) of the nurses were in the age group of less than 30 years, most 245(63.2%) of them were married and majority 166 (43.0%) worked for ≤5 years.[13] Another study conducted among 314 nurses in Ibadan, Oyo State showed most of the nurses 164(52.2 %) were in the age group of 24-38 years, the majority 280(89.2%) were married, 147(46.8%) completed Diploma and 151(48.1%) worked for 1-20 years.[14] Another study conducted among 468 nurses in Jordan showed most of the nurses 255 (54.6%) were in the age group of 20-29 years, the majority 281(60.0%) were married, 88(18.8%) completed Diploma and 179(38.3%) worked for 1-5 years.[15]

Regarding the prevalence of workplace violence, among 220 nurses, the majority 111(51.0%) encountered violence and 94(84.7%) encountered it in the workplace. There was another study conducted in Pokhara among 200 nurses which showed the majority 64.5% reported some type of violence in their workplace. In this study among the total nurses, a maximum of 93.6% encountered psychological violence at the workplace whereas 3.2% encountered physical and 3.2% encountered both psychological and physical violence. Another study with some different findings showed the prevalence of verbal violence (61.5%) was higher than the prevalence of physical violence (15.5%) and sexual violence (9%) respectively. This dissimilarity could be due to variations in type of the hospitals this study was conducted in only one government hospital and another study was conducted in 5 different hospitals in Nepal.[16]

In the present study regarding the characteristics of psychological violence perpetrators, the majority 72(79.1%) were patient's relatives, the majority 65(71.4%) were male and most of them 44(48.4%) were in the age group of 31-40 years. There were other studies with similar findings showed most (51.2%) and (51.9%) of the perpetrator of violence were the patient's relatives, the majority (88.9%) of perpetrators were male, and (92.4%) were in 31-50 years of age group.[16-18]

The present study showed majority 4(66.7%) faced it in the Medicine ward. There was another study with different findings that showed (72.8%) faced it in the Emergency department. This dissimilarity could be due to variations in the type of patients and the patient's attendance.[19]In this study about 74(81.3%) of nurses faced it in other colleague's presence and 17(18.7%) faced it alone. Another study showed (90.0%) of nurses were working alone when the incident occurs.[15] In this study about 79(86.8%) did not take any action after investigation and 12(13.1%) take action after investigation. Another study conducted among 592 nurses in Ghana revealed that (18.8%) took no action after violence.[20]

In this study, the majority of 54(50.9%) nurses who faced violence were in the 30-39 years age group and 101(52.3%) were married there were significant relationships between age and marital status with violence against nurses. The majority 68(61.3%) of nurses who faced violence worked for 1-5 years. Another study conducted in Nepal among

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192 nurses revealed (75.0%) of the nurses of the age group 36-40 years were found to be more exposed to WPV. The separated, divorced, and single nurses were found more exposed to workplace violence than married nurses. Nurses with less than 10 years of experience (65.1%) had experienced more WPV.[16] We can implement preventive safety policies, practices, and prevention training to lower WPV and promote safe working conditions. Additional study is required to know ways to lessen WPV against nurses.

Conclusion

Most of the nurses were exposed to some sort of violence in their workplace. The study findings revealed that the causes of different types of WPV are not precisely the same. This issue can't be ignored, especially from an occupational health and safety perspective.

Recommendation

Patients' aggressive behaviours should be considered a preventable occupational risk. The hospital administration and health authorities should build health policies and provide proper training programs to manage violence in healthcare settings. Finally, strategies for preventing and intervening in dealing with workplace violence in hospitals should be deliberated and implemented to improve the quality of care provided by the nurses.

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Disclosure

All the authors declared no competing interest.

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Original Article

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Cytological Assessment of Endometrial Washings and Its Histological Association in Patients with Abnormal Uterine Bleeding

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Abstract

Background: Endometrial cytology is a powerful test for the detection of a wide variety of benign endometrial lesions ranging from inflammatory change to atypias and helpful for screening of malignancy. To see the role of endometrial washings cytology for evaluation of endometrial status in patients with Abnormal Uterine Bleeding (AUB). It also compare efficacy of cytological examination of endometrial washings with histological evaluation of endometrium in AUB patients.

Materials and methods: This cross sectional descriptive study was done in the Department of Pathology, Chittagong Medical College for one year period from July 2011 to June 2012. A total of 90 patients were selected consecutively for two procedure i) Endometrial washings cytology and i) Bistopathological procedures. Endometrial washings were collected by 4 mm Karman's cannula fitted with 20 CC syringe for cytological examination. At the same settingendometrial curettage were collected for histopathological examination. All results were put in a data sheet and statistical analysis done by SPSS version 23.

Results: Out of 90 cases, on cytological examination 8(8.9%) cases were found to be malignant and suspicious lesions, 82 (91.1%) cases were benign lesion and histopathological tissues revealed 83 (92.2%) cases were benign lesions and 7 (7.8%) cases were malignant lesions. When the cytological results were compared with histology the present study showed 100% consistent in atrophied endometrium, 87.88% in proliferative phase, 87.50% in secretory phase, 77.77% in endometritis and 85.71% in malignancy.In endometrial washing cytology, the sensitivity was found 85.71%, specificity 97.59%, PPV 75% NPV 98.78% and accuracy was 96.67%.

Conclusion: Endometrial cytology is reliable safe and cost effective outpatient procedure in the diagnosis of normal and abnormal endometrium for patients of abnormal uterine bleeding and to enable the detection of endometrial malignancy at an early stage.

Key words: Abnormal uterine bleeding; Endometrial washing; Endometrial curettage; Post-menopausal bleeding.

Introduction

Abnormal uterine bleeding is a common cause of gynecological morbidity as well as consultation in general practice and specialist referral to hospital. As a low resource country like Bangladesh, a simple, safe, cost effective, reliable, out patient's, diagnostic test is needed for evaluation of status of endometrium in abnormal uterine bleeding patients. It will reduce hospital admission and prevent unnecessary surgery. Endometrial aspiration cytology has emerged as a effective method both ensuring endometrial normalcy and for diagnosis of malignant and premalignant states.[1-4]

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The prevalence of AUB is estimated at 11%–13% in the general and 24% in those 36–40 years.[3,5] It is estimated that 9% to 30% of reproductive-age women have menstrual irregularities requiring medical evaluation. AUB occurring as heavy cyclical or acyclical flow at perimenopausal age and post-menopausal period is alarming and needs thorough evaluation, as it could be the only clinical manifestation of endometrial cancer.Endometrial washing Cytology as compared with curettage, can detect cancer earlier when it is localized at the fundus and in tubal cornu.[4-6] Well tolerance of the procedure by the patient, adequacy of the sample even in post menopausal women, and detection of occult neoplasm's help in early diagnosis of the endometrial pathologies. If nothing else reliably identifying benign normal endometrial states, it seems to confidently exclude more than 70% of women for unnecessary follow up testing of all.It will reduce hospital admission and prevent unnecessary surgery.[6, 7]

In the present study endometrial status of patients with abnormal uterine bleeding was evaluated from the cytological smears of endometrial washings by using a 20 cc syringe with 4mm Karman's cannula. To see the role of endometrial washings cytology for evaluation of endometrial status in patients with AUB and compare efficacy of cytological examination of endometrial washings with histological evaluation of endometrium in AUB patients.

Materials and methods

This cross sectional descriptive study was done in the Department of Pathology,
Chittagong Medical College for one year period from July 2011 to June 2012.
A total of 90 patients were selected according to enrolled criteria.

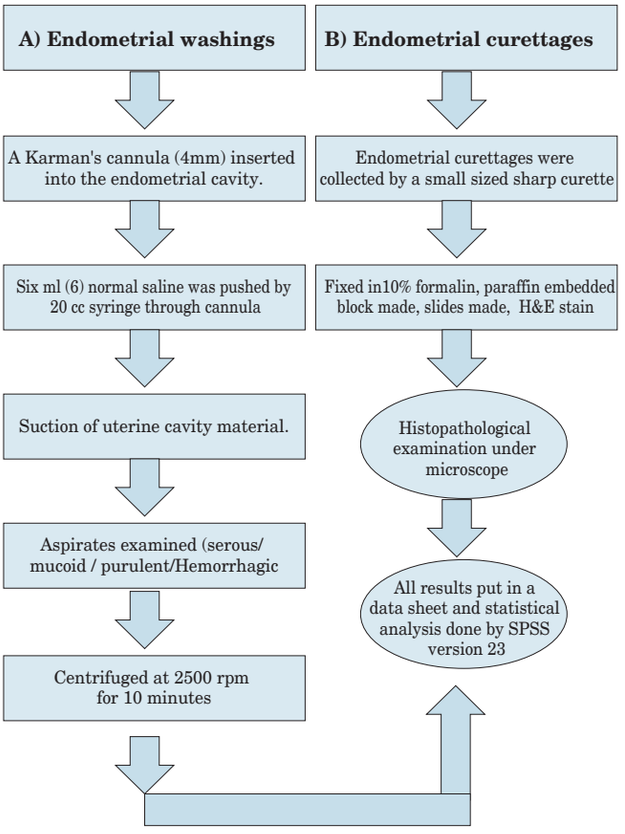
Inclusion criteria

i) Married women presenting with abnormal uterine bleeding.
ii) Patients attending at Outdoor and Indoor Department of Obstetrics and Gynecology, CMCH, Chattogram.
iii) Those patients who gave written informed consent.

Exclusion criteria

i) Pregnancy related bleeding.
ii) Genital tract injury.
iii) Fibroid uterus & endometrial polyp
iv) Bleeding disorder.
v) Patients with history of hormonal intake for last three months.

- By using a structured data sheet all data were collected.
- **Procedure:** After voiding of urine patient was placed in lithotomy position, two procedure were performed



Results

The age range of 90 patients was 25 to 70 years. The maximum number of patients were 34 (37.8%) belonged to the age group 31-40 years, 26 (28.9%) were 41-50 years group, 18 (20%) were 51-60 years group, 09(10%) were 25-30 years group and 3 (3.3%) were over 60 years. Overall mean age is 43.92 (SD±9.73) .

The incidence of abnormal uterine bleeding was more prevalent in lower middle socio-economic classes, 40 (44.4%) belonged to this group and 33 (36.7%) patients were from poor socio-economic group. 15 patients (16.7%) were from upper middle classes 02 patients (2.2%) were from affluent group.

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The incidence of abnormal uterine bleeding was higher 52(57.8%) in patients having para 3-5, 30 (33.3%) patients had 0-2 para and 8 (8.9%) patients were grand multipara (6 and above)

The main symptoms of abnormal uterine bleeding was menorrhagia, 30 (33.3%) followed by postmenopausal bleeding, 26 (28.9%), 14 (15.6%) presented with metrorrhagia, 10 (11.1%) with polymenorrhagia, 06 (6.7%) had polymenorrhoea and 04 (4.4%) oligomeorrhoea.

Cytological examination revealed 08 (8.9%) cases of malignant or suspicious lesion and 82 (91.1%) cases of benign lesions. Among the benign lesions 29 cases (32.2%) were of proliferative phase, 21 cases (23.3%) were of secretory phase, 16 cases (17.8%) were of atrophied cases, other cases were from endometritis and hyperplasia. Among the malignant and suspicious lesions 08 (8.9%), maximum cases 5 (5.56%) were adenocarcinoma and metastatic squamous cell carcinoma.

On histopathological specimens were obtained benign lesions were 83 (92.2%) and malignant lesions were 07 (7.8%)Among benign lesions, 33 (36.6%) were proliferative, 24 (26.7%) were secretory and 16 (17.8%) were atrophied endometrium, 07 (7.8%) cases were inflammatory endometrium and hyperplasia without atypia showed 03 (3.3%) cases. There were 6 (6.7%) cases of adenocarcinoma and 1 cases (1.1%) of squamous carcinoma was diagnosed

Distribution and Comparison between Cytology and Histologywas shown in table I andTable II showed Association between cytology and histopathology (With χ^2 test significance).

Table I Distribution and comparison between cytology and histology

Endometrium	Cytology	Histopathology	Consistent
Proliferative Phase	29	33	87.88%
Secretory Phase	21	24	87.50%
Atrophy	16	16	100%
Endometritis	09	07	77.77%
Hyperplasia without Atypia	07	03	42.86%
Hyperplasia with Atypia	02	00	0%
Malignancy with Suspicion	06	07	85.71%

Table II Association between cytology and histopathology (With χ^2 test significance)

Cytological Impression	Histopathology			χ^2 test Significance
	Benign Lesion	Malignant Lesion	Total	
Benign Lesion	81	01	82	$\chi^2 = 55.316$ p = 0.000
Malignant & Suspicious Lesion	02	06	08	Highly Significant
Total	83	07	90	

- True positive cases were 6, False Negative (FN) cases were 01, True negative (TN) cases were 81 and false positive cases were 02
- In endometrial washing cytology, the sensitivity was found 85.71%, specificity 97.59%,
- PPV 75% NPV 98.78% and accuracy was 96.67%.

Cytology Smears (400x)

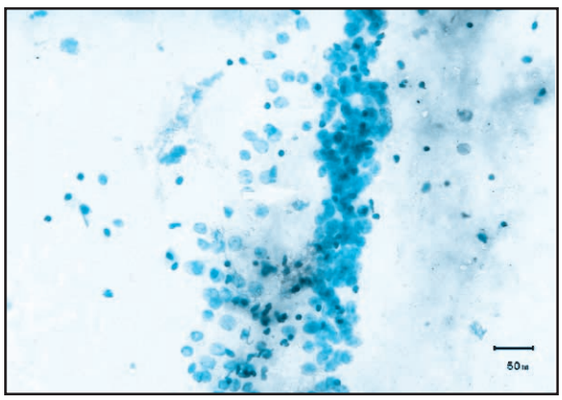

Figure 1 Proliferative Phase

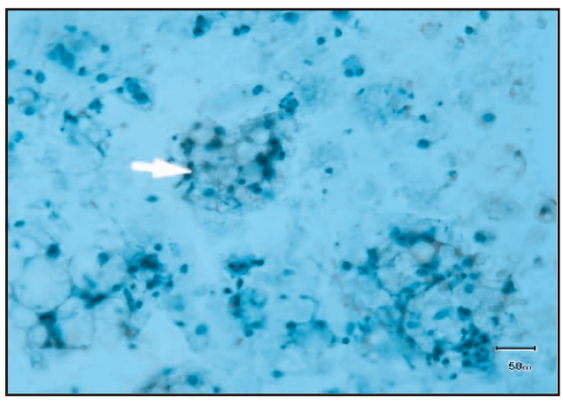

Figure 2 Secretory Phase (Early)

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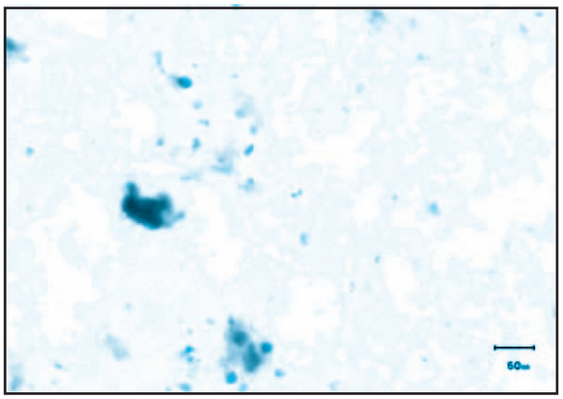

Figure 3 Invasive squamous cell carcinoma

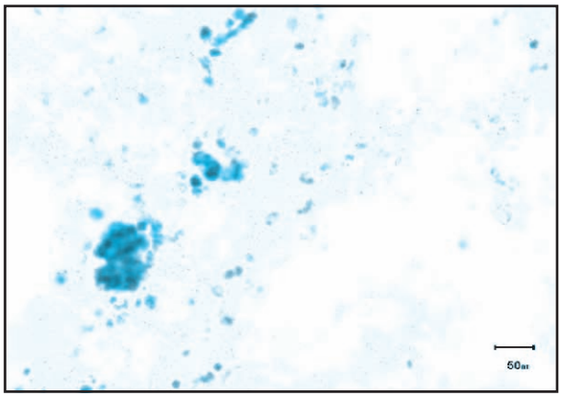

Figure 4 Endometrial carcinoma

Discussion

Out of 90 patients of AUB the present study showed mean agewas 43.92 (SD±9.73),more prevalent in lower middle 40 (44.4%) class. The incidence was higher 52(57.8%) in para 3-5. Most common symptoms were menorrhagia 30(33.3%) followed by postmenopausal bleeding 26 (28.9%). Study done by Upadhyaya et al. found that mean age were 43.15 years and maximum belonged to 4th decade (40-49) yr and Bhosle & Michelle, found maximum patients were in the age group of 40-45 years (4th decade) which is almost consistent with present study.[8,3]

AUB incidence was high in parity 3(28%) and grand multipara (32%) both of the findings were similar para (3-5) with the findings of present study.[3,9,10] Thakur et al found that the mean parity of the patients was 3-7 ±2.2.[11] Different menstrual patterns were associated with Abnormal Uterine Bleeding (AUB). In the present study, the patients presented with mainly with three patterns, menorrhagia, postmenopausal bleeding, metrorrhagia, were 30 (33.3%), 26 (28.9%), 14 (15.6%) respectively.

In another study from Nepal on 106 patients Updhyaya and malla, 2005 found that 57.55% cases were of menorrhagia, 36.96% metrorrhagia, 6.6% polymenorrhagia, 1.89% cases of menometrorrhagia and none were the patients with postmenstrual bleeding during this study period.[8] Similar study was done by Bhosle and Fonesca in India among 112 perimenuprosal women (40-52 years age group) of AUB. The majority of women 53.3% presented with menorrhagia, 28.2% with polymenorrhagia, 12.2% had inter menstrual bleeding and 6.5% had metrorrhagia.[3] In these two studies menorrhagia constitutes maximum number of patients, which is almost similar to the present study but postmenopausal bleeding was not present as their studies were limited on age group of 45-49 years and 42-52 years respectively.

Out of 90 patients of AUB, Cytological examination revealed 08 (8.9%) cases of malignant or suspicious lesion and 82 (91.1%) were benign. But on Histopathology 83 ((92.2%) cases were benign and and ((7.8%) cases were malignant or suspicious for malignancy.

When the cytological results were compared with histology the present study showed 100% consistent in atrophied endometrium, 87.88% in proliferative phase, 87.50% in secretory phase, 77.77% in endometritis, and 85.71% in malignancy which is almost similar to different studies.[11,8,12]

This finding is almost consistent with present study.The discrepancy in case of postmenopausal bleeding may be due to smaller number of cases of present study or confinement of data collection from a single institute or area.

Limitation

This study was a single center study with small sample size and within short period of time so did not proclaim the scenario of whole country. Moreover this study was cross-sectional so follow up of the patient could not be done.

Conclusion

Endometrial cytology is reliable, cost effective and a safe outpatient procedure in the diagnosis of normal and abnormal endometrium for patients of abnormal uterine bleeding. The present study emphasizes the need for endometrial screening in AUB patients to enable the detection of endometrial malignancy at an early stage. In low resources country like Bangladesh, endometrial

washing cytology can be done as a primary diagnostic tool in outdoor basis and by identifying benign normal endometrial states which confidently exclude unnecessary follow up testing and hospital admission.

Recommendation

- Endometrial washings cytology using Karman's cannula with 20 cc syringe is a reliable diagnostic tool that can be effectively and confidently used in the present infrastructure of the tertiary hospitals in our country for evaluation of endometrial status in patients with AUB.
- A community based cross-sectional study can be carried out with larger sample size to observe the sensitivity and specificity rate in our country.
- Further multicenter randomized trials can be initiated throughout the country.

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Disclosure

All the authors declared no competing interest.

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Case Report

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Ankyloglossia with Teratoma of the Tongue with Bifid Tip and Polydactyly a Rare Entity : Case Report

Muhammad Faridul Islam[1*] Maleka Afroz[2] Mohammad Ali Hossain[3] Ummay Honey[4]

Abstract

Teratomas are neoplasms composed of all the three germinal layers those not normally found in the organ in which they arise. In the tongue, the teratoma may result from misplaced cells from the tuberculum impar. Approximate 1.6% of these neoplasms are found in oral region. Teratoma of the tongue is extremely rare and often accompany other anomalies within the head and neck. We present a male baby with an oral teratoma originating from dorsum and ventrolateral part of the tongue with bifid tip and tongue tie along with polydactyly. The tongue tie released and teratoma was excised successfully with no complications.

Key words: Ankyloglossia; Bifid tongue; Polydactyly; Teratoma of the tongue.

Introduction

Teratomas are neoplasms composed of tissue elements of all the three germ layers that foreign to the organ or anatomic site of origin and show varying degrees of differentiation.[1,2] Most of the teratomas in the pediatric age group are benign, but reports of malignant teratoma do exist.[3] Around 80% are located in the ovaries and sacral lesions, 7% are seen in head and neck region, only approximate 1.6% of these tumors are found in oral region.[4] Definitive treatment of teratoma of the tongue is complete surgical excision and the prognosis is excellent. This report describes a child with multiple anomalies together ankyloglossia with teratoma of the tongue with bifid tip, and polydactyly.

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Case Presentation

A 10 months old boy 1st issue of his non consanguineous parents weighting 7.4 kg was admitted on 8th may 2023 in the Department of Pediatric surgery at Chattagram International Medical College Hospital (CIMCH) with multiple congenital anomalies together ankyloglossia with teratoma of the dorsum and ventrolateral aspect of the tongue with bifid tip, in addition polydactyly (Postaxial ulnar) on both hand (Fig.1a, 1b). Baby had slight difficulty in swallow but no respiratory problem. On examination there was severe ankyloglossia with bifid tip, and firm, non-tender, smooth mass arising from both the ventrolateral aspect of tongue measuring about 2 cm × 1.5 cm on each side, moreover it was closely adhere with base of the tongue. There were also few small nodular growth along the dorsum of the tongue. There was no lymphadenopathy or any medical or familial history of other congenital disorders; moreover, there was no disturbance in lab findings. The lesion was completely excised and the tongue tie released under general anesthesia with endotracheal intubation (Fig.2). Excised tissue was sent for histopathological examination. Postoperative period was uneventful and his swallowing as well as feeding improved dramatically so baby was discharged on 2nd postoperative day with normal vitals.

Pathological findings: Microscopic examination showed fibrocollagenous stroma infiltrated with mixed inflammatory cells along with a few cluster of benign salivary glands lined by mature squamous cells (Fig.3), but no evidence of malignancy, indicating a diagnosis of mature teratoma.

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Figure 1 (a) Teratoma and bifid tip of the tongue with ankyloglossia **(b)** Polydactyly

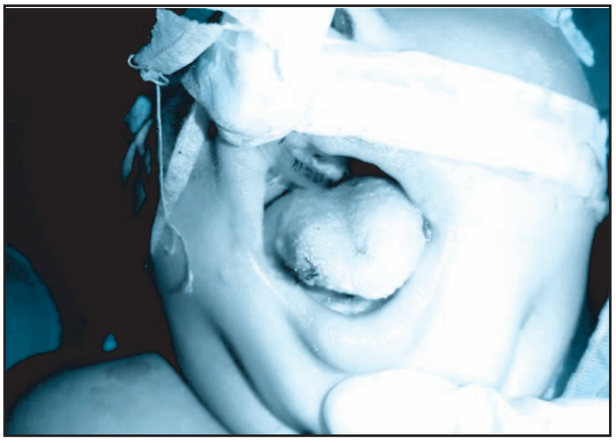

Figure 2 After excision of teratomatus lesion and release of tongue tie

Figure 3 Histopathological slide (Microscopic picture)

Discussion

The word teratoma is derived from the Greek "teratos" which means monster.[5] It is composed of ectoderm, mesoderm and endoderm with differentiation to identifiable tissue and organ.[6,7] Approximately 80% are benign and 20% are malignant.[8,9,10] Teratoma occurs in 1 out of 4000 live births.[11] The majority of oral teratoid cysts are located in the mouth and the tongue floor.[12,13] Teratoma of tongue was first reported in 1966.[14] The tongue lesions may imitate thyroglossal duct cyst, lymphangioma, hemangioma, lingual thyroid, dermoid cyst, granular cell myoblastoma and enterocystoma within the tongue.[15] Oral teratoma may associated with cleft palate, cystic hygroma, polydactyly multifocal teratomas.[16-20] Sometimes cystic teratoma might have been misdiagnosed and treated as a ranula.[21] The diagnosis is sometimes possible only after histopathological examination.[22] Teratomas of tongue were reported to be benign with no recurrence. So treatment of choice is complete excision.

Conclusion

Teratomas that affect the tongue are usually require immediate attention as it may cause difficulty in feeding and or respiration. Surgical excision is the treatment of choice, but long term follow-up along with tumor markers estimation is recommended for all patients particularly those with immature teratomas.

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Disclosure

All the authors declared no known competing interest.

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