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Original Article

Respiratory Morbidities among Children in a Grass Root Level Hospital in Bangladesh.

*Habib RB¹, Kabir ARML², Rouf MA³, Ullah MSS⁴, Hossain MN⁵, Rahman MN⁶, Boyan RK⁷, Hye MA⁸, Khan MKA⁹, Roy S¹⁰, Haque MR¹¹, Jamil JI¹²

Abstract

Children mostly suffer from respiratory illnesses around the world. Situation is not different in Bangladesh as suggested by many studies on childhood illness. But most of these studies have been done in tertiary level hospitals located in urban areas and very few were done in rural setting. This study was conducted to estimate the frequency and to determine the pattern of respiratory morbidity among children and also to assess the impact of passive smoking on the magnitude of acute respiratory tract infections (ARI) among children. This was an observational study. It was carried out on 1002 children over a period of about 180 days, who attended the Tungipara

Upazila Health Complex (UHC), Gopalganj, Bangladesh between January 2018 and June 2018. Data were collected through face to face interview, physical examination, relevant investigations and collected data in the questionnaire for respiratory illness and others then respiratory data were not collected. Out of 1002 children, more than half (54%) were male and the age range was new born to 168 months. Among them upper respiratory tract infections (URTI) were 98.5% as against only 1.5% of lower respiratory tract infections (LRTI). In this study, 38% fathers were smoker and no mother found as smoker. Families of 63% patients used smoke producing substances for cooking. Respiratory illness was more prevalent among the children whose fathers used to smoke tobacco χ^2 (1) 380 P 0.01. As well as babies more vulnerable for respiratory morbidity where smoke producing fuel used for cooking χ^2 (1) 170 P 0.01. Children suffered more from diseases affecting the respiratory system than diseases of other systems. Simple cough related illness was the most common URTI. Under 05 children suffered most. Respiratory illness was more common among those whose fathers smoked tobacco. Children were more vulnerable to respiratory morbidity, where smoke producing fuel used for cooking. There need multicentric study to observe the real picture of respiratory morbidity.

Keywords: Respiratory morbidity, Children, Tungipara.

INTRODUCTION

Acute respiratory infections are the commonest causes of death among children. 14-15 million under 5 children die in each year in the world due to multiple cause, among them 4 million deaths are due to acute respiratory infection (ARI) and two thirds of them are infants. Thus on an average one child dies due to ARI every eight seconds. World wide more than 90 percent deaths occur in developing or underdeveloped countries.¹

It is estimated that there are 19 million children under 5 in Bangladesh. In a study in ICMH, Bangladesh, found that 67% under 5 children attending in different hospitals were due to respiratory disorder. Among the patients 48% suffered from common cold, 21% bronchiolitis, 11.5% bronchopneumonia and 8% due to bronchial asthma.²

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In another study, to identify the magnitude of lower respiratory tract infections among under 5 children attending an upozilla hospital in Bangladesh found that out of 600 cases (63% male and 33% female), responsible doctors diagnosed 39% pneumonia cases, 6% bronchiolitis cases and other than 55% other than respiratory diseases. On the contrary according to clinical criteria of the study, pneumonia was diagnosed in 22.5% cases, bronchiolitis was 38% and other respiratory diseases in 47% cases. Therefore, variation in diagnosis of respiratory diseases occurs from physician to physician.³

A large number of children are affected by various types of respiratory diseases in Bangladesh each year. Very few studies have addressed issue of children of rural areas in this regard. This study have been conducted to determine the pattern as well as to estimate the frequency and magnitude of respiratory disease burden of children attending a primary level health care facility in a rural area of Bangladesh and to ascertain the pattern of respiratory morbidity of children attending a grass root level hospital in Bangladesh.

MATERIALS AND METHODS

This was a descriptive type of cross sectional study in the Tungipara Upazilla Health Complex (UHC), Gopalganj, Bangladesh. Study duration was six months (from January 2018 to June 2018). Study population were children attending the Pediatrics OPD of UHC, Tungipara, Gopalganj. Sample size were 1002. Purposive sampling method was applied. Children attending pediatric OPD of Tungipara UHC were included after receiving consent from their guardian during the study period. Only respiratory morbidities were collected by face to face interview and then physical examination, relevant investigation had done. Variable was, sociodemography-age, sex, consanguinity, parents smoking habit, cooking fuel, parents education status, parents monthly income. Respiratory illness-URTI-Cough, common cold, cough-common cold, cough-common cold-fever, common cold-fever, cough-fever, nasal blocked and LRTI were Broncheolitis, Bronchopneumonia, RAD, Bronchial asthma. Data collection Instrument was structured questionnaire, was formed by all variables. It has multiple parts, Initial part, i) particulars of the patients ii) sociodemographic information 2nd part was i) parents complaints on respiratory problems. 3th part was i) physical examination a. General b. System wise. Study tools-stethoscope, torch light, tongue depressor, auroscope.

Results

Table-I: Sociodemography

Variables	Category	Frequency & Percent
Religion	Muslim	905 (90)
	Hindu	97 (10)
Sex	Male	538 (58)
	Female	464 (46)
Age	Upto 01 month	64 (06)
	Upto 06 months	247 (24.5)
	07 to 12 months	175 (17.5)
	13 to 60 months	466 (46.5)
	60 to 120 months	110 (11)
	121 to 168 months	04 (0.5)
Consanguinity Condition of living house	Tin shed	73 (07)
	Semi-paka	830 (83)
	Building	55 (5.5)
		117 (11.5)

Table-II: System wise illness

	Frequency	Percent
Respiratory system	489	49
GIT	186	18.5
Skin	166	16.5
Eye	12	01
Urinary	6	0.5
ENT	5	0.5
CNS	4	0.5
Others	23	2.5
	1002	100

Near to half (49%) children were suffered from respiratory illness and all others systemic illness were combined 51%

Table-III: Complaint by parents on respiratory system

	Frequency	Percent
Only cold-cough	358	73
Cough-cold with fever <7 days	54	11
Cough-cold with fever >7 days	29	06
Cold-cough, loose motion with fever	07	1.5
Respiratory distress	36	07
	485	100

In this study near to three quarter were suffered from only cough-cold and almost all (98.50%) were suffered from cough related illness.

Table- IV: Father's tobacco habit

	Frequency	Percent
Smoker	362	36
Smoke + Chewable tobacco	17	02
Chewable tobacco	49	05
No habit	548	55
Others	26	03
	1002	100

In this study 38% fathers were smoker and no mother found as smoker.

Table-V: Cooking fuel

	Frequency	Percent
Smoke producing fuel	630	63
Cylinder gas	200	20
Others	172	17
	1002	100

There 63% cooked by smoke producing substances.

Table-VI: Non Parametric analysis

Chi square tests	Result
Respiratory illness with father's tobacco habit	χ^2 (1) 380 P 0.01
Respiratory illness with smoke producing cooking fuel	χ^2 (1) 170 P 0.01

Their respiratory illness was more whose fathers used to smoke tobacco. As well as babies more vulnerable for respiratory morbidity, where used smoke producing cooking fuel.

DISCUSSION

In this observational study, out of 1002 children, most were male and age range from new born to 168 months old. Diseases of the respiratory system topped the list (49%). Upper respiratory tract illnesses (URTI) were 98.5% as against only 1.5% of lower respiratory tract illness (LRTI). This half of RTI affected by various types of

respiratory tract illnesses (Table-3), which was in concordance with findings of a birth cohort study, in which respiratory illnesses contributed to more than 50% of the total disease burden.⁴ A higher burden 62% of respiratory illnesses has also been reported by longitudinal studies conducted among underprivileged children.⁵ So even in rural Bangladesh sickness pattern among children shows little variation. Upper respiratory tract is in immediate contact with the environment pollutants. Children specially the very young ones are more vulnerable to URTI.

Out of the total 489 cases of respiratory illness, 98.5% suffered from upper respiratory tract diseases and of which three quarter of them suffered from cough-cold (Table-3). Another study, revealed that proportion of ARI was 55% of all types of morbidities where 81% babies suffered by cough and cold.⁶

But the opposite was also found in another study in Bangladesh, where it was 35%, this could be due to variation in time and place.⁷

In this study 38% of fathers were smoker. So it appears that passive smoking played an important role in causing sickness among children (χ^2 380 P 0.01) (Table-4,6). Use of smoke producing substances for cooking by households was also a significant contributor to the disease burden (χ^2 170 P 0.01) (Table-6). In this study it was found that 63% of families used smoke producing substances for cooking (Table-5).

CONCLUSIONS

Children suffered more from diseases affecting the respiratory system than diseases of other systems. Simple cough related illness was the most common URTI. Under 05 children suffered most. Respiratory illness was more common among those whose fathers smoked tobacco. Children were more vulnerable to respiratory morbidity, where smoke producing fuel used for cooking. There need multicentric study to discover the real picture of respiratory morbidity.

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Original Article

Pattern of Musculoskeletal Disorders in Adult Diabetics patient

Sharmin S¹, *Newaz F², Ahmed SM³, Shahin A⁴, Hasan MI⁵, Rahman HH⁶, Sadeque Z⁷, Siddique N⁸

Abstract

Diabetes mellitus is associated with several musculoskeletal (MSK) disorders. Due to increased incidence and life expectancy causes increased prevalence and clinical importance of MSK alterations in diabetic subjects. It is difficult to find out the direct relation with metabolic control. This study was conducted to explore the pattern of musculoskeletal disorders in the diabetic patients. A cross-sectional study was conducted from January' 2016 to June' 2016 at Department of Physical Medicine and Rehabilitation, Bangabandhu Sheikh Mujib Medical University, Dhaka with 190 cases divided in two groups. Patients aged 40-70 years with musculoskeletal disorder with diabetes mellitus (type 2) for five years attending in the department of Physical Medicine and Rehabilitation were included in group A. Patients with MSK disorder without diabetes aged 40- 70 years were included in group B. Main

outcome measures were done by Chi square test and unpaired t test were calculated by using SPSS-20. Out of 190 patients, more than half (53.68%) patients were belonged to age 51-60 years in group A and 49(51.58%) in group B. Majority (56.84%) patients were female in group A and 43(45.26%) in group B. Twenty three (24.21%) patients were house wives in group A and 25(26.32%) in group B. Fifty two (54.73%) patients had osteoarthritis of knee in group A and 26(27.36%) in group B. Twenty one (22.11%) patients had frozen shoulder in group A and 9(9.47%) in group B. Sixteen (16.84%) patients had Flexor tenosynovitis in group A and 04(4.21%) in group B. Fifteen (15.78%) patients had Fibromyalgia in group A and 05(5.26%) in group B. Twelve (12.63%) patients had Planter fasciitis in group A and 03(3.16%) in group B. Which were statistically significant ($p < 0.05$) but other musculoskeletal disorders were not statistically significant ($p > 0.05$) between two groups. More than half patients were belonged to age 51-60 years and female were predominate in both groups. Common musculoskeletal disorders in diabetic patients were osteoarthritis of knee, frozen shoulder, Flexor tenosynovitis, Fibromyalgia, Planter fasciitis, Rheumatoid arthritis, Carpel tunnel syndrome, Lumbar spondylosis, Cervicalspondylosis and DISH. This study will also be helpful for different organizations working in this area including physiatrist in their program for delivering a comprehensive treatment service. As a result patients were more benefited.

Key word: MSK disorder, DM (Type 2)

INTRODUCTION

Diabetes mellitus (DM) is a chronic metabolic disease of high morbidity and mortality.¹ Most common endocrine arthropathies are Musculoskeletal (MSK) complications.² The total population in Bangladesh was recorded 150.5 million people in 2011³ Type 1 DM results from a complete deficiency of insulin due to the autoimmune-mediated destruction of insulin-producing β cells in the pancreas; in type 2 DM, which represents most of the DM cases (around 95%), there is insulin resistance, excessive hepatic production of glucose, and abnormal fat metabolism, resulting in a relative deficiency of that hormone.⁴⁻⁵ DM may affect the musculoskeletal system in myriad way. Many rheumatologic disorders have

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been observed more frequently among individuals with DM than in the general population.⁶ The overall connective tissue are affected due to metabolic perturbation.⁴ MSK complications are most commonly seen in patients with a long standing history of type 1 diabetes, but they also may be with type 2 diabetes.⁷ There are three categories of MSK disorders in diabetic patient:

- i) Disorders due to intrinsic complications of diabetes like mobility limitation or diabetic cheriarthropathy, muscular infarction, stiff hand syndrome.
- ii) Those disorders increases with increased incidence like Adhesive capsulitis, Dupuytren's contracture, osteopenia, neuropathic arthropathy, septic arthritis, Diffuse Idiopathic Skeletal Hyperostosis (DISH) and lastly.
- iii) Disorders having possible association with diabetes like carpal tunnel syndrome and osteoarthritis⁸ Common MSK disorders among Bangladeshi diabetic patients studied by Khan et al. are Rheumatoid arthritis, Lumbar spondylosis, Cervical spondylosis, Frozen shoulder, Osteoarthritis of knee joint, Pelvic inflammatory disease, Trigger fingers, Non-specific low back pain, Planter fasciitis, Lateral epicondylitis.⁹ But if it is correctly diagnosed it is usually controllable by the particular handling and management given by a multidisciplinary team work.

MATERIALS AND METHODS

Diabetes mellitus poses serious health problems both in developed and developing countries. In Bangladesh it is also increasing day by day as like as in whole world¹⁰. The prevalence of musculoskeletal disorders in these patients has increased in the recent years affecting significantly their quality of life. Diabetic patients often suffer with many types of musculoskeletal problem like diabetic cheiroarthropathy, or stiff hand syndrome, trigger finger, carpal tunnel syndrome, Dupuytren's contracture, adhesive capsulitis, or frozen shoulder, reflex sympathetic dystrophy charcot's arthropathy, muscular infarction, diffuse idiopathic skeletal hyperostosis, gout, pseudogout, osteoarthritis etc. The prevalence of musculoskeletal disorders generally increases with age.¹¹ This study aims to address these problems and design preventive, curative and rehabilitative management for diabetic patients with musculoskeletal disorder. Studies have demonstrated that local and widespread

musculoskeletal pains are more common in patients with the type-2 diabetes. These MSK disorders have significant health and safety issues and this is a challenge to better understand major effects on economy and make effective proposal for the prevention and treatment of this disorders.¹² Patients were included according to similar nutritional, occupational, socioeconomic characteristics to maintain compare between diabetic (group A) and non-diabetic (group B) patients. About 190 patient were taken by purposive sampling and divided into two groups. Patients aged 40-70years with musculoskeletal disorder with diabetes mellitus for five years(type 2) attending in the department of Physical Medicine and Rehabilitation were included in group A. Patients with MSK disorder without diabetes aged 40-70 year were included in group B. Patient with diabetes <5 years and ages <40 and >70 years with poor cognition and communication problem and any history/ evidence of infections, recent trauma, fracture, malignancy, tuberculosis etc. were excluded for both groups. Standard questionnaire were used to identify the musculoskeletal complain and collect demographic information. Data were process and analyses using SPSS (Statistical Package for Social Sciences) software version 20. The chi-square test and student "t" test were used to analyze the significance level of $p < 0.05$. Continuous scale data were presented as mean standard deviation and Categorical data were presented as number percentage. The summarize data were present in the table and chart.

Quality assurance strategy:

A pretest was done by data sheet before starting the research proper and after that it was finalized. After collecting data it was checked for omission, inadequacy and inconsistency. Omission was corrected by re-taking history or re-examining the patient and discuss with our consultants. Irrelevant and inconsistent data was discarded.

Statistical Methods

Data were process and analyses using SPSS (Statistical Package for Social Sciences) software version 20. The chi-square test and student "t" test were used to analyze the significance level of $p < 0.05$. Continuous scale data were presented as mean standard deviation and Categorical data were presented as number percentage. The summarize data were present in the table and chart.

Patient and public involvement

Patients were involved in the setting of the research question but they were not involved in the developing plans for design or implementation of the study. No patients were asked to give opinion on interpretation or writing up of the results. There are no plans to disseminate the results of the research to study participants or the relevant patient community.

RESULT

Table I: Age distribution of the study population

Age (years)	Group-A n(%)	Group-B n(%)	P value
40-50	28(29.47)	35(36.84)	
51-60	51(53.68)	49(51.58)	0.418 ^{ns}
61-70	16(16.84)	11(11.58)	
Total	95(100)	95(100)	
Mean \pm SD	48.37 \pm 12.03	46.62 \pm 11.13	

ns= not significant

P value reached from chi square test

Group A= Diabetics

Group B= Non diabetics

Table 3.1 shows age distribution of the study population, it was observed that more than half 51(53.68%) patients were belonged to age 51-60 years in group A and 49(51.58%) in group B. The mean age was 48.37 \pm 12.03 in diabetes patients and 46.62 \pm 11.13 years in non-diabetes patients.

Table II: Sex distribution of the study population

Sex	Group-A n(%)	Group-B n(%)	P value
Male	41(43.16)	52(54.74)	0.110 ^{ns}
Female	54(56.84)	43(45.26)	
Total	95(100)	95(100)	

ns= not significant

P value reached from chi square test

Table 3.2 shows sex distribution of the study population, it was observed that majority (56.84%) patients were female in group A and 43(45.26%) in group B. The difference was not statistically significant ($p>0.05$) between two groups.

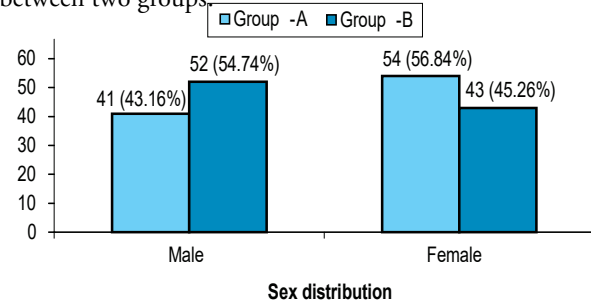


Figure 1: Sex distribution of the study population

Table III Occupational status of study population

Occupational status	Group-A n(%)	Group-B n(%)	P value
House wife	23(24.21)	25(26.32)	0.942 ^{ns}
Retried	22 (23.16)	17(17.89)	
Service	19(20.00)	21(22.11)	
Day labor	9(9.47)	7(7.37)	
Teacher	08(8.42)	07(7.37)	
Farmer	07(7.37)	8(8.42)	
Business	7(7.37)	10(40.53)	

ns= not significant

P value reached from chi square test

Table 3.3 shows occupational status of the study population, it was observed that 23(24.21%) patients were house wives in group A and 25(26.32%) in group B. Followed by 23.16% retired in group A and 17.89% in group B and 20% service holder in group A and 22.11% in group B. The difference was not statistically significant ($p>0.05$) between two groups.

Table IV: Socio-economic condition of study population

Socio-economic Condition	Group-A n (%)	Group-B n (%)	P value
Poor	21(22.11)	30(31.58)	0.245 ^{ns}
Middle	62(65.26)	51(53.68)	
Rich	12(12.63)	14(14.74)	

ns= not significant

P value reached from chi square test

Table IV: Socio-economic condition of study population

Socio-economic Condition	Group-A n (%)	Group-B n (%)	P value
Poor	21(22.11)	30(31.58)	
Middle	62(65.26)	51(53.68)	0.245ns
Rich	12(12.63)	14(14.74)	

ns= not significant

P value reached from chi square test

Source: HIES 2005

Notes: (i) The socio-economic status of the study patients (n=190) were determined assuming the income stated by the patients as follows: (BBS-HIES:2010)13

Poor	-Monthly income	Tk <8000/-
Middle class	-Monthly income	Tk 8000/- to 20,000/-
Rich	-Monthly income	Tk > 20,000/-

Table IV shows socio-economic status of the study population, it was observed that almost two third (65.26%) of the patients come from middle class family in group A and 51(53.68%) in group B. The difference was not statistically significant ($p>0.05$) between two groups.

Table V: Height, weight and BMI of study population

	Group-A Mean (\pm SD)	Group-B Mean (\pm SD)	P value
Height (inch)	5.39(\pm 0.28)	5.31(\pm 0.34)	0.078ns
Weight (kg)	59.22(\pm 8.83)	56.97(\pm 8.02)	0.067ns
BMI (kg/m ²)	24.2(\pm 2.9)	23.4(\pm 3.2)	0.073ns

ns= not significant

P value reached from unpaired t-test

Mean height was found 5.39 (\pm 0.28) inches in group A and 5.31 (\pm 0.34) inches in group-B. The mean weight was found 59.22(\pm 8.83) kg in group A and 56.97(\pm 8.02) kg in group-B. The mean BMI was found 24.2(\pm 2.9) kg/m² in group A and 23.4(\pm 3.2) kg/m² in group-B. The difference were not statistically significant ($p>0.05$) between two groups.

Fifty two (54.73%) patients had osteoarthritis of knee in group A and 26(27.36%) in group B. Twenty one (22.11%) patients had frozen shoulder in group A and 9(9.47%) in group B. Sixteen (16.84%) patients had Flexor tenosynovitis in group A and 04(4.21%) in group B. Fifteen (15.78%) patients had Fibromyalgia in group A and 05(5.26%) in group B. Twelve (12.63%) patients had Planter fasciitis in group A and 03(3.16%) in group B. Which were statistically significant ($p<0.05$) but other musculoskeletal disorders were not statistically significant ($p>0.05$) between two groups.

Table VI: Common musculoskeletal disorders of study population

Musculoskeletal disorders	Group-A n(%)	Group-B n(%)	Total	p value
Osteoarthritis of knee	52(54.73)	26(27.36)	78	0.001s
Frozen shoulder	21(22.11)	9(9.47)	30	0.017s
Lumbar spondylosis	19(20.00)	11(11.58)	30	0.111ns
Rheumatoid arthritis	17(17.89)	21(22.11)	38	0.468ns
Flexor tenosynovitis	16(16.84)	04(4.21)	20	0.009s
Cervical spondylosis	15(15.79)	12(12.63)	27	0.533ns
Fibromyalgia	15 (15.78)	05(5.26)	20	0.018s
Planter fasciitis	12 (12.63)	03(3.16)	15	0.015s
Carpel tunnel syndrome	09 (9.47)	04(4.21)	18	0.150ns
Osteoporosis	07(7.37)	02(2.11)	09	0.087ns
DISH	05(5.26)	1(1.05)	06	0.080ns
Dupuytren's contracture	05 (5.26)	01(1.05)	06	0.097ns
Lateral Epicondylitis	03 (3.16)	02(2.11)	05	0.650ns

s= significant, ns= not significant

P value reached from chi square test

DISCUSSION

This cross sectional study was carried out in the Department of Physical Medicine and Rehabilitation, Bangabandhu Sheikh Mujib Medical University, Dhaka. During six month of study period, total 190 samples were included in this study, among them 95 diabetic patients were purposely selected those who have diabetes for >5years in group A and 95 were non diabetics in group B.

In this present study it was observed that more than half 51(53.68%) of patients were belonged to age 51-60 years in group A and 49(51.58%) in group B. The mean age was 48.37 ± 12.03 years in diabetes patients and 46.62 ± 11.13 years in non-diabetes patients. Similar observation was found in a study of Rahim et al.¹³ they showed mean age was found 48.87 ± 12.03 year in diabetes group and 43.26 ± 12.73 years in non-diabetes group. One of the biggest medical centers in Northern Taiwan studied by Wang et al.¹⁴ observed that the mean age was 56.24 ± 9.17 year in non-diabetes group whereas 55.19 ± 8.41 years in diabetes group that is approximately similar to our study. In contrast a Bangladeshi study by Khan et al.⁹ observed out of 2062 patients, 31.9% were between the age group of 41-50 years and 29.8% was between 51-60years.

Majority 54(56.84%) of the female patients belongs to group A and 43(45.26%) in group B in this study whereas 52(54.74%) male patients belongs to group B and 41(43.16%) in group A. Similar observation was found Barki et al.¹⁶ showed that in diabetes mellitus, 158(42.1%) patients were males and 217(57.9%) were females. Wang et al.¹⁴ study showed 26(61.9%) patients were female in non-diabetes group and 14(66.66%) in diabetes group. Khan et al.¹² studied total of 2062 patients with MSK disorders. Out of them 927 (44.9%) were males and 1135 (55.1%) were females which is also similar to our study. In study of Rahim et al.¹³ seventeen patients were male in diabetes and 297 in non-diabetes group that all observations support our study.

In this study it was observed that 23(56.84%) patients were house wives in diabetics group 25(26.32%) in non-diabetics group followed by 23.16% retired parsons in diabetics group and 17.89% in non-diabetics group, 20% service holders in diabetics group and 22.11% in non-diabetics group. Similar observation was found Khan et al.⁹ majority were

House-wives (56.5%) followed by retired servicemen (16.3%), service holders (13.8%), businessmen (7.4%) and teachers (2.3%). Another study Roy¹⁷, 6% are service

holder, 1% are banker, 9% are teacher, 27% are housewife, 23% are businessman, 4% are job in the private farm, 4% are job in the NGO, 11% are driver, 13% are retired and 1% job in the other sector that results also support our study.

The study showed that the mean height was found 5.39 ± 0.28 inch in group A and 5.31 ± 0.34 inch in group-B. The mean weight was found 59.22 ± 8.83 kg in group A and 56.97 ± 8.02 kg in group-B. The mean BMI was found 24.2 ± 2.9 kg/m² in group A and 23.4 ± 3.2 kg/m² in group-B. The difference were not statistically significant ($p > 0.05$) between two groups. In Barki et al.¹⁶ study showed normal BMI was found 141(44%) in type 2 DM. Everson SA et al.¹⁴ the mean BMI was found 24.06 ± 3.67 kg/m² in non-diabetes group and 24.79 ± 2.58 kg/m² in diabetes group. The mean BMI was not statistically significant ($p > 0.05$) between the two groups. Roy¹⁷ study observed body weight was found 30-40kg (1%), 41-50kg (6%), 51-60kg (44%), and 61-70kg (47%), 71-80kg (3%) and 81-90kg (1%).

In this series osteoarthritis of Knee was found 52(54.73%) in diabetes group and 26(27.36%) in non-diabetes group. Similar observation was found in study of Nieves-Plaza et al.¹⁸ in 2013 reported OA among diabetics patients was 49.0%, whereas in non- diabetics subjects OA was 26.5% ($p < 0.01$). But in contrast in Bangladeshi study by Khan et al.⁹ 2008 reported 8.1% Osteoarthritis of knee joint in diabetes patients. The discrepancy could be due to our study includes majority of patients aged 51-60 years and Osteoarthritis of knee is more common in elderly.

Frozen shoulder was found 21(22.11%) in diabetes group and 9(9.47%) in non-diabetes group in this study. In study by Khan et al.⁹ 2008 reported 16.5% Frozen shoulder in diabetes patients. Umesh and Ranganatha¹⁹ study in 2014 showed the most common findings were frozen shoulder in diabetes patients which was 18%, that is nearly similar to our study. But in contrast, results of Roy showed in diabetes patients 8% are frozen shoulder. The difference could be due to they studied referred as accidental, volunteer or opportunistic sampling.

From the results of the present study Lumbar spondylosis was found in diabetes patients 21(22.11%) and 11(11.58%) were in non-diabetes group. The findings of present study have similarity with the findings of Khan et al.⁹ who reported 19.1% Lumbar spondylosis in diabetes patients. In study of Asadian et al.²⁰ studied in 2016 they found 29.1% Lumbar spondylosis in diabetes patients.

The study revealed that 17(17.89%) Rheumatoid arthritis was diagnosed in diabetes patients and 21(22.11%) was in non-diabetes patients. In study of Khan et al. had similar observation they showed 20.1% Rheumatoid arthritis in diabetes group. Dubreuil M et al concluded that the observed association between patients with RA and incident type 2 diabetes could substantially explained by obesity and lifestyle factors²¹

In this study, 16(16.84%) Flexor tenosynovitis was diagnosed in diabetics patients and 04(4.21%) in non-diabetics patients. Trigger finger has been shown to have a prevalence of approximately 20% in multiple studies of diabetics populations, compared with roughly 2% in the general population.^{15,22,23}

Cervical spondylosis was found 15(15.79%) in diabetes patients and 12(12.63%) in non diabetes patients in this study. In Khan et al⁹ study observed 18.3% Cervical spondylosis was found in diabetes that results is support to our study.

In this study showed Fibromyalgia 15(15.78%) in diabetics and 5(5.26%) in non diabetics. Tishler et al.²⁴ study showed Fibromyalgia was diagnosed in 17% with DM and in 2% healthy control (P=0.008). Wolak et al.²⁵ assessed 137 patients with type 2 diabetes mellitus and a control group of 139 patients matched for age and sex that do not suffer from diabetes mellitus. Among the men of both groups no difference in prevalence was seen. But in case of diabetic women they had a significantly higher prevalence of fibromyalgia than women in the control group: 23.3% versus 10.6% respectively (p = 0.043).

In this study 12 (12.63%) planter fasciitis was found in diabetes group and 03(3.16%) was in non-diabetes group. Narreddy and Reddy²⁶ studied in 2015 found higher than our study which was 21 (70%) planter fasciitis in diabetics patients. The higher percentage could be due to they studied only obese patients.

Carpel tunnel syndrome was diagnosed 09 (9.47%) in diabetes patients. In Becker's study, DM was a risk factor for CTS. In Kidwai's study the presence of limited joint mobility, CTS, trigger finger and Dupuytren's contracture were higher in diabetics patients²⁷ Perkins et al.²⁸ study showed 14% Carpel tunnel syndrome in diabetics patients. The incidence of carpal tunnel syndrome in the diabetics population has consistently been reported as between 11% and 21%, in numerous studies.^{15,29}

Osteoporosis was diagnosed 07(7.37%) in diabetics and 02(2.11%) in non-diabetics patients. Leidig-Bruckner et al.³⁰ the prevalence of osteoporosis at the Lumber Spondylosis was 6.1% in men and 9.4% in women with type 2 diabetes which is agreement with our present study. Another study in china 2013 reported 33.3% Osteoporosis in diabetes patients.³¹ This was done in hospitalized patients in the Department of Endocrinology who are above 60 years. The discrepancy could be due to our study patients were between 40-70 years and most of them were below 60.

In this study DISH was diagnosed 5(5.26%) in diabetics and 1(1.05%) in non-diabetics. A study in Turkey Sencan et al.³² reported that DISH (12%) was higher in patients with DM than the control group (6.8%), but there was no statistically significant difference.

About 5 (5.26%) patients in present study have Dupuytren's contracture. Fitzgibbons and Weiss³³ study found that diabetes mellitus in their population of Dupuytren's contracture patients was only slightly higher than in the general population (11 vs. 7%). Dupuytren's contracture in diabetics patient's ranges from 20 to 63% that observation was not supported our study. The discrepancy could be due to they include only the patients with Dupuytren's contracture and studied 20 years ago.^{23,34} The finding of 5.26% cases of Dupuytren's contracture indicates that it is not uncommon in our country.

In this study 03 (3.16%) Lateral Epicondylitis in diabetes patients and 02(2.11%) in non diabetes patients. Shiri et al.³⁵ study reported 6% Lateral Epicondylitis in type 2 diabetes patients.

CONCLUSION

Diabetes mellitus has been associated with a number of musculoskeletal manifestations. Common musculoskeletal disorders in diabetic patients were osteoarthritis of knee, frozen shoulder, Flexor tenosynovitis, Fibromyalgia, Planter fasciitis, Rheumatoid arthritis, Carpel tunnel syndrome, Lumbar spondylosis, Cervical spondylosis and DISH. Identification and treatment of those lesions are important to improve the patients' quality of life. On the other hand, knowing those associations might enable the diagnosis of DM in patients not yet recognized as such, and, thus, lead to the institution of proper therapy that will prevent the development of diabetic complications.

Limitations of the study

1. The study population was selected from one selected hospital in Dhaka city, so that the results of the study may not be reflect the exact picture of the country.
2. The present study was conducted at a very short period of time.
3. Small sample size was also a limitation of the present study. Therefore, in future further study may be undertaken with large sample size.

CONTRIBUTORS:

SS and FN designed the study. HHR, MIH, ZS analysed the data. ZS and NS drafted the figure and the tables. SS, FN drafted the manuscript, and all the authors read, revised the manuscript, and approved its final version. HHR and MIH are responsible for the overall content as guarantors, and accept full responsibility for the work and the conduct of the study, had access to the data, and controlled the decision to publish. Funding: This study was not supported any funding. We confirm that the researchers were independent from funders and that all authors had full access to all of the data (including statistical reports and tables) in the study. Disclosure: No other authors have same interest. Ethical approval: In this study, keeping compliance with Helsinki Declaration for Medical Research Involving Human Subjects 1964, the nature and purpose of the study was informed in detail to all participants. Voluntary participations were encouraged. There was no physical, psychological and social risk to the subjects. Informed and understood written consent was taken from every patient before enrollment. Privacy, anonymity and confidentiality of data information identifying any patient were maintained strictly. Each patient was enjoyed every right to participate or refuse or even withdrawn from the study at any point of time. Before starting this study ethical clearance was taken from Institutional Review Board (IRB) of BSMMU.

Data taken from the participants were coded and regarded as confidential and kept locked under investigator for purposeful use only. This protocol primary selected by academic committee of Department of Physical Medicine and Rehabilitation. Due respect was given to all the subjects.

RECOMMENDATIONS

Further studies can be undertaken by including large number of patients with multi- centered approach.

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Original Article

Clinical Presentations and Outcome of Acute Glomerulonephritis in Children

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Abstract

Acute post streptococcal glomerulonephritis (APSGN) is the most common type of acute glomerulonephritis (AGN) in childhood. It has not been studied well in Bangladesh. To evaluate the clinical characteristics, complications and outcome of Acute post streptococcal glomerulonephritis (AGN). the department of Pediatric Nephrology at Sir Salimullah Medical College and Mitford Hospital, Dhaka. A prospective study from April 2011 to March 2012 were conducted among the patients diagnosed as AGN in outdoor and indoor department. Hospital records of all 34 children who had been admitted to Sir Salimullah Medical College and Mitford Hospital were reviewed. All demographic, clinical, paraclinical data and consumed medications were obtained. Among 34 cases female and male ratio were 2.4:1; mean age of was 8.76 yrs. \pm 2.5 SD and peak age 7.6. Etiology of AGN was post infectious glomerulonephritis (PIGN) 85.3%, ASO titer was raised in 88.2%, 41.2% had raised blood urea, and 32.4% raised serum creatinine level. All children presented with microscopic hematuria (100%), hypertension (100%), and edema (100%), other findings are fever (55.9%), oliguria (94.1%), abdominal pain (52.9%). History of sore throat and pyoderma was present in 41.2% and 44.1% cases respectively.

Complications like hypertensive encephalopathy three (8.8%), urinary tract infection (UTI) one (2.9%) total seven (20%) were heart failure two (5.9%) and Acute kidney injury (AKI) one (2.9%), total seven (20%) were expired. Majority of cases manifest typically with edema, oliguria and hematuria. It usually has an uneventful course.

Keywords: APSGN; Glomerulonephritis; Hypertension; Edema.

INTRODUCTION

Acute glomerular disease indicates that the initial and major point of impact is within the renal tissue.¹ It comprises a specific set of renal diseases in which an immunologic mechanism triggers inflammation and proliferation of the glomerular tissue that can result in damage to the basement membrane, mesangium or capillary endothelium.²

Acute post-streptococcal glomerulonephritis (APSGN) is the most common type of glomerulonephritis (GN) in childhood.³ It usually occurs after a recent infection by group A beta-hemolytic streptococcus, and therefore known as post-streptococcal acute glomerulonephritis.⁴ Despite a well-known association between streptococcal infection and APSGN for more than hundred years, the exact cause and also the reason that only certain strains are nephritogenic are not known yet.⁵⁻⁷ Nevertheless, the disease has been reported following other bacterial, viral, parasitic, rickettsia, and fungal infections.⁸ Over the past 20 years there has been a substantial decline in the reported incidence of APSGN in many industrialized countries.⁹⁻¹¹

Acute glomerulonephritis (AGN) is a form of GN characterized by a sudden decline in glomerular filtration rate with clinical manifestations such as edema, hematuria, hypertension, oliguria and renal insufficiency.¹² Therefore, AGN is often referred as acute nephritic syndrome (ANS).

It is estimated that 470,000 new annual cases of PSGN are developed worldwide, 97 percent occur in developing countries, with an annual incidence of 9.5 to 28.5 per 100,000 individuals.⁷ In outpatient pediatric department of Bangabandhu Sheikh Mujib Medical University, Dhaka 2.76% children are diagnosed as APSGN.¹³

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The overall incidence and patterns of disease in this population have not been characterized and not well documented in Bangladesh. Very few studies have been performed in this regard. An epidemiological study at the national level is not available yet. The risk of PSGN is increased in children between 5 and 12 years of age. It is twice more frequent in male than females.¹⁵ Clinical presentation may vary from one patient to another patient. The final diagnosis of renal disease, associated with acute renal failure, nephritic syndrome or nephrotic syndrome, is made possible with the study of renal biopsy using light microscopy (LM), immunofluorescence (IF) and electron microscopy (EM).¹⁴

The present study has been undertaken to evaluate the clinical presentation, complications and outcome. Material & Methods: children with AGN in Bangladesh.

MATERIAL AND METHODS

This prospective study was conducted between April 2011 and March 2012 in the department of Pediatric Nephrology at Sir Salimullah Medical College Mitford Hospital, Dhaka. A total of 34 cases aged 3-15 years were included from both outdoor and indoor. Verbal consent was taken from parents or guardians. A data collection sheet was developed and detail history was taken from the parents/guardians/older children. Clinical examination was performed and noted, followed by relevant investigations. Urinalysis on admission, complete blood count with erythrocyte sedimentation rate, C3 level, anti-streptolysin O (ASO) titer, serum creatinine, serum electrolytes, ultrasound of KUB, and kidney biopsy (if indicated) were done. Statistical analysis was performed using SPSS 20 package.

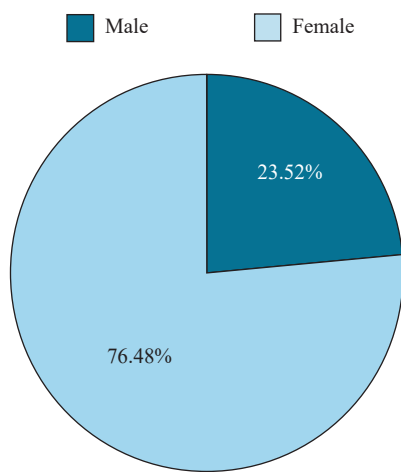


Figure 1: Sex of the study Population

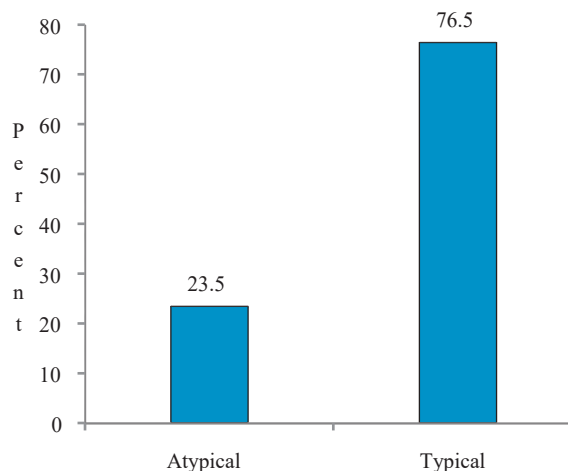


Figure 2: Clinical presentation

RESULTS

Among thirty four children, boys were 24 and girls 10 with a male female ratio of 2.4:1. Their ages ranged from three years to 15 years and 91.2% were between 6-15 years. Mean age of presentation was 8.76 yrs. \pm 2.5 SD. Peak age was 7.6.

Fourteen children (41.2%) had a history of preceding sore throat or upper respiratory infection 7-21 days before admission. 15 children (44.1%) had skin infection (pyoderma) 10-24 days before hospitalization.

Among one hundred and thirty seven children with AGN, (85.3 %) had APSGN. The most frequent clinical findings were edema, gross hematuria and hypertension. Convulsion with very high blood pressure was reported in three children.

Elevated serum creatinine was normalized within two weeks of hospital stay. One children developed rapidly glomerulonephritis (RPGN) for which biopsy was done. He received methyl prednisolone pulses along with peritoneal dialysis.

Seven (20.54%) presented with atypical presentation or complications e.g. hypertensive encephalopathy-three (8.8%), heart failure-two (5.9%), UTI-one (2.9%) and acute kidney injury (AKI)-one (2.9%).

Regarding medication, 67 % (n=23) patients received only frusemide, 14.7 % (n=5) cases frusemide and nifedipine, 2.9% (n=1) cases furosemide and captopril, 2.9% (n=1) cases frusemide and amlodipine, 2.9 % (n=1) cases furosemide, nifedipine and another antihypertensive medication. Anti-hypertensive drug other than diuretics was used in 32.4% cases. Antibiotics was used in 15 (44.1%) cases for active infection. All patients were improved except one (2.9%) who developed RPGN and expired due to AKI.

Table I: Clinical findings of Glomerulonephritis (n= 34)

Clinical findings	No. of Patient (Percentage)
Periorbital edema	34(100%)
Hypertension	34(100%)
Oliguria	32(94.1%)
Fever	19(55.9%)
Gross hematuria	18(52.9%)
Abdominal pain	18(52.9%)
Pyoderma	15 (44.1%)
Headache	14(41.2%)
Vomiting	14 (41.2%)
Sore Throat	14 (41.2%)
Cough	12(35.3%)
Hepatomegaly	12 (35.3%)
Burning micturition	10 (29.4%)
Shortness of breath	7 (20.6%)
Diarrhea	4(11.76%)
Altered sensorium	4(11.76%)
Joint pain	4(11.76%)
Convulsion	2(5.9%)

Table II: Paraclinical findings in AGN (n=34)

Laboratory findings	Frequency
Microscopic hematuria	34 (100)
Pus cell >5/ HPF	7(20.6%)
Proteinuria (1+)	34(100%)
Massive proteinuria (3+/4+)	4(11.6%)
Hemoglobin (<12 mg/dl)	19(55.9%)
Raised ESR	19(55.9%)
Raised blood urea level	14 (41.2%)
Raised serum creatinine	11 (32.4%)
Hyponatremia (Na <135 mEq/L)	2 (5.9%)
Hyperkalemia (K>5.5 mEq/L)	3(8.8%)
Raised ASO titre	30(88.2%)
Low serum C3 Level	31(91.2%)
High serum cholesterol(>220 mg/dl)	3(8.8%)
Hypoalbuminemia	5(14.7%)
Positive urine culture	1(2.9)
Pleural effusion in X-ray chest	3(8.8%)

DISCUSSION

The global burden of severe Group A streptococcal disease is concentrated largely in developing countries including Bangladesh. Majority of the cases (91.5%) were above 5 years (school going age). In Nepal, mean age of presentation was 9.2 yrs. \pm 3.1 SD.¹⁶ The age range in children with APSGN was 3.5 to 13 years with mean of 8.5 \pm 3.2 years.^{17, 18, 19, 20} These results are in accordance with findings of the present studies. In our study, male female ratio was 2.4:1. In other studies, almost equal proportion of female and male were found (1.08:1 & 1.1:1).^{16, 21} Male female ratio was 3.03:1 & 1.6:1 in some studies.^{17, 22} The reasons for this gender variation are not known.

In the present study, antecedent sore throat was observed in 41.2% of cases. It was lower in Nepal, Nigeria and India in (25.5%), (25%) and (20%) respectively.^{16, 24, 23} Similar result in Indonesia (45.8%).²⁵ but high in United States of America (USA) in (62.1%).²⁶ Pyoderma was observed in 44.1% of cases this study. Other studies lower in Nigeria and Nepal in (10%) and (19.1%) respectively,^{24, 16} but higher in India, (60%).²³ This was similar in Indonesia and USA in (31.6%) and (37.9%) respectively.^{25, 26} In the present study, antecedent sore throat was observed in 41.2% of cases. Similar result in Indonesia (45.8%).²⁵ It was lower in Nepal, Nigeria and India in (25.5%), (25%) and (20%) respectively.^{16, 24, 23} but high in United States of America (USA) in (62.1%).²⁶

Edema similar to our studies in India, Nepal and, Iran (83.4%) and (97.5%) respectively.^{23, 16, 17} Lower in Indonesia and Nigeria in 76.3% and 80%.^{25, 24} Reasons for variation as different grading edema was included in different studies. Gross hematuria was found in 30-70% of children with AGN which was similar to the present study.^{16, 23, 25, 27, 28, 29, 30, 31}

Hypertension was observed in all of our children. Almost similar result was observed by Nepal, Iran, USA, India, Nigeria (86.2%), (75%), (73.7%), (69.1%) and (55%) respectively.^{16, 17, 26, 23, 24} Oliguria similar in India and Nigeria (90%), and (80%) respectively.^{23, 24} Other studies lower in Nepal and Indonesia in (22.2%) and (23.9%) respectively.^{16, 25}

Fever 55.9% in this study which was similar to Nepal (63.8%) but lower Iran (20%).^{16, 17} Abdominal pain similar to Iran (20%) But higher than in Nepal (33.6%).^{17, 22} So atypical presentation was more in Nepal.

Among thirty four children AGN, (85.3%) was APSGN. It is similar (89%) in Iran.¹⁷ But lower in Indonesian children (66.6%) of cases.²⁵ Factors were age, under nutritional status, low socioeconomic status, less of maternal education level and the rainy season.¹⁷

The incidence of hypertensive encephalopathy observed in our study (8.8%) was similar to other studies in Nepal, India and Nigeria (9.57%), (3.4) % and (15%) respectively.^{16, 23, 24}

Azotemia was similar to that observed in Nepal (47.8%).¹⁶ It was high in Iran (80%) and low in Indonesia (10.5%).^{17, 25}

Microscopic hematuria was found in 100% of the cases in the present study, which is similar to many other studies. In India by Puri R K et al, showed that the degree of hematuria does not indicate the severity or prognosis of the disease.²⁷ RBC casts were found to be similar to Indonesia, India (44.3%) and (37.1%) respectively.^{25, 23} Higher percentages were observed by Travis and Kallian (60-85%) also found in USA and Nigeria (80%) and (65%) respectively.^{28, 26, 24}

The proportion of elevated ESR in our cases was 55.9% lower than that reported in Nepal (95%), Indonesia (85.3%) and Iran (70%).^{27, 25, 17} Our study was much higher than India (19.8%).²³ Anemia as indicated by hemoglobin levels <10 g/dl was reported in India (27.1%).²³ In our study it was higher (55.9%) which is similar to many other studies in Indonesia (61%), Iran (51.6%), Nigeria (50%) and India (44%).^{25, 17, 24, 27} Reduction in hemoglobin and hematocrit is believed to be due to hemodilution as well as hematuria. Hypoproteinemia is also in part due to the deleterious effect of intravascular volume expansion.^{28, 32}

Pleural effusion in our study was similar to Manhas et al. (3%).²³ But pleural effusion with other radiological abnormalities were very high in studies done by Kirkpatrick et al (85.5%) and Puri et al. (72%), by Albert and Rouf (81.6%) radiological abnormalities due to pleural effusion and other abnormalities pulmonary edema and pneumonia included.^{33, 27, 25}

Hypertensive encephalopathy was observed in 8.8% cases in this study which is similar to other study in Nepal, India and Nigeria 9.57%, 3.4% and 15% respectively.^{16, 23, 24} AKI was observed in higher proportion of cases by Ibadin and Abiodun (39.7%), GI McGill Ugwu (40%).^{34, 24} But our study finding was similar to a study by Shah GS (6.38%).¹⁶

CONCLUSIONS

Although majority of cases manifest typically with edema, oliguria and hematuria, atypical manifestations are not uncommon. Gross alterations of serum electrolytes do not occur in APSGN.

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Original Article

Evaluation of Psychiatric Disorders among Admitted Burn Patients in Burn Unit of Dhaka Medical College and Hospital, Dhaka

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Abstract

Burn causes both the physical and psychological trauma of the victims. Most of the cases, physical trauma of burn are highlighted and managed but psychological impacts of burn are ignored. The psychological aspects of burn injury have been researched in different parts of world producing different outcomes. A very few number of study regarding psychological aspect of burn has been conducted in our country till now. To assess the psychiatric morbidity among the burn patients admitted in burn unit of Dhaka Medical College Hospital. This was a descriptive and analytical study. The study was conducted in the Burn and Plastic Surgery Unit of Dhaka Medical College Hospital, Dhaka, Bangladesh and the duration of the study was 6 (six) months (July 2010 - December 2010). Burned patients fulfilling the inclusion criteria. 124 patients were selected on non-probability purposive sampling techniques who were GHQ (General Health Questionnaire) positive. Then a semi-structured questionnaire containing socio-demographic characteristics and SCID-I (Structured Clinical Interview for DSM-IV Axis-I disorder) was used. Finally DSM-IV-TR criteria were used among burn patients clinically. Different types of psychiatric morbidity in post burn patients and different burn related factors affecting psychiatric outcomes were assessed. The psychiatric morbidity among the burn patients was 47.6%. Regarding patterns of psychiatric morbidities, the highest number of patients were anxiety disorder (54%) followed by

depressive disorder 36%, acute stress disorder (ASD) 3%, post traumatic stress disorder (PTSD) 5% and 2% psychotic disorder. The burned patients of low socioeconomic condition, less education, unmarried, suicidal attempted and larger total body surface area (TBSA) were found their multiple sites of burn injuries (like head, neck and face) developed psychiatric disorders. This study highlights the importance of the simultaneous evaluation and management of psychiatric disorders in burn injured patients. Management of psychiatric and psychological problems of burned patients would bring better outcome.

Keywords: Burn Patients, Anxiety disorders NOS, ASD, PTSD, DSM-IV, SCID-I

INTRODUCTION

A burn is a kind of damage to skin, or different tissues, caused by heat, cold, electricity, chemical, friction or radiation. Most burns are because of warmth from hot fluids, solids, or fire. While rates are comparative for guys and females the basic causes frequently contrast. The biopsychological effect on individual hospitalized for serious burn wounds starts right now of damage and stretches out all through the individual's life.^{1,2} Overall death rate of burn patients was 2.2 for each 100,000 populations for each year. The rate was higher among females. The vast majority of the passing were unintentional in nature, just 5% of passing were from self-caused consume. The rate was higher among the rustic populace contrasted with the urban populace. Internationally, burn positioned among the 15 driving reasons for death and weight of ailment among youngsters in 2002. Burn wounds are the main source of tyke damage and second commonest reason for perpetual inability from damage in youngsters in Bangladesh. Every day around 474 kids encounter critical burn. In Burn and Plastic Surgery Unit of Dhaka Medical College Hospital among 1,533 conceded burn patients 183 were died and among 24,213 consume patients 480 patients died on in 2004 and 2009 respectively.

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Figure 1: Burn patients³

The regular reasons for burn in Bangladesh are fire consume (75%), electric burn(20%), and corrosive burn(5%). The greater part of consumes in youngsters are singes caused by mishaps with pots, container, hot beverages and bathwater. Among immature patients, the consumes are generally caused by youthful guys, trying different things with matches and combustible fluids.^{4,5} Most electrical wounds happen in adults. Psychological recovery of consume tolerant is viewed as a persistent procedure separated into three phases revival or basic stage, intense stage and long haul recovery organize. The mental needs of burn patients vary at each stage. The burn tolerant is subjected to the worry of vulnerability amid his initial administration which usually influences his physical and mental recuperation. Not with standing, the levels of popularity of restoration, patients must manage social stressors, including family strains, come back to work, sexual brokenness, change in self-perception, and interruption in day by day life. The subjective and passionate status of the patient and of the patient's relatives assumes a vital part in the achievement or disappointment of burn treatment at each phase of recuperation. Social help is an essential cradle against the improvement of mental trouble. From this study, got a noteworthy learning from seniors and junior associates about burn patients management and watched physical and in addition mental administration could empower burn patients to return in their typical life.

General Objective:

- To evaluate the extent of psychiatric morbidity among the burn patients taking care of burn unit of Dhaka Medical College Hospital.

Specific Objective:

- To decide the pattern of psychiatric disorders among consumes patients taking care of Burn unit of Dhaka Medical College and Hospital.
- To evaluate socio-statistic attributes of burn victim developing psychiatric disorders.

- To discover the connection between the burns affected area and grievousness and the psychiatric disorder.

Study type:

- This study was a descriptive and analytical study.

Study place and period:

- Duration of the study was six months. (July 2010-December 2010) which was conducted the Burn & Plastic surgery unit of Dhaka Medical College & Hospital, Dhaka, Bangladesh.

Sample size & Sampling technique:

The following standard formula is mostly used in determining sample size:

$n = z^2pq/d^2$ Here, n = sample size

$z = 1.96$ at 5% level of significance or at 95% confidence level, $Z = 1.96$

$p = \text{prevalence, } q = 1 - p$

$d = \text{acceptable error (usually set at 5\%)} = 0.05$

As actual prevalence of burned patients in Bangladesh is not known, so here

$p = 50\% = 0.5 \quad \& \quad q = (1 - 0.5).$

So the sample size is,

$n = (1.96)^2 \times (0.5) \times (1 - 0.5) / (0.05)^2$
 $= 384$

As the study was carried out in a very short period of six months, a large population like 384 was be difficult to collect and it was a prospective, cross-sectional study. So 124 burn patients admitted in the Burn & Plastic surgery unit of Dhaka Medical College & Hospital was taken. Samples were selected on non-probability purposive type sampling techniques.

Inclusion Criteria:

- Burn patients who give informed consent and willing to comply the study procedure.

- Burn patients of 16 years to 65 years were included into the study.
- Burn patient who has no past-history of psychiatric illness and has no past-history of serious organic illness.

Exclusion Criteria:

- Burn patients who cannot communicate verbally due to impaired consciousness.
- Burn patients who is in ventilator and ICU.

MATERIALS AND METHODS

One hundred twenty-four admitted burn patients in the Burn Unit of Dhaka Medical College Hospital who fulfilling the inclusion criteria and GHQ-28 positive were enrolled in the study. At first, informed consent was taken from the burn patient assuring confidentiality and freedom of choice of participation. Then patient was interviewed using the semi-structured questionnaire containing socio-demographic variables and GHQ-28. After that all burn patients with GHQ-28 positive were assessed by SCID-I and DSM-IV-TR criteria. During the study the general health Questionnaire (GHQ28) of David Goldberg is performed first to know about any medical complaints and to assess health in general, over the past few weeks. This is to assess about present and recent complaints. (ANNEX-III) A semi-structured questionnaire including socio-demographic characteristics, history of psychiatric & co-morbid medical illness, family history of psychiatric illness, Pre-morbid psychological functioning & burn related history would be used. (ANNEX-IV). The Structured Clinical Interview for DSM-IV Axis I Disorders (SCID-I) is a semi-structured interview for making the major DSM-IV Axis I diagnoses. The Clinician Version (SCID-CV) is a streamlined version of the SCID-I-RV (Research Version for Axis I Disorders).

Statistical analysis

In this study statistical analysis of the result would be obtain by using window based computer software devised with Statistical Packages for Social Sciences (SPSS-13) (SPSS Ins, Chicago H, USA). The results would be presented in tables, figures diagrams. Statistical tests for significance of difference would be done using t-test, chi-square test, 'p' value<0.05 will be considered as significant.

RESULTS

In Table I shows that distribution of psychiatric disorders among burn patients (n=124) where total numbers of burn

patients were 124. Out of 124 burn patients, 59 (47.6%) patients developed psychiatric disorders and 65 (52.4%) patients didn't develop psychiatric disorder. There was no statistical significant different to developed psychiatric disorder in burn patients. The following table is given below:

Table -I: Distribution of psychiatric disorders among burn patients (n=124)

Age (in year)	No. of patient with psychiatric disorder	No. of patient without psychiatric disorder	p value*
16-25	30 (56.3)	36 (54.5)	
26-35	18 (45.5)	14 (43.8)	
36-45	7 (43.8)	9 (56.3)	
46-55	3 (38.48)	5 (62.5)	
55-65	1 (50.0)	1 (51.02)	
Total	59 (47.6)	65 (52.4)	
Mean ± SD	27.80 ± 9.70	28.08 ± 11.17	0.882

In figure 2 shows that Pattern of psychiatric disorders among burn patients where anxiety & depressive disorders were highest among all (54%) and 36% respectively. The following figure is given below:

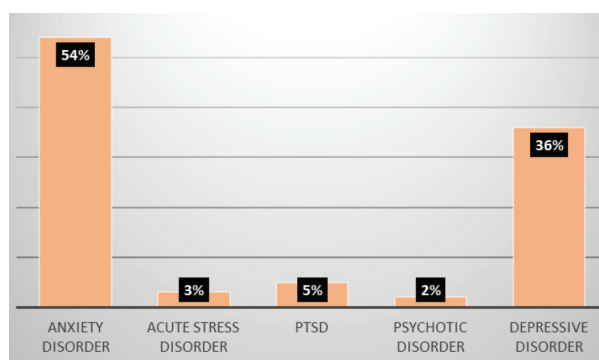


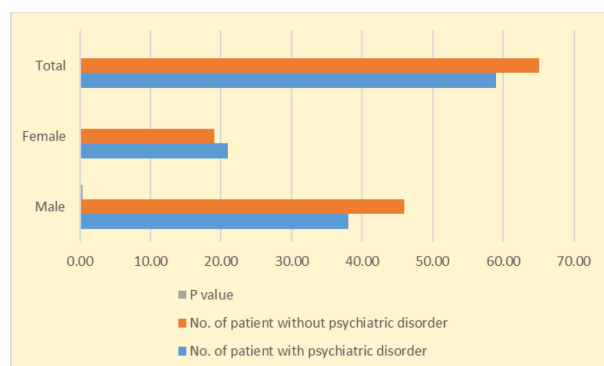
Fig.-2

In table II shows that age distribution of the burn patients (n=124) where shows among 124 burn patients with variable age with a mean 27.80 (SD±9.70) years and 28.08 (SD±11.17) years with and without psychiatric disorder respectively. Maximum 56.3% burn patients within 16-25 years. The following table is given below:

Table II: Age distribution of the burn patients (n=124)

Psychiatric Disorder	Frequency	Percent	p value*
Present	59	47.6	0.285
Absent	65	52.4	
Total	124	100.0	

In figure 3 shows that Sex distribution of the burn patients out of 59 burn patients with psychiatric disorder, 38 male and 21 were female patients & among 65 burn patients without psychiatric disorder, 46 male and 19 were female patients. The following figure is given below:

**Figure 3: Sex distribution of the burn patients**

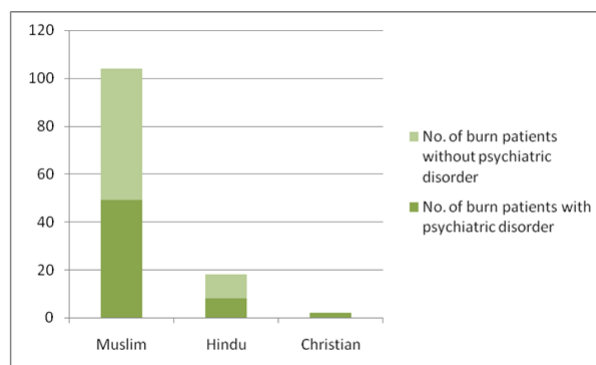
In table III shows that, Area of residence of the burn patients (n=124) where burn patients with psychiatric disorder came mostly from rural areas, which were 52.5% and also they came from Urban and Sub-slum/slum areas which were 45.1% and 38.86% respectively. Patients residing in rural area suffer more psychiatric disorder than urban or sub-urban area but which was not significant. The following table is given below:

Table III: Area of residence of the burn patients (n=124)

Residence	No. of patient with psychiatric disorder	No. of patient without psychiatric disorder	p value*
Rural	31 (52.5)	28 (47.5)	.473
Urban	23 (45.1)	28 (54.9)	
Sub urban	5 (38.86)	9 (61.14)	
Total	59 (47.6)	65 (52.4)	

In figure 4 shows that, Religion of the burn patients (n=124) where most of the burn patients were Muslim in both with and without developing psychiatric disorder,

which was 49 (47.1%) and 55 (52.9%) respectively. Muslim burn patients were more than Hindu and Christian patients in this study. The following table is given below:

**Figure IV: Religion of the burn patients (n=124)**

In table 4 shows that, Marital status of the burn patients (n=124) where burned patients were mostly unmarried/single which was 62. Unmarried (51.6%) and divorced (50.0%) burn patients developed more psychiatric disorder than married (43.3%) burn patients but statistically not significant. The following table is given below:

Table IV: Marital status of the burn patients (n=124)

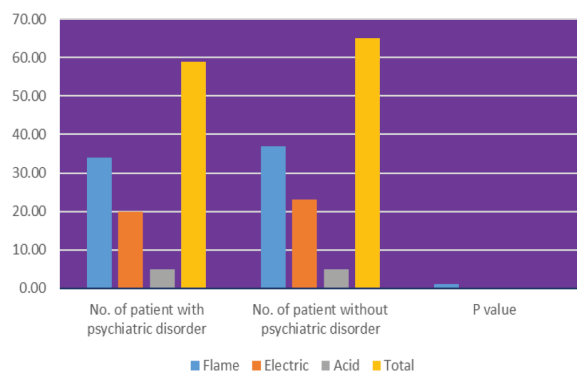
Marital Status	No. of patient with psychiatric disorder	No. of patient without psychiatric disorder	p value*
Married	26 (43.3)	34 (56.7)	0.656
Unmarried	32 (51.6)	30 (48.4)	
Divorced	1 (50.7)	1 (49.3)	
Total	59 (47.6)	65 (52.4)	

In Table V shows that Economic status of the burn patients (n=124) where Burn patients with psychiatric disorder were mostly monthly income up to 5,000Tk (53.8%) and 5,000-10,000 Tk (49.2%). Monthly income 10000-20000 Tk (65.2%) & >20000 Tk. (61.875%) burn patients developed less psychiatric disorder. Lower economic level of income is associated with more psychiatric disorder than higher income but statistically not significant. The following table is given below:

Table V: Economic status of the burn patients (n=124)

Economic Status	No. of patient with psychiatric disorder	No. of patient without psychiatric disorder	p value*
Up to 5000 Tk.	21 (53.8)	18 (46.2)	
5000-10000 Tk.	29 (49.2)	30 (50.8)	
10000-20000 Tk.	8 (34.8)	15 (65.2)	0.489
>20000 Tk.	1 (38.125)	2 (61.875)	
Total	59 (47.6)	65 (52.4)	

In figure V shows that Causes of burn (n=124) where flame injuries were found to be most common agent of burn injuries affecting 34 & 37 with and without psychiatric disorder burn patients respectively. Electric burn was also common, affecting 20 burn patients with psychiatric disorder and 23 without psychiatric disorder. Acid burn injuries were 5 and 5 burn patients with and without psychiatric disorder respectively. Causes of burn in both with and without psychiatric disorder were statistically not significant. The following figure is given below:

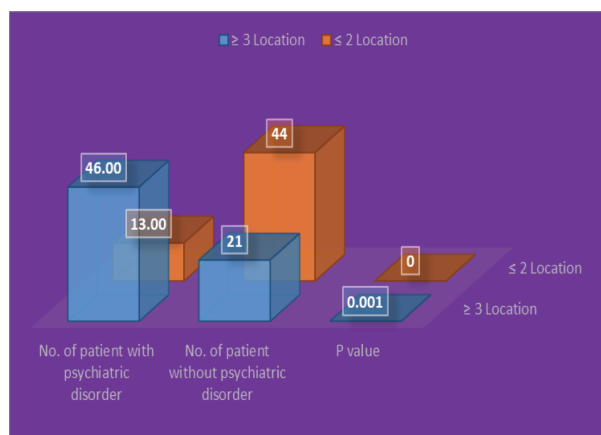
**Figure 5: Causes of burn (n=124)**

In table VI shows that ,Total body surface area (TBSA) involvement of the burn patients (n=124) where , burn patients suffered >40% TBSA burn (75.0%) developed psychiatric disorder more than 1%-10% TBSA burn (33.3%). Similarly, 1%-10% TBSA involved burn patients developed less (66.7%) psychiatric disorder than >40% TBSA involvement (25.0%). So, burn patients who involved more TBSA were developed more psychiatric disorder than less involved TBSA and it was statistically significant.

Table VI: Total body surface area (TBSA) involvement of the burn patients (n=124)

Total body surface area	No. of patient with psychiatric disorder	No. of patient without psychiatric disorder	p value*
1%-10%	12 (41.63)	24 (66.7)	
11%-20%	18 (40.0)	27 (60.0)	
21%-30%	12 (52.2)	11 (47.8)	
31%-40%	14 (87.5)	2 (22.5)	
>40%	3 (75.0)	1 (25.0)	
Total	59 (47.6)	65 (52.4)	
Mean \pm SD	21.79 \pm 12.29	14.76 \pm 9.04	0.001

In figure 6 shows that, Distribution of locations of burn (n=124) where Those have multiple site (≥ 3 Location) burn injuries also suffering from more psychiatric disorder than other site (≤ 2 Location) which was highly statistically significant. The following figure is given below:

**Figure 6: Distribution of locations of burn (n=124)**

In Figure 7 shows that ,Locations of burn (n=124) where Burn injury on multiple sites was observed; even single patient had multiple sites of injuries also. Patients suffering from burn injuries in face (76.9%), head (65.4%) & neck (63.6%) developed more psychiatric disorders and statistically significant. Patients suffering from burn injuries in upper limb (58.6%) developed more psychiatric disorder than lower limb (38.2%). The following table is given below:

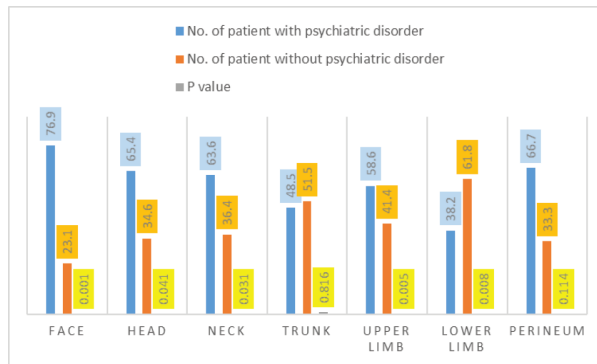


Figure 7: Locations of burn (n=124)

In figure 8 shows that Types of burn (n=124) where 51 & 56 patients affected with deep burn with and without psychiatric disorder respectively while only 8 & 9 patients were suffering from superficial burn (shows in Table XI) and statistically not significant. The following figure is given below:

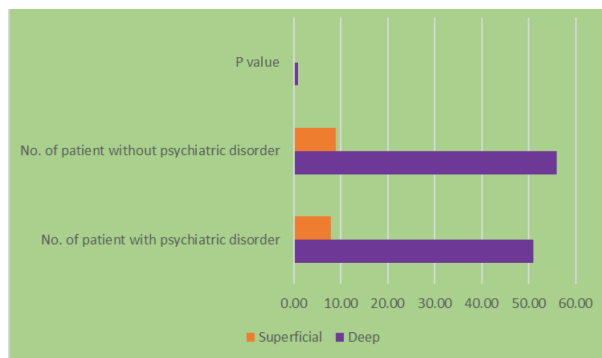


Figure 8: Types of burn (n=124)

In table VII shows that ,methods of burn. Suicidal burn affecting 12&5 patients with and without psychiatric disorder respectively and was statistically significant. Accidental injuries were the prominent group affecting 45 & 58 burn patients with and without psychiatric disorder respectively. The following table is given below:

Table VII : Methods of burn (n=124)

Method of burn	No. of patient with psychiatric disorder	No. of patient without psychiatric disorder	p value*
Accidental	45	58	0.055
Suicidal	12	5	0.041
Homicidal	2	2	0.920

DISCUSSION

Burn injury is the critical and lethal developing reason for human suffering in home and abroad now a days. Burn wounds are annihilating, sudden and flighty types of injury which influence the casualty both physically and mentally. Regarding treatment plan of burn victim patients, it is proved that they are needed multidisciplinary approach like counseling, management of psychological aspect, and some psychotropic medications, physical treatment as well as physiotherapy and finally rehabilitation.

There are very few number of study regarding psychological aspect of burn has been conducted in our country yet now. In some studies outside the country also showed that increasing number of psychiatric disorders among burned patients. The psychiatric disorders, socio-demographic characteristics and the effects of burn factors are the objectives of this study.

In our study performed in Burn Unit of Dhaka Medical College Hospital, 124 patients were selected in the study fulfilling the inclusion criteria. The burned patients admitted in the Burn & Plastic surgery unit of Dhaka Medical College & Hospital, Dhaka were developed psychiatric disorders among 47.6% (59 out of 124) of patients. This finding was almost closer to study of Pliskin et al. (2009) which ranging from 57% to 87.5% respectively.

In this study a significant number of patients showed Depressive disorder 36% and Anxiety disorder 54% . This Depressive disorder was almost consistent with 48% depression in Pliskin et al.⁶ (1999) and 13 to 23% Depression in Van Loey et al.¹⁶ (2003) study but smaller than Alvi et al. ⁸ which is 58%. On the other hands, the Anxiety finding was nearer to 49% in Pliskin et al. ⁶ (1999) study but smaller than Alvi et al.⁸ which were 82%.

Among the burn patients in this study 3.4% (2) acute stress disorder (ASD) and 5.1% (3) post traumatic disorder (PTSD). This finding was almost consistent with the Tedstone et al.⁷ finding of 2.2% ASD at two weeks and 8.9% at three months post burn. In a study of Fauerbach et al.¹⁵ PTSD was found 8.4% at discharge, 28% at 4 months follow-up and decreased to 20.4% at one year post discharge which nearer to our study finding of PTSD in admitted patients. Only 1.7% (1) patients were developed psychotic disorder in our study.

In this study there was higher proportion of male (38) as compared to female (21) which is in accordance with of

many other studies.⁸ Muslim burn patients were more than Hindu and Christian patients in this study. In both with and without psychiatric disorder burn patients, Muslim burn patients were 49 (47.1%) and 55 (52.9%) respectively. Bangladesh is a land of Muslim predominant country and so most of the study populations encountered were Muslim. Burn patients were mostly unmarried/single which was 62 where it was not statistically significant. Unmarried and divorced persons suffer more psychological distress and depression than married person.

Burn patients suffered >40% Total body surface area (TBSA) burn (75.0%) developed psychiatric disorder more than 1%-10% TBSA burn (33.3%). So, burn patients who involved more TBSA were developed more psychiatric disorder than less involved TBSA and it was statistically significant. Most of the patients (81) were affected 1% - 20% TBSA burn injuries. These findings are consistent with Loncar Z et al.⁹ but in Alvi et al.⁸ maximum number of patients had 20-25% of TBSA. But, patients even with small burn injuries of 1% and less can experience clinically significant levels of psychological difficulties after burn found in study of Tedstone JE et al.⁷

Flame injuries were found to be most common agent of burn injuries affecting 71 patients where as electric burn was also common affecting 43 patients and acid burn injuries patients were 10. In Bangladesh, the most of the people use kerosene and wooden fuel in the rural areas and gas cylinder in urban areas were most commonly causing flame injuries.

On study reported that the location of the burn played a role in psychological adjustment. According to other study location of burn on head, neck, and face causing disfigurement has found to increase the possibilities of developing a psychiatric disorder. In our study, patients suffering from burn injuries in face (76.9%), head (63.4%) & neck (63.6%) developed more psychiatric disorder and were statistically significant.

Burn injury on multiple sites was observed; even single patient had multiple sites of injuries also. Upper limbs, lower limbs, face and trunk were major sites involved in this study. Those have multiple site (≥ 3 Location) burn injuries also suffering from more psychiatric disorder than other site (≤ 2 Location) which was highly statistically significant.

In addition to traumatic nature of burn accident the pain during management may also induce psychopathological

responses. Extent of burn injury, female gender in combination with facial disfigurement, traumatic nature of burn injury, anxiety related to pain and family and social support are the important risk factors for development of Depression and Anxiety disorder in post burn patient. Subjective factors such as patient's perceptions and coping style were predictive: perceived lack of social support, high emotional distress, and maladaptive coping strategies contributed to the risk of development of PTSD. It was also conducted from this study that low socioeconomic condition, less educated and unmarried burned patients who had multiple sites of burn injuries especially head, neck and face developed psychiatric disorders.

CONCLUSIONS

More than half of the burned patients suffer from anxiety disorder and more than one third of them go to depressive disorder. Treatment of psychiatric and psychological problems in burn populations would bring better outcome.

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Original Article

Usage of Forceps and Dormia basket in the Management of Ureteric Stone: Comparison between Holmium: YAG Laser and Pneumatic Lithotripsy in a Referral Hospital, Bangladesh

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Abstract

Now lithoclasthas become more popular tool than various intracorporeal lithotripters for the treatment of ureteric stones. Recently the Holmium:YAG laser has been used with a wide range of potential urological applications, including intracorporeal lithotripsy of ureteric stones. This study was conducted to compare the use of Forceps and Dormia basket in the management of ureteric stone between Holmium: YAG Laser and Pneumatic Lithotripsy. It was a longitudinal follow-up comparative study conducted at Combined Military Hospital, Dhaka. All the respondents were admitted patients in Combined Military Hospital Dhaka, under Urology Ward. A total of 100 patients were enrolled for this study under convenient purposive sampling method. They all were admitted with the complaints of upper ureteric stone who underwent ureteroscopic lithotripsy from October 2010 to September 2012. In 50 patients, Laser Lithotripsy (LL) was used and in other 50 patients Pneumatic Lithotripsy (PL) was used. Same ureteroscope, video monitor, baskets and irrigation devices were used in both the samples. Patients were followed up after 1st and 3rd months interval. Lithotripsy follow-up was done with radiograph and ultrasonography of kidney, ureter and bladder. Patients with migrated fragments or incomplete clearance were underwent an auxiliary procedure such as shock wave lithotripsy. Mean stone size was 1.36 ± 0.36 cm in group Laser lithotripsy (LL) and 1.37 ± 0.36 cm in group Pneumatic lithotripsy (PL). The immediate stone clearance rate was significantly higher in Group LL (94.0%) than Group PL (76.0%). Proximal migration of fragments were 6.0%

in LL group and 24.0% in PL group. Use of stone retrieval equipment (baskets, forceps) was 16.0% and 64.0% in LL and PL group respectively ($p < 0.05$). On the other hand stone fragments clearance requiring auxiliary procedures were 6% and 24% in LL and PL group respectively. The mean lithotripsy time was 40.46 ± 19.25 min and 36.86 ± 14.83 min the LL and PL group respectively. Use of stone retrieval equipment (baskets, forceps) was significantly lower in Holmium: YAG assisted ureteroscopy than pneumatic lithotripsy group.

Keywords: Pneumatic lithotripsy (PL), Laser lithotripsy (LL), Forceps/Dormia basket.

INTRODUCTION

To prevent irreversible damage of the kidney, due to renal obstruction caused by ureteral calculi, care must be taken. Conservative treatment may be provided to the patients with stone ≤ 5 mm in size.¹ Whereas chance of spontaneous passage for larger stones and more proximal stones diminishes considerably and thus intervention is required. Treatment decision of upper ureteric stones is based on several general aspects such as stone size and symptoms. Currently most ureteral stones are removed by minimally invasive endourological procedure. Small stones may be extracted but stones of >5 mm in diameter require intracorporeal fragmentation before removing the resultant fragments.¹ The advancement of ureteroscopy and related working elements to manipulate or fragment ureteral calculi has significantly increased treatment options for urologists.² For stone fragmentation, a variety of lithotriptors can be used, including ultrasonic, electro hydraulic, pneumatic and laser lithotriptors. Pneumatic lithotripsy and Holmium:YAG lithotripsy are most preferred and frequently used in intracorporeal lithotripsy during endoscopic management of ureteral stone.³

Young in 1912 was the first to perform ureteroscopy, inserted a cystoscope in a child with posterior urethral valve.⁴ Goodman in 1977 was the first to performed rigid ureteroscopy.⁵ Different lithotriptors can be used for intracorporeal lithotripsy including electrohydraulic (EHL), ballistic (pneumatic), ultrasonic (US), laser (Ho: YAG). In the last few years lasers have been increasingly replacing others for intracorporeal lithotripsy.^{6,7}

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European Association of Urology (EAU) recommends Holmium YAG laser as gold standard procedure for intracorporeal lithotripsy.⁸ The reason behind is, its advantageous property of breaking all type of stone irrespective of their composition as compared to other lithotripters and because of weaker shock waves there is lower risk of stone migration.⁹ However, Pneumatic lithotripsy was first introduced in 1992 in Switzerland.¹⁰ Advantage of pneumatic lithotripter when compared to other lithotripters is its lower risk of perforating ureter and no thermal damage.¹¹ Only concern with pneumatic lithotripter is stone migration, that ranges between 1.6% and 17.3% particularly with upper ureteral calculus^{12,13}. Dormia basket and forceps are important part of ureteroscopic stone extraction in different lithotripsy. In Bangladesh Armed Forces no study is available comparing these two process. Hence the aim of this study is to compare usage of Forceps and Dormia basket in the management of ureteric stone between Holmium Yag Laser and Pneumatic Lithotripsy.

MATERIAL AND METHODS

It was a hospital based longitudinal follow-up comparative two sample size cross sectional study conducted in Combined Military Hospital Dhaka. All the respondents were admitted patients in Combined Military Hospital Dhaka, under Urology ward. Total 100 patients were enrolled for this study under convenient purposive sampling method. They all were admitted with the complaints of upper ureteric stone who underwent ureteroscopic lithotripsy from October 2012 to September 2015. In 50 patients, laser lithotripsy (LL) was used and in other 50 patients pneumatic lithotripsy (PL) was used. Same ureteroscope, video monitor, baskets and irrigation devices were used in both the samples. Patients were followed up after 1st and 3rd month interval. After lithotripsy follow up was done with radiograph and ultrasonography of kidney, ureter and bladder. Patients with migrated fragments or incomplete clearance were underwent an auxiliary procedure such as shock wave lithotripsy.

Patients were randomly selected into two groups as per availability of instrument and other facilities. In Group LL Holmium: YAG laser was used on 50 patients and in group PL pneumatic lithotripsy was performed on another 50 patients. Two procedures were compared in term of stone fragmentation, stone clearance rate, duration of lithotripsy and use of basket and forceps. Patients were followed up

after 1st and 3rd month's interval. After lithotripsy follow up was done with radiograph and ultrasonography of kidney, ureter and bladder. Patients with migrated fragments or incomplete clearance were underwent an auxiliary procedure such as shock wave lithotripsy.

Ethical clearance was obtained from respective authority. Only willing respondents were included in the study. Before commencing the operation details of both the procedure was narrated to each patients. No influence or pressure was exerted during the study.

RESULTS

Table- I: Distribution of the respondents by age and sex (n=100)

	LL (n=50)	PL (n=50)	p value
Age (years)			
≤30	9 (18.0)	13 (26.0)	0.521
31 – 40	16 (32.0)	10 (20.0)	
41 – 50	12 (24.0)	12 (24.0)	
>50	13 (26.0)	15 (30.0)	
Mean±SD	41.90±10.97	41.32±12.3	0.804
Min-max	22 – 60	20 - 60	
Gender			
Male	36 (72.0)	31 (62.0)	0.288
Female	14 (28.0)	19 (38.0)	

The mean age was 41.90±10.97 years in LL group and 41.32±12.33 years in PL group respectively. Only nine patients (18%) in LL group and 13 patient (26%) in PL group were below 30 years of age. There was no significant difference in age between two groups. There was no significant difference in gender between two groups.

Table-II: Distribution of ureteric stone by their Size (n=100)

Size of the stones	LL (n=50)	PL (n=50)	p value
0.5 – 1.0	15 (30.0)	15 (30.0)	1.000
1.1 – 1.5	23 (46.0)	23 (46.0)	
1.5 – 2.0	12 (24.0)	12 (24.0)	
Mean±SD	1.36±0.36	1.37±0.36	0.934
Min – max	0.80 – 2.00	0.80 – 2.00	

The mean stone size was 1.36 ± 0.36 cm in LL group and 1.37 ± 0.36 cm in PL group. The range of the stone size was 0.8cm to 2 cm in both groups.

Table-III: Distribution of ureteric stone by their density in Hounsfield Unit (HU) (n=100)

Density of the stones	LL (n=50)	PL (n=50)	p value
525 – 575	5 (10.0)	5 (10.0)	1.000
576 – 625	7 (14.0)	7 (14.0)	
626 – 725	21 (42.0)	22 (44.0)	
726 – 775	9 (18.0)	8 (16.0)	
776 – 825	4 (8.0)	4 (8.0)	
>825	4 (8.0)	4 (8.0)	
Mean \pm SD	697 \pm 88	695 \pm 89	0.943ns
Min – max	540 – 910	530 – 900	

The Mean density (HU) of stone was 696.66 ± 87.89 in LL group and 695.40 ± 89.42 in PL group.

Table-IV: Distribution of operating period by LL and PL (n=100)

Time (minutes)	LL (n=50)	PL (n=50)	p value
≤ 30	24 (48.0)	18 (36.0)	0.173
31 – 60	20 (40.0)	29 (58.0)	
>60	06 (12.0)	03 (6.0)	
Mean \pm SD	697 \pm 88	695 \pm 89	0.297ns
Min – max	540 – 910	530 – 900	

The Mean duration (min) of lithotripsy was 40.46 ± 19.25 in LL group and 36.86 ± 14.83 in PL group. In majority of the cases stone were broken within an hour in both groups. Only in 12.0% patient's lithotripsy time was more than 60 min in laser group and only in 6.0% patients lithotripsy time was more than 60 min in PL group.

Table-V: Distribution of forceps/Dormia basket usage for stone fragments retrieval by LL and PL (n=100)

Fragments retrieval	LL (n=50)	PL (n=50)	p value
Yes	8 (16.0)	32 (64.0)	<0.0001
No	42 (84.0)	18 (36.0)	

Forceps/Dormia baskets were required for retrieval of stone fragments in 8 (16.0%) cases in LL group and 32 (64.0%) cases in PL group and rest of the cases stone fragments were washed out spontaneously. This association was statistically significant (Chi square= 24.000, df =1, $p < 0.0001$)

Table VI: Distribution of peri procedural complications by Laser and Pneumatic Lithotripsy group (n=100)

Complications	LL (n=50)	PL (n=50)	p value
None	39 (78%)	32 (64%)	0.069
Abrasion	6 (12%)	8 (16%)	
Hemorrhage and Abrasion	1 (2%)	8 (16%)	
Hemorrhage & perforation	4 (8%)	2 (4%)	

For all the complications p value was 0.069, which is not significant.

Table VII: Distribution of per operative proximal stone fragment migration by Laser and Pneumatic Lithotripsy group (n=100)

Proximal stone fragment migration	LL (n=50)	PL (n=50)	p value
No migration	47 (94%)	38 (76%)	0.012*
With migration	3 (6%)	12 (24%)	

In 6% cases stone fragments were migrated proximally in LL group and in PL group it was 24% of cases. In this study complication rate was found comparatively higher in PL group than LL group. Significant association was found on proximal migration of fragmented stone between PL and LL (Chi-square=6.353, df=1 and p value = 0.002, which is significant).

DISCUSSION

The goal of the surgical treatment for patients suffering from ureteral calculi is to achieve complete stone clearance with minimal complication. A variety of lithotripters can be used through an ureteroscope. Although there are some advantages and disadvantages,¹⁴ the Holmium laser and pneumatic lithotripters are most widely used in different centers for the management of upper ureteral stones.¹⁵ The present study was designed to compare laser lithotripsy with pneumatic lithotripsy in treatment of upper ureteric stone.

In this study, mean age of patients was 41.90 ± 10.97 years in LL group and 41.32 ± 12.33 years in PL group. There was no significant difference in the ages between two groups. Similar finding also seen in the other studies.^{16,17}

In the present series, size of the stones ranges from 0.8 cm to 2 cm. The mean size of stone was 1.36 ± 0.36 cm and 1.37 ± 0.36 cm in LL group and PL group respectively. No significant difference in the size of stones was observed between the two groups. In the study of Sun et al.¹⁸ mean stone size was 11 ± 2.5 mm in PL group and 12 ± 2.3 mm in LL group. Mean stone size was 11.5 mm in LL group and 12.3 mm in PL group in the study of Bapat et al.¹⁹. In other studies, mean size of stone ranges from 9 to 16 mm.¹⁶

In this study, density of stones ranges from 530HU to 900 HU. The mean density of stones was 696.66 ± 87.89 HU in LL group and 695.40 ± 89.42 HU in PL group. No significant difference was found between the two groups. EAU guideline suggested that density of the stone is an important variable to decide the method of stone removal.²⁰

In our study, mean operation time was 40.46 ± 19.25 minutes and 36.86 ± 14.83 minutes in LL group and PL group respectively. No significant difference between the groups was found. In the study of Bapat et al.¹⁹ mean operation time was 38.85 ± 8.99 min for PL group and 45.61 ± 11.30 min for the LL group. They also found no significant difference in operation time between two groups which was similar to our study. But Sun et al.¹⁸ in their study found significant difference in operation time in favour of laser lithotripsy. Operation time for laser lithotripsy was 49.8 ± 26.4 min and 76.9 ± 48.3 min in PL group.

In the present study, Forceps/Dormia baskets were required for retrieval of stone fragments in 8 (16%) cases in LL group and in 32 (64%) in PL group. Requirement of Forceps/Dormia baskets were significantly higher in PL group than LL group. Sun et al.,¹² reported that the stone should be fragmented in to pieces <3 mm to pass spontaneously. Jeon et al., in their study found that the Hol:YAG laser virtually vaporizing the stone and the stone is fragmented into very small sizes, ranging from 1-2 mm which is also supported by another study by Vassar et al.,²¹

In this study, complete stone clearance was significantly higher in LL group (94.0%) than in PL group (76.0%). Where as proximal migration of fragments was occurred

significantly lower in LL group (6.0%) than PL group (24.0%). In one study, Maghsoudiet al.²² revealed that stone fragmentation was 90.2% in LL group and 73.2% in PL group ($P < 0.05$). They concluded that the overall stone free rate in Hol:YAG laser lithotripsy was better than pneumatic lithotripsy. Sun et al.¹⁸ reported stone free rate 95.7% in LL group and 69.7% in PL group. Bapat et al.¹⁹ found complete clearance of stone in 166 (86.1%) patient out of 193 patients in PL group, whereas in LL group they noticed complete stone clearance in 195 (97.01%) out of 201 patients.

In this study, proximal migration of fragments was occurred in three (6%) cases in LL group and twelve (24%) cases in PL group. Proximal stone migration is the most disadvantage of the pneumatic lithotripsy and reported in the 2-17% of cases in the study of Fong et al.²³ Jeon and associates¹ reported that the main cause of failure in ureteroscopic lithotripsy was the proximally migrated stone/ fragments. They found upward migration of stone fragments occurred in 19.2% in the pneumatic lithotripsy group while in 4.0% in the LL group. Stone fragments migrated into the kidney with pneumatic lithotripsy was 13.9% in one study by Bapat et al.¹⁹ whereas stone fragments migrated proximally in only 1.9% patients in laser group. Sun et al.¹⁷ found proximal migration of stone fragments in 19.1% cases in PL group. It was significantly higher than laser group.

The discussion may be concluded with the comment that LL has better outcome than PL in upper ureteric stone management.

CONCLUSIONS

According to this study findings it can be concluded that use of stone retrieval equipment (baskets, forceps) were significantly lower in Holmium:YAG assisted ureteroscopy than pneumatic lithotripsy. If budget and other conditions permits, in ureteric stone operations laser Lithotripsy may be conducted for all patients.

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Original Article

Treatment of Short Segment Anterior Urethral Stricture: Optical Internal Urethrotomy (OIU) Alone and OIU with Triamcinolone

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Abstract

Optical urethrotomy has been considered standard therapy for anterior urethral stricture since its introduction in 1976. Now optical internal urethrotomy (OIU) with intralesional triamcinolone injection is a safe and effective, minimally invasive therapeutic modality. The aim of the study is to compare the outcome of OIU alone and OIU with intralesional triamcinolone injection in the treatment of anterior urethral stricture. This Quasi Experimental study was carried out among 50 male patients with bulbar urethral stricture in the Department of Urology, Dhaka Medical College Hospital, Dhaka, over a period of six months. The age range of the patients were 32-46 years and patients were divided equally into two groups, OIU with and without intralesional triamcinolone acetonide injection as Group- A (experimental group, 25 patients) and Group- B (control group, 25 patients). Post-operative evaluation was done on the basis of history and uroflowmetry. Retrograde urethrography and micturating cystourethrography were done only in patient who developed obstructive voiding problems or flow rate below 10 ml/second. Follow up was done at regular interval on 7th day, 3rd month and 6th month. Post-operative outcomes were

compared between two groups. Post-operative infection was significantly higher among those OIU with intralesional Triamcinolone acetonide injection (8%) than patients without intralesional Triamcinolone acetonide injection (4%). Per operative extravasations of urine were significantly higher among those without intralesional Triamcinolone acetonide injection (4%) than subjects with intralesional Triamcinolone acetonide injection. Extravasation not influenced by steroid but this patient subsequently suffered recurrence of stricture. In Group-A, pre and post-operative Q-max were 10.25 ± 2.21 and 22.11 ± 2.96 ml/sec respectively. In Group-B, pre and post-operative follow up Q-max were 10.37 ± 2.55 and 19.54 ± 2.65 ml/sec respectively. In Group-A, pre and post-operative voiding time was 85.20 ± 4.20 and 27.10 ± 3.36 sec respectively. In Group-B, pre and post-operative follow up voiding time were 86.37 ± 4.55 and 31.45 ± 2.55 sec respectively. Post-operative recurrences of stricture were significantly higher among those without intralesional Triamcinolone acetonide injection (24%) than subjects with intralesional Triamcinolone acetonide injection (12%). Post-operative it seems that triamcinolone injection after OIU is safe method to prevent the recurrence of urethral stricture

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Keywords: Optical Internal Urethrotomy, Triamcinolone Injection, Urethral Stricture

INTRODUCTION

The urethral stricture is one of the most known urological diseases and remains with high morbidity refers to scarring process involving the spongy erectile tissue of corpus spongiosum which leads to decrease in caliber of the urethral lumen causing voiding complaints such as weak stream and incomplete emptying. The natural history of the disease usually begins with a of the urethral mucosa and infection followed by scar. Stricture can develop any part of urethra from the prostatic urethra to the meatus.¹

A stricture urethra is caused by trauma infection and instrumentation and with noninfectious inflammatory condition like lichen sclerosus. Different type of Trauma represents a very significant etiology of urethral stricture among them saddle trauma is most common.² Saddle

injuries typically occur during work, bicycle riding, and sports. Overall trauma causes 9.6-36.1% of stricture urethra.^{2,3,4}

Inflammatory strictures secondary to gonorrhea infection were the most commonly seen in the past are less common now due to increasing awareness about sexually transmitted diseases among people. Infectious urethritis is now responsible for only a small proportion of cases.⁵ However, in many cases of anterior urethral stricture disease, the etiology remains unknown.⁶

Urethral stricture disease has always been a challenge for urologists. Many different treatment modalities are available for the treatment of urethral stricture such as dilatation, urethrotomy, stent placement single or two-stage urethroplasty, end to end anastomotic urethroplasty and substitution urethroplasty. However in clinical practice internal urethrotomy is an easy procedure and is offered as a first time procedure, but the long-term results are inferior to urethroplasty. The major problem with assessing the success rates of internal urethrotomy is that the nature of the strictures that have been treated with internal urethrotomy has been poorly reported. In addition, the literature is not clear regarding the goal of internal urethrotomy. Therefore, in many cases, internal-urethrotomy has been reported as successful despite the fact that it has been associated with eventual stricture recurrences. Endoscopic treatment is usually advocated before various forms of urethroplasty are contemplated. Visual internal urethrotomy is simple and safe, causes minimum inconvenience to the patient and requires a short time off work.⁷

With epithelial apposition, wound healing occurs by primary intention. Internal urethrotomy does not provide an epithelial approximation but rather aims to separate the scarred epithelium so that healing occurs secondarily.⁷

Injection of steroids at the site of urethrotomy ostensibly prevents scar formation by inhibiting collagen synthesis, increase endogenous collagenase production, and reduces levels of collagenase inhibitors.⁹ Intralesional triamcinolone injection was proposed by Hebert for the first time.⁸

Optical internal urethrotomy with intralesional triamcinolone injection is a safe and effective, minimally invasive therapeutic modality for anterior urethral strictures.⁷ The addition of triamcinolone injection to optical internal urethrotomy site is easy and low cost procedure.⁹ This procedure has significantly reduced the stricture recurrence rate after internal urethrotomy.¹⁰

Outcome of Intralesional Triamcinolone after OIU does not depend on ages, duration of symptoms or location of stricture. Stricture length, preoperative positive urine culture, previous urethroplasty, neurogenic bladder and history of systemic or immune disease have an important bearing on outcome. For curative and long term effects, this technique deserves to be tested on a large group of patients with special emphasis on objective verification of safety and efficacy profile. Since its introduction in 1976, optical urethrotomy has been considered standard therapy for anterior urethral stricture. Recently the effectiveness of this technique has questioned.¹⁰ Because of low curative rate several techniques have been used to oppose the process of wound contraction and to prevent stricture recurrence such as indwelling Foley catheter, home clean intermittent self-catheterization etc. Unfortunately, these methods have several complications and often stricture inevitably recurs unless the procedure is continued indefinitely.

Triamcinolone acetonide used in my study as a potent anti-inflammatory hydrocortisone. This study is aimed to evaluate the efficacy of triamcinolone injection in preventing anterior urethral stricture recurrence after internal urethrotomy as well as we longitudinally time interval between urethrotomy and the recurrence of stricture was observed.

The result of this research helps us to evaluate the outcome optical internal urethrotomy in combination with intralesional triamcinolone injection and the optical internal urethrotomy alone and to evaluate the recurrence rates after this treatment and also looked the interval between urethrotomy and recurrence of urethral stricture.

In Bangladesh, there is no statistically proven data about the incidence and etiology of the urethral stricture but this group of patients create large crowd in urological centers and day to day urological practice. So effective and appropriate modality should be offered to the patient to reduce the patients suffering and cost.

MATERIALS AND METHODS

A total of 50 male Patients who admitted in Department of Urology, DMCH with short anterior urethral stricture (10 mm) and length of stricture urethra more than 10 mm, previous unsuccessful attempts of urethroplasty, history of urethral dilatation for stricture urethra, neurogenic bladder, history of systemic immune disease, traumatic urethral stricture, and multiple strictures were excluded from this study.

Due to time limitation and financial constraint only 50 cases were selected during study period. 50 Patients were divided into two groups, Group A: (n=25) OIU with intralesional triamcinolone acetonide injection and Group B: (n=25) OIU without intralesional Triamcinolone acetonide injection.

Before proceeding to operative procedure, proper and detail counseling was done with the patients regarding the operative procedure, possible complications, care of catheter, postoperative follow up and investigations. Informed written consent taken from the patients for operation, for anesthesia, and record and study purpose. A total of 50 patients with symptomatic anterior urethral stricture were taken by purposive sampling technique in department of urology Dhaka medical college hospital, they were divided into Group-A (n=25, experiment) and Group-B (n=25, control). The study was approved by the Department of urology Dhaka medical college hospital and BCPS. Informed consent was taken from the patients before enrolment in the study. Patients with completely obliterated urethral stricture were excluded from the study. Patients presenting for the first time for treatment were referred to as primary, whereas those who had undergone some procedure for the treatment of stricture prior to reporting to us were referred to as secondary. Diagnosis of urethral stricture was made on the basis of clinical history, uroflowmetry, and retrograde urethrography. The procedure was done under general or regional anesthesia. The procedure performed with the patient in the lithotomy position under spinal anesthesia. By means of urethrotome with a zero -degree lens, the stricture opening is visualized and a 0.035 inch guidewire is passed through the opening into the bladder. Saline irrigation is utilized to prevent inflammation from the extensive amount of extravasation of irrigation fluid. All patients received antibiotic prophylaxis preoperatively. Optical internal urethrotomy was done in usual manner using cold knife at 12 o'clock position were made through stricture site. In this manner, only fibrous tissue was incised. The incisions were continued until a 20 Fr urethral catheter could pass through the stricture site into the bladder. Triamcinolone acetonide was prepared by 40mg in 5-10ml of normal saline and was injected intralesionally at the site of urethrotomy using William's endoscopic needle. At the two edge of incision site 1-2ml was injected. After confirming free passage of cystoscope into the bladder, an 18Fr Foley catheter was left in place for 4 days. Broad

spectrum antibiotics were administered during perioperative period and continued till first follow up. Some photographs are shown below highlighting the procedure.

Post procedure evaluation was done on the basis of history and uroflowmetry. Retrograde urethrography and micturating cystourethrography were done only if patient developed obstructive voiding problems or flow rate below 10 ml/second. Follow up was done at regular interval of 7 days, 3 months and 6 months. Any symptoms pertaining to recurrence were noted as reduced stream of urine, retention of urine, and burning micturition.

Demographic information was prospectively. Information included the subject's age, gender, medical qualifications. The gathered data was cross-checked and incomplete questionnaire was discarded. Data was analyzed from 50 completely answered questionnaires by SPSS (Ver. 20; IBM). Data was presented by means of tables and diagrams.

All patients were followed up for at least for six months by history regarding fever, dysuria, urinary stream, post micturition dribbling, sense of incomplete evacuation, and examination of external genitalia (penis, urethra, scrotum, testes, to exclude any purulent discharge and direct observation of urine flow), suprapubic area, both loin, and systemic examination when necessary.

During first follow up at 7th day after removal of penile catheter all patients followed up with Ultrasonogram of KUB with PVR, Uroflowmetry. During second follow up at 3rd month all patients went to Ultrasonogram of KUB with PVR, Uroflowmetry, RGU & MCU when $Q_{max} < 15 \text{ ml/sec}$. at the time of 6 month, all patients went to final follow up with Ultrasonogram of KUB with PVR, RGU & MCU when $Q_{max} < 15 \text{ ml/sec}$ and Urethroscopy if narrow urethra in RGU & MCU.

All data were recorded systematically in preformed data collection form and quantitative data was expressed as mean and standard deviation and qualitative data was expressed as frequency distribution and percentage.

RESULTS

Total of 50 patients with bulbar urethral stricture age from 32-46 years were included in this study according to the selection criteria. Patients were divided into two groups, Group A: OIU with intralesional Triamcinolone acetonide injection and Group B: OIU without intralesional Triamcinolone acetonide injection. All the

subjects were age matched. All the subjects had bulbar urethral stricture. Pre-operative and postoperative data were collected and analyzed.

Majority of the respondents were in between 36 to 40 (38%) followed by 26% between 35 and below and 41-45 age respectively among the 50 respondents. Only 10% respondents were age between 46 and above.

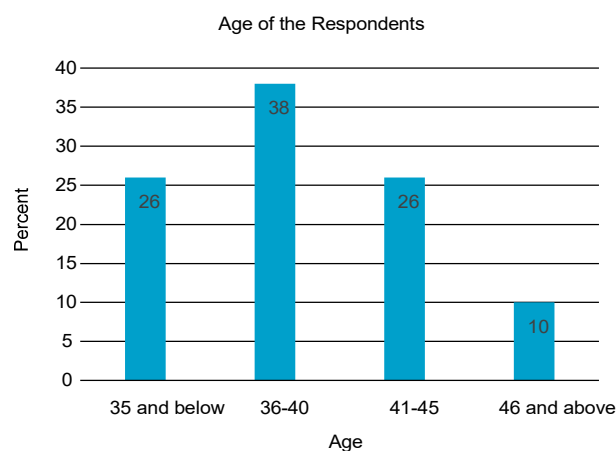


Figure-1: Age of the respondents

The mean age of group-A and Group-B was 39.92 ± 6.13 and 40.01 ± 5.99 years respectively. There was no significant difference of mean age between the groups ($p > 0.05$).

Table- I: Age of the respondents (in years)

Age range	Group- A (n=25)		Group- B (n=25)		p value
	No	%	No	%	
35 and below	06	24.00	07	28.00	0.748
36-40	09	36.00	10	40.00	
41-45	07	28.00	06	24.00	
46 and above	03	12.00	02	08.00	
Mean±SD	39.92±6.13		40.01±5.99		

Student's t-test was used to analyze the data.

Group A: OIU with intralesional Triamcinolone acetonide injection

Group B: OIU without intralesional Triamcinolone acetonide injection

Pre-operative mean Q-max of Group-A and Group-B were 10.25 ± 2.21 and 10.37 ± 2.55 ml/sec respectively. After 6 months post-operative mean Q-max of Group-A and Group-B were 22.11 ± 2.96 and 19.54 ± 2.65 ml/sec respectively.

Table II: Comparison of Q-max (ml/sec) between two groups at 3 months.

	Number of patients	Q-max (ml/sec)	Mean \pm SD	p-value
Group A n=25	10	23	22.25 \pm 1.15	0.045
	8	22		
	6	25		
Group B n=25	1	13	20.25 \pm 1.10	
	10	22		
	7	20		
	5	23		
	3	12		

Table III: Comparison of Q-max (ml/sec) between two groups at 6 months.

	Number of patients	Q-max (ml/sec)	Mean ± SD	p-value
Group A n=25	10	22	22.11±2.96	0.042
	7	24		
	5	25		
	3	13		
Group B n=25	10	22	19.54±2.65	
	5	24		
	4	21		
	3	12		
	3	10		

Student's t-test was used to analyze data and were presented as mean \pm SD.

Group A: OIU with intralesional Triamcinolone acetonide injection

Group B: OIU without intralesional Triamcinolone acetonide injection

Pre-operative mean voiding time of Group-A and Group-B were 85.20 ± 4.20 sec and 86.37 ± 4.55 sec respectively. After 6 months post-operative mean voiding time of Group-A and Group-B were 26.18 ± 2.25 sec and 35.45 ± 2.55 sec respectively and voiding time in group-B was significantly higher than group-A.

Table IV: Comparison of voiding time (in sec) between two groups at 3 months.

	Number of patients	Voiding time (in sec)	Mean \pm SD	p-value	
Group A n=25	10	25	25.28 \pm	0.042	
	8	24	2.15		
	6	23			
	1	50			
Group B n=25	10	25	29.28 \pm		
	7	26	2.25		
	5	24			
	3	60			

Table V: Comparison of voiding time (in sec) between two groups at 6 months

	Number of patients	Voiding time (in sec)	Mean \pm SD	p-value
Group A n=25	10	22	26.18 \pm 2.25	0.038
	7	19		
	5	23		
	3	25		
Group B n=25	10	25	35.45 \pm 2.55	
	5	28		
	4	24		
	3	65		
	3	70		

Student's t-test was used to analyze the data.

Group A: OIU with intralesional Triamcinolone acetonide injection

Group B: OIU without intralesional Triamcinolone acetonide injection

Post-operative recurrences of stricture were significantly higher among those without intralesional Triamcinolone acetonide injection (24%) than subjects with intralesional Triamcinolone acetonide injection (12%).

Table VI: Comparison of rate of stricture recurrence between two groups on RGU and MCU findings at 3 months:

	RGU and MCU findings			Rate %(n)	p-value
	Normal(n)	Stricture(n)	Length(mm)		
Group A n=25	24	01	9 \pm 00	04% (01)	0.018
Group B n=25	21	03	8 \pm 1.80	12% (03)	

Table VII: Comparison of rate of stricture recurrence between two groups on RGU and MCU findings at 6 months:

	RGU and MCU findings			Rate % (n)	p-value
	Normal(n)	Stricture(n)	Length(mm)		
Group A n=25	22	03	9 \pm 1.10	12%	0.021
Group B n=25	19	06	11 \pm 1.20	24%	

Chi square test was used to analyze data and were presented as mean \pm SD.

Group A: OIU with intralesional Triamcinolone acetonide injection

Group B: OIU without intralesional Triamcinolone acetonide injection

Post-operative UTI was significantly higher among those OIU with intralesional Triamcinolone acetonide injection (8%) than subjects with OIU without intralesional Triamcinolone acetonide injection (4%). Prophylactic antibiotic continued upto first follow up and there were no UTI patients found at

that follow up. There are different complications occur during OIU like Haemorrhage, extravasation of urinespongio-cavernosal fistula, erectile dysfunction, penile pain, paraesthesia of the glans penis and incontinence but these but these but these are not influence by steroid.

Table VIII: Comparison of post-operative UTI between two groups at 3 months

	UTI	Rate, %(n)	p-value
Group A, n=25	02	08% (2)	0.012
Group B, n=25	00	00% (0)	

Table IX: Comparison of post-operative UTI between two groups at 6 months

	UTI	Rate, %(n)	p-value
Group A, n=25	02	08% (2)	0.016
Group B, n=25	01	04% (0)	

Chi square test was used to analyze the data.

DISCUSSION

Total of 50 patients with bulbar urethral stricture age from 32-46 years were included in this study according to the selection criteria. All patients were not given CISC advice and kept the catheter for four days. Patients were divided into two groups, Group A: OIU with intralesional triamcinolone acetonide injection and Group B: OIU without intralesional triamcinolone acetonide injection. All the subjects were age matched. All the subjects had bulbar urethral stricture. The mean age of group-A and Group-B was 39.92 ± 6.13 and 40.01 ± 5.99 years respectively. There was no significant difference of mean age between the groups ($p > 0.05$). In previous study Kumar et al, (2014) observed that median age at presentation of anterior urethral stricture was 47 years (17–80 years).

In present study post-operative infection was significantly higher among those OIU with intralesional Triamcinolone acetonides injection (8%) than subjects with OIU without intralesional Triamcinolone acetonide injection (4%). Per operative extravasations of urine were significantly higher among those without intralesional Triamcinolone acetonide injection (4%) than subjects with intralesional Triamcinolone acetonide injection but this result not influenced by steroid. Tabassi et al.¹¹ observed that in the experimental group with intralesion Triamcinolone acetonide, 1 (2.94%), 3 (8.82%), and 2 (5.8%) patients developed infection, bleeding, and extravasation, respectively. In the control group, infection, bleeding, and extravasation occurred in 2 (5.55%), 3 (8.33%), and 2 (5.55%) patients, respectively.

Current study also revealed that in Group-A, pre and post-operative Q-max were 10.25 ± 2.21 and 22.11 ± 2.96 ml/sec respectively. In Group-B, pre and post-operative follow up Q-max were 10.37 ± 2.55 and 19.54 ± 2.65 ml/sec respectively. Time interval of recurrence among group-A and group-B 4.64 ± 1.35 and 3.15 ± 1.85 respectively. Tabassi et al.¹¹ observed that time to recurrence decreased significantly in experimental group (8.08 ± 5.55 versus 3.6 ± 1.59 months) ($p < 0.05$).

In this present study post-operative recurrences of stricture were significantly higher among those without intralesional Triamcinolone acetonide injection (24%) than subjects with intralesional Triamcinolone acetonide injection (12%) which was statistically significant ($p < 0.05$). In a study by Kumar et al.¹² 2014 overall recurrence rate after OIU with TA was 19.4% (20 out of 103 patients). Mazdak et al.⁶ 2009 reported study on 25 patients treated by internal urethrotomy and intraurethral submucosal triamcinolone injection. Recurrence was seen in 5 out of 24 patients (21.7%) and among 21 patients treated only by internal urethrotomy recurrence was seen in 11 patients (50%).

Korhonen and colleagues reported transurethral injection of steroid for treatment of urethral strictures. Of 38 patients, 21 underwent internal urethrotomy while 17 patients received triamcinolone injection after internal urethrotomy. Urethrotomy was done at 12 o'clock position and catheter was removed one day after the surgery. Recurrence rate was 71% in patients who underwent internal urethrotomy and 61% in those who received triamcinolone. Similarly, Ishigooka et al.¹³ mentioned that the recurrence rate was only 4.4% in short stricture (1 cm or shorter), while it was 42.9% in longer strictures.

Tabassi et al.¹¹ studied 70 patients of urethral stricture who were treated with internal urethrotomy and intraurethral triamcinolone injection. Recurrence was noted in 12 patients out of 34 and in 15 patients out of 36 in control group. Recurrence rate was lower in experimental group but the difference did not reach statistical significant (35.3% versus 41.7%) ($P = .584$). Hradec et al.¹⁴ observed in case series that patients treated by urethrotomy without corticoid injection the rate of recurrent stricture was 19.4%. Using a specially constructed needle for injection of triamcinolone acetonide, the recurrence rate was reduced to 4.3%.

However, in this study, the difference between recurrence rates was statistically significant. Considering that we did not use clean intermittent self-catheterization, the

similarity of the results in these two studies suggests that triamcinolone injection during internal urethrotomy combined with a urethral catheterization program may decrease the recurrence rate significantly. In this study, we measured recurrence rate, Q-max and voiding time.

CONCLUSIONS

OIU combined with intralesional injection significantly reduced the strictures recurrence rate and able to delay the onset of recurrence by inhibit collagen synthesis, increase endogenous collagenase production, and reduces levels of collagenase inhibitors. One of the limitations of the present study is related to the timing of the outcome evaluation. The present study has a post-operative follow up period of only 6 months, which is a relatively short period. Magnetic resonance urethrography and ultrasonography should have done to delineate the length of fibrosis more accurately which could help to plan operative procedure more precisely. But we were unable to do so because of unavailability of the facility in the study place.

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Original Article

Surgical Outcome of Hundred Vesico Vaginal Fistula Patients in National Fistula Centre

*Akhter S¹, Mahbuba M², Yusuf NA³, Munirunnessa⁴, Rosy N⁵**Abstract:**

Vesico-vaginal fistula (VVF) is still a major global health problem. This study was performed to detect the surgical outcome of 100 VVF patients in National Fistula Centre. A descriptive cross sectional study was carried out among 100 VVF patients fulfilling the inclusion criteria admitted in the National Fistula Centre under the department of Obstetrics and Gynaecology during the study period of April, 2017 to September, 2017. During the period, 100 patients presented for surgical repair at a mean age of 28.7 years (SD7.1). Majority of them (49%) had a parity of one and 57% were less than 20 years old at the time of their first pregnancy. About 83% of women developed VVF following prolonged obstructed labour. Most of the fistula (95%) repaired through vaginal route by flap splitting technique and 73% repaired at 1st time. Recovery of most of the patient (75%) was uneventful. Inadequate post-operative care (26.9%) was the major causes of unsuccessful repair. Obstetric fistula is one of the tragedies of third world countries and it would be better solved by providing surgical procedure and easy access of all women to competent obstetrical care, irrespective of their social and economic status during pregnancy and delivery.

Keyword: Vesico-vaginal fistula (VVF), Surgery, Outcome

INTRODUCTION

Urogenital fistula represents a major global health problem, responsible for significant physical, social and

psychological morbidity.¹ Vesico-vaginal fistula is the most common type. A vesico-vaginal fistula (VVF) is an abnormal fistulous tract between the bladder and vagina, causing continuous dribbling of urine via the vagina.² Vesico-vaginal fistula results mainly from obstetrical and gynaecological causes. It is mostly caused by child birth in developing countries like Bangladesh when a woman with prolonged obstructed labour is delivered by unskilled birth attendant, no emergency obstetric care (EOC), lack of proper obstetric management, adolescent pregnancy and repeated child birth.¹ It can also be associated with complicated hysterectomy, following cancer operation, radiation therapy and during cone biopsy.³ Radiation treatment for pelvic cancer can lead to fistula formation as reported in 1.4% to 5.2% of post-radiation hysterectomies.² Focal injuries to the genitourinary tract during hysterectomy and caesarean section causes VVF. Additional causes of vesico-vaginal fistula are congenital abnormalities, infection, trauma and foreign bodies but these are relatively rare.¹

The exact magnitude of VVF worldwide is unknown. The world health organization (WHO) estimates that the prevalence of obstetric fistula is 0.3% of all deliveries.^{1,4} However the WHO estimated that over 20 million women are living with this condition with 50,000 to 100,000 new cases per annum.⁵ This is attributed to poverty, illiteracy, ignorance and poor obstetric services. In low resourced countries (LRC), VVF most often results following neglected prolonged obstructed labour. In contrast, urogenital fistula are relatively uncommon in well resourced countries (WRC). In LRC, while between 30,000 and 1,30,000 new fistulas developed annually⁶. In Bangladesh, UNFPA (United Nation Population Fund) and Engender Health report finds that the number of women living with fistula is estimated to be 1.69 per 1000 ever married women.⁷ According to this report women living with fistula in Bangladesh are usually in the age group of 15-30 years, illiterate, poor and unaware that treatment is available, or cannot access or afford it. To date, very few concerted efforts have been undertaken to address

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the fistula issue.⁵ In Bangladesh 8,00,000 to 10,00,000 women are estimated to be awaiting repair.⁷

The outcome of VVF repair depends on many factors like site, size, number of fistula, bladder capacity and amount of scarring etc. Other associated responsible factor includes good preoperative assessment and care, timing of operation, effective post operative care and lastly expertise of the surgeon.⁷

MATERIALS AND METHOD

This descriptive cross sectional study was carried out in the National Fistula Centre, Department of Obstetrics and Gynaecology of Dhaka Medical College and Hospital, Dhaka, during the period of April 2017 to September 2017. The criteria for inclusion were diagnosed as a case of VVF and patient willing to participate in the study. Detailed medical and obstetric history was taken and thorough examination was done and all the information were recorded in the pre-designed data collection sheet. The information recorded on the sheet was based on detailed history taking by interviewing the patients and attendants, proper clinical examination (sometimes examination under anesthesia), type and location of fistula, methods and attempts of repair that included socio-demographic data, post operative complications and results of operations. All the information and data were systematically recorded and were analyzed by SPSS version 23 and was shown in the tabulated form. The quantitative data were expressed in frequency and mean \pm SD and the qualitative data were expressed in frequency and percentage. This study was approved by the Ethical committee of the Dhaka medical college.

RESULTS

Table I is showing that, 100 patients presented for surgical repair at a mean age of 28.7 years (SD 7.1). Forty-nine had a parity of one, and 57 were less than 20 years old at the time of their first pregnancy. Thirty-nine experienced incontinence for one to five years at the time of presentation, with 15 women suffering incontinence for longer than five years.

Table II shows that based on complexity of fistula, more than half (53%) were simple (up to 3cm). Depending on the location of the fistula, 48% were at juxta-cervical region and 25% were mid vaginal. Sub-symphysial fistula was 15% and juxta-urethral was 12%.

Table I: Socio-demographic characteristics of the VVF patients

Patient characteristic	Frequency (n=100)
Age at presentation (years)	
11-15	12
16-20	4
21-25	55
26-30	7
31-35	5
36-40	7
41-45	3
>45	7
mean (SD)	28.7(7.2)
Education:	
no education	56
Primary	23
Secondary	12
Higher Secondary	9
Marital status:	
Married	48
Divorcee	32
Separated	18
Widow	2
Parity:	
1	49
2-5	35
>5	16
Mode	1
Age at first pregnancy (years)	
10-19	57
20-29	35
30-39	8
Mean (SD)	19.5(3.1)
Duration of incontinence	
<3 months	17
3 months-1 year	29
1-5 year	39
>5 year	15
Mean (SD)	2.6(4.1) years

Table II: Types of fistula

Types	Frequency	Percentage
Based on complexity:		
Simple up to 3 cm	53	53%
Complicated >3cm	47	47%
Depending on the site of fistula		
Juxta-cervical (vault fistula)	48	48%
Mid Vaginal	25	25%
Juxta urethral	12	12%
Subsymphyseal	15	15%

Table III: causes of fistula

Causes of fistula	Frequency
Obstructed labour	83
Instrumental delivery	10
Caesarean section	3
Hysterectomy	2
Trauma	1
Others	2

Table III is showing the causes of VVF in the 100 patients. Among these commonest causes of fistula is obstructed labour (83%).

Table IV: Routes of repair of VVF

Routes of repair	Frequency	Percentage
Trans-vaginal	95	95
Flap splitting method	90	
Saucerization	1	
Colpocleisis	2	
Repair by graft	2	
Trans-abdominal	4	4
Trans-vesicle	4	
Trans-peritoneal	0	
Combined-abdominal-vaginal	1	1

Table IV is showing that most of the fistulas were repaired through vaginal route by flap splitting technique and only 4% were repaired abdominally (Trans-vesicle approach).

Table V: Distribution of patients according to attempts of repair (n=100)

Number of attempts	No. of patients	Percentage
1st	74	74
2nd	21	21
3rd	3	3
4th	2	2
Total	100	100

Table V shows that, out of 100 patients, 74% were repaired at 1st time, 21% were repaired at 2nd attempt and 3% were at 3rd attempt. Only 2% repaired at 4th attempt.

Table VI: Functional outcome among the successfully repaired patients of VVF (n=73)

Functional outcome	Frequency	Percentage
No dribbling	66	90.41
Stress incontinence	7	9.59
Mild	5	
Severe	2	
Total	73	100%

Table- VI showing that, out of 73 successfully repaired patient, 90.54% was really dry, rest 9.46% had mild to severe incontinence.

Table- VII: post-operative complications

Complications	Number of patients
Blocked catheter	5
Catheter leakage	7
Hemorrhage	2
UTI	5
Pyrexia	4
Wound infection	2
None	75
Total	100

Table- VII shows recovery of most of the patients (75%) were uneventful, catheter leakage(7%), blocked catheter (5%), hemorrhage(2%), UTI(5%), pyrexia(4%), wound infection(2%)were the leading complications.

Table- VIII: Outcome of repair

Outcome	No. of patients	Percentage
Successful	73	73%
Unsuccessful	27	27%
Total	100%	100%

Table- VIII: Causes of unsuccessful repair

Causes of unsuccessful repair	No. of patients -26	Percentage
Drop out	13	50%
❖ After 1ST attempt	3	11.53%
❖ After another attempt	10	38.46%
Inadequate post-operative care	7	26.9%
Operative Failure	6	23.07%
Total	26	100%

Table- VIII, among the 100 patients, seventy three cases of VVF was repaired successfully. The rate of unsuccessful operation was 27%.

Table- VIII is showing the causes of unsuccessful VVF repairs. Out of 26 unsuccessful repair drops out were 50%. Inadequate post-operative care was in 26.9% and operative failure was in 23.07% of the cases.

Table IX: Duration of hospital stay

Duration	Frequency
<1 month	68
>1 month	32

Table IX is showing that 68% patients stayed less than 1 month in the Hospital.

DISCUSSION

In this descriptive cross-sectional study, 100 VVF cases were included. Out of the 100 patients presented for surgical repair at a mean age of 28.7 years. In the present study 49% of VVF patients had a parity of one, and 57% were less than 20 years old at the time of their first pregnancy. 39% experienced incontinence for one to five years at the time of presentation, with 15% suffering from incontinence for longer than five years. This findings are almost similar to a study carried out at Kumudini Women's Medical College Hospital in 2011 by Begum². Based on the complexity of fistula, there was no such huge difference between the prevalence of simple (up to >3cm) and complicated (<3cm) fistula which was 53% and 47% respectively. These findings are quite similar with a study done by Humaira in DMCH in 2003⁹. Prevalence of complicated fistulas were found quite similar to simple fistula in DMCH may be due to DMCH is the highest

referral center for VVF patients. Most of the difficult complicated and large sized fistulas are referred to DMCH. Based on the location, 48% were at Juxtra-cervical region which is more than the previous studies done at Kumudini Womens Medical college Hospital in 2011² and DMCH in 2003.⁹ Eighty three percent women with VVF had the features of obstructed labour. This findings are inconsistent with that of done by Humaira⁹ and Begum.² About 66.6% of the cases of VVF were found due to obstructed labour in a study done in 2013 by Mazher.⁸ Many international studies have also labeled obstetrical trauma to be the major cause of VVF in under developed countries.^{5,6,7} Most of the fistulas (95%) were repaired through vaginal route by flap splitting Technique. This findings are similar to the previous findings in DMCH.⁹ Predominance of vaginal route was found also in other countries.¹⁰ Out of 74 successfully repaired patients, 66% were really dry, no dribbling of urine detected. This is also in accordance with other studies carried out in our country.² Recovery of most of the patients (75%) were uneventful⁹. The rate of unsuccessful operation is 26 among 100 patients. Drop out rate was 50%. Inadequate post-operative care was one of the major causes of unsuccessful repair (26.9%). Present finding varies from another study carried out at DMCH done by Humaira where post operative mismanagement were found in 33%.⁹

CONCLUSIONS

This study clearly analyzed the outcome of repair of vesico-vaginal fistula. Most of the cases had successful repair in DMCH. The study population was selected from one selected hospital in Dhaka city, so that the result of the study may not represent the whole population. More training and skill of surgeons for repair of fistulas, employing modified techniques wherever applicable can improve the result. Post-operative mismanagement and catheter problem can be minimized to get maximum successful outcome of repair. Obstructed labour is the

major causes of VVF in the study which indicates the poor antenatal and intranatal care in Bangladesh. Though concerted action, in our country, we can prevent fistula though proper treatment, who are still suffering from fistula. Increase awareness about VVF and knowledge how to prevent it and treatment providing in tertiary level hospital through government and non government organization should be encouraged.

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Original Article

Aspartate Aminotransferase (AST) is a good Predictor of NAFLD Activity Score (NAS) for Diagnosing Non- alcoholic Steatohepatitis (NASH)Alam SMN¹, *Das DC², Alam S³, Mohsena M⁴, Mahtab MA⁵**Abstract**

Nonalcoholic fatty liver disease (NAFLD) is a metabolic disorder characterized by excessive triglyceride accumulation in hepatocytes. NAFLD has a multifactorial etiology and a combination of environmental, genetic and metabolic factors play a role in the development of advanced disease. NAFLD consists of a wide spectrum of conditions, ranging from simple steatosis to nonalcoholic steatohepatitis (NASH) which can progress to cirrhosis and hepatocellular carcinoma (HCC). Despite the high prevalence and severity of hepatic illness, NAFLD remains underdiagnosed, because of few symptoms, lack of accurate laboratory markers. The accurate diagnosis of NASH remains dependent on specific histological parameters in liver biopsy. Although liver biopsy remains the 'gold standard', there are practical limitations, including costs and risks. There is an increasing requirement for simple, less invasive, highly accurate and affordable screening tools. Aspartate aminotransferase (AST) has been proposed as a noninvasive and available marker for assessment of NASH. A hospital based observational study was carried out for a period of two years in the Department of Hepatology, Bangabandhu Sheikh Mujib Medical University, Dhaka, Bangladesh. Data were analyzed by SPSS version 16. Qualitative and quantitative data were analyzed by Chi-square test and

student's t-test respectively. Fifty (50) patients were analysed. Twenty five were NASH and twenty five were non- NASH. AST in NASH group were 55.2 ± 30.1 IU/L and in Non-NASH group were 33.6 ± 20 IU/L. In NASH group significantly higher percentage of raised AST had NASH compared with normal AST (68% vs.32%). There was significant difference in the NAFLD activity score for diagnosing NASH between elevated and normal AST (P value 0.004). Higher AST values correlated with higher specificity. By multivariate analysis AST were found to be significant. Thus Aspartate aminotransferase (AST) is a good predictor for diagnosing non- alcoholic steatohepatitis (NASH).

Keywords: Nonalcoholic fatty liver disease (NAFLD), Aspartate aminotransferase (AST), NAFLD activity score (NAS), Non- alcoholic Steatohepatitis (NASH).

INTRODUCTION

Nonalcoholic fatty liver disease (NAFLD) is a metabolic disorder characterized by excessive triglyceride accumulation in hepatocytes.¹ NAFLD has a multifactorial etiology and a combination of environmental, genetic and metabolic factors play a role in the development of advanced disease. NAFLD is an acquired metabolic stress-induced liver disease associated with insulin resistance (IR) and genetic susceptibility, sharing histological similarities with alcoholic liver disease (ALD) in the absence of substantial alcohol consumption or other causes of liver disease.² Two broad types are recognized-simple steatosis is typically stable while non-alcoholic steatohepatitis (NASH) is characterized by significant cell injury and the potential for progression to cirrhosis.³ NAFLD consists of a wide spectrum of conditions, ranging from simple steatosis to nonalcoholic steatohepatitis (NASH) which can progress to cirrhosis and hepatocellular carcinoma (HCC).⁴ Fatty liver may be diagnosed if liver echogenicity exceeds that of renal cortex and spleen and there is attenuation of the ultrasound wave, loss of definition of the diaphragm,

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and poor delineation of the intrahepatic architecture. However this finding is not specific and cannot be used to diagnose NASH. Its sensitivity range from 60-100% and its specificity from 77-95% in detecting fatty infiltration of the liver.⁵ A complete diagnosis of fatty liver disease ideally should define the histology, including the stage and grade of the disease as well as its etiology.

ALT is a marker of hepatic steatosis or hepatitis⁶ and NASH has been associated with slight elevation of liver enzymes.⁷ Patients typically present with asymptomatic serum aminotransferase elevations of 2-3 times the normal.⁸ This was also explored by Pulzi et al 2011⁹, where majority had mild elevation but less than 5 times upper normal limit and exists in all degree of NAFLD. But Alam et al 2013 showed serum alanine aminotransferase levels were not able to predict NASH.¹⁰

The AST/ALT ratio is approximately 0.8 in normal subjects. The AST is greater than the ALT in alcoholic hepatitis and a ratio greater than 2:1 is highly suggestive of this disorder. A ratio >1.0 may also suggest the presence of cirrhosis in patients with chronic viral hepatitis.¹¹

NASH has been associated with slight elevation of liver enzymes mostly ALT and Gamma-glutamyl transferase (GGT).⁷ Excess deposition of fat in the liver is associated with an elevated serum GGT and insulin resistance.¹² An increased GGT level is a risk factor for advanced fibrosis in NAFLD¹³ and with weight loss, a decrease in GGT activity is predictive of improved lobular inflammation and fibrosis of liver.

AST is a hepatic transaminase that plays a role in diagnosis of steatohepatitis. Up to 3.6% of people in the United States have asymptomatic increase in AST.¹⁴ In Asian studies, AST is considered as an independent marker for severity of hepatic fibrosis if it is at least twice as much as the maximum normal value.¹⁵

Liver biopsy remains the 'gold standard' for the diagnosis of NASH, which allows us to differentiate simple steatosis from NASH.¹⁶ There are practical limitations, including costs and risk. Importantly longer cores are needed for accurate fibrosis staging.¹⁶

The aspartate aminotransferase (AST) has been proposed as a noninvasive and available marker for assessment of NASH.

MATERIAL AND METHODS

It was a hospital based observational study. The study was carried out for a period of 2 years in Department of Hepatology, Bangabandhu Sheikh Mujib Medical University (BSMMU), Dhaka, Bangladesh. Patients of NAFLD attending at Hepatology department were selected as study population. We took fifty NAFLD patients for biochemical parameters, liver biopsy and NAS score evaluation in considering the exclusion and inclusion criteria. NAS score was constructed according to Kleiner et al. (2005) with steatosis (0-3), lobular inflammation (0-3), hepatocellular ballooning (0-2), and a separate fibrosis staging (0-4). The proposed NAS was the sum of steatosis, lobular inflammation, and hepatocellular ballooning. NAS is a strong scoring system. NAS of greater than or equal to 5 correlated with diagnosing of NASH and biopsy with scoring of 1 to 4 were diagnosed as NNFL (Non-NASH fatty liver). Patient's inclusion criteria were ultrasonographical evidence of fatty liver and patients from 18 to 60 years. Exclusion criteria were significant alcohol intake, viral hepatitis (HBV, HCV), Wilson's disease, autoimmune liver diseases, hereditary haemochromatosis, primary biliary cirrhosis, cirrhosis of liver, pregnancy, co-morbid conditions (COPD, CRF, cardiac failure), hypothyroidism, consumption of drugs causing fatty change in liver (steroid, oral contraceptive pill, tamoxifen, amiodarone, diltiazem, protease inhibitor). In AASLD Practice guideline 2018, significant alcohol consumption be defined as >21 standard drinks per week in men and >14 standard drinks per week in women over 2 years period preceding baseline liver histology. Liver biopsy was done in indoor of department of Hepatology, BSMMU by Trucut liver biopsy needle 14 F 15cm. Tissue processed in Department of Pathology, BSMMU by standard protocol in automatic tissue processor (BAVIMED 2050, BAVIMED laborgeneratebau GmbH, Birkeau, Germany). Processed tissue than properly embedded on melted paraffin for making blocks and sections. The sections were stained with haematoxylin and eosin for microscopic examination. Histology report was done by Professor Mohammad Kamal, Chairman, Department of Pathology, BSMMU.

After receiving liver biopsy report they were grouped as NASH and Non-NASH. Consecutive 25 NASH patient and 25 Non-NASH patient confirmed by liver biopsy were included in this study. All data were presented as mean \pm SD & analyzed by SPSS (version 16). Qualitative data were analyzed by Chi-square test & quantitative data

were analyzed by student's t-test. Performance of the test were assessed by sensitivity and specificity test. Statistically significant result were considered when p value < 0.05.

Ethical consideration

Ethical clearance for the study was taken from the Institutional Review Board of BSMMU prior to the commencement of this study.

RESULTS

Fifty (50) patients were analysed. Twenty five were NASH and twenty five were Non- NASH. Overall, twenty eight (56%) had normal AST. AST in NASH group were 55.2 ± 30.1 IU/L and in Non-NASH group were 33.6 ± 20 IU/L.

Table- 1: Distribution of the study patients by baseline characteristics (n=50)

Variables	Mean \pm SD	Min-Max
Age (years)	40.8 \pm 9.2	25.0-60.0
Weight (kg)	64.5 \pm 9.2	45.0-90.0
Height (cm)	158.4 \pm 8.6	145.0-182.0
BMI (kg/m ²)	25.7 \pm 4.0	18.2-36.5
Waist circumference (cm)	95.9 \pm 9.5	76.0-122.0
Systolic blood pressure (mm of Hg)	129.2 \pm 14.6	100.0-160.0
Diastolic blood pressure (mm of Hg)	80.6 \pm 7.0	70.0-100.0
Platelet count ($\times 10^9$ /L)	315.4 \pm 69.6	130.0-500.0
Fasting blood sugar (mmol/L)	6.2 \pm 2.6	3.7-15.3
2HABF (mmol/L)	9.5 \pm 4.4	5.1-24.7
Total cholesterol (mg/dl)	205.0 \pm 44.8	118.0-329.0
LDL (mg/dl)	122.8 \pm 39.2	42.0-212.0
HDL (mg/dl)	38.7 \pm 9.3	21.0-63.0
TG (mg/dl)	215.9 \pm 107.4	58.0-441.0
AST (U/L)	44.4 \pm 28.2	19.0-124.0
ALT (U/L)	76.2 \pm 47.4	19.0-259.0
AST/ALT	0.6 \pm 0.2	0.3-1.5
HOMA-IR	2.4 \pm 1.7	0.4-8.5
GGT (U/L)	61.7 \pm 41.4	12.0-209.0
Serum ferritin (μ gm/L)	121.4 \pm 101.6	14.2-573.2

Table-II: Clinical and laboratory characteristics of study patients in two group (n=50)

Variables	NASH (n=25) Mean \pm SD	Non-NASH (n=25) Mean \pm SD	P value
Age (years)	41.8 \pm 10.7	39.7 \pm 7.5	0.425ns
Weight (kg)	65.6 \pm 8.6	63.3 \pm 9.7	0.444ns
Height (cm)	159.2 \pm 9.1	157.7 \pm 8.3	0.545ns
BMI (kg/m ²)	26.0 \pm 3.9	25.5 \pm 4.0	0.656ns
Waist circumference (cm)	97.9 \pm 9.0	93.9 \pm 9.8	0.139ns
Systolic blood pressure (mm of Hg)	129.8 \pm 16.9	128.6 \pm 12.2	0.774ns
Diastolic blood pressure (mm of Hg)	80.2 \pm 7.8	81.0 \pm 6.1	0.688ns
Platelet count ($\times 10^9$ /L)	303.1 \pm 68.7	327.8 \pm 66.8	0.203ns
FBS (mmol/L)	6.6 \pm 2.8	5.9 \pm 2.2	0.330ns
2HABF (mmol/L)	10.0 \pm 4.2	9.1 \pm 4.7	0.478ns
Total cholesterol (mg/dl)	210.0 \pm 48.7	199.9 \pm 38.4	0.419ns
LDL (mg/dl)	126.0 \pm 40.5	119.6 \pm 36.7	0.561ns
HDL (mg/dl)	40.7 \pm 9.1	36.6 \pm 8.9	0.113ns
TG (mg/dl)	209.0 \pm 95.9	222.8 \pm 116.2	0.649ns
AST (U/L)	55.2 \pm 30.1	33.6 \pm 20.0	0.004s
ALT (U/L)	97.0 \pm 51.5	55.5 \pm 28.6	0.001s
AST/ALT	0.6 \pm 0.2	0.7 \pm 0.3	0.171ns
HOMA-IR	2.4 \pm 1.9	2.3 \pm 1.6	0.841ns
GGT (U/L)	73.6 \pm 48.6	49.9 \pm 25.4	0.035s
Serum ferritin (μ gm/L)	139.4 \pm 124.5	103.5 \pm 69.9	0.214ns

In NASH group significantly higher percentage of raised AST had NASH compared with normal AST (68% vs.32%). In Non-NASH group 10% of elevated AST had no NASH. There was significant difference in the NAFLD activity score for diagnosing NASH between elevated and normal AST (P value 0.004). Higher AST values correlated with higher specificity. By multivariate analysis AST were found to be significant, revealed that AST more than normal have the best possibility of NASH.

AST of the study patients

Mean AST was found 55.2 ± 30.1 U/L in NASH group and 33.6 ± 20.0 U/L in Non- NASH group . The mean AST was statistically significant (p<0.05) between two groups.

Table-III : Distribution of the study patients according to AST (n=50)

AST (U/L)	NASH Group (n=25)		Non-NASH Group (n=25)		P value
	n	%	n	%	
≤37	8	32.0	20	80.0	
38-100	14	56.0	4	16.0	
>100	3	12.0	1	4.0	
Mean±SD	55.2± 30.1		33.6± 20.0		0.004s
Min-max	20.0 - 124.0		19.0 -121.0		

S = significant

Table-IV: Multivariate logistic regression analysis for association between AST, ALT, AST/ALT, GGT (n=50)

	B	S.E	df	P value	OR	95% CI for OR	
						Lower	Upper
AST (U/L)	1.800	1.118	1	0.018s	6.050	0.676	54.179
ALT (U/L)	0.285	1.025	1	0.781ns	1.330	0.178	9.916
AST/ALT ratio	-0.667	0.818	1	0.415ns	0.513	0.103	2.551
GGT (U/L)	-0.127	0.790	1	0.872ns	0.881	0.187	4.146
Constant	-0.679	0.492	1	0.167	0.507		

s=significant, ns=not significant.

A subject with AST >37 U/L had 6.05 (95% CI 0.676 to 54.179) times increase in odds having NASH. AST differences were significantly associated with NASH.

Table-V: Distribution of histological findings in NAFLD patients and AST level (n=50)

			Histological findings(NAS)		Total
			Non-NASH (1-4)	NASH (5 or more)	
AST level	Normal (<37)	n	20	9	29
		%	69.0%	31.0%	100.0%
	High (≥37)	n	5	16	21
		%	23.8%	76.2%	100.0%
Total		n	25	25	50
		%	50.0%	50.0%	100.0%

NAFLD activity score=NAS, Non-NASH= NAFLD activity score 1-4, NASH= NAFLD activity score 5 or more.

- Pearson correlation between histological findings in NAFLD activity score (NAS) and AST level is 0.365 which is statistically significant (P <0.01)
- Statistics (95% CI)
 Sensitivity =64.00% (42.52% to 82.03%)
 Specificity =80.00% (59.30% to 93.17%)
 Positive Predictive Value =76.19% (58.07% to 88.08%)
 Negative Predictive Value = 68.97 % (55.98% to 79.52%)
 Kappa =0.440, P < 0.005 which is statistically significant.

DISCUSSION

Non alcoholic fatty liver disease (NAFLD) is a clinico-pathological entity where fat (predominantly triglyceride) accumulates in liver without significant alcohol ingestion or ingestion of certain drugs observed by Adams et al 2009.¹⁷ It encompasses a spectrum of conditions ranging from simple steatosis to nonalcoholic steatohepatitis (NASH), fibrosis and end stage liver disease by Ludwig et al 1980.¹⁸ Hepatic steatosis is a manifestation of excessive triglyceride accumulation in the liver. The major sources of triglycerides are from fatty acids stored in adipose tissue and fatty acids newly made within the liver through denovo lipogenesis.¹⁹

Serum ALT level above the ULN (65 U/L) was present in 48% of NAFLD patients. Mean ALT differed significantly in NASH patients (97.0 ± 51.5 U/L NASH versus 55.5 ± 28.6 U/L in NNFL) (P value- 0.001). But in multivariate analysis serum ALT levels were not significant in NASH patient (P value-0.781, Table-4). Alam et al 2013 showed serum alanine aminotransferase levels were not able to predict NASH.¹⁰

AST to ALT ratio (AAR) is usually less than 1 in NAFLD patients.² AAR > 1 can be an independent risk factor for advanced fibrosis in NASH according to some studies.⁶ In our study, 92.0% patients presented with AAR ≤ 1 having no correlation (P=0.171) in diagnosing NASH.

The role of GGT, as a marker for disease severity and diagnostics is still obscure in NAFLD. Serum GGT ≥ 30 U/L is an adequate marker of NASH.⁹ Serum GGT level (male 15-85U/L, female 15-55 U/L) above the ULN was 32% in study population. Only 22% of NASH population presented with serum GGT above the ULN. Mean GGT was found 73.6 ± 48.6 U/L in NASH group and 49.9 ± 25.4 U/L in Non-NASH group. The mean GGT was statistically significant (P=0.035) between two group. But in multivariate analysis serum GGT levels were not statistically significant in NASH patient (P value-0.872, Table-IV).

Mean AST in NASH group was 55.2 ± 30.1 U/L, whereas 33.6 ± 20.0 U/L in NNFL group. Mean AST differed significantly in NASH patients (P value- 0.004). By multivariate analysis AST were found to be significant (P value-0.018, Table-4). AST more than 37U/L was present in 23.8% of NNFL and 76.2% of NASH patients. AST more than 37U/L had a sensitivity of 64%, specificity of 80%, positive predictive value =76.19% , negative predictive value = 68.97 % for diagnosing NASH. So it revealed that AST

more than normal limit have the good possibility of NASH. But Alam et al 2013 showed serum aspartate aminotransferase levels were not able to predict NASH¹⁰.

LIMITATION OF THE STUDY

The present study evaluated predictive values of serum AST and NAFLD activity score(NAS) to distinguish between nonalcoholic steatohepatitis (NASH) and non NASH fatty liver (NNFL) in patients with NAFLD. This study presents some limitations such as small number of patients (50 patient), they were not selected randomly and only selected those patients who attended OPD, so there may be selection bias. All patients were collected in this study from a single tertiary level hospital that may not represent general population of the country. So, current study suffered from lack of multi-centric different ethnic category of patients.

CONCLUSIONS

Aspartate aminotransferase (AST) level has the good predictive value for diagnosing NASH in NAFLD patients. We ,therefore propose the use of AST in NAFLD patients for the detection of NASH from Non- NASH.

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Case Report

Parkinson-Like Symptom as a Rare Manifestation of Systemic Lupus Erythematosus: A Case Report

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Abstract

A 65-year old Bangladeshi woman with Systemic Lupus Erythematosus (SLE) developed Parkinson-like movement disorder. Steroid pulse therapy followed by prednisolone was most effective in this case. Psychosis, seizure and meningitis are common central nervous system (CNS) manifestations in SLE patients, and Parkinson-like rigidity or tremors are rare.

Keywords: *Systemic Lupus Erythematosus, CNS lupus, Parkinson-like rigidity, Steroid pulse therapy.*

INTRODUCTION

Patients with SLE, CNS involvement may have varied presentations like headache, cognitive dysfunction, seizure, cerebrovascular disease, acute confusional state and psychiatric disturbance. Movement disorders like chorea, hemiballismus, cerebral ataxia and Parkinson-like rigidity or tremors are rare manifestations¹. We came across a woman with SLE and Parkinson-like symptoms, an extremely rare form of CNS lupus manifestation.

CASE REPORT

A 65-year old Bangladeshi woman with Diabetes Mellitus (DM) and Hypothyroidism was diagnosed as a case of SLE on the basis of polyarthritis, photosensitive malar rash, and alopecia, positive anti Nuclear Antibody (ANA) and anti ds DNA in 2009. She was treated with hydroxyl chloroquine

(HCQ), methotrexate (MTX) and prednisolone on a tapering course along with thyroxin. She improved with these medications. Later MTX was stopped due to haemolysis and azathioprine was added. At the same time, course of prednisolone was completed but the patient developed Jaccoud's like deformities in metacarpophalangeal joints of right hand and interphalangeal joints of right foot. She also developed Coombs' positive autoimmune haemolytic anemia. Subsequently she developed difficulty in walking, slowness of speech with behavioural alteration (like apathy, mutism and irritability), bradykinesia and rigidity. She was considered as a case of Parkinson Disease (PD) and put on Levodopa 150 mg along with Carbidopa 15 mg daily for four years. There was gradual progression of symptoms, there by Ropinirole was added but no improvement was seen. She had a single episode of convulsion in 2011. In 2012 she experienced low trauma fracture of neck of left femur and pulmonary embolism. She had no history of unconsciousness, nasal regurgitation, swallowing difficulties and bowel-bladder abnormalities.

She had mild splenomegaly (12.4cm), no ascites, GIT bleeding or sign of CLD. There were no abnormalities detected in heart and lungs. Her consciousness was clear. She had expressionless face with slow and monotonous speech. There was cogwheel and lead pipe rigidity of upper and lower limbs. Muscle power was 4/5 in both proximal and distal groups with diminished deep reflexes, equivocal plantar reflexes bilaterally with short step gait.

Laboratory examination showed haemoglobin 5.3gm/dl, CRP was 6, ANA and anti ds DNA were positive, liver function, renal function and urine R/E were within normal limits. Anti cardiolipinAb positive but Lupus anti-coagulant, β_2 Glycoprotein-1 IgM and IgG were negative. Vitamin D total was 32.1ng/ml. Rheumatoid factor, anti CCP, anti SmAb, anti SSA, Anti SSB, HBs Ag, anti HCV, ICT for Malaria and Kala azar, anti Mitochondrial Ab, Anti LKM Ab were negative. CT scan and MRI of the brain showed age related mild cortical atrophy and brain SPECT revealed hypo perfusion of fronto-parietal region and left basal ganglion.

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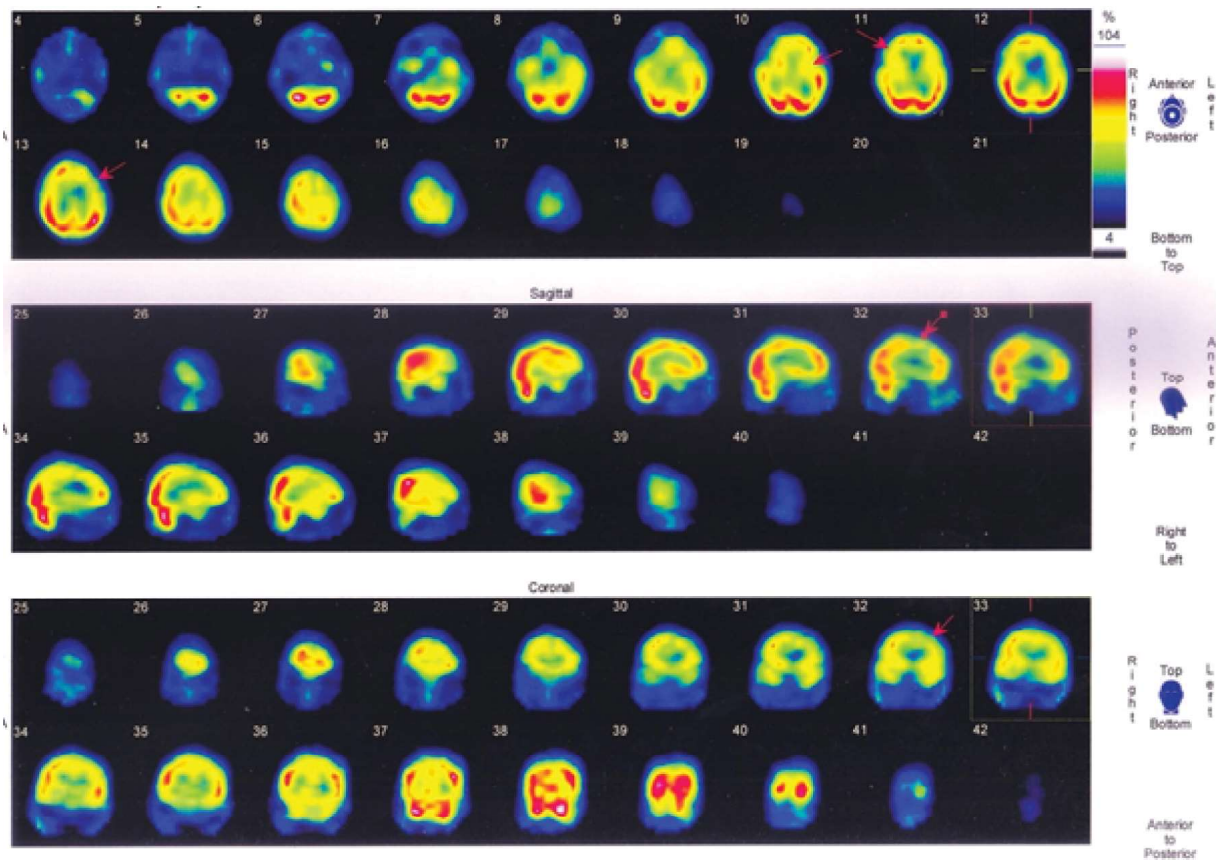


Fig 1: SPECT showing hypoperfusion of fronto-parietal region of both cortex (Right > Left) and basal ganglia (Left)

Diagnosis of CNS lupus with Parkinsonian-like symptoms was added, stopped all anti Parkinson drugs and steroid pulse therapy (800 mg Methylprednisolone daily for 3 days) was given, followed by 40 mg daily oral prednisolone. After steroid therapy along with pulse cyclophosphamide, there were improvement of rigidity, facies, Speech, walking and reduced aggressiveness of behavior. Finally she was discharged after one month of hospital course.

DISCUSSION

Our patient was initially diagnosed as a case of SLE on the basis of polyarthritis, photosensitive malar rash, alopecia, positive ANA and anti-ds DNA in 2009. Later she developed seizure, Jaccoud's-like joint deformities, rigidity, bradykinesia, expressionless facial features, slowness of speech with behavioral alteration (as irritability, aggressiveness, apathy, mutism). Other causes of secondary Parkinsonism was not considered as the patient had never been given responsible drugs and never exposed to toxic agent like CO or Manganese. Cranial CT and MRI scan showed only degenerative changes. Brain SPECT shows

hypo perfusion of fronto-parietal region and left basal ganglia. Anti-phospholipid antibodies like Anti-cardiolipin (aCL) Ab, lupus anti-Coagulant (LA) and β_2 glycoprotein-1 IgM were positive. Therefore, in this case, Parkinsonian like symptoms were considered to be manifestations of CNS lupus¹. After a high dose of methyl prednisolone pulse therapy, Parkinsonian-like symptoms were improved dramatically and all anti Parkinsonian drugs were withdrawn.

Seizures, mental disorders and cranial neuropathy are the more commonly observed symptoms of CNS lupus^{2, 3}. Chorea is also common as extrapyramidal involvement of SLE^{4,5}. In contrast, Parkinsonian-like symptoms are extremely rare⁶. Willoughby et al⁷ described a 30-year-old male SLE patient with cogwheel rigidity. Despite 40mg daily of prednisolone, complications due to meningitis and endocarditis followed and he died. Autopsy revealed multiple areas of encephalomalacia in the basal ganglia of the brain. In a study Yancey et al⁸, 2 out of 37 children with SLE had Parkinsonian-like symptoms and in one child had cogwheel rigidity. The clinical outcome was not

described. In another case, Parkinsonian-like symptoms and coma was developed in a 16-year-old girl; a nearly complete recovery was achieved. Although the authors did not describe how they had treated that particular patient, they favoured combination of high dose prednisolone (2mg/kg/day) and a cytotoxic agent as initial therapy of CNS lupus, and steroid pulse therapy for non responding patients. Nagaoka et al.⁹ reported SLE in a 35-year-old-woman with akinesia, muscle rigidity and expressionless facial features. Her Parkinsonian-like symptoms were controlled by 40mg daily methylprednisolone and anti-Parkinsonian drugs. For this patient, anti-Parkinsonian drugs were necessary since symptoms relapsed during the course of steroid-tapering when amantadine was discontinued. In our patient the Parkinsonian-like symptoms were improved dramatically after Methylprednisolone pulse therapy and the patient remained in clinical remission after discharge. In many cases, CNS lupus can be effectively treated with high dose corticosteroids including methylprednisolone pulse therapy¹⁰. About 25% of CNS lupus episodes are not responsive to steroid¹¹. In such cases, cyclophosphamide pulse therapy¹² and plasma exchange¹³ may be effective.

Although the putative pathogenic mechanism of CNS lupus includes vasculitis in the CNS¹⁴, functional disorder of nerve cells due to auto-antibodies against neuronal cells (eg. Anti-Asialo GMI Antibody¹⁵, Anti-Ribosomal P protein Antibody¹⁶, Anti-Neuronal cell Antibody¹⁷), and thrombi formation in the CNS by Anti-Phospholipid Antibodies¹⁸, precise mechanisms are yet to be defined.

CONCLUSIONS

We reported a rare case of SLE, in which Parkinsonian-like symptoms were noticed as manifestation of CNS lupus. The patient's symptoms were effectively managed with high dose prednisolone with anti Parkinsonian drugs ropinirole only.

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Case Report

Moyamoya Disease Presenting as Ischemic Stroke Following Hemorrhagic Stroke in a 46-year-old Man: A Case Report

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Abstract

Moyamoya is a rare cerebrovascular disease of unknown etiology. It can affect both children and adults. Ischemic symptoms are common in younger age while adults presents with intracranial hemorrhage. Cerebral ischemia after hemorrhage within a narrow time frame or simultaneous presentation with both hemorrhage and ischemia in the same clinical setting is a rare encounter. Diagnosis is confirmed by doing cerebral angiogram. Here, we report a case of 46-year-old man who presented with hemiparesis and imaging of brain showed ischaemic stroke initially and subsequently he also developed haemorrhagic stroke. Later, magnetic resonance imaging and digital subtraction angiogram of brain confirmed Moyamoya disease. He was managed conservatively with significant improvement of his hemiparesis.

Keywords: Moyamoya disease, cerebral infarction, hemorrhagic stroke

INTRODUCTION

Moyamoya disease is a chronic progressive and occlusive disorder of cerebral arteries which is characterized by angiogenesis where the brain attempts to compensate for ischemia by producing a local network of tiny blood vessels, which appear cloud-like on angiograms.¹

Moyamoya disease (MD) was first reported in Japan in 1957.² MD is frequently reported in East Asia where its

incidence is more than 10 times that in western countries.³

It has been found in all races with varying age distributions and clinical manifestations.⁴ Both children (aged 0-10 years) and adults (aged 30-40 years) are affected.⁴

Clinically, symptoms of brain ischemia are usually found in MD children, while transient or permanent brain infarction and intracranial hemorrhage are noted in MD adults.⁵ Presence of cerebral infarction along with parenchymal hemorrhage in adult with bleeding-type Moyamoya disease is reported rarely in literature.

We described the case of a 46-year-old gentleman having been diagnosed with moyamoya disease presented with brain ischemia after receiving initial diagnosis of intracerebral hemorrhage.

CASE REPORT

This 46-year-old hypertensive and newly diagnosed diabetic gentleman presented to the emergency department of Square Hospital Limited with the complaints of right sided weakness of both upper and lower limbs for 9 days. Weakness initially appeared over right upper limb which evolved into lower limb gradually. There was no distant history of head injury, altered sensorium or convulsion. He was non smoker and non alcoholic. There was no significant family history of such illness. His only medication of note included calcium channel blocker. General examination was notable for a high blood pressure that was 160/80 mmHg. His BMI was found to be 37 kg/m². Positive findings of neurological examination were confined to the right side revealing diminished tone, muscle power 3/5 over both upper and lower limbs, exaggerated tendon reflexes with extensor plantar response. All modalities of sensation were intact and he had no signs of cerebellar involvement. Immediate CT scan of head depicted left sided evolving hematoma at periventricular and capsuloganglionic region without midline shift. (Figure-1)

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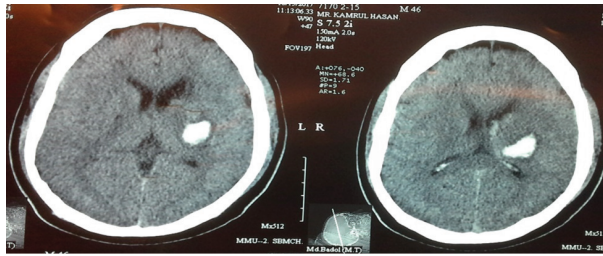


Figure-1: Haemorrhage in left sided capsuloganglionic region.

Preliminary blood workup showed no gross abnormality. Fundoscopic examination was insignificant. He was managed conservatively.

In the course of inpatient stay, the patient complained of visual disturbance. Subsequent visual field examination illustrated right sided homonymous hemianopia.

This newly appeared symptom prompted us to do follow up CT scan of Head which showed parieto-occipital-temporal lobes infarct (new lesion) along with evolving hematoma on left side. (Figure-2) Moreover there was compression over the left ventricle and 4.2mm midline shift to the right.

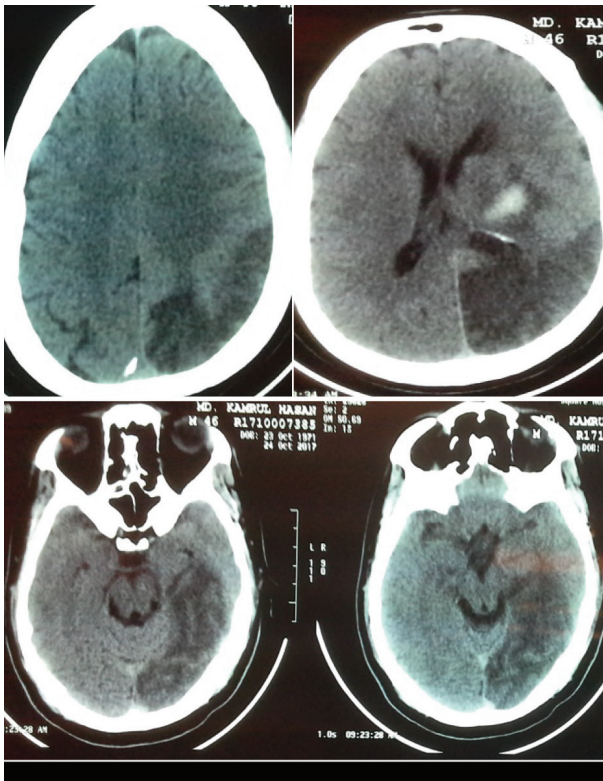


Figure-2: CT scan of head showing haemorrhage in left capsuloganglionic region and large infarction in left parieto-occipito-temporal region.

Subsequent MRI of brain revealed left sided large acute infarction as well. (figure-3)

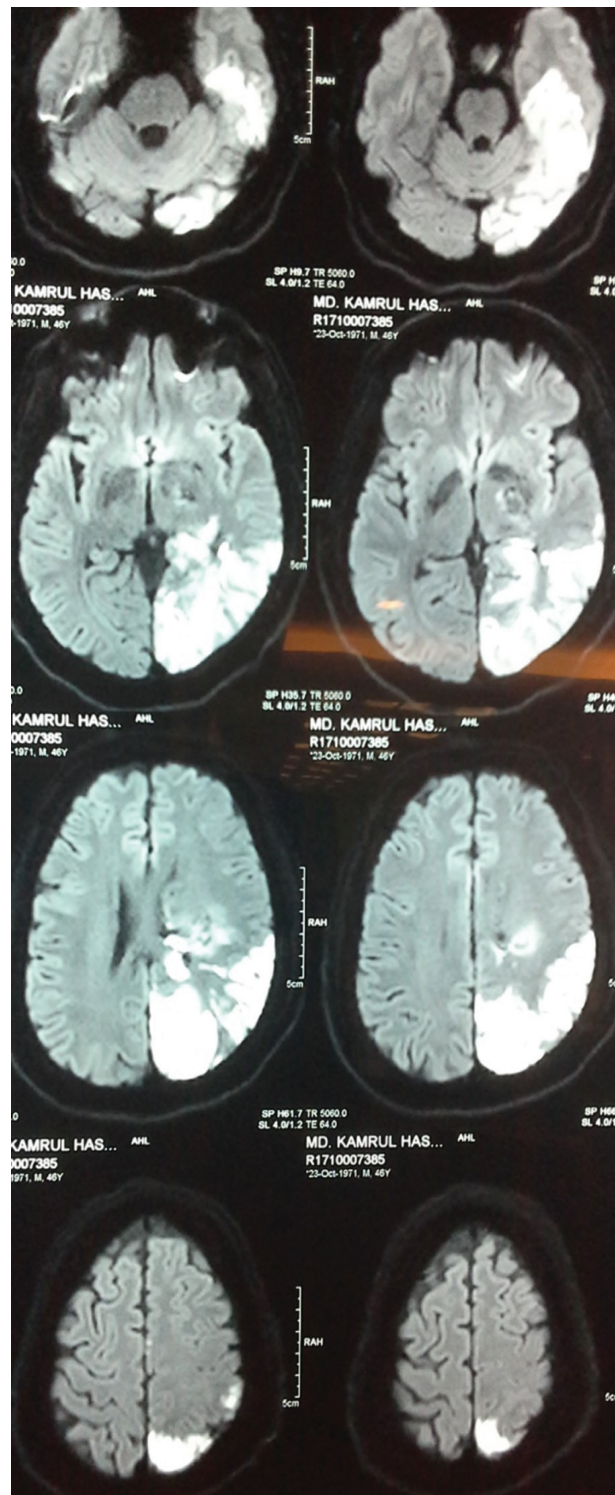


Figure-3: MRI of brain showing acute infarction in left parieto-occipito-temporal region.

To exclude any vascular abnormality, we planned to carry out MR angiography. MRA report strikingly demonstrated supraclenoid part of the left ICAs having severe stenosis with numerous enlarged basal collateral vessels giving puff of smoke appearance while MCAs are also poorly visualized which is suggestive of Moya Moya disease with hypoplastic both posterior communicating artery and right vertebral artery (Figure-4).

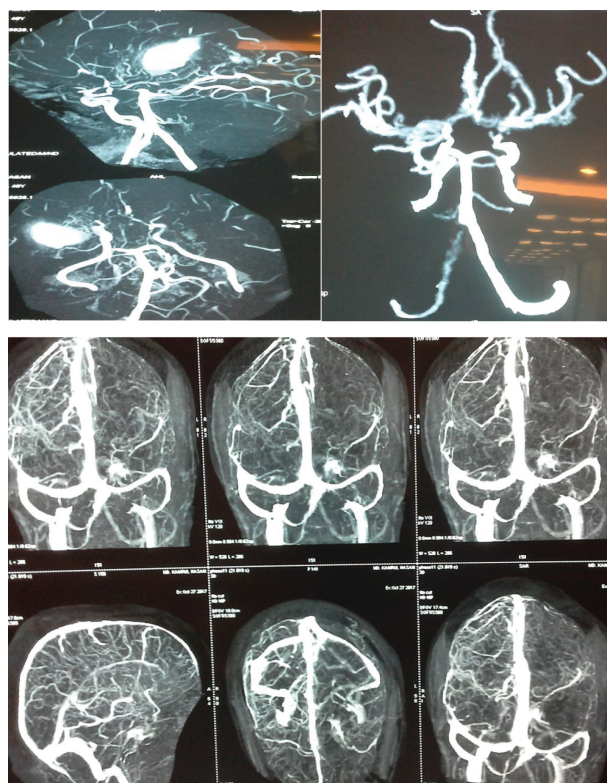


Figure-4: MRA of brain showing supraclenoid part of the left ICAs having severe stenosis with numerous enlarged basal collateral vessels giving puff of smoke appearance and MCAs are also poorly visualized.

Meanwhile within few days his right sided muscle power remarkably improved to 4/5 and visual clarity was restored to some extent. After that, CT angiogram with contrast was done which was evident of severe stenosis of supraclenoid portion of both internal carotid artery and MCA with incomplete circle of willis formation associated with abnormal vascular network in the vicinity of occlusion/stenosis- favouring Moyamoya disease. Both posterior communicating arteries and right vertebral artery were not visualized.

Eventually DSA was performed showing total occlusion of distal RICA, proximal MCA and near total occlusion of

ACA after RICA injection. Furthermore LICA injection revealed that there was total occlusion of distal LICA and proximal ACA and near total occlusion of proximal MCA. P1 of right PCA was dilated. From PCA, cortico-cortical anastomosis was formed to the area of right MCA. Final comment was suggestive of Moyamoya disease (Suzuki Grade 4).Neurosurgical opinion was taken about EC-IC bypass. The patient declined to do any intervention. He was discharged with conservative treatment and follow up visit showed significant improvement of his weakness nevertheless residual visual problem persisted. No noticeable deterioration was observed.

DISCUSSION

Moyamoya disease is a poorly understood occlusive disease involving large intracranial arteries, specially the distal internal carotid artery and the stem of the MCA and ACA. The lenticulostriate arteries develop a rich collateral circulation around the occlusive lesion which gives the impression of a 'puff of smoke' on conventional x-ray angiography. Other collaterals include transdural anastomoses between the cortical surface branches of the meningeal and scalp arteries.⁶

Moyamoya is a Japanese word for 'haze' it has been used to refer to an extensive basal cerebral rete mirabile- a network of small anastomotic vessel at the base of the brain around and distal to the circle of Willis seen in carotid angiogram associated with stenosis of intracranial arteries.⁷ The steno-occlusive areas are usually bilateral, but unilateral involvement does not exclude the diagnosis.⁸ Moyamoya is a rare disease with reported incidence of 0.086 per 100,000 population.⁹

Moyamoya was originally considered to affect predominantly persons of Asian heritage specially in Japan but has now been observed throughout the world. The incidence peaks lie within two age groups: children who are 5 years old and adults in their mid 40's.¹⁰ Our patient was a 46-year old man which coincided with the adult peak age group.

The disease is believed to be genetic. Certain associations like thyroid abnormalities, hemoglobinopathies, down syndrome are found with this clinical entity.⁸ Moyamoyadisease is categorized as either ischemic and hemorrhagic type or true mixed type. The clinical presentations and course differ with various age group. Adults experience intracranial hemorrhage including intracerebral hemorrhage (ICH), intraventricular

hemorrhage (IVH), and subarachnoid hemorrhage (SAH) more commonly; cerebral ischemic events like transient ischemic attack (TIAs), cerebral infarction are more common in children. Patient may remain asymptomatic as well.⁸

The risk of ischemic complications in patients with bleeding-type Moyamoya disease is poorly understood with a few cases reported, mainly in adults.¹¹ Our case was presented with large ischemic stroke on top of the acute phase of bleeding type moyamoya disease.

Breakdown of dilated lenticulostriate arteries may produce parenchymal hemorrhage and progressive occlusion of large surface arteries can occur, producing large-artery distribution strokes.⁶ It is assumed that similar incidence happened in our case. Bleeding in the periventricular and capsuloganglionic region could be due to rupture of dilated lenticulostriate arteries. In addition, hypertension may be a contributing factor. The mechanism of ischemia may be varied in each individual patient.¹² The effects of ICH on cerebral hemodynamics are increased ICP. Raised ICP may cause ischemia.¹³ Even administration of hyperosmolar drug for reduction of ICP sometimes results in dehydration.¹⁴

Hypotension, dehydration and even vasospasm in patients with ICH may cause irreversible cerebral ischemia in Moyamoya disease as cerebral hemodynamic conditions may be critical after ICH. The risk factors for progression to cerebral ischemia are complex and cerebral hemodynamics are difficult to maintain in the acute phase of bleeding type of Moyamoya disease.¹²

No clinical features of raised ICP, dehydration were observed in our patient. Patient was hemodynamically stable throughout the clinical course following intracerebral bleed. There was no midline shift or features of cerebral edema in the initial CT scan as well. So it is difficult to draw conclusion regarding exact mechanism behind ischemia. Total occlusion of distal LICA and proximal ACA and near total occlusion of proximal MCA seen on DSA might be responsible for large artery territory ischemic stroke.

The Suzuki staging system for moyamoya disease refers to findings on conventional angiography. According to the Suzuki classification system, MD was graded as I to VI. Moreover, grade I and II was defined as early stage, grade III and IV as intermediate stage and V and VI as late stage. The incidence of grade IV and V MD in hemorrhagic MD was higher than in ischemic MD.¹⁵

DSA findings of our case are consistent with the stage 4 disease.

Conventional angiography is the gold standard for both the diagnosis and surgical planning for patients with suspected moyamoya disease.⁶ Medical treatment is far from satisfactory. Revascularization procedures are gaining importance as a primary treatment for Moyamoya.¹⁶ Employment of surgical intervention depends on patient's condition.

CONCLUSIONS

The simultaneous findings of intracerebral bleeding and ischemia in the CT scan of Head should lead us to think about moyamoya disease. It is a less common clinical presentation but not rare.

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Obituary News January-2019

BMA would like to express deep condolence on deaths of the following notable physicians in recent past:

SL.No	Name	Age	Name of District	Date of Death
1	Dr. Iqbal Hossain	78	Comilla	09/10/2018
2	Dr. Fazlur Rahman	93	Patuakhali	27/10/2018
3	Dr. Mahtab Uddin Hasan	61	Chittagong	12/10/2019
4	Dr. Akhter Jahan Rumpa	28	Sylhet	Not Known
5	Dr.Md. Masum Khan	34	Sylhet	”
6	Col.Dr. Sagir (Rtd.)	52	Not Known	”
7	Abdul Haque Talukdar Father of Dr. Zahurul Huq Sachchu Member, Executive Committee (BMA)	Not Known	”	”

May Allah bless the departed souls. Our heartiest commiseration to the deceased's family, our prayers are with them during this difficult moment of their life.

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