

MEDICINE today

a professional medical journal

VOL. 32

NO. 02

July 2020

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Published two times a year
in January and July

www.banglajol.info/index.php/MEDTOADY
Enlisted in BanglaJOL/AsiaJOL
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Medicine Today is a Professional Medical Journal Recognised by Bangladesh Medical & Dental Council (BMDC). It is a peer-reviewed journal published two times a year in January and July by print and electronic forms.

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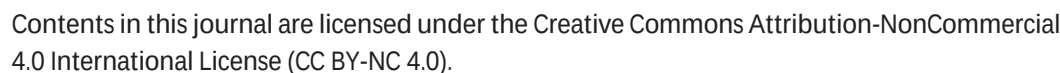
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Production Editing: Medical Services Department, Biopharma Ltd.
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Subscription information:

Journal of Medicine Today ISSN 1810-1828 published by the Dr. Lokiat Ullah, Executive Director, BIOPHARMA LTD. two times a year in January and July.

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Parasympathetic Nerve Function Status in Major Depressive Disorder Patients and Its Correlation with Duration of Disease

Choudhury Rifat Jahan ^{*1}, Md. Moyeen Uddin ², Md. Samir Uddin ³,
Misbah Ul Hoq Chowdury ⁴, Wajeunnesa ⁵, Mahmuda Quamrun Naher ⁶

Abstract

Introduction: Cardiovascular (CV) morbidity is a major problem in patients suffering from depression. Greater CV mortality is found in cardiac patients with depression than without depression. Depressive disorder can cause altered autonomic nerve function. This study design to assess autonomic nerve function activity by heart rate variability analysis in patients with major depressive disorder and its correlation with duration of disease. **Materials and Methods:** This case study was conducted in the Department of Physiology, Bangabandhu Sheikh Mujib Medical University (BSMMU), Shahbag, Dhaka in 2011. 60 patients of both sexes with major depressive disorder (MDD) aged from 20-50 years were included in the study group (Group B). The patients were selected from out and inpatient Department of Psychiatry in Bangabandhu Sheikh Mujib Medical University (BSMMU). Group B were divided into B-1 consisting of 30 drug naive MDD patients & B-2 consisting of 30 medicated MDD patients. For comparison age and sex matched 30 apparently healthy subjects (Group A) were also studied. The HRV parameters were recorded by 4 active channels, Polyrite-D machine. For statistical analysis ANOVA, independent sample t-test, chi-square test and Pearson's correlation coefficient test were performed by using SPSS for windows version-16 as applicable. **Results:** Mean resting pulse rate, mean heart rate, systolic blood pressure were significantly higher in drug naive and medicated MDD patients in comparison with that of healthy control. Mean R-R interval, Max/Min R-R interval, SDNN, RMSSD, PNN50%, NN50% were significantly lower in this groups of patients. Correlation analysis showed negative correlations of SDNN, RMSSD, PNN50%, NN50% with disease duration which was statistically significant only for SDNN. **Conclusion:** Sympathovagal imbalance may occur in both drug naive and medicated MDD patients which is associated with higher sympathetic and lower vagal modulation of the heart rate. In addition, parasympathetic nerve function parameters show negative relationship with the duration of disease.

Keywords: HRV, MDD, SDNN, RMSSD.

Number of Tables: 02; Number of Figures: 04; Number of References: 19; Number of Correspondences: 03.

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Introduction

Depression is one of the most common disorders that present with depressed mood, sadness, indifference, apathy or irritability and is usually associated with changes in sleep patterns, appetite and weight, motor agitation or retardation, fatigue, impaired concentration and decision making, feeling of guilt and thoughts of death or dying¹. Depression is one of the leading causes of disability and global burden of disease². About 14.4 million people of United States are believed to suffer from Depression. Women are affected 2 to 3 times more often than men¹. The prevalence of depression in Bangladesh is 2.9% for males and 11.6% in females and the male-female ratio is 1:2.63³. Depression is multi factorial in origin. It has been observed that there is a genetic predisposition to depression especially in its early onset. Depressive episodes are often triggered by stressful life events⁴. The epidemiological study found greater cardiovascular mortality in cardiac patients with depression than without depression because of altered Autonomic nervous system (ANS) activity in depressive disorders⁵. ANS modulates the electrical and contractile activity of the myocardium through the involvement of sympathetic and parasympathetic outflow. ANS alteration includes increased sympathetic and reduced vagal activity which is strongly involved in the pathophysiology of arrhythmogenesis, sudden cardiac death, myocardial infarction, congestive cardiac failure and diabetic neuropathy⁶.

Heart rate variability (HRV) is a sensitive non invasive method used to study intrinsic cardiac autonomic activity as well as sympathovagal balance between cardiac sympathetic and parasympathetic activity⁷. Time domain variables of HRV such as include mean R-R interval and mean heart rate, the standard deviation of the NN interval (SDNN), the square root of the mean squared difference of successive NN interval (RMSSD), NN50% and PNN50% in general reflect cardiac vagal activity⁷. Lower Mean R-R interval and higher heart rate were observed in MDD patients compared to that of healthy control⁸⁻¹³. Whereas some investigators reported lower heart rate in MDD patients in comparison to controls¹⁴. Because of conflicts in result this study aimed to evaluate the impact of depression on cardiac autonomic nerve function by measuring time domain variable of HRV in MDD patient and relation of these parameter with disease duration.

Materials and Methods

This cross sectional study was carried out to observe the HRV by time domain method in 60 major depressive patients (group B) with age ranged from 20-50 years in the Department of Physiology, Bangabandhu Sheikh Mujib Medical University (BSMMU) from 1st January to 31st December 2011. For comparison 30 age and sex matched healthy subjects (Group- A) were also studied. MDD patients were further subdivided according to treatment into B-1 drug naive MDD patients, B-2 treated MDD patients. The patients were selected from the Department of Psychiatry, BSMMU and the controls were selected from community of Dhaka city. All the subjects were free from heart disease, hypertension, diabetes mellitus, chronic kidney disease, psychic disorders, and smoking. After selection, informed written consent was taken from them. Then the subject was interviewed and detail history regarding personal history, drug history, past medical history was taken to exclude exclusion criteria. Then thorough physical examinations and anthropometric measurement including height, weight, BMI were recorded in a prefixed questionnaire. The subject was kept in complete bed rest in supine position for 15-20 minutes in a cool and calm environment. During this period subject was advised not to talk, eat or drink and also not to perform physical or any mental activity, even sleep. Then all preparations for recording of the Heart rate variability parameters were made by connecting the channels of ECG and 5 minutes recording was taken in supine position. Data were obtained by software analysis of the power spectral band of the HRV. Data were expressed as mean $\pm$ SE. As test of significance one way ANOVA, chi square test, student's unpaired t-test, Pearson's correlation coefficient test were employed as applicable.

Results

In drug naive and treated MDD patients the mean resting pulse rate, SBP & DBP were significantly ($p < 0.001$) higher in comparison to control. No difference in these parameters were found between drug naive and treated patients (Table-I). Mean values of R-R interval SDNN, RMSSD, NN50%, PNN50% were significantly ($p < 0.001$) lower but mean heart rate was ($p < 0.001$) higher in MDD patients in both drug naive and medicated patient than control. Again, no significance difference were observed when compared all these parameters between two groups of patients (Table II). Correlation analysis showed significant negative correlation between SDNN and duration of depression in study group (Figure 1). This study also showed negative correlation of RMSSD (Figure 2), PNN50% (Figure 3) NN50% (Figure 4) with duration of disease in study group.

Table-I: Resting Pulse rate and BP in different groups (n=90).

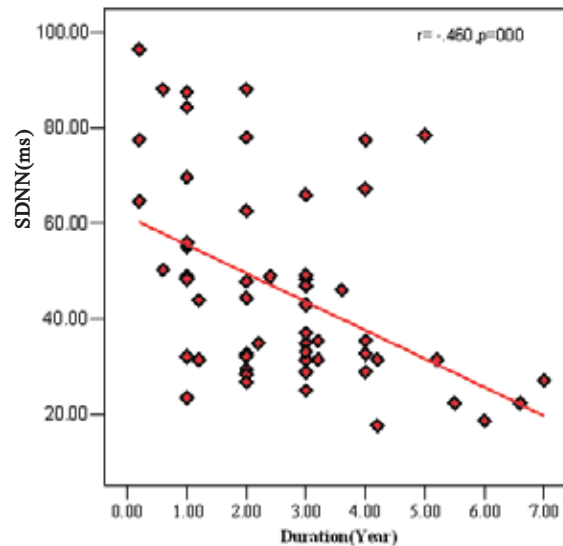
Variables	Control (n=30)	Drug naive MDD (n=30)	Treated MDD (n=30)
Pulse (beat/min)	74 $\pm$ 1.42 (60-90)	86 $\pm$ 1.25*** (70-100)	85 $\pm$ 1.17*** (72-98)
SBP (mm of Hg)	112 $\pm$ 1.91 (95-135)	122 $\pm$ 1.77*** (100-135)	120 $\pm$ 2.00*** (100-140)
DBP (mm of Hg)	70 $\pm$ 1.49 (60-90)	76 $\pm$ 1.27** (60-90)	74 $\pm$ 1.16ns (60-85)

Data were expressed as Mean $\pm$ SE. Statistical analysis were done by One-way ANOVA^a and Independent sample t-test^b. *** = $p < 0.001$ ** = $p < 0.01$, ns = non significant ($p > 0.05$) control vs patients.

Table-II: Time domain measures of HRV in different groups (n=90).

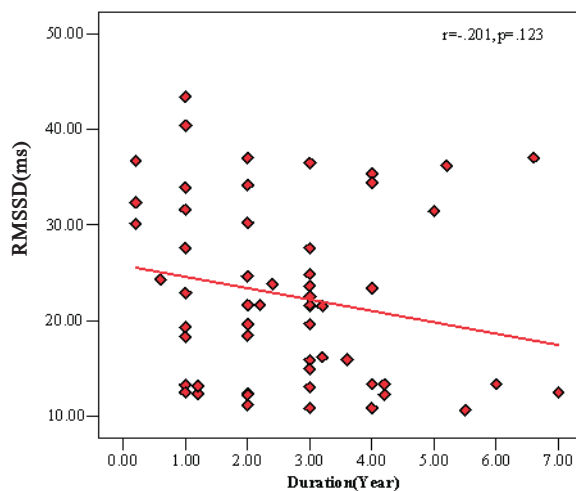
Groups	Control (n=30)	Drug naive MDD (n=30)	Treated MDD (n=30)
Mean heart rate (beat/min)	76 $\pm$ 1.17 (65-88)	87 $\pm$ 2.29*** (62-110)	86 $\pm$ 1.81*** (68-100)
Mean R-R interval(sec)	0.79 $\pm$ 0.01 (0.68-0.91)	0.71 $\pm$ 0.02** (0.55-0.97)	0.71 $\pm$.01*** (0.60-0.88)
SDNN (ms)	77.28 $\pm$ 2.59 (47.4-97.4)	47.22 $\pm$ 3.88*** (22.3-96.49)	44.54 $\pm$ 3.59*** (17.51-87.47)
RMSSD (ms)	34.30 $\pm$ 0.8 (22.54-40.23)	21.35 $\pm$ 2.05*** (10.65-40.39)	24.08 $\pm$ 2.27*** (12.26-43.44)
NN50 (%)	72 $\pm$ 5.44 (20-138)	34 $\pm$ 6.6*** (1-153)	23 $\pm$ 5.5*** (1-123)
PNN50 (%)	23.0 $\pm$ 2.48 (7.9-50.4)	10.2 $\pm$ 2.18*** (0.02-28.4)	11.49 $\pm$ 1.39** (0.9-28.8)

Data were expressed as Mean $\pm$ SE. Statistical analysis were done by One-way ANOVA^a and Independent sample t-test^b. ms= millisecond. *** = $p < 0.001$ ** = $p < 0.01$, ns = non significant ($p > 0.05$) control vs patients.



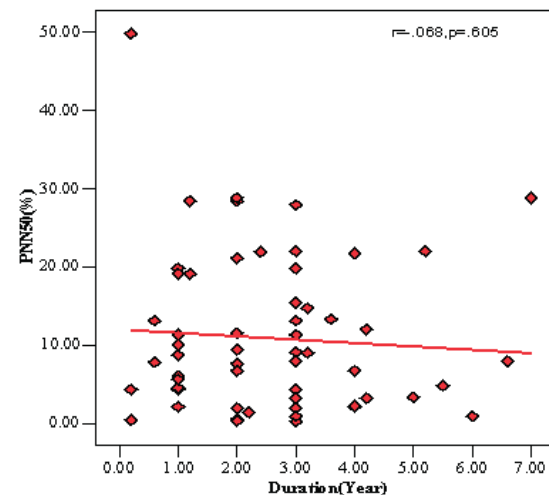
Statistical analysis was done by Pearson's correlation-coefficient (r) test.
SDNN: Standard deviation of NN interval

Figure 1: Correlation of SDNN with duration of disease.



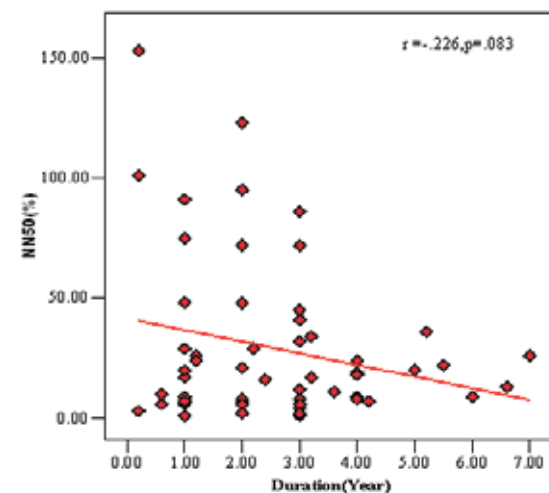
RMSSD: Square root of mean squared differences between adjacent NN intervals

Figure 2: Correlation of RMSSD with duration of disease



PNN50%: number of R-R interval differing by > 50 ms from adjacent interval divided by the total number of all R-R interval

Figure 3: Correlation of PNN50% with duration of disease



NN50%: = number of interval differences of successive NN intervals greater than 50 m

Figure 4: Correlation of NN50% with duration of disease

Discussion

In the present study, the time domain parameters of HRV in patients with Major Depressive Disorder were analyzed to access their cardiac autonomic activity and the effect of treatment with anti depressive medication. In addition to HRV resting pulse rate, systolic blood pressure (SBP) and diastolic blood pressure (DBP) were also recorded. Moreover correlations of some parameters of HRV with duration of disease were also studied in order to observe any change with duration. In this study the resting pulse rate, SBP, DBP were significantly higher in both drug naive and medicated MDD patients. DBP was higher but not statistically significant in treated patients when compared with control. These findings consistent to some researchers⁸, whereas opposite results were reported by some other groups^{9,15}.

Significantly higher mean heart rate, lower mean R-R interval SDNN, RMSSD, PNN50%, NN50% were found in all MDD patients compared to control. Several investigators reported similar results^{8-13,15,16}. Again some researchers found similar trends but it was not statistically significant^{8,14,17}. In the present analysis no significant difference in HRV parameters were found between drug naive and treated patients of MDD. In the present study significant negative correlation of SDNN with disease duration suggest strong relationship between altered vagal activity with duration of disease. RMSSD, NN50% and PNN50% also showed negative correlations with disease duration. All the relationships were statistically not significant. The observation of present analysis suggest that cardiac vagal tone was decreased in MDD patients. In addition, effect of anti depressive medication is not apparent on compromised cardiac autonomic function in MDD patients. Moreover, cardiac autonomic activity gradually decreased with duration of disease. Literatures on reduced HRV in MDD patients suggested that, vagus acts as control center for attention, co-ordination, emotion, communication which are altered in depression¹⁸. Some researchers have identified elevated concentrations of corticotrophin releasing hormone (CRH) in cerebrospinal fluid and it has also been suggested that hyperactivity of CRH containing neuron in hypothalamus stimulates several autonomic centers which are concerned with the regulation of peripheral sympathetic activity¹⁹. It has been also suggested that reduced monoamine in CNS lead to decreased central nor epinephrine (NE) level in depression. Therefore, low CNS NE activity would cause withdrawal of α^2 receptor mediated inhibitory effect on peripheral sympathetic outflow¹⁹. The exact mechanism of poor vagal activity in MDD patients is not evident. Moreover, anti depressive medication mostly affect the serotonergic system and which has no association with vagal center. Therefore this treatment may not improve cardiac parasympathetic function.

Conclusion

In the present study, it has been observed that impairment of cardiac autonomic nerve function activity in both drug naive and medicated MDD patients. It has been shown that markedly decreased parasympathetic with increased sympathetic activities were found in this patients. Antidepressant treatment failed to improve impaired autonomic function and cardiac autonomic activity gradually decreased with duration of disease.

Conflict of Interest: None.

Acknowledgement

Thanks and all praise to Almighty Allah, the beneficial, the merciful for giving me enough energy and patience to complete the article. It is of my great pleasure to express

my deepest regards to my respected teacher Professor Dr. Sultana Ferdousi, Chairman, Department of Physiology, BSMMU, Dhaka. I would like to thank all participating patients for taking part in this study.

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Effect of Smoking on FEF 25, FEF 50 & FEF 75 in Adult Male Smokers

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Abstract

Introduction: Smoking is most common in East Asia, where two thirds of all adult males smoke tobacco; cigarette smoking is by far the most common. Smoking is the primary cause of chronic obstructive lung disease, chronic bronchitis and other respiratory symptoms. Many studies have shown significant changes of Forced Expiratory Flow (FEF) as FEF 25, FEF 50 and FEF 75 (L/sec) in adult male smokers. Its objective is to assess the change of FEF 25, FEF 50 and FEF 75 (L/sec) in adult male smokers. **Materials and Methods:** This cross-sectional comparative study was carried out in the Department of Physiology, Dhaka Medical College, Dhaka during the period of July, 2007 to June, 2008. In the present study 30 adult male smokers consuming cigarettes for more than 5 years selected as study group (Group-B) and were matched with 30 adult males who were non-smokers considered as control group (Group-A) for comparison. FEF 25, FEF 50 and FEF 75 (L/sec) were estimated in both Groups. Analysis of data was done with the help of computer by SPSS 12.0 programmer and significant tests were done by unpaired Student's "t" test. **Results:** There were statistically significant differences of FEF25, FEF50 and FEF75 (L/sec) in group A vs. group B. **Conclusion:** From the statistical analysis of the results obtained in the present study and their comparison with those of published reports, it may be concluded that smoking causes significant change of FEF 25, FEF 50 and FEF 75 (L/sec) among the smokers that could be useful in early diagnosis of peripheral airway obstruction.

Keywords: Forced Expiratory Flow, FEF 25, FEF 50, FEF 75, Smoking, Smoker.

Number of Tables: 02; Number of Figures: 03; Number of References: 18; Number of Correspondence: 05.

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Introduction

Cigarettes, the most popular method of smoking, consist of finely shredded tobacco rolled in light-weight paper. Smoke from the average cigarette contains around four thousand chemicals, some of which are highly toxic and at least 43 of which cause cancer. Nicotine, a major constituent of tobacco smoke is both poisonous and highly addictive¹.

FEF25, FEF50 and FEF75 (L/sec) is the average flow rate over the middle of vital capacity. This test indicates the patency of smaller airways less than 2 mm in diameter².

World deaths from cigarettes are expected to increase from three millions currently to about ten millions by the year 2020. As the market for tobacco shrinks in the developed nations, the multinational tobacco companies are targeting developing countries³.

It is estimated that 60 percent of men in Bangladesh are smokers⁴. Tobacco related illness accounts for 16% death in Bangladesh among people aged 30 years and above⁵. About 54% lung cancer patients are habituated with current smoking and 74.04% were ever smoker in Bangladesh⁶.

A few studies had been carried out in Bangladesh on the effect of smoking on lung function. This work will be done for finding out the risk of smoking-related morbidity and the findings may be helpful to control them increase efficiency and work output. So, the present study is designed to assess the FEF25, FEF50 and FEF75 (L/sec) of adult smokers and compare the results with that of non-smokers.

Materials and Methods

This present cross-sectional study was carried out in the Department of Physiology, Dhaka Medical College, during the period of July,

2007 to June, 2008. Permission was taken from concerned departments and authorities. Informed written consent was taken from all the study subjects after full explanation of nature and purpose of the study. The present study has been designed to measure FEF 25, FEF 50 and FEF 75 (L/sec) in apparently healthy adult male smokers and nonsmokers. In the present study 30 adult male smokers consuming cigarettes for more than 5 years selected as study group (Group-B) and were matched with 30 adult males who were non-smokers considered as control group (Group-A) for comparison. FEF25, FEF50 and FEF75 (L/sec) were estimated in both Groups. Analysis of data was done with the help of computer by SPSS 12.0 programmer and significant tests were done by unpaired Student's "t" test.

Results

The mean ($\pm$ SD) age, height, weight and BMI in different groups of subject are shown in table I and the results are shown in table II. The mean ($\pm$ SD) of measured values of FEF 25 (L/sec) is shown in Figure 1, the mean ($\pm$ SD) of measured values of FEF 50 (L/sec) is shown in Figure 2 and the mean ($\pm$ SD) of measured values of FEF 75 (L/sec) is shown in Figure 3. FEF25, FEF50 and FEF75 (L/sec) significantly lower (<0.05) in group A vs group B.

Table-I: Mean ($\pm$ SD) Age, Height, Weight, BMI of both subjects.

Group	N	Age (Years)	Height (cm)	Weight (kg)	BMI (kg/m ²)
A	30	30.15 $\pm$ 6.98 (22-45)	161.82 $\pm$ 23.40 (127-197)	62.07 $\pm$ 8.85 (46-83)	22.80 $\pm$ 2.92 (16.75-30.86)
B	30	31.69 $\pm$ 8.08 (22-45)	164.14 $\pm$ 23.40 (150-181)	61.46 $\pm$ 8.85 (42-84)	22.50 $\pm$ 2.92 (14.85-30.86)

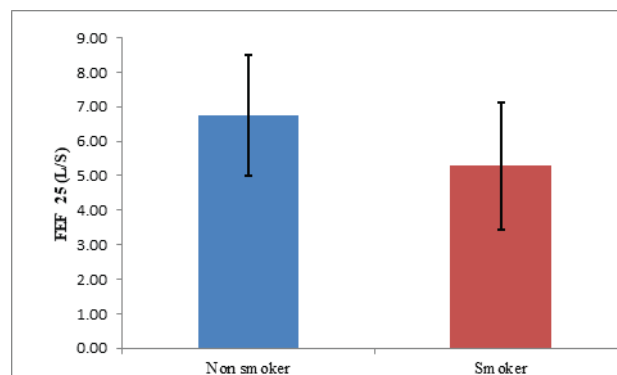
Table-II: Study parameters of the subjects in both groups (n=30).

Parameters	Nonsmoker	Smoker	p value
FEF 25 (L/S)	6.74 $\pm$ 1.76	5.28 $\pm$ 1.85	0.003***
FEF 50 (L/S)	4.85 $\pm$ 1.53	3.27 $\pm$ 1.58	<0.001***
FEF 75 (L/S)	1.87 $\pm$ 0.87	1.36 $\pm$ 0.94	0.033*

Results are expressed as mean $\pm$ SD. Unpaired Student's 't' test was performed to compare between the groups. The test of significance was calculated and p value < 0.05 was accepted as level of significance.

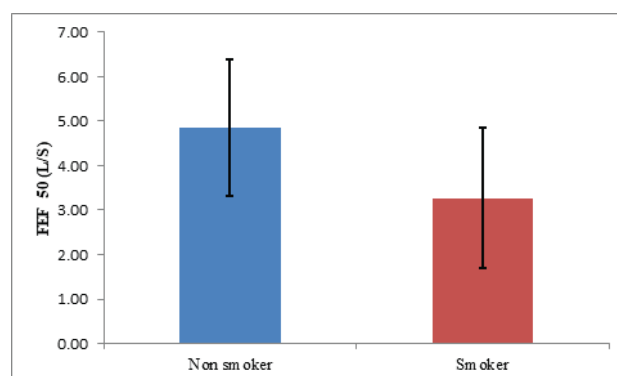
n = number of participants

Values in parenthesis indicate ranges



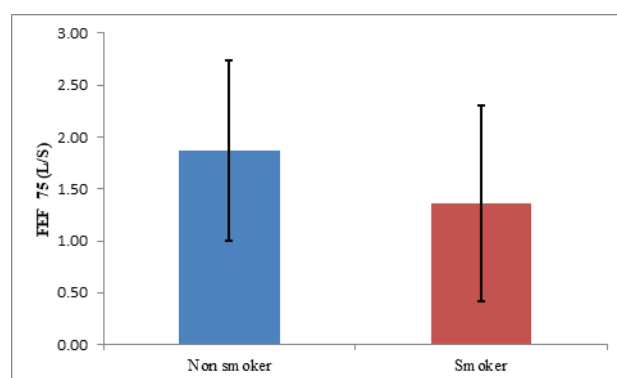
n = number of subjects

Figure-1: Mean FEF 25 (L/S) in both groups (n=30).



n = number of subjects

Figure -2: Mean FEF50 (L/S) in both groups (n=30).



n = number of subjects

Figure-3: Mean FEF 75 (L/S) in both groups (n=30).

Discussion

The present study has been undertaken to compare the FEF25, FEF50, FEF75 (L/sec) in apparently healthy adult male smokers and nonsmokers. For this purpose, total 60 subjects age ranged from 22-45 years were selected. The participants were apparently healthy and from the different socio-economic classes. Age, height and weight of non smokers (control group) were matched with those of smokers (experimental group). In this study, spirometry

was measured in smokers and nonsmokers. The accuracy of the results depends on full cooperation of the subjects. Care was taken to secure full cooperation of the subjects. Smoking history was recorded on a data collection sheet. Spirometry was recorded after the subjects were advised to put on loose clothes during experiment and abstain from smoking two hours prior to the test.

In present study, the mean ($\pm$ SD) FEF25 (L/sec) measured values were 6.74 ± 1.76 liter/sec and 5.28 ± 1.85 liter/sec in control and experimental group respectively. The difference of mean ($\pm$ SD) of FEF25 (L/sec) was statistically significant ($p < 0.001$). This result is in agreement with that of Jenith Berlin Raj T⁷, Manikandan S⁸, D L DeMeo⁹. Jenith Berlin Raj T⁷ observed significant lower of FEF25 (L/sec) in apparently healthy male smoker's vs nonsmokers. FEF25 (L/sec) was reduced in smoking group. It is mostly the smaller airways than the larger airways which is affected due to smoking⁷. Manikandan S⁸ observed lower FEF25 (L/sec) in smoker causes both restrictive and obstructive pulmonary impairment. In the smoker's inflammation leads to permanent changes in the lungs⁸. D L DeMeo⁹ considered that FEF25 (L/sec) have been as evidence for small airway disease.

In present study, the mean ($\pm$ SD) FEF50 (L/sec) measured values were 4.85 ± 1.53 liter/sec and 3.27 ± 1.58 liter/sec in control and experimental group respectively. The difference of mean ($\pm$ SD) of FEF50 (L/sec) was statistically significant ($p < 0.001$). This result is in agreement with that of Senthil kumar Elumalai¹⁰ and Anik Sukmawati¹¹. Senthil Kumar Elumalai observed significant difference of FEF50 (L/sec) among non-symptomatic smokers & nonsmokers. Senthil Kumar Elumalai stated that FEF 50 (L/sec) appear to have its greatest utility in the diagnosis and monitoring of early, moderate disease & has less value in following the case of severe disease¹⁰. Anik Sukmawati¹¹ explained that reduction in FEF50 (L/sec) is associated with chronic cigarette smoking can be loss of lung recoil pressure which reduces the force driving air out of the lung¹¹.

The mean ($\pm$ SD) FEF75 (L/sec) measured values were 1.87 ± 0.87 liter/sec and 1.36 ± 0.94 liter/sec in control and experimental group respectively. The difference of mean ($\pm$ SD) of FEF75 (L/sec) was statistically significant ($p < 0.001$). This result is consistent with that of Anand Mistry¹² and Ajay K T¹³. Anand Mistry¹² stated that decreased in FEF75 (L/sec) in smokers with increased duration of smoking & increase in number of cigarettes smoked per day¹². Ajay K T¹³ suggested that young smokers within few years of starting to smoke developed changes in pulmonary functions indicating early peripheral airway narrowing and that these effects worsen progressively with continued smoking¹³. Meo SA¹⁴ concluded that tobacco smoking for 5 minutes causes an increase in impedance, peripheral airway flow resistance and oxidative stress.

Tantisuwat A¹⁵ stated that smoking habits and the number of cigarettes smoked per day were associated with the reduction in FEF25-75%. Wafy S¹⁶ suggested that the most affected age group in significant reduction of FEF25-75% was found in 36-55 years old adult male smokers. Coppeta L¹⁷ observed significant worsening of FEF25-75% & this parameter shown to be more sensitive than FEV1, FEV1/FVC ratio. They hypothesized that the decrease in the air flow is attributable to the acute increase of airflow resistance due to small airway narrowing depending on mucosal oedema, smooth muscle contraction & local secretion. Malerba M¹⁸ suggested that abnormal FEF25-75% considered a reliable marker of early airflow limitation. They pointed out that abnormal FEF25-75% had a high probability of being bronchial hyper responsiveness, is probably due to eosinophilic airway inflammation.

Conclusion

From the statistical analysis of the results obtained in the present study and their comparison with those of published reports, it may be concluded that smoking causes significant deterioration of lung function which can easily detected by using a spirometer. FEF25, FEF50 and FEF75 (L/sec) are simple tests those could be useful in early diagnosis of peripheral airway obstruction and its treatment, thereby improving the quality of life.

Conflict of Interest: None.

Acknowledgement

The authors are thankful to the study subjects for their active, sincere and voluntary participation. The authors are also thankful to the Department of Physiology, Dhaka Medical College and Department of chest medicine, National Institute of Disease of the chest and hospital, Dhaka.

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Clinical Predictors of Poorly-Controlled Childhood Epilepsy: A Case-Control Study

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Abstract

Introduction: The aim of the present study was to determine clinical factors associated with poorly controlled epilepsy. **Materials and Methods:** This retrospective study was performed from January 2007 to December 2008 at Paediatric Neurology outpatient department in Bangabandhu Sheikh Mujib Medical University, Dhaka, among the children with epilepsy of 7 months to 15 years age who had history of at least 6 months treatment with rational antiepileptic drugs daily with adequate compliance. There were two groups of patients; group 1, consisted of 50 poorly controlled epilepsy patients and group 2, comprised 50 well-controlled epilepsy patients. We retrospectively reviewed EEGs and medical records from these children. Features of clinical findings were compared between the two groups. **Results:** In this study, age of onset of initial seizure before 1 year, mixed type of seizure, infantile spasm, high initial seizure frequency (daily seizure), symptomatic etiology, mental retardation, neonatal seizure and more than 20 seizures before starting treatment were also found to be significant clinical predictors of poorly controlled epilepsy. Multivariate analysis detected 2 independent clinical predictors of poorly controlled epilepsy: mixed seizures and more than 20 seizures before starting treatment. **Conclusions:** The study showed several clinical factors that can be identified early in the course of childhood epilepsy which can predict development of poor seizure control. Knowledge of these factors will help us to discriminate our patients and pay more attention to those at risk of developing poorly controlled epilepsy.

Keywords: Clinical factors, Poorly controlled epilepsy

Number of Tables: 06; Number of References: 23; Number of Correspondence: 03.

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Introduction

Seizures affect 4-7% of children¹. The prevalence of epilepsy is 4-8/1000 population. This is western data, but the prevalence may be higher in developing countries due to high incidence of CNS infection, birth asphyxia and consanguinity related metabolic diseases¹. The largest number of newly diagnosed patients with epilepsy occurs between birth and 2 years of age². Epilepsy is considered to be present when two or more unprovoked seizures occur at an interval greater than 24 hours apart³.

One or more seizures per month over a period of 6 months or more even after experiencing trials of at least two different antiepileptic drugs alone or in combination at optimum doses with adequate compliance is called intractable epilepsy⁴. Epilepsy is refractory when seizures are so frequent or severe that they limit the patient's ability to live life fully according to his or her wishes or necessitate the use of medications that, although effective, produce adverse effects⁵.

Fortunately, most children with epilepsy do well when treated with an antiepileptic drug⁶. Numerous studies have reported predictors of favorable outcome of epileptic seizures in children and adults. Most report that 70-80% of patients eventually become seizure free⁷. But 10-20% of children with epilepsy have persistent seizures refractory to drugs, and those cases pose a diagnostic and management challenge³. However, what becomes of the group of children who continue to have seizures despite adequate trials of drugs? Although this is a small group of children, the medical, social, and economic consequences of poorly controlled seizures can be enormous. These children are at high risk for behavioral and academic difficulties⁸. In addition to the often catastrophic effects of uncontrolled seizures on the child, the burden on the parents of dealing with the multitude of daily problems accompanying intractable epilepsy cannot be underestimated².

The best predictors of seizure remission include an early response to therapy, a low frequency of seizures and normal mental development⁹. On the other hand Camfield et al.¹⁰ reported that an absence of neonatal seizure, older age at onset, normal intelligence and less than 20 seizures before initiation of treatment were all significant predictors of good outcome. Strong association was noted between intractable epilepsy and several factors: infantile spasm, remote symptomatic epilepsy, a history of status epilepticus before the diagnosis of epilepsy, neonatal seizure, and microcephaly¹¹. There are a number of

other clinical factors which are predictors of poor prognosis. A prospective case-control study showed that onset of seizure before 1 year of age, developmental delay, and abnormal brain imaging- were important predictors of intractable childhood epilepsy¹². Very little is known about the childhood epilepsies in Bangladesh¹³. As mentioned by Banu et al.¹³ factors most predictive of poor seizure remission were: multiple types of seizures, poor cognition at presentation, high rates of seizures, associated motor disability and EEG abnormalities.

As literatures were reviewed there were no published data about this type of study in our country. This study is intended to provide clinical information regarding poorly controlled epilepsy that may guide the physician for early identification of these patients for counseling their families, selecting patients for intensive investigations and treatment, as well as early consideration of epilepsy surgery to prevent consequences of poorly controlled epilepsy on quality of life.

Materials and Methods

This case-control study was conducted from January 2007 to December 2008 at Paediatric Neurology OPD, Bangabandhu Sheikh Mujib Medical University. 50 cases of intractable epilepsy in group-1 and 50 cases of well-controlled epilepsy in group-2 were enrolled in the study. Children of either sex with epilepsy, aged 7 months to 15 years with history of at least one unprovoked seizure per month for 6 or more months and history of treatment with 2 or more rational antiepileptic drugs (AED) daily, either singly or in combination for at least 6 months and adequate compliance to antiepileptic drugs were considered as case. Children of either sex with epilepsy, aged 7 months to 15 years who had been seizure-free during 6 months after start of treatment were considered as control. Poorly controlled epilepsy was defined as one or more seizure per month over a period of 6 months or more even after experiencing trials of at least two different antiepileptic drugs alone or in combination at optimum doses with adequate compliance. Well-controlled epilepsy was defined as no seizure during 6 months after start of treatment with AED.

Once the child was reporting, a structured questionnaire was completed, containing pre-defined variables of clinical information that may help predicting the poor seizure control. Then a detailed history including gender, age of onset, number of seizures before starting the treatment, type of epilepsy, character of seizure, status epilepticus, initial seizure frequency, history of neonatal seizures, family history of epilepsy, history of complex febrile seizure, treatment history, etc. were recorded and medical records were reviewed. Details regarding antiepileptic drugs were recorded i.e. number of drugs, duration of therapy, dosage and compliance. It was noted whether the choice of drugs were correct or incorrect in relation to seizure type and the dosage schedule was proper

according to body weight. Thorough physical examination including neurodevelopmental and psychological assessment was done. All study patients were seen by a consultant Paediatric Neurologist of the unit. Seizures were classified using the International League Against Epilepsy (ILAE) classification of epileptic seizure. First Interictal EEG recordings obtained with a 19 channel Electroencephalograph, employing scalp electrodes placed according to the international 10-20 system were studied. Serum drug level was not measured. An antiepileptic drug was considered to have failed if it did not control seizures in spite of good compliance or if medication was discontinued because of unacceptable side effects. A drug used acutely to treat status epilepticus was not counted as one of the two AEDs. Child was a case or a control. Group1 consisted of poorly controlled epilepsy patients and Group2 comprised well-controlled epilepsy patients. A comparison of various clinical factors between the two groups was done. Data were analyzed using statistical package SPSS (version 15.0). Standard tests of significance, such as Chi-square test was applied for categorical variables and 't' test was done for quantitative variables. The Odds ratio (OR) was used as estimation of risk to indicate the magnitude of association between each factor and poorly-controlled epilepsy. 95% confidence interval (CI) and p values were also computed. P-value of <0.05 was considered significant. Multivariate analysis was performed to choose independently significant factors among the many significant factors in bivariate analysis.

Results

Table I shows that 54% of the poorly-controlled epilepsy patients and 44% of well controlled epilepsy patients were between 1-5 years age group. However there was wide spread distribution in different age groups. The mean age was found to be 4.59 ± 3.19 years in poorly-controlled group and 5.91 ± 3.72 years in well-controlled group. No significant statistical difference was observed between poorly-controlled and well-controlled group in respect to age ($p=0.062$). In poorly-controlled group 60.0% were males and 40.0% were females, while in well-controlled group males and females were 66.0% and 34.0% respectively. There was no significant statistical difference between the two groups in respect to sex ($p=0.534$).

Table-I: Distribution of the subjects by demographic variables (n=100).

Variables	Groups		p value
	Group1 (n=50) No (%)	Group 2 (n=50) No (%)	
Age (year)			
o ≤1year	5 (10.0)	1 (2.0)	
o 1-5 years	27 (54.0)	22 (44.0)	
o 5-10 years	16 (32.0)	20 (40.0)	
o >10 years	2 (4.0)	7 (14.0)	
Mean ± SD	4.59 ± 3.19	5.91 ± 3.72	0.062 ^{NS(a)}
Sex			
o Female	20 (40.0)	17 (34.0)	0.534 ^{NS(b)}
o Male	30 (60.0)	33 (66.0)	

^aUnpaired t test was done to measure the level of significance.
^bChi-square test was done to measure the level of significance.
 NS= not significant.

Table: II demonstrates that as initial seizure type according to site of onset, generalized seizure was significantly higher in poorly-controlled group than in well-controlled group (62.0% vs. 40.0%; $p=0.028$). On the other hand in well-controlled group focal onset was significantly higher than in poorly controlled group (36.0% vs. 18%; $p=0.043$). Focal with secondary generalization showed no significant difference between the two groups ($p>0.05$).

Table II: Distribution of the subjects by initial seizure type according to site of onset (n=100).

Initial seizure type	Groups		p value
	Group1 (n=50) No (%)	Group 2 (n=50) No (%)	
o Focal onset	9 (18.0)	18 (36.0)	0.043*
o Generalized onset	31 (62.0)	20 (40.0)	0.028*
o Focal with secondary generalization	10 (20.0)	12 (24.0)	0.629 ^{NS}

Chi-square test was done to measure the level of significance. * $p < 0.05$ n = number of patients NS = not significant.

Table III shows that in poorly-controlled group mixed seizure was significantly higher than in well-controlled group (30.0% vs. 4.0%; $p<0.001$) and infantile spasm was also found to be significantly higher in poorly-controlled group compared to well-controlled group (16.0% vs. 4.0%; $p<0.05$). In well-controlled group tonic-clonic seizure was significantly higher than in poorly-controlled group (48.0% vs. 16.0%; $p<0.001$).

Table III: Distribution of the subjects by initial seizure character (n=100).

Initial seizure character	Groups		p value
	Group1 (n=50) No (%)	Group 2 (n=50) No (%)	
Tonic	8 (16.0)	13 (26.0)	0.220 ^{NS}
Clonic	5 (10.0)	5 (10.0)	0.999 ^{NS}
Tonic-clonic	8 (16.0)	24 (48.0)	<0.001**
Myoclonic	6 (12.0)	4 (8.0)	0.505 ^{NS}
Infantile spasm	8 (16.0)	2 (4.0)	0.046*
Mixed	15 (30.0)	2 (4.0)	<0.001**
Total	50 (100.0)	50 (100.0)	

Chi-square test was done to measure the level of significance.
 * $p<0.05$. ** $p<0.001$, NS =not significant.

Table IV demonstrates that daily onset of seizure was significantly higher in poorly controlled group and was found to be 78.0% in contrast to 32.0% in well controlled group ($p<0.001$). On the other hand, seizure frequency of <1/month was significantly higher in well-controlled group compared to poorly-controlled group (52% vs. 4.0%; $p<0.001$).

Table-IV: Distribution of the subjects by initial seizure frequency (n=100)

Initial seizure frequency	Groups		p value
	Group1 (n=50) No (%)	Group2 (n=50) No (%)	
<1/month	2 (4.0)	26 (52.0)	<0.001**
1-4/months	6 (12.0)	5 (10.0)	0.749 ^{NS}
1-6/week3	(6.0)	3 (6.0)	0.999 ^{NS}
Daily	39 (78.0)	16 (32.0)	<0.001**
Total	50 (100.0)	50 (100.0)	

Chi-square test was done to measure the level of significance. ** $p<0.001$. NS =not significant

Table V demonstrates that if age of onset of initial seizure was ≤ 1 year 72.0% patients developed poorly-controlled epilepsy compared to only 42.0% if onset was > 1 year ($p=0.002$).

Mental retardation, neonatal seizure and more than 20 seizures before starting treatment were significantly higher among poorly-controlled group than those in well-controlled group (70.0% vs. 32.0%, $p<0.001$; 38.0% vs. 10.0%, $p<0.001$; 82.0% vs. 28.0%, $p<0.001$ respectively). Symptomatic etiology was significantly higher in poorly-controlled group and was present in 74% patients compared to 42% of patients in well-controlled group ($p<0.001$), whereas in well-controlled group idiopathic epilepsy was significantly higher than in poorly-controlled group (54% vs. 18.0%; $p<0.001$).

Table-V: Distribution of the subjects by other clinical predictors of poorly-controlled epilepsy (n=100).

Variables	Groups		p value
	Group1 (n=50) No (%)	Group2 (n=50) No (%)	
Age of onset of initial seizure (≤ 1 year)	36 (72.0)	21 (42.0)	0.002*
Status epilepticus before 1st visit	11 (22.0)	5 (10.0)	0.102 ^{NS}
Complex febrile seizure before 1st unprovoked seizure	4 (8.0)	9 (18.0)	0.137 ^{NS}
Family history of seizure	4 (8.0)	4 (8.0)	0.999 ^{NS}
More than 20 seizures before starting treatment	41 (82.0)	14 (28.0)	<0.001**
Neonatal seizure	19 (38.0)	5 (10.0)	<0.001**
Mental retardation	35 (70.0)	16 (32.0)	<0.001**
Etiology			
• Symptomatic	37 (74.0)	21 (42.0)	<0.001**
• Idiopathic	9 (18.0)	27 (54.0)	<0.001**

Chi-square test was done to measure the level of significance
 * $p<0.05$ ** $p<0.001$ NS =not significant

Table VI demonstrates logistic regression analysis for predictors of poorly-controlled epilepsy. Nine independent variables were correlated with the dependent variable. In the final step of the regression analysis, two variables remained as most significant predictors of intractability. These were mixed seizures (OR= 45.982) and more than 20 seizures before starting treatment (OR= 5.269).

Table-VI: Logistic regression analysis for clinical predictors of poorly-controlled epilepsy.

Predictors	Bivariate analysis		Multivariate analysis	
	Poorly-controlled Group No (%)	Well-controlled Group No (%)	p value	Odds Ratio (95% CI)
Age of onset of initial seizure (≤ 1 year)	36 (72.0)	21 (42.0)	0.002	0.40 (0.09-1.79)
Initial seizure type (Generalized onset)	31 (62.0)	20 (40.0)	0.028	0.31 (0.08-1.28)
Infantile spasm	8 (16.0)	2 (4.0)	0.046	5.914 (0.76-46.32)
Mixed seizures	15 (30.0)	2 (4.0)	<0.001	45.982* (4.54-465.68)
Initial seizure frequency (daily seizures)	39 (78.0)	16 (32.0)	<0.001	3.448 (0.78-15.25)
Symptomatic epilepsy	37 (74.0)	21 (42.0)	<0.001	1.238 (0.24-6.27)
Mental retardation	35 (70.0)	16 (32.0)	<0.001	3.199 (0.68-15.01)
Neonatal seizure	19 (38.0)	5 (10.0)	<0.001	2.433 (0.57-10.47)
More than 20 seizures	41 (82.0)	14 (28.0)	<0.001	5.269* (1.03-27.04)

*Significant predictors at 5% level of significance.

Discussion

This study was done to search the clinical factors that are associated with the poor control of childhood epilepsy. This retrospective study demonstrated that there were a number of clinical factors that were associated with poor seizure control. Early identification of these factors might help in planning early intervention.

Table I illustrates the demographic characteristics of the patients. Age (mean $\pm$ SD) at presentation of poorly controlled group was 4.59 ± 3.19 years and that of well-controlled group was 5.91 ± 3.72 years. No significant statistical difference was observed between poorly controlled and well-controlled group in respect to age ($p=0.534$). In poorly controlled group males were (60.0%) and females were (40.0 %) and in well-controlled group males and females were 66.0% and 34.0% respectively. In both groups males were predominant. No significant statistical difference was observed in this study in respect to sex between poorly controlled and well-controlled group ($p=0.062$) that is poor seizure control occurs with equal frequency in both sexes. This finding was supported by the study done by Kwan P et al.¹⁴ who did not find any significant difference in sex between the groups that become seizure free and the group with uncontrolled seizure. They found that 52% of the patients with uncontrolled epilepsy

were male and 47% were female, whereas 47% male and 53% female were found in patients who were seizure free. But Malik et al.¹⁵ found that male gender was a risk factor for intractable seizures ($p=0.001$) and this finding was similar to that previously done by Akhondian et al.¹⁶ The male predominance in this study was more likely to be because of a selection bias.

Table II demonstrates that generalized seizures were found in the majority of poorly controlled epilepsy patients (62%) followed by focal with secondary generalization (20%) and focal (18%). Similar finding was observed by Banu et al.¹³ They found generalized epilepsy in the majority of the children (63.6%) followed by partial (25.2%) epilepsy.

Table III shows that mixed seizure and infantile spasm was significantly associated with poor seizure control in this study. We found that in poorly controlled group mixed seizure was significantly higher than in well-controlled group (30.0% vs. 4.0%; $p=0.001$). Singvi et al.¹⁷ also found mixed type of seizure as an adverse prognostic factor for the development of intractability. They found 14 out of 26 patients in the generalized group of intractable epilepsy to have more than 1 type of generalized seizures. Similar finding was described by Oskoui et al.¹⁸ who showed that multiple seizures type was a predictive factor of intractability (OR =6.5). Banu et al.¹³ found that multiple seizure type was an independent predictor of poor seizure remission (OR=4.42; $p=0.0001$). Our study also found that infantile spasm was present in 16.0% of the patients in poorly controlled group compared to only 4.0% in well-controlled group ($p=0.046$). Berg et al.¹¹ found infantile spasm in 19.7% cases of intractable epilepsy compared to 1% case in well-controlled group ($p=0.003$). Kwong et al.¹⁹ also found that mixed seizures and infantile spasms were strongly associated with intractable epilepsy.

Initial high frequency of seizure (daily seizures) was found as a significant predictor of poor seizure control (Table IV). Similar results were found in other studies (Akhondian et al.¹⁶; Ko and Holmes²⁰ and Chawla et al.⁴). Sillanpaa²¹ found 87.2% of patient having refractory epilepsy had high initial seizure frequency. Chawla et al.⁴ found that 76% of intractable group compared to 22% of well-controlled epilepsy had daily seizure ($P<0.001$). Akhondian et al.¹⁶ showed that, 66.7% of the patients in intractable group had daily seizures compared to 22.5% in well-controlled group ($p<0.001$). Ko and Holmes²⁰ found daily seizures in 50.7% cases of intractable epilepsy compared to 25.6% of well-controlled epilepsy ($P<0.001$). Malignant syndromes of epilepsy which are difficult to control present with high frequency of seizure. But frequent seizure itself further deteriorates the developing brain which already has got pathology of seizure (Aicardi²²).

Symptomatic etiology of seizure is an important predictor of poor seizure control (Table V). This study shows that 74% of cases in poorly controlled group had symptomatic etiology compared to 42% in well-controlled epilepsy

($p=0.001$). Chawla et al.⁴ found that 80% of intractable group compared to 28% of well-controlled group had symptomatic etiology ($p<0.001$). Berg et al.¹¹ found only 33.3% of symptomatic epilepsy in control group compared to 68.4% in intractable group ($p<0.001$). Ko and Holmes²⁰ found symptomatic etiology in 55.6% cases of intractable epilepsy compared to 20.5% of well-controlled epilepsy cases ($p<0.001$). But in the present study the causes of the symptomatic etiology were not explored.

If age of onset of initial seizure was ≤ 1 year 72.0% patients developed poorly controlled epilepsy compared to only 42.0% if onset was > 1 year ($p=0.002$) (Table V). Chawla et al.⁴ found 66% of patients in intractable group compared to 4% in well-controlled group had early onset of seizures ($p=0.001$). Berg et al.¹¹ found 52.6% of intractable epilepsy cases compared to 9.4% of well-controlled epilepsy patient had early onset of seizures. Ohtsuka et al.²³ found that 53% of patients of early onset epilepsy had unfavourable outcome. Ko and Holmes also found it as an independent predictor of intractable epilepsy.

History of status epilepticus was not found as a predictor of poor seizure control ($p=0.102$) (Table V). This finding was in contrast with the finding of Sillanpaa²¹ and Berg et al.¹¹, Ko and Holmes²⁰ and Ohtsuka et al.²³. But most of the other studies had not found it as a predictor (Chawla et al.⁴; Malik et al.¹⁵). It has been seen that subsequent episodes of status epilepticus occurred at various times during the seizure disorder, generally after a pattern of intractability has been established²².

Family history of epilepsy had no significant association with poorly controlled epilepsy ($P=0.999$) (Table V). Other studies also showed similar results (Chawla et al.⁴; Banu et al.¹³, Malik et al.¹⁵, Ko and Holmes²⁰, Akhondian et al.¹⁶).

Complex febrile seizure before first unprovoked seizure was not found to be a predictor of poor seizure control (Table V). Other studies showed similar results (Ko and Holmes²⁰; Berg et al.¹¹; Chawla et al.⁴). Incidence of febrile seizure in general population is 3-4 % (Johnston³). Epileptic children suffer from febrile convulsion relatively more. Some claimed that this might be due to their low seizure threshold (Berg et al.¹¹). This study also shows that 38.0% cases in poorly controlled group had history of neonatal seizure and it was a predictor of poor seizure control ($p=0.001$). Berg et al.¹¹ in their study showed that 17.1% of intractable patients compared to only 5.2% of well-controlled patients had neonatal seizure ($p<0.01$). Chawla et al.⁴ found 30% of intractable patients compared to only 2% of well-controlled epileptic patients had neonatal seizure ($p<0.001$). Akhondian et al.¹⁶ showed 17.6% cases of neonatal seizure in intractable group and 5.0% in well-controlled group ($p=0.018$). When the developmental abnormality of the brain is severe they present early and one of the presentations may be neonatal seizure.

Patients who had a history of more than 20 seizures before initiation of treatment were found to be 82.0% in poorly

controlled group (Table V). It was a significant predictor of poor seizure remission ($p<0.001$). Malik et al.¹⁵ found that 34% of patients in intractable group as compared to 12% in control group had history of >10 seizures before starting treatment ($p<0.001$). Akhondian et al.¹⁶ found that patients who suffered from 20 generalized seizures before starting treatment are at risk for development of intractable epilepsy. Camfield et al.¹⁰ showed that the fewer than ²¹ seizures before initiation of treatment was a good predictor for seizure remission. Whereas Sillanpaa²¹ demonstrated that the number of seizures recorded before onset of drug therapy was not related to the probability of remission.

Mental retardation was found as a predictor of poor seizure remission ($p=0.001$) as shown in table V. This finding was relevant to that done by Ko and Holmes²⁰. They showed that 20.1% patients in intractable group compared to 2.6% in controlled group had mental retardation ($p=0.03$). Singhi et al.¹⁷ found that mental retardation was present in 11.0% of intractable epilepsy patients and it was found to be a poor prognostic factor. Oskoui et al.¹⁸ showed that mental retardation at onset was a significant risk for intractability (OR=7.2).

Independent clinical predictors of poorly controlled epilepsy after multiple logistic regression were mixed type of seizures and more than 20 seizures before starting treatment (Table VI).

Conclusion

This study shows that there are a number of clinical factors that can be identified early in the course of childhood epilepsy that are predictive of poor seizure control. Knowledge of these factors will help us to discriminate our patients and pay more attention to those at risk of developing poorly controlled seizures.

Conflict of Interest: None.

Acknowledgement

Thanks and all praise to Almighty Allah, the beneficent, the merciful for providing us enough energy and patience to complete this article. Our special thanks and gratitude to Prof (Dr) Shahana Akhter Rahman, Pro vice Chancellor (Academic), Bangabandhu Sheikh Mujib Medical University, Dhaka, Bangladesh for providing instructions, encouragement and valuable advice from beginning of this study. We would like to express our sincere gratitude and gratefulness to all teachers, doctors and employee in the department of paediatrics, Bangabandhu Sheikh Mujib Medical University, Dhaka, Bangladesh for valuable suggestions and advices to complete this study.

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Effects of ω -3 Fatty Acids on Liver Function Tests in Patients with Diabetes Mellitus

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Abstract

Introduction: Patients with type-2 Diabetes are augmented the risk of non alcoholic fatty liver disease that rises liver enzymes and total protein. To observe the favourable effects of fish oil capsule on liver function tests in patients with type 2 DM. **Materials and Methods:** A prospective interventional study was conducted from January 2017 to December 2017. A total numbers of 52 diagnosed type 2 diabetic patients of both sexes were scrutinized with age ranging from 40 to 50 years. Among them, 27 type 2 diabetic patients those who taken oral fish oil gel (2g/day) for 12 weeks were preferred as study group. Another 25 type 2 diabetic patients without supplementation of omega 3 fatty acid were nominated as control group for comparison. The study subjects were selected from Dhaka Medical College Hospital, Dhaka and personal contact from Dhaka city on the basis of criteria. The research work was administrated with ethical clearance from concerned authority. **Results:** In this study ALP, LDH, total protein were reduced in diabetic patients after supplementation with omega-3 fatty acid in comparison to that of their baseline value. Again, after 12 weeks, ALP (Alkaline Phosphatase) LDH (Lactate dehydrogenase) and total protein were decreased in diabetic patients after supplementation with omega-3 fatty acid in comparison to control group. **Conclusion:** After analyzing the results of the study, it can be concluded that omega-3 fatty acid can reduce ALP, LDH and total protein levels in diabetic patients may be helpful to minimize the risk of fatty liver in type-2 diabetes mellitus.

Key words: Diabetes mellitus, Fatty liver, ALP, LDH, Total protein and Omega-3 fatty acid.

Number of Tables: 02; Number of References: 23; Number of Correspondence: 04.

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Introduction

Diabetes mellitus (DM) is one of the multifactorial disorder characterized by hyperglycemia related with carbohydrate, protein and fat metabolism. The chronic hyperglycemia of diabetes is associated with long term damage of liver can causes non alcoholic fatty liver disease¹. Diagnostic criteria of diabetes mellitus are fasting plasma glucose level ≥ 7.0 mmol/l (126mg/dl) or plasma glucose 2 hours

after an oral glucose ≥ 11.1 mmol /L (200mg/dl) and HbA1c $\geq 6.5\%$ ². Within 2030, the extensiveness of diabetes mellitus will be 11.1 million in Bangladesh³. The prevalence of NASH is steadily increasing and prevalent in patients of Diabetes mellitus⁴.

The pancreatic hormone named insulin is needed for tissue development, growth and maintenance of whole body glucose homeostasis. Insulin maintains glucose homeostasis by improving the rate of glucose uptake into skeletal muscle and fat tissue. In the skeletal muscle, insulin facilitates glucose uptake by stimulating translocation of GLUT-4 to plasma membrane⁵. Insulin resistance occurs when the insulin sensitive tissue loses response to insulin. The basic effect of insulin resistance on glucose metabolism is to oppose the uptake and utilization of glucose by most cells of the body. As a result blood glucose concentration rises, cell utilization of glucose falls, utilization of fat increases and free fatty acid level increases in blood⁶.

ω -3 Fatty acids are polyunsaturated fatty acids consists of alpha-linolenic acid (ALA), eicosapentaenoic acid (EPA) and docosahexanoic acid (DHA). They are found mainly in seafood including fatty fish (e.g. salmon, tuna and trout) and shellfish (e.g. crab, mussels and oysters). The omega 3 fatty acid; stimulates insulin sensitivity, reduces blood clotting, improves fat digestion, boost up fertility, lessen depression and causes brain development in babies⁷.

Consumption of fish oil can decreases free fatty acid level, promotes insulin sensitivity as well as reduce the incidence of type 2 DM⁸. Omega-3 capsule act directly on insulin sensitive tissues, rises number of insulin receptors thus inhibits insulin resistance⁹. Intake of food rich in omega-3 fatty acid, facilitate the action of insulin through various metabolic pathways, which are reduction of hepatic lipogenesis, suppression of the release of triglycerols from liver, improvement in ketogenesis, and oxidation of fatty acids in hepatic

cells¹⁰. Non alcoholic fatty liver diseases are very common in type 2 diabetic patients¹¹. Moreover, intake of polyunsaturated fatty acid decreases serum ALP and GGT level¹².

Omega-3 fatty acid prevents this change by increasing peroxisome proliferator receptor gamma, increasing hepatic uptake and oxidation of free fatty acid in striated muscle¹³. Therefore the present study is intended to assess the effect of supplementation of omega-3 fatty acid in Bangladeshi diabetic patient that reduce liver enzymes.

Materials and Methods

This prospective, interventional study was administrated from Department of Physiology, Dhaka Medical College, Dhaka from January 2017 to December 2017. The research work was carried-out by obtaining ethical clearance from related departments, Research Review Committee and Ethical Review Committee of Dhaka medical college, Dhaka. The patients were selected from outdoor of Endocrinology, Dhaka medical college and personal contact from Dhaka city. At the beginning of study 60 diagnosed type-2 diabetic patients were randomly nominated on the basis of exclusion and inclusion criteria. There were 30 patients of control group and 30 patients of study groups scrutinized for study purpose, After 6 weeks of study period, 3 patients were relinquished from study group and 5 patients were dropped out from control group. Finally, total 52 type diabetic patient of both sexes with the age ranging from 40-50 years with FBG 7.0 mmol/l or 126 mg/dl, HbA1c 6.5%, serum total cholesterol >200 mg/dl, serum triglyceride >150 mg/dl, LDL >130 mg/dl, BMI ≤ 30 Kg/m² and patients with oral hypoglycemic drug were included in this study. Fatty liver was diagnosed by abdominal ultra-sonography subjects having history of heart, endocrine disorder, insulin therapy, viral hepatitis, acute or chronic infections, pregnant and lactating women were excluded from this study. For this study 27 diagnosed type-2 diabetic patients with omega-3 fatty acid supplementation were selected as study group and 25 type-2 diabetic patients without oral omega-3 fatty acid supplementation were selected as control group. The study group again segmented into pre-supplementation group and after 12 weeks of supplementation as post supplementation group. The control group was sub-divided as pre and post follow-up group. After selection, the nature, purpose and benefits of the study were explained to each subject and informed written consent was taken from participants. Before taking blood detailed family and medical history were taken. Anthropometric measurement of the subjects was recorded and blood pressure was measured. All the information were recorded in a prefixed questionnaire. With aseptic precaution, 5 ml of venous blood was obtained from ante-cubital vein by a disposable plastic syringe from each subject after overnight fasting for biochemical tests. Serum ALP and GGT was estimated by enzymatic colorimetric method in auto-analyzer in

department of Laboratory Medicine Dhaka Medical College Hospital, Dhaka. Omega-3 fatty acid (2gm) was supplied to study group then they were asked to intake twice daily for 12 weeks with proper directions. Patients were instructed not to change their diet and physical activities during the course of the study. A regular telephonic communication and periodic visit was made to participants because most of them are staff of Dhaka medical college. For statistical analysis, Paired Student's 't' test and Unpaired Student's 't' test were performed as applicable using SPSS for windows version 16.0. Data were expressed as mean $\pm$ SE. The p value of < 0.05 was accepted as level of significance.

Results

In this study no significant difference were seen in age, sex, BMI, systolic and diastolic blood pressure between study and control group (Table I).

Table -I: General characteristics of the patients in both groups (N=52).

Parameters	Study group (n=27)	Control group (n=25)
Age (years) ^a	45.90 $\pm$ 3.80	44.92 $\pm$ 3.75
Sex (%) ^b		
Male	18 (66.7%)	11 (44 %)
Female	9 (33.3%)	14 (56%)
BMI (kg/m ²) ^a	25.03 $\pm$ 2.27	25.87 $\pm$ 1.75
Systolic BP ^a (mmHg)	119.07 $\pm$ 7.08	121.79 $\pm$ 4.47
Diastolic BP ^a (mmHg)	79.63 $\pm$ 6.26	80.00 $\pm$ 0.00
Duration of disease ^a (years)	5.43 $\pm$ 1.50	5.35 $\pm$ 1.57

Results were expressed as mean $\pm$ SD. a=Unpaired Student's 't' test was performed to compare between the groups. b= Chi Square test was performed to compare male and female between the groups. The test of significance was calculated and p value < 0.05 was accepted as level of significance. N= total number of subjects, n = number of subjects in each group ns= non-significant */**/**= significant. T2DMS=Type 2 diabetes mellitus with supplementation T2DM=Type 2 diabetes mellitus without supplementation.

In this study, the mean serum ALP and GGT levels were almost similar and there is no statistical difference were observed at the beginning of the study. In study group, the mean serum ALP (p<0.01) and mean serum GGT (p<.01) level were found remarkable lowe in post supplementation group, than pre-supplementation group. Again the mean serum ALP (p<.01) levels and mean serum GGT (p<.01) levels were found significantly lower and in study group compared to control group. In control group, there was no statistical dissimilarity were perceived in mean serum ALP and GGT between pre-follow-up and post follow-up group.

Table-II: Serum Alkaline phosphatase, serum lactate dehydrogenase and total protein levels in different groups (N=52).

Parameters	Study group (n=27)		Control group (n=25)	
	Pre-supplementation group	Post supplementation group	Pre-follow-up group	Post follow-up group
ALP(IU/L)	74.6 $\pm$ 2.71	38.5 $\pm$ 1.67**	69.20 $\pm$ 4.20	61.96 $\pm$ 4.43##
LDH(U/L)	150.3 $\pm$ 4.03	142.5 $\pm$ 1.02*	147.00 $\pm$ 2.64	146.6 $\pm$ 2.21##
Total protein(g/dl)	11.06 $\pm$ 2.01	8.1 $\pm$ 1.1*	10.06 $\pm$ 1.02	9.8 $\pm$ 1.4 ^a

Results are expressed as mean $\pm$ SD. a= Paired student's t test was performed for comparison within groups and b=unpaired t test was performed to compare between groups. p value < 0.05 was accepted as level of significance. N= total number of subjects, n = number of subjects in each group, ALP=Alkaline Phosphatase, GGT=Gamma glutamyl transeferase (*= study group baseline vs study group after 12 weeks of supplementation; # = study group after 12 weeks vs control group after 12 weeks); (* p<.01, **p<0.001;# p<.01,## p<0.001).

Discussion

In the present study, the mean serum ALP and GGT levels were reduced in patients of T2DM after supplementation with omega-3 fatty acid in comparison to that of their baseline value. Again, after 12 weeks, mean high density lipoprotein (.01) level was significantly higher in type-2 diabetic patients supplemented with omega-3 fatty acid in comparison to that of diabetic control group without omega-3 fatty acid capsule. Insulin resistance leads impaired fatty acid oxidation in liver that causes accumulation of fat in liver¹⁴. When diabetic patient suffers from non alcoholic fatty liver diseases ALP and GGT rises¹⁵. Almost similar type of result were seen by different researchers of different countries^{16,17}. On the contrary, found no significant difference in lipid profile in patients after supplementation of omega-3 fatty acid in comparison to that of their baseline values and diabetic control group who were not supplemented with omega-3 fatty acid. There were a history of less physical activity in the study subjects that might be contributed the result of those study. Literature review suggested that, when fat stored in liver it leads to rise serum triglyceride level. When serum triglyceride level rises it rises serum ALP and GGT levels¹⁸. The binding of insulin with its receptor through releasing some inflammatory mediator from liver, that decreases insulin receptor signaling activity, this facts are influenced by rising serum TG level. Omega-3 fatty acid has a role on reducing serum triglyceride level. Peroxisome proliferator receptor- α exists in the liver which increase in number in presence of omega-3 fatty acid. An increase in PPAR- α leads to hepatic uptake of free fatty acid. It also uprise the free fatty acids oxidation in skeletal muscle. As a result, free fatty acid level is reduced in blood. The consequence of

free fatty acid reduction helps to decrease triglyceride synthesis. Thus, fish oil capsules reduces serum triglyceride level that promotes the binding of insulin to its receptor and enhances insulin sensitivity¹⁹. Fish oil activate PPAR- α (peroxisome proliferator activated receptor alpha) and down regulate sterol regulatory element binding protein-1c (SREBP-1) that enhance fatty acid oxidation and decreases liver enzymes¹¹. Modulation of Alkaline Phosphatase enzyme can be done by dietary fish oil²⁰. Fish oil supplements lowers plasma lactate dehydrogenase that's releases from endoplasmic reticulum and improve glucose tolerance by molecular mechanism²¹. In diabetic patient total protein level rises²². Supplementation of fish oil capsule decreases protein synthesis signaling so total protein decreases²³.

In the present study serum ALP, LDH and Total protein levels decreases in patients with T2DM after supplementation of omega-3 fatty acid in contrast to their baseline value and control group. Omega-3 fatty acid supplementation lessen ALP and LDH by increasing fatty acid oxidation and alter signaling pathway of protein and decreases total protein. This premises the binding of insulin to its receptor and improves insulin sensitivity.

Conclusion

After analyzing the results of the study, it can be concluded that supplementation of omega-3 fatty acid can reduces serum ALP and GGT levels in patients with type-2 diabetes mellitus. Therefore, omega-3 fatty acid containing diet may be useful to keep down the complications in type-2 diabetes mellitus.

Conflict of Interest: None.

Acknowledgement

The authors are thankful to the study subjects for their active, sincere and voluntary participation.

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Prevalence and Antimicrobial Susceptibility Pattern of *Klebsiella Pneumoniae* Isolated from Various Clinical Specimens in a Tertiary Care Hospital in Bangladesh

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Abstract

Introduction: *Klebsiella pneumoniae* are common causative agents of various infections and are of great concern for developing resistance against commonly prescribed antibiotics. This study gives an account of isolation of *K. pneumoniae* from various clinical specimens and their antimicrobial susceptibility, in a tertiary care hospital of Bangladesh. **Materials and Methods:** Various clinical specimens like urine, wound swab, sputum, blood and endotracheal aspirates were collected and processed for isolation of *K. pneumoniae* followed by their antimicrobial susceptibility testing. **Results:** Among the 316 samples that yielded culture positivity, *K. pneumoniae* were identified as second most common organism. The highest yield of *K. pneumoniae* (37.33%) were observed from wound swab followed by sputum (26.67%). Most of the isolates were resistant to sulphamethoxazole-trimethoprim (90.67%) and ceftriaxone (90.67%) followed by cefotaxime (89.33%), ceftazidime (89.33%) and cefuroxime (89.33%). The most sensitive antibiotic for the isolates was tigecycline. **Conclusion:** Isolated *K. pneumoniae* showed resistance to commonly prescribed antibiotics, which is very alarming and showing the importance on continuous monitoring and strict antimicrobial policy.

Keywords: Antimicrobial susceptibility, *Klebsiella pneumoniae*, Various clinical specimens, Strict antimicrobial policy.

Number of Tables: 04; Number of References: 31; Number of Correspondence: 04.

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Introduction

Klebsiella spp. is the second most popular member of the aerobic bacterial flora of the human intestine of which *Klebsiella pneumoniae* is the medically most important species of the genus^{1,2}.

Klebsiella pneumoniae frequently causes lower respiratory tract infections (46.7%), bacteremia (27%), urinary tract infections (11.7%) and wound infections (11.36%)³⁻⁶. *K. pneumoniae* is the second most common cause (behind *Escherichia coli*) of community and hospital-acquired gram-negative bloodstream infection⁴ and 3-7% of hospital-acquired bacterial infections are related to *K. pneumoniae*⁷. Antimicrobial resistance among clinical isolates of *K. pneumoniae* has become an increasingly serious problem over the past twenty years⁸. Multidrug resistant strain of *K. pneumoniae* emerged due to indiscriminate use of various antibiotics⁹.

Klebsiella pneumoniae carbapenemases (KPCs) (a class A beta lactamase enzyme) are predominantly found in *K. pneumoniae* and KPCs are capable of efficiently hydrolyzing penicillins, cephalosporins, aztreonam and carbapenems^{10,11}. The increasing prevalence of carbapenem resistant *K. pneumoniae* (CRKP) has become a critical threat to human health¹².

Under this grave situation, tigecycline and colistin became the last-resort of treatment for infections by multidrug-resistant (MDR) *K. pneumoniae*¹³. Hence the present study was carried out to identify the prevalence of *K. pneumoniae* in various clinical specimens and antimicrobial susceptibility pattern of the isolates which will be beneficial for medical practitioners to select empirical antimicrobial therapy which will play an important role in minimizing the emergence rate of antimicrobial resistance.

Materials and Methods

This cross-sectional study was conducted in the Department of Microbiology of Dhaka Medical College, Dhaka, Bangladesh, from July 2016 to June 2017. This research protocol was approved by the research review committee (RRC) and ethical review committee (ERC) of Dhaka Medical College.

Sample collection

A total of 500 clinical samples including urine, wound swab, sputum, blood and endotracheal aspirates were collected and processed for isolation of bacteria by following standard guidelines from adult hospitalized patients of Dhaka Medical College Hospital. Written consent was taken from all the participants for this study.

Microbiological methods:

Culture

Sputum samples having >25 polymorphonuclear cells (PMNs) /HPF (100x) and <10 squamous epithelial cells /HPF (100x) in Gram stain¹⁴ and all the urine, wound swab, blood and endotracheal aspirates were inoculated in both blood agar and MacConkey agar media, for blood samples primary blood culture was done in Trypticase Soy Broth. After incubation at 37°C aerobically for 24 hours incubated plates were examined.

Isolation and identification of the organisms from culture

Phenotypic identification of the organisms were done by observing colony morphology, hemolytic criteria, staining character, pigment production and biochemical tests (oxidase and catalase tests and other biochemical reactions after inoculation in TSI, MIU, citrate agar media)¹⁵.

Antimicrobial susceptibility test

The antimicrobial susceptibility of the isolated *K. pneumoniae* was done by Kirby-Bauer modified disc-diffusion technique¹⁶ using Mueller Hinton agar plates following Clinical and Laboratory Standard Institute (CLSI) guidelines¹⁷ and United States Food and Drug Administration (FDA) guideline for tigecycline¹⁸.

Control strain

Escherichia coli ATCC 25922 was used as control strain to assess the performance of the method.

Statistical analysis

Data were analyzed by using Microsoft Office Excel (2013) software (Microsoft, Redmond, WA, USA).

Role of funding source

There is no involvement of any funding source.

Results

A total of 500 samples were included in the present study. Of which, 170 were urine, 162 were wound swabs, 71 were sputum, 52 were endotracheal aspirates and 45 were blood samples. Culture positivity among the samples is shown in table I.

Table-I: Culture positivity from various clinical samples (N=500).

Samples	Number of samples	Culture positive n (%)
Urine	170	81 (47.65)
Wound swab	162	131 (80.86)
Sputum	71	42 (59.15)
ETA*	52	41 (78.85)
Blood	45	21 (46.67)
Total	500	316 (63.20)

* ETA= Endotracheal aspirates.

N= Total number of samples.

n= Culture positive samples.

The microorganisms isolated are shown in table II. Most frequently isolated microorganism was *E. coli* (32.28 %), followed by *K. pneumoniae* (23.73 %).

Table-II: Distribution of organisms isolated from different samples (N=316).

Organisms	n (%)
<i>Escherichia coli</i>	102 (32.28)
<i>Klebsiella pneumoniae</i>	75 (23.73)
<i>Klebsiella oxytoca</i>	5 (1.58)
<i>Pseudomonas spp.</i>	41 (12.97)
<i>Acinetobacter spp.</i>	17 (5.38)
<i>Proteus spp.</i>	12 (3.80)
<i>Enterobacter spp.</i>	10 (3.16)
<i>Citrobacter spp.</i>	6 (1.90)
<i>Salmonella spp.</i>	2 (0.63)
Gram positive bacteria	46 (14.56)
Total	316 (100.00)

N= Total number of bacteria.

n= Total number of bacterial species.

The highest yield of *K. pneumoniae* (37.33%) was observed from wound swab followed by sputum (26.67%). These facts may be referred from table III shown below.

Table-III: Distribution of *Klebsiella pneumoniae* isolated from different samples (N=75).

Samples	n (%)
Urine	14 (18.67)
Wound swab	28 (37.33)
Sputum	20 (26.67)
ETA*	7 (9.33)
Blood	6 (8.00)
Total	75 (100.00)

* ETA= Endotracheal aspirates.

N= Total number of *K. pneumoniae*.

n= Number of *K. pneumoniae* isolated from different samples.

The result of the antimicrobial susceptibility pattern of the isolated *K. pneumoniae* is depicted in table IV. Most of the isolates were resistant to sulphamethoxazole-trimethoprim (90.67%) and ceftriaxone (90.67%) followed by cefotaxime (89.33%), ceftazidime (89.33%) and cefuroxime (89.33%). The most sensitive antibiotic for the isolates was tigecycline.

Table-IV: Antibiotic resistance pattern of isolated *Klebsiella pneumoniae* (N=75).

Antimicrobial drugs	Resistance n (%)
Amikacin (30 µg)	54 (72.00)
Amoxicillin-clavulanic acid (20/10 µg)	56 (74.67)
Cefepime (30 µg)	65 (86.67)
Cefotaxime (30 µg)	67 (89.33)
Ceftazidime (30 µg)	67 (89.33)
Ceftriaxone (30 µg)	68 (90.67)
Cefuroxime (30 µg)	67 (89.33)
Ciprofloxacin (5 µg)	66 (88.00)
Gentamicin (10 µg)	57 (76.00)
Imipenem (10 µg)	28 (37.33)
Meropenem (10 µg)	28 (37.33)
Piperacillin-Tazobactam (100/10 µg)	54 (72.00)
Sulphamethoxazole-Trimethoprim (1.25/23.75 µg)	68 (90.67)
Tigecycline (15 µg)	11 (14.67)

N= Total number of isolated bacteria.

n= Total number of resistant bacteria.

Discussion

In the present study, culture positivity among the collected samples was 63.20% which is closer to a study in India reporting 56.9% culture positivity⁵. In the present study, among the culture positive samples *Escherichia coli* (32.28%) was the most common organism followed by *K. pneumoniae* (23.73%). A study in India by Choudhuri et al.¹⁹ reported that among the culture positive samples 27% were *K. pneumoniae* which is closer to the present study.

The isolation rate of *K. pneumoniae* was highest from wound swabs (37.33%), followed by sputum samples (26.67%). A study in India reported that highest *K. pneumoniae* (46.70%) were obtained from sputum and other lower respiratory tract secretions followed by blood (31.30%) and wound swab (24.20%)⁵. A study by Chakraborty et al.²⁰ reported that highest prevalence of *K. pneumoniae* was observed in urine sample followed by wound swab. The variation in frequency of isolation of *K. pneumoniae* from different samples may be due to variation in the sample size.

In the present study, higher rate (90.67%) of resistance was exhibited by *K. pneumoniae* against sulphamethoxazole-trimethoprim, which is similar to observations of other authors ranging from 76% to as high as 95.24% resistance^{21,22}. Resistance of *K. pneumoniae* to ciprofloxacin was 88% in the present study. This finding was in agreement with the study by Babakhani et al.²³ who reported 82.50% ciprofloxacin resistance to *K. pneumoniae*. High ciprofloxacin resistance had been reported in other studies

ranging from 63% to as high as 76.9%^{24,25}. High resistance rate to sulphamethoxazole-trimethoprim and ciprofloxacin in the present study might be due to uncontrolled consumption of these antibiotics in Bangladesh²⁶.

In the present study, among the isolated *K. pneumoniae*, 90.67% were resistant to ceftriaxone. This observation is nearly closer to other studies reporting 92.5%, 97.43% and as high as 100% ceftriaxone resistance^{23,27,21}.

In the present study, among the isolated *K. pneumoniae*, 37.33% were imipenem resistant, identified by disc diffusion test. A study in India reported that *K. pneumoniae* isolated from different clinical samples were 32% resistant to imipenem²⁸. Previous studies in DMCH reported 26.32% and 34.61% imipenem resistance among *K. pneumoniae*^{29,30}. The frequency of imipenem resistant *K. pneumoniae* is increasing in Bangladesh which is reflected by these studies. Dissemination of *K. pneumoniae* carbapenemase (KPC) has led to an increase in the prevalence of carbapenem resistant Enterobacteriaceae (CRE)¹².

In the present study, most of the isolates of *K. pneumoniae* were found susceptible to tigecycline (85.33 %), which is similar to observation of Shawky et al.³¹ who reported 86.2% susceptibility to tigecycline.

Conclusion

K. pneumoniae was found to be the second most common organism causing various infections. Our results suggest that there is a high antibiotic resistance among clinical *K. pneumoniae* isolates towards commonly prescribed antibiotics, which is alarming for developing countries like Bangladesh. Continuous monitoring and strict antimicrobial policy will have a great impact on reducing bacterial resistance towards antibiotics and development of proper treatment options against *K. pneumoniae* infections. As antimicrobial susceptibility vary from time to time and in different geographical areas, more studies should be conducted at intervals at different geographical areas.

Conflicts of Interest: None.

Acknowledgement

I express my profound gratitude to The Almighty Allah for giving me the opportunity to carry out this work and I acknowledge the support of department of Microbiology, Dhaka Medical College, Dhaka for providing me the opportunity and resources to undertake this work.

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Epidemiological & Clinical Manifestation of Cirrhosis of Liver in a Tertiary Hospital

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Abstract

Introduction: Cirrhosis of liver is common Medical problem in our country and causing for significant morbidity & mortality. This study was aimed to find out aetiology and clinical presentation of cirrhosis in this southern part of Bangladesh. **Materials & Methods:** An observational study was conducted in Khulna Medical College Hospital from January 2016 to June 2016. That included adult (>15yrs) cirrhosis patient in medicine ward on the basis of history & clinical examination. **Results:** Common age is (37-48)yrs, 80% were male patient. Male Female ratio 4:1. Anorexia & dyspepsia were the most common symptom. 78% presented with ascites 34% presented with variceal bleeding. Aetiology are Hepatitis B (52%), Hepatitis C (24%) & idiopathic 16%. **Conclusion:** Screening for chronic liver disease should include history and physical examination, serum transaminase measurement, upper abdominal ultrasonography, and in some case, fibroscan. Management of patient with cirrhosis should be prevention & early intervention to stabilize disease progression and to avoid or delay clinical decompensation and the need for liver transplantation.

Keywords: Chronic liver disease, Cirrhosis of liver.

Number of Tables: 06; Number of References: 16; Number of Correspondence: 04.

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Introduction

Cirrhosis is the 14th most common cause of death worldwide¹. Cirrhosis represents a late stage of progressive hepatic fibrosis characterized by destruction of hepatic architecture and the formation of regenerative nodules. Previously it was considered to be irreversible. Common causes are chronic Hepatitis B, Hepatitis C, Alcohol, Wilson's disease, NASH, PBC, PSC³. Over 350 people worldwide are infected with hepatitis B virus globally. Bangladesh belongs to the intermediate prevalence region for HBV infection.

Here the life time risk of acquiring HBV is between 20-60%. One study shows that HBV is responsible for 31.25% case of acute hepatitis, 76.3% cases of chronic hepatitis, 61.15% cases of cirrhosis of liver, 33.5% cases of hepatocellular carcinoma in Bangladesh². Based on two hospital observations, the incidence of cirrhosis is found to be 2.6 percent of the total hospital admission². This figure will probably increase when calculation includes the rural hospitals. The patients who come across in the hospital wards are mostly in advanced stage with overt clinical manifestations and/or complications. Some cases, however, may present with vague digestive complaints with minimum physical signs. Some patient present with ascites and hematemesis melaena. In Bangladesh, differences in some aspects of clinical manifestations of cirrhosis of liver have been found as compared to the reports of western world. This appears to be consistent with the findings that the vast majority of cases in our country. In contrast, alcoholic cirrhosis constitute a greater proportion of cases in the reports of western authors. are non-alcoholic and are usually post-viral infection sequelae⁵. In contrast, alcoholic cirrhosis constitute a greater proportion of cases in the reports of western authors⁵.

Materials and Methods

A total 50 diagnosed cirrhosis patient admitted in different Medicine Units of Khulna Medical College Hospital were included in this observational study from January to June-2016. All of them were above the age of 15 years.

Inclusion criteria are male & female patient aged 15 years and above and history, clinical feature & investigation suggestive of cirrhosis.

Exclusion criteria are age under 15 years, negative Clinical feature & Investigation of CLD and patient of CLD with HCC.

Results

According to the questionnaire history of all fifty cases were taken the clinical examination was carried out meticulously. The commonest

(34%) was the age group (37-48) years. The next common being in the age group (49-60) years (table-I).

Table I: Age distribution of the patient with liver cirrhosis (n=50).

Age in years	Number	Percentage
15-24 yr	06	12.0
25-36 yr	08	16.0
37-48 yr	17	34.0
49-60yr	15	30.0
>60 yr	04	08.0

Shows that (80%) were male and (20%) were female, with male-female ratio 4:1 (table-II).

Table-II: Sex distribution of study patients.

Sex	Number	Percentage
Male	40	80.0
Female	10	20.0
Total	50	100

18 (36%) cases were day labor. All the 10 (20%) female patient were house wife. 7 (14%) cases were serviceman and another 7 were businessman (table-III).

Table-III: Occupational incidence of study patients.

Occupation	Number	Percentage
House wife	09	20.0
Service	07	14.0
Student	03	06.0
Govt. Job	02	04.0
Day labor	18	36.0
Business	07	14.0
Farmer	03	06.0

Anorexia and dyspepsia (90%), fatigue & Wt. loss were the most common presenting symptom. A number (78%) presented with swelling of abdomen (34%) presented with hemorrhage (table-IV).

Table-IV: Presenting complaints of study patients (n=50).

Presenting complaints	Number	Percentage
Fatigue and weight loss	33	66.0
Anorexia and dyspepsia	45	90.0
Jaundice	20	40.0
Haemorrhage		
(Gums,	2	04.0
Alimentary tract,	15	30.0
Absent)	33	66.0
Swelling of abdomen	39	78.0
Loss of libido	26	52.0

Only (40%) patient gives the past history jaundice. History of transfusion found in 24% of patient.

Table shows that personal history of intravenous drug misuse were (6%) & needle stick injury were (4%).

Viral hepatitis was found to be the most common cause Hepatitis B was found in (52%) patient & Hepatitis C was found in (16%) patient. No cause was found in (24%) (table-V).

Table-V: Possible actological factor (n=50)

Aetiology	Male	Female	p value
HBsAg Positive	24	02	0.04
Anti HCV Positive	06	02	0.65
Cryptogenic	08	04	0.22
Alcohol	02	00	1.0
Budd chiari syndrome	01	00	1.0
Wilson's disease	00	01	1.0

The most significant physical sign were ascities, present in 78% of cases. Palpable spleen (Splenomegaly) in (60%) cases. Spider angioma, testicular atrophy, gynecomastia were present in 44, 44, 28 percent cases respectively (table-VI).

Table-VI: Physical examination finding in cirrhosis

Physical findings	Number	Percentage
Jaundice	24	48
Spider angioma	22	44
Palmer Erythema	02	04
Clubbing	06	12
Testicular atrophy	22	44
Gynaecomastia	14	28
Pigmentation	19	38
Ascities	39	78
Splenomegaly	30	60

Discussion

The incidence of chronic liver disease has increased throughout the world. Chronic hepatitis B virus infection is regarded as the most important cause of cirrhosis of liver in Bangladesh². Hepatitis C infection seems to be common in many countries. The diagnosis parameters were clinical, biochemical, sonographic & endoscopic examination. Only two patient needs additional investigation like hepatic scintiscan (for Buddchiari syndrome) & test for Wilson's disease. Although ideally biopsy is needed for diagnosis but logistic and financial difficulties & different contraindication of biopsy precluded histopathological study. The age & sex distribution in the present study is almost similar to previous report⁴. Male to female ratio = 4:1 perhaps reflect social prejudice & avoidance of hospital admission by female. Most of the patients were between 37-48 years (34%). The occupational incidence shows that people of almost all occupation can be come an unfortunate victim of chronic live disease. In the present series, some author have shown that history of injection, blood transfusion are positively correleated with HBsAg positivly among general population.No significant past history of Jaundice may be due to anicteric hepatitis^{5,6}.

High incidence of HBsAg positivity in cirrhosis patients ranging from 25 to 60% have been reported from Africa. All these countries have high general HBsAg seroprevalence⁷. In the developed countries chronic alcoholism is by far the most important cause of cirrhosis⁸. In Bangladesh prevailing social religious & cultural factors dictate that alcoholism is not an important aetiological factor of CLD. The reported incidence of alcoholism in CLD patients in Bangladesh ranges from 3.57 to 7.1%. The commonest symptoms in this series were anorexia dyspepsia (90%), Fatigue & weight loss (66%) and swelling of abdomen (78%), 40% present with jaundice. Haematemesis (4%) and/or melaena (30%). The reported incidence of clinical jaundice in cirrhosis patients in Bangladesh ranges from 20.1 to 68.7 percent⁹. These variable incidence indicates the variable percentage of decompensated patients belonging to that particular study. Other important clinical features include clubbing (12%), palmar erythema (4%) and spider naevi (44%) Gynaecomastia (28%), testicular atrophy (44%). The incidence of these classical peripheral stigmata of cirrhosis are consistent with the findings of other^{10,11}.

Ascitic fluid study revealed mostly transudative fluid (mean protein 22.8 gm/L)¹². Ultrasonography is an important noninvasive investigation in the evaluation of cirrhosis. Ultrasonography is currently the first choice to screen for development of hepatocellular carcinoma in patients with cirrhosis^{13,14}. In the present study ultrasonography revealed ascites with hepatomegaly or splenomegaly (30%) or both hepatosplenomegaly (10%). Endoscopy was done in 18 patients. Oesophageal varices were detected in all patients. Screening for Wilson's disease was done in one patient & was found to have biochemical parameters of Wilson's disease (low serum ceruloplasmin and serum copper value with markedly increased urinary copper excretion) as well as classic Kayser-Fleischer ring and features of both CLD and basal ganglia involvement. The patient improved gradually with the commencement of penicillamine therapy. Wilson's disease is an uncommon but important cause of CLD where effective treatment is available. Young patients with features of CLD should always be screened for Wilson's disease^{15,16}.

Conclusion

Screening for chronic liver disease should include history and physical examination, serum transaminase measurement, Upper abdominal ultrasonography, and, in some cases, Fibroscan. In management of patient with cirrhosis should be prevention & early intervention to stabilize disease progression and to avoid or delay clinical decompensation and the need for Liver Transplantation. A multi-centre nationwide study could address the study objective in a meaningful way.

Conflict of Interest: None.

Acknowledgement

We would like to thank all doctors & nursing staff of medicine department, Khulna Medical College who participated & making this study possible. Our special thanks &

gratitude to Professor Dr. SM Kamal, Head of Department, Medicine KMC.

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Evaluation of Outcome of Decompression and Transpedicular Screw Fixation in the Management of TB of the Thoracolumbar Spine

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Abstract

Introduction: Spinal tubercular infection is the most common and dangerous form of skeletal tuberculosis. Transpedicular instrumentation systems have distinct advantages such as rigid segmental fixation, stabilization of the three column of the spine, least failure at bone metal interface, early post-operative mobilization with efficient nursing care and least complications in the management of tuberculosis of the thoraco-lumbar spine. Objectives was to evaluate the outcome of decompression and transpedicular screw fixation in the management of tuberculosis of the thoracolumbar spine. **Materials and Methods:** An observational follow-up study. A total no. of 21 patients aged between 19-72 years and both sexes (Male-9, Female-12) was included in the study. Patients diagnosed as tuberculosis of the thoraco-lumbar spine were operated by direct decompression, transpedicular screw fixation and fusion with bone graft and mesh cage in some cases. First follow-up at 1 month after operation and thereafter at 3 and 6 months follow-up was done. **Results:** This study shows mean±SD age was 40±11.29 years. 57.1% were female and 42.9% were male. Lesion 66.7% were dorsal, 19.0% were lumbar and 14.3% were dorsolumbar. 42.86% were ASIA grade C, 33.33% were ASIA grade D, 9.52% were both ASIA grade B & E and 4.76% were ASIA grade A in preoperative stage. On the other hand in postoperative 61.90% were ASIA grade E, 33.33% were ASIA grade D and 4.76% were ASIA grade B. The difference was statistically significant ($P < 0.001$). Four-fifths (80.95) of the patients had excellent outcome followed by 14.29% good outcome, 4.76% fair and 0% poor outcome. **Conclusions:** Posterior approach is a minimum surgical intervention that encourages neurological recovery.

Key words: Decompression, Transpedicular screw fixation, Thoracolumbar spine TB.

Number of Tables: 06; Number of Figures: 02; Number of Bibliography: 22; Number of Correspondence: 06.

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Introduction

Tuberculosis (TB) is a common problem in developing countries. Although it is on decline but still present in developed countries due to immigrants from underdeveloped countries¹. Spinal TB is the most common and dangerous form of skeletal tuberculosis because of its capacity to cause bone destruction, deformity, and paraplegia. It was initially described by Sir Percival Pott as painful kyphotic deformity of the spine associated with Paraplegia. The disease spread to the spine from primary focus either directly or through blood i.e. intercostal arteries and batson's plexus². Destruction of vertebra starts in cancellous bone and then spread to involve another vertebrae. Usually one motion segment is involved³. Differentiating spinal TB from pyogenic and fungal vertebral osteomyelitis as well as primary and metastatic spinal tumors may be difficult when only clinical and radiographic findings are considered. A history of tuberculosis, a positive skin test (its value declines in endemic areas), and an elevated erythrocyte sedimentation rate (ESR) may be useful in the diagnosis of spinal TB⁴. Biopsy plays a valuable role in the diagnosis of spinal TB infection. The use of DNA amplification techniques (polymerase chain reaction or PCR) may facilitate rapid and accurate diagnosis of the disease⁵. Spinal TB is one of the most common causes for a kyphotic deformity in patients from many parts of the world, and particularly in developing countries. There is an average increase in kyphosis of 15 degrees in all patients treated conservatively, and a deformity greater than 60 degrees may develop in 3% to 5% of patients⁶. Development of neurologic deficit and paraplegia after healing of the spinal TB lesion is associated with a worse prognosis than when these complications occur during

the active phase of disease⁷. Spinal tubercular infection constitutes 1/3 to 1/2 of all bone and joint tuberculosis. Thoracic and lumbar spine are commonly affected area. 10-40% of patients with thoracic spine tuberculosis may get neurological deficit. Urgent measures are needed to halt progression of destruction and deformity and especially to prevent and overcome paraplegia. Proper selection of drug therapy and operative modalities, however, is needed to optimize functional outcome for each individual case of Pott's disease⁸. Spinal TB is a medical disease and antituberculosis drugs have a main role in the recovery and response of patients⁵. The efficacy of antituberculosis drugs and other conservative means have been shown in several studies for the treatment of spinal TB in the absence of neurologic deficit, instability, and deformity regardless of presence of paravertebral abscess⁹. Adequate early pharmacological treatment can prevent severe complications. Combination of rifampicin, isoniazid, ethambutol, and pyrazinamide for three months followed by combination of rifampicin and isoniazid for a total period of 6, 9, 12 or 18 months is the most frequent protocol used for treatment of spinal TB^{7,10}. The "Middle Path Regime" treatment approach reserves surgery for the treatment of complications of the disease. Patients are started on chemotherapy, and initially are managed with bed rest.

Both the erythrocyte sedimentation rate and spinal radiographs are monitored at 3 to 6 month intervals. Patients are mobilized in a brace once their symptoms have subsided and bracing is continued for a total of 18 to 24 months. Subcutaneous abscesses are aspirated, and one gram of streptomycin may be instilled locally. Sinus tracts are excised if they remain after 12 weeks of chemotherapy. Surgical treatment is suggested for an increase in size of a paravertebral abscess despite adequate chemotherapy, involvement of the posterior elements, lack of clinical response after 3 to 6 months of chemotherapy (neurologically normal), lack of neurologic recovery or progression of neurologic deficits after 3 to 4 weeks of chemotherapy, recurrence of disease, mechanical instability, or an uncertain diagnosis¹¹.

In a randomized controlled trial conducted by the Medical Research Council of the UK, the results of surgery and antituberculosis chemotherapy were compared for management of patients with spinal TB. One arm of the trial showed a small but significant advantage of surgery over chemotherapy in preventing progression of kyphosis, but the other arm did not demonstrate superiority of surgery over chemotherapy during long-term follow-up of the patients¹². Surgical treatment improves the quality of life and speeds the rehabilitation. The principle of operative management of spinal tuberculosis is to decompress the spinal cord by removing the necrotic tissue and draining of any pus and devitalized tissue followed by immobilization. Yet the infected vertebrae are prone to collapse and they require mechanical support to prevent progressive deformity⁶.

Bangladesh, most densely populated country with limited health care facilities, even most of the district hospital including medical college hospitals is lacking in spinal care centers. This prospective study of decompression and transpedicular screw fixation of tuberculosis of spine in thoracic and lumbar region conducted in spine surgery department of DMCH to evaluate the outcome of surgical management of spinal tuberculosis might be beneficial for our people in perspective of our country.

Materials and Methods

This observational follow-up study was done Department of Orthopaedic Surgery, Dhaka Medical College Hospital Dhaka, Bangladesh from July, 2015 to June, 2017.

Inclusion criteria are all patients with tuberculosis of thoracolumbar spine, who were undergone surgery, age-16-80 years, sex - both male and female, spinal TB with neurological involvement and unstable spine due to spinal tuberculosis.

Exclusion criteria are patients with thoracolumbar tuberculosis who were managed conservatively, unstable medical illness that would significantly increase the risk of morbidity and mortality and spinal tuberculosis rather than thoracolumbar region.

Variables of the study: After enrollment of patient and tabulation of the collected data following variables was measured.

A. Demographic variables –

- Age • Sex • Occupation.

B. Clinical variables-

- Clinical feature- Back pain and stiffness, fever, cough, anorexia, weight loss, weakness, night sweating, neurological deficit like paraplegia, spinal deformity, local tenderness.
- Level of involvement.
- Presence of deformity or gibbus.
- Neurological status.
- Ambulatory status.

C. Outcome variables-

- Clinical outcome • Back pain
- Neurological improvement by ASIA grading
- Ambulation • Radiological outcome
- Implant failure • Complications.
- Functional outcome

Operational Definition

1. Tuberculosis of Thoracolumbar Spine: Clinical, radiological & laboratory findings in favour of tuberculosis of thoracolumbar spinal region is regarded as tuberculosis of thoracolumbar spine.

2. Decompression: Making free of spinal cord & nerve root from compression is called decompression.

3. Transpedicular: Application of pedicular screw through the pedicle of vertebra.

Ethical Approval: The study has been approved by the Ethical Review Committee of Dhaka Medical College, Dhaka. Other ethical issues such as informed written consent from patient or from legal guardian after duly informed was taken. The aims and objectives of the study were explained to the patients in easily understandable local language. They were also informed about the approximate cost of X-Ray, MRI or CT Scan of thoracolumbar spine and implants used for the procedure of treatment. It was assured that the procedure will be helpful for both the doctor and the patients in making rational approach of the case management.

Data Collection: A structured data collection form (Appendix-III, page-v) was developed containing all the variables of interest which was finalized following pretesting. Data were collected by history, clinical examinations, investigation, operative procedure and follow up findings before data collection informed written consent was taken from the patients. Data was collected by the investigator himself.

Data Analysis: Collected data were compiled and presented in the form of tables and charts based on key variables and functional assessment scoring. The analysis of different variables was done according to standard statistical analysis we had done fisher exact test and also mean and SD was measured. The results were analyzed by using statistical package for social science (SPSS) version 20.0. For all analysis level of significance set at 0.05 and P value <0.05 will be considered significant.

Methodology: A total no. of 21 patients with tuberculosis of the thoracolumbar spine, aged between 19-72 years of both sexes (Male-9, Female-12) were selected in the study as per inclusion and exclusion criteria between July, 2015 to June, 2017. Mean age was 40 years with SD ± 11 years. A detailed history of the selected patient was taken with thorough general, local and neurological examination was done for proper assessment.



a



b

Photograph-1: Pre-operative marking, (a) X-ray and (b) over body

All patients were given standard antituberculous chemotherapy for a total of 12 months: Four drugs (isoniazid, rifampicin, pyrazinamide and ethambutol) for 3 months, followed by two drugs (isoniazid and rifampicin) for 9 months and it was extended for 18 months for one patient. Besides this, intravenous antibiotic drug, a 3rd generation cephalosporin, flucloxacilline and amikacin were given for 5-7 days to all patients after surgery.



Photograph-2: Placement of Pedicle Screw



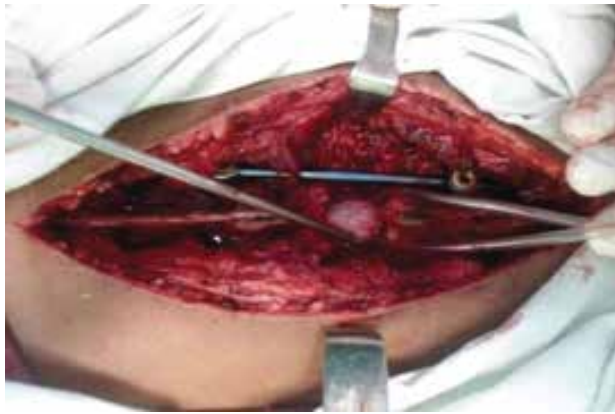
a

b

Photograph-3: C-arm view of pedicular screw (a) A/P & (b) Lateral view



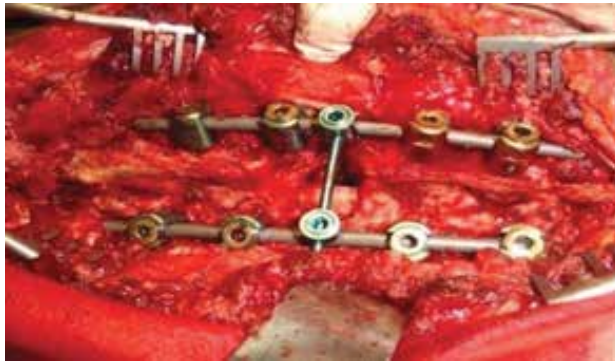
Photograph-4: Pus collection



Photograph-5: 360° decompression of spinal cord



Photograph-6: Insertion of cage



Photograph-7: Stabilization with Screw and Rod

Immediately post-surgery, routine anteroposterior and lateral radiographs were obtained to assess the extent of decompression and placement of graft and instrumentation. All patients were followed up at 1, 3 and 6 months after surgery. At each follow up clinical evaluation, plain radiographic studies were obtained to determine the fusion status, development or progression of deformity after surgery, and instrumentation failure. Neurological deficit was graded according to ASIA grade. Pain was also assessed according to the following scale: Severe, moderate, mild, and no pain. Functional outcome was assessed according to Modified Macnab criteria.

Postoperative management and follow up:

The principle of postoperative aim were early recovery of motion and functions and return to independent living.

Patient was kept in postoperative ward initially and thereafter in general ward or cabin. Patients were allowed to turn the body in bed immediately after operation.

The following postoperative follow up protocol were practiced.

The day of operation:

1. General vital parameters
2. Dressing and drain tube collection, urine output.
3. Neurological condition
4. All patient were administered prophylactic 3rd-generation cephalosporin (ceftriaxone) 1gm, Flucloxacillin 500 mg and Amikacin 500 mg intravenously during general anaesthesia and then continued 12 hourly, 6 and 8 hourly respectively for three (05) days postoperatively.

1st postoperative day-

1. General vital parameters
2. Dressing and drain tube collection, urine output.
3. Neurological condition
4. Deep breathing and posture change were advised.
5. Isometric quadriceps exercise (if possible) by pushing knee down and hold for a count of 10.
7. Gluteal exercise (if possible)- Squeeze the buttock together and hold for a count 10.

2nd postoperative day-

1. General vital parameters
2. Dressing and drain tube collection, urine output.
3. Neurological condition
4. Deep breathing and posture change were continued.
5. Isometric exercise continued.
6. Catheter clamping

3rd postoperative day-

1. Drain and catheter were removed (If possible).
2. Check X-ray at the site of operation was done.
3. Allowed to sit in bed with brace and assistance.
4. Begin ambulation with walker with the assistance if possible.

4th-5th Postoperative day-

- If everything was going alright, the patient was discharged with some written instruction as follows.

Patient were discharged with following advice –

- Taylor brace should worn during ambulation.
- Follow up visit at particular date with the discharge certificate, plain x-ray dorsolumbar spine (AP and lateral view) at 1 month, 3 months and 6 months.
- Training and teaching about daily activities like how to sit, how to lie, how to bath how to use toilet and how to use intermittent catheter for bladder if not under controlled.
- Continue the pervious exercise and ambulation activities.

- Ensure a home physiotherapy.
- Orient family to patients needs, abilities, limitations, precaution with family members.
- Give patient a prescription of prophylactic antibiotic and anti tubercular chemotherapy.
- Limited athletic activity- swimming, cycling and golfing.
- Stitch were removed on 14th postoperative day.

Follow-up:

After discharge from hospital each patient was asked to follow up at OPD.

1. 1st follow-up after 01 month of operation.
2. 2nd follow-up after 03 months of operation and
3. 3rd follow-up at 06 months after surgery.

At each follow up clinical examination of scar, neurological assessment and plain radiographic studies were obtained to determine bony fusion and instrumentation failure.

Upon pre-operative, post-operative, and follow-up clinical assessments, the patients neurologic function graded by using the ASIA grading system (Appendix-IV, page-x), and modified Macnab criteria for the outcome of surgery.

Patient was counseled in every follow up regarding the role of physiotherapy in their rehabilitation.

Outcome evaluation:

Modified Macnab criteria was used for categorization of outcome (Macnab 1971).

Result (Outcome)	Criteria
Excellent	No pain, no restriction of mobility, return to work and level of activity.
Good	Occasional non radicular pain, relief of presenting symptoms, able to return to modified work.
Fair	Some improved functional capacity, still handicapped and unemployed.
Poor	Continued objective symptoms of root involvement, additional operative intervention needed at the index level irrespective of length of postoperative follow up.

For valid statistical analysis, outcome categories were regrouped as: Excellent and good categories were considered as satisfactory; Fair and poor categories were considered as unsatisfactory.

Rehabilitation:

Rehabilitations are one of the achievements of medical science, during the past two decades. These patients need physical, psychological and economic independence and social integration. Medical rehabilitation should start right from the earliest stage of treatment.

Observations

In this study, a total number of 21 patients with tuberculosis of the thoracolumbar spine were operated in the form of direct decompression and long segment spinal fixation. All the patients were clinically evaluated and

radiologically investigated. Every patient was followed up regularly up to 6 (Six) months after surgery. The results were assessed on the basis of modified Macnab criteria.

Results

Demographic information:

Table I shows 4.76% were age group ≤ 20 years, 33.33% were 21-30 years, 19.05% were 31-40 years, 19.05% were 41-50 years, 14.09% were 51-60 years and 9.52% were more than 60 years. The average age was 40 years. Range of age was 19-72 years.

Table -I: Distribution of respondents by age (n=21).

Age in years	Frequency	Percent	Mean $\pm$ SD
≤ 20	1	4.76	40 $\pm$ 11.29
21-30	7	33.33	
31-40	4	19.05	
41-50	4	19.05	
51-60	3	14.29	
>60	2	9.52	
Total	21	100.0	

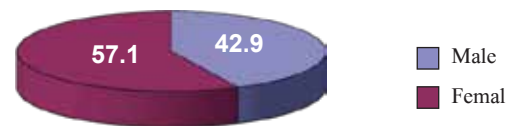


Figure-1: Pie chart of patients by sex (n=21).

Figure shows distribution of patients by sex, 57.1% (n=12) were female and 42.9% (n=9) were male.

An analysis of the different job categories showed that the most impacted group in the samples were 09 (42.86%) housewives, 03 (14.29%) laborers, 03 (14.29%) students, and followed by service holder 02 (09.52%), business man, 01 (04.76%) driver 01 (04.76%) farmers 01 (04.76%) and others 01 (04.76%)(Table-II).

Table-II: Distribution of patients by occupational status (n=21).

Occupational status	Number of patients	Percentage %
Labour	03	14.29
Business man	01	04.76
Service holder	02	09.52
House wife	09	42.86
Student	03	14.29
Driver	01	04.76
Farmer	01	04.76
Others	01	04.76
Total	21	100.00

Table III shows multiple responses, most of the common clinical presentation was pain (90.5%) then gibbus (57.1%), paraplegia (57.1%), difficulty in walking (28.5%) and weakness (19%).

Table-III: Distribution of patients by clinical presentation (n=21).

Clinical presentation	Frequency	Percentage
Weakness	4	19.0
Gibbus	12	57.1
Pain	19	90.5
Weight loss	4	19.1
Paraplegia	12	57.1
Difficulty to walking	6	28.5

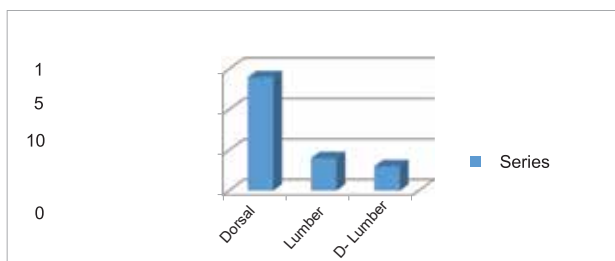


Figure- 2: Distribution of patients by level of involvement of lesion (n=21).

Figure 2 shows distribution of lesion, 66.7% were dorsal, 19.05% were lumbar and 14.29% were dorsolumbar.

Table IV shows that maximum 42.9% were grade C in pre-operative state and also 33.3% were grade D, 9.5% were both grade B, & E and 4.8% were grade A in preoperative. On the other hand in postoperative 4.8% were grade B, 33.3% were grade D and 61.9% were grade E.

Table-IV: Distribution of patients by pre & post operative ASIA grade (n=21).

ASIA Grade	Preoperative (n = 21)	Postoperative (n = 21)
Grade A	1 (4.8)	0 (00)
Grade B	2 (9.5)	1 (4.8)
Grade C	9 (42.9)	0 (00)
Grade D	7 (33.3)	7 (33.3)
Grade E	2 (9.5)	13 (61.9)
Total	21 (100)	21 (100)

Figures in the brackets indicate corresponding %.

Table V shows pre-operatively 6(28.57 %) patients walked without support but had some weakness. 5(23.81%) patients could walk with support and 10(46.62%) patients were bed ridden and also there was no patient who could normally walk in the pre-operative stage. In post-operatively maximum 12(57.14%) patients gained normal walking. 5(23.81%) patients walked without support but had some sort of weakness. 3(14.29%) patients walked with support. And 1(4.76%) was bed ridden but could be moved with wheel chair. Ambulatory status of the patients improved after the operation.

Table-V: Distribution of patients by Ambulatory status pre & post operatively (n=21).

Ambulation	Preoperative		Postoperative	
	No	%	No	%
Normal walking	0	0	12	57.1
Some weakness but can walk without support	6	28.6	5	23.8
Walks with support	5	23.8	3	14.3
Bed ridden patient	10	47.6	1	4.8

Figures in the parentheses indicate corresponding %.

Table VI shows majority (80.95%) of the patients had excellent outcome followed by 14.28% good outcome and 4.76% fair outcome.

Table-VI: Distribution of the patients by functional outcome according to modified Macnab criteria (n=21).

Results	Frequency	Percentage
Excellent	17	80.95
Good	3	14.28
Fair	1	4.76
Poor	0	0

Discussion

In this study maximum (33.33%) cases were 21-30 years group followed by 19.05% were 31-40 years & 41-50 years group, 14.29% were 51-60 years, 9.52 % were > 60 years group and 4.76% were < 20 years group. The mean age was 40±11.29 years. In a similar study found the mean age 41.4±12.5 years¹³, 44.07±16.57 years¹⁴. It varies on sample size and study settings. Regarding sex distribution in this study shows 57.1% were female and 42.9% were male. Other similar study found 56% male and 44% female¹⁵ & 48.3% male and 51.7% female¹³. In this study occupational variation were 09 (42.86%) housewives, 03 (14.29%) labourers, 03 (14.29%) students, and followed by service holder 02 (09.52%), business man, 01 (04.76%) driver 01 (04.76%) farmers 01 (04.76%). In this study found most of the common clinical presentation were pain (90.5%) then gibbus (57.1%), paraplegia (57.1%), difficulty to walking (28.5%) and weakness (19%). Others similar study shows majority 15(53.5%) has complain of back pain while weakness in 5(17.8%)¹⁶. Another study shows 84% were presenting with back pain & 10% with weakness¹³. In Polly's study 53% were having complained of back pain¹⁷. Regarding distribution lesion, in this study, 66.7% were dorsal, 19.05% were lumbar and 14.29% were dorsolumbar. study shows Thoracic spine was involved in 42% of cases, lumbar spine 30% of cases, cervical spine 11% of cases, thoracolumbar 10%, lumbosacral 5% of cases and sacral 2% of cases¹⁸. Our findings differ with them as we exclude spinal tuberculosis rather than thoracolumbar spinal region.

In this study, preoperative ASIA grade, maximum 42.9% were shown to grade C, 33.3% were grade D, 9.5% were both grade B & E and 4.8% were grade A. On the other hand in postoperative 4.8% were grade B, 33.3% were grade D and 61.9% were grade E. The difference was statistically significant ($P < 0.001$) where CI is 95%. Study shows before starting treatment 1 patient (2.08%) was in ASIA A, 2 (4.16%) were in ASIA B, 9 (18.75%) were in ASIA C, 36 (75%) were in ASIA D and 12 (20%) were in ASIA E¹⁹. After 6 months of therapy 30 (90%) patients in ASIA D and 5 (55.5%) in ASIA C had complete neurological recovery. Both patients from ASIA B improved to ASIA D. Single patient who was in ASIA A before treatment remained non ambulatory (ASIA C) after treatment. They also found significant difference between before treatment and after 6 months therapy.

This study shows preoperatively, 6 (28.6%) patients walked without support but had some weakness. 5 (23.8%) patients could walk with support and maximum 10 (47.6%) patients were bed ridden in preoperative. In postoperatively maximum 12 (57.1%) patients gained normal walking after the six months. 5 (23.8%) patients walk without support but have some sort of weakness. 3 (14.3%) patient walks with support. Only 1 (4.8%) patient is bed ridden but can be mobilized with wheel chair. Study showed 52% of patients presented in a non ambulatory state, 21% had mild neurologic deficits and 27% had intact neurological function²⁰. Our results consistent with this study. In a recently published study among patients with neurologic deficit, significant recovery occurred in 92%, with 74% improving from non-ambulatory to ambulatory status²¹.

In this study shows majority (80.95%) of the patients had excellent outcome followed by 14.29% good outcome and 4.76% fair but there are no poor outcome. Similar study shows thirty-four percent of the cases had resolved, 41% improved, 14% remained unchanged, and 9% deteriorated by the last control examination. It was observed that surgical management of spinal tuberculosis in thoracic and lumbar region after final follow up majority were found excellent and good outcome²².

Conclusion

In case of spinal tuberculosis medical treatment is generally effective. Surgical intervention is necessary in advanced cases with marked bony involvement, abscess formation or paraplegia. ASIA grade were significantly improved in post-operative period. Posterior approach is a minimum surgical intervention that encourages neurological recovery. It concluded that early diagnosis and treatment prevent complication. Surgical procedure especially debridement, posterior decompression, instrumentation with transpedicular screw and rods and fusion are good surgical procedure for the patients with spinal tuberculosis in thoracic and lumbar region.

Conflict of Interest: None.

Acknowledgement

All praises go to Almighty Allah, for the opportunity, energy and perseverance. He has given me to serve the distressed as a physician and to carry out & go in depth of a research work.

I express my respect and deepest sense of gratitude to my respected teacher and guide Professor Dr. Md. Shamsuzzaman, Professor and Head, and Dr. Md. Shahidul Islam Akon, Assistant Professor, Spine Surgery, Department of Orthopaedic Surgery, Dhaka Medical College & Hospital, Dhaka for their valuable, constant guidance and kind co-operation from beginning to completion of this thesis.

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Zinc as Adjunct Therapy in Neonatal Sepsis

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Abstract

Introduction: Altered zinc homeostasis is an important feature of pediatric sepsis, thus raising the possibility of zinc supplementation as a therapeutic strategy in neonatal sepsis, a major source of morbidity and mortality with few therapeutic options beyond antibiotics. Its objective was to find the role of zinc as adjunct therapy in neonatal sepsis. **Materials and Methods:** This prospective, randomized double blind placebo controlled trial was conducted in the Department of Paediatrics, Sylhet M A G Osmani Medical College, Sylhet, Bangladesh during January 2013 to December 2014. A total 288 neonates with neonatal sepsis were enrolled. Group allocation to either zinc or placebo group was done by lottery method. Each packet contained 5 mg dispersible zinc sulphate or placebo. One packet dissolved in 2-5 ml expressed breast milk was given orally or through feeding tube. **Results:** The age of the patients in zinc group and placebo group was 14.40 ± 6.49 days and 15.09 ± 7.18 days respectively. There were 49 (75.6%) male neonates and 16 (24.6%) female neonates in zinc group; while 50 (78.1%) neonates were male and 14 (21.9%) were female in placebo group. Clinical recovery was 61 (93.8%) and failure in 4 (6.2%) patients in zinc group; while clinical recovery was 59 (92.2%) and failure in 5 (7.8%) patients in placebo group. The mean clinical recovery time in zinc group was 104.20 ± 16.61 hours and that of control groups was 111.46 ± 19.43 hours. **Conclusion:** Oral zinc as adjunct therapy shortens the clinical recovery time.

Keywords: Neonatal sepsis, Immunity, Zinc.

Number of Tables: 03; Number of Figures: 02; Number of References: 23; Number of Correspondence: 05.

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Introduction

Sepsis in neonates refers to generalized bacterial infection documented by a positive blood culture in the first 4 weeks of life¹. It is a major problem in both developed and developing countries. In the developing world, neonatal sepsis remains as the major cause of neonatal mortality and morbidity in spite of recent advances in the investigations and therapeutics².

It is estimated that 20% of all neonates develop sepsis and is responsible for 30-50% of total neonatal death in developing countries¹. It accounts for an estimated 718000 deaths per year or approximately 23.4% of the world's 3.1 million annual neonatal deaths³.

Neonatal sepsis is the term that has been used to describe the systemic inflammatory response syndrome (SIRS) resulting from a suspected or proven infection in the first month of life⁴. Neonatal sepsis contributes to neonatal mortality about 34%⁵. The prevalence of neonatal sepsis is about 20% in Bangladesh⁶. Of the 7.8 million deaths a year in children younger than 5 years in Africa, South Asia, and the eastern Mediterranean, more than 3 million are in neonates⁷.

According to the time of the acquiring infection, neonatal sepsis is divided as early onset neonatal sepsis (EONS) and late onset neonatal sepsis (LONS)⁸. Among the neonatal sepsis EONS is 77.5% and LONS is 22.5%⁹.

The spectrum of organisms responsible for early onset neonatal (vertically transmitted) sepsis differs from that associated with late onset neonatal (nosocomial) sepsis. The complications of necrotizing enterocolitis and meningitis predispose an infant to an increased risk of future neurological impairment and the mortality from late onset neonatal sepsis remains high, at 7 - 10%^{10,11}.

As bacterial infections predominate in neonatal sepsis so antibiotics is the gold standard therapy for neonatal sepsis¹¹.

Early onset sepsis is conventionally regarded as maternally-acquired, with causative organisms, such as *Escherichia coli* and Group B *Streptococcus* (GBS) usually found in the maternal genital tract, whereas late onset sepsis is considered environmental in origin—either hospital or community acquired. Commonly implicated organisms in hospital acquired infections are coagulase-negative *Staphylococci*, *Staphylococcus aureus*, and Gram-negative organisms such as *Klebsiella* and *Pseudomonas species*¹².

In developed countries *Staphylococcus aureus* was previously responsible for the majority of late onset infections in many neonatal units with other commonly isolated organisms being coagulase negative *Staphylococci*, *E coli*, group B *Streptococcus*, *Klebsiella pneumoniae*, *Enterococcus*, *Candida* and *Pseudomonas*. Coagulase negative *Staphylococci* (CoNS) have now emerged as the leading cause of late onset neonatal sepsis in almost all developed countries and account for > 50% of positive blood cultures¹³.

In developing countries, the most common gram positive organisms isolated from neonatal blood cultures taken from babies under 90 days of age are *Streptococcus pneumoniae*, *Staphylococcus aureus* and *Streptococcus pyogenes*. The most frequent gram negative organisms isolated are *E coli* and *Salmonella spp*¹⁴.

Early intervention is extremely necessary to prevent deaths and complications due to neonatal sepsis. History, physical symptoms and signs are useful in identifying neonates with sepsis¹⁵.

Adjunctive therapy includes immunoglobulin, fresh frozen plasma, exchange transfusion, granulocyte transfusion, granulocyte colony stimulating factor and granulocyte macrophage colony stimulating factors, antilipid A monoclonal antibodies¹⁶.

Despite advances in antimicrobial treatment, outcomes of neonatal sepsis remain poor. Development of inexpensive and accessible interventions that could improve treatment outcomes and reduce case fatality is important⁷. Zinc is important for mucosal barrier function and components of innate and adaptive immunity, such as lytic activity of phagocytes and natural killer cells, and expression of cytokines. Short-term zinc supplementation decreased the bacterial load and reduced the NF- κ B (nuclear factor kappa-light-chain-enhancer of activated B cells) activity in vital organs. Zinc is relatively non-toxic, but acute ingestion of large amount may cause liver and kidney failure, copper deficiency syndrome⁷.

One multicenter study in India using zinc as adjunctive therapy have shown significant reduction of neonatal mortality. They have reported that zinc reduced treatment failure in infants younger than 120 days with probable serious bacterial infection by 40%⁷. But other study in Nepal showed that adjuvant use of zinc does not decrease mortality rates, duration of hospital stay and requirement of higher antibiotic therapy in neonatal sepsis¹⁷.

Materials and Methods

This was a prospective, randomized double blind placebo controlled trial. This study was conducted during the period from 1st January 2013 to 31st December 2014. This study was conducted in the Department of Paediatrics, Sylhet M A G Osmani Medical College, Sylhet Bangladesh. All patients admitted with possible neonatal sepsis were the study population and those who fulfilled the inclusion criteria were enrolled as sample in this study. Systematic random sampling—every second case satisfying the inclusion criteria were enrolled in the study.

Sample size: was assuming attrition of 15%, the calculated sample size was 65.6 or 66 in each group. But in this study 72 patients were taken in each group.

Age at admission: 3 to 28 days with weight between 2.5 to 4 Kg. Neonates presenting with any one or more of the following criteria plus positive blood culture report and/or CRP >10 u/L: (1) not feeding well, (2) convulsions, (3) fast breathing (≥ 60 breaths/min), (4) severe chest In-drawing, (5) low body temperature (less than 35.5°C or 95.9°F), (6) fever (more than 37.5 °C or 99.5°F), (7) movement only when stimulated or no movement at all and neonates with other problems like Necrotizing enterocolitis, Congenital anomaly, STORCH infection, perinatal asphyxia, Infants who could not tolerate feed within 24 hours of observation, Preterm baby, Low birth weight baby and those who already treated with second line drugs were excluded.

Procedure of data collection: All neonates admitted into the neonatal unit in the department of pediatrics were assessed for neonatal sepsis. Detailed antenatal, natal and post natal history were evaluated accordingly. Primarily neonates with clinical symptoms and signs of neonatal sepsis were enrolled in the study. A blood sample for culture and estimation of CRP was taken and sent to the laboratory. After getting the report if blood culture was negative and CRP was less than 10u/L, then patient was excluded from the study. Group allocation was done after fulfilling the enrolment criteria. They were divided into 2 groups: Group A and Group B. Zinc or placebo were prepared in identical packet. Each packet contained 5 mg dispersible zinc sulphate or placebo. Zinc tablets were manufactured by Acme laboratories Ltd, Dhaka. Placebo was formulated by Crystalline Cellulose. Zinc and placebo were identical in appearance, consistency and taste. Separate code number was given by the head of the team and the code number was recorded in a preformed questionnaire. Each pack of zinc and placebo had been labeled with a unique serial number according to the randomization list, which was not available to the chief investigator until data had been obtained. Participants and investigators were masked to treatment allocation. Group allocation to either zinc or placebo group was done by lottery method which was marked as code-“A” and code-“B”. Antibiotic was administered according to standard national guideline for 7 days. Other supportive treatment was also given in both groups. One packet dissolved in 2.5 ml expressed breast milk was given orally

or through feeding tube to every infant 12 hourly for 7 days. The dose was repeated if infant vomits within 15 min of receiving the drug. Study physician examined patients for all relevant clinical features every 12 hours until recovery or end of day 7.

The primary outcome was recovery from sepsis which was defined as absence of features of possible sepsis according to national guideline.

Data were recorded in a structured pre-formed questionnaire.

Decoding was done after completing data collection and then data analysis was done.

Ethical approval was obtained from Ethical committee of Sylhet M A G Osmani Medical College, Sylhet Bangladesh.

Data collection and analysis

Data analysis was done by using SPSS version 16.0 (statistical package for social science). Quantitative data were expressed as mean and standard deviation; and comparison was done between the groups by unpaired t test. Qualitative data were expressed as frequency and percentage; and comparison were done by Chi-square (χ^2) test.

A probability value (p) of <0.05 were considered statistically significant.

Results

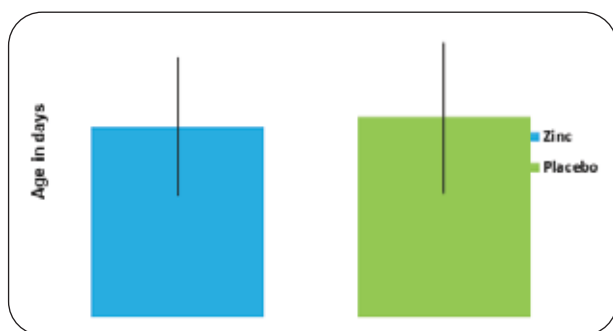


Figure-1: Comparison of the age of the patients between zinc group and placebo group

The age of the patients in zinc group and placebo group was 14.40 ± 6.49 days and 15.09 ± 7.18 days respectively. The age of the patients did not differ significantly between two groups ($t=-0.576$; $*p=0.566$).

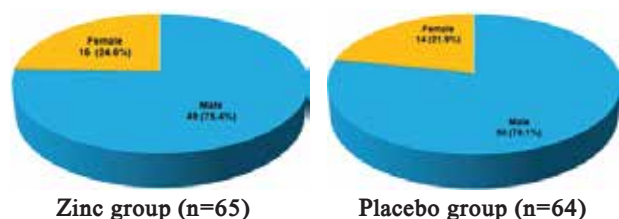


Figure-2: Comparison of sex of the patients between zinc group and placebo group

There were 49 (75.6%) male neonates and 16 (24.6%) female neonates in zinc group; while 50 (78.1%) neonates were male and 14 (21.9%) were female in placebo group. There was no significant difference in sex of the neonates between two groups ($p=0.713$).

Table-I: Comparison of the clinical presentations between zinc group and placebo group.

Clinical presentations	Study group		p-value
	Zinc (n=65)	Placebo (n=64)	
Not feeding well	42 (64.6%)	48 (75.0%)	$p=0.199$
Convulsion	5 (7.7%)	3 (4.7%)	$p>0.05$
Fast breathing	30 (46.2%)	25 (39.1%)	$p=0.415$
Severe chest in drawing	8 (12.3%)	7 (10.9%)	$p=0.808$
Low body temperature	4 (6.2%)	6 (9.4%)	$p>0.05$
Fever	52 (80.0%)	50 (78.1%)	$p=0.794$
Lathergy	10 (15.4%)	16 (25.0%)	$p=0.173$

The clinical parameters of not feeding well ($p=0.199$), convulsion ($p>0.05$), fast breathing ($p=0.415$), severe chest indrawing ($p=0.808$), hypothermia ($p>0.05$), fever ($p=0.794$) and lathergy (movement only when stimulated or no movement at all) ($p=0.173$) did not differ significantly between two groups.

Table-II: Comparison of the clinical outcome between zinc group and placebo group.

Clinical outcome	Study group		p-value
	Zinc (n=65)	Placebo (n=64)	
Clinical recovery	61 (93.8%)	59 (92.2%)	$p>0.05$
Failure	4 (6.2%)	5 (7.8%)	
Total	65 (100.0%)	64 (100.0%)	

In zinc group clinical recovery was 61 (93.8%) and failure in 4 (6.2%) patients; while in placebo group clinical recovery was 59 (92.2%) and failure in 5 (7.8%) patients. There was no significant difference of clinical outcome between the zinc and placebo group [$p>0.05$].

Table-III: Comparison of the clinical recovery time between zinc group and placebo group.

Clinical recovery time (hours)	Study group		p-value
	Zinc (n=65)	Placebo (n=64)	
Mean	104.20	111.46	$p=0.030$
Standard deviation	± 16.61	± 19.43	

The mean clinical recovery time in zinc group was 104.20 ± 16.61 hours and that of placebo group was 111.46 ± 19.43 hours. Clinical recovery time was significantly earlier in zinc group that of placebo group ($p=0.030$).

Discussion

In this study age of the neonate of zinc group was 14.40 ± 6.49 days and that of placebo group was 15.09 ± 7.18 days (Figure-1). The age of both groups was statistically similar ($p=0.566$).

In the present study 49 (75.6%) male neonates and 16 (24.6%) female neonates in zinc group; while 50 (78.1%) neonates were male and 14 (21.9%) were female in placebo group. There was no significant difference in sex of the neonates between two groups ($p=0.713$) (Figure-2). Male neonates were predominant in both groups. This result correlated with the study of Bhatnagar et al.⁷ Mehta et al.¹⁷ also found similar pattern of gender distribution of neonatal sepsis.

Incidence of neonatal sepsis varies from 1 to 5 cases per 1000 live births in developed countries, but gets higher in developing countries which varies from 49 to 170 per 1000¹⁸.

In this study diagnosis of neonatal sepsis was primarily on clinical features. The clinical parameters did not differ significantly between two groups (table-I).

In the present study clinical recovery was 61 (93.8%) and failure in 4 (6.2%) patients in zinc group; while clinical recovery was 59 (92.2%) and failure in 5 (7.8%) patients in placebo group (Table-II). There was no significant difference of clinical outcome between the zinc and placebo group ($p>0.05$). This result correlated with the study of Mehta et al.¹³ that mortality was 30 (9.77%) in zinc group and 24 (7.81%) in the placebo group and difference was not statistically significant ($p>0.05$). Similarly Bhatnagar et al.⁷ found 10 (3%) treatment failure in zinc group and 17 (5%) in placebo group with relative risk= 0.57 (0.27 to 1.23) indicated that there was no significant difference of treatment failure rate between two groups.

In the current study the mean clinical recovery time in zinc group was 104.20 ± 16.61 hours and that of placebo group it was 111.46 ± 19.43 hours. Clinical recovery time was significantly earlier in zinc group than that of placebo group ($p=0.030$). This result was different from the study of Bhatnagar et al.⁷ Where clinical recovery time did not differ significantly between zinc group and placebo group. They included neonates and infants in their study but the present study included only neonates of 3 to 28 days and this may be the cause of this difference. Mehta et al.¹⁷ found that the mean duration of hospital stay, 142.85 ± 69.41 hours in the drug group as compared to 147.99 ± 73.13 hours in the placebo group was also not statistically significant ($p=0.841$).

As adjunct treatment with oral rehydration for diarrhoea, zinc supplementation decreases duration and severity of the treated episode, and morbidity in the following 2-3 months¹⁹. Zinc has also reduced admissions to hospital and child deaths in community-based studies^{20,21}. The benefits of zinc have been primarily reported in children with severe pneumonia episodes,²²

In the current study adjunct zinc therapy reduced the time of clinical recovery. But clinical data also exist supporting

a role for prophylactic zinc supplementation as a therapeutic strategy in infection related disease processes²³.

The interpretation of this study would need to consider some potential limitations which include: It was a single center study, inability to estimate serum zinc levels in this study to rule out any underlying zinc deficiency prior to the onset of therapy.

Conclusion

In this study clinical recovery and failure rate did not differ significantly between zinc group and placebo group in neonatal sepsis. But the mean clinical recovery time was shorter in zinc group than that of placebo group.

Recommendations

Based on the findings of the present study recommends: Oral zinc may be given as adjunct treatment in neonatal sepsis, further study should be conducted involving multi-center and large sample to evaluate the effect of zinc as adjunct therapy in possible neonatal sepsis.

Conflict of Interest: None.

Acknowledgement

Dr. Tanjina Chowdhury, Assistant Professor, Department of Paediatrics, Sylhet MAG Osmani Medical College, Sylhet for his assistance in the analysis of data in this study.

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Knowledge, Attitude and Practice about Hepatitis B, Hepatitis C and Human Immunodeficiency Virus among Barbers of Sylhet, Bangladesh

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Abstract

Introduction: This study was designed to see the knowledge, attitude and practice of barbers regarding transmission of hepatitis B, C and HIV viral infections. **Materials and Methods:** Barbers from Sylhet were interviewed with a predesigned questionnaire. Positive answers for blood transfusion, syringe sharing, use of contaminated shaving instruments and unsafe sex as way of transmission were taken as correct. Statistical analysis was done using SPSS 20 version. **Result:** Total 403 barbers, age from 14 years to 69 years (mean 27.11) were interviewed. In this group 232 (57.6%) had education illiterate to class five level. Among them 245 (60.3%) had income below 10 thousand per month. Blood transfusion could transmit HBV, HCV and HIV was known to 136 (33.7%), 129 (32.00%) and 247 (61.30%), contaminated syringe sharing could transmit HBV, HCV and HIV respectively was known to 131 (32.5%), 127 (31.50%) and 278 (69.0%) barbers, unsafe sex could transmit HBV, HCV and HIV was known to 166 (41.2%), 158 (39.2%) and 317 (78.70%) barbers respectively and Contaminated shaving instruments could transmit HBV, HCV and HIV was known to 101 (25.1%), 96 (23.8%) and 156 (38.7%) barbers respectively. In this series 84 (20.84%) barbers answered correctly. This answers differed significantly within different level of education. Their knowledge of sterilization of shaving instruments was poor. **Conclusion:** Knowledge of our barbers regarding transmission of HBV, HCV and HIV and sterilisation of shaving instruments are inadequate. Institutional education and structured professional training may improve their services and decrease transmission of blood borne viral diseases.

Keywords: Knowledge of barbers, Transmission of Hepatitis B, C and HIV.

Number of Tables: 05; Number of References: 24; Number of Correspondence: 03.

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Introduction

Hepatitis B (HBV) is one of the most common infectious disease in the world causing significant morbidity and mortality¹. About one third of whole population of world are infected with HBV. of them about 5% become chronic carrier and one fourth of this carriers develop serious liver diseases as chronic hepatitis, cirrhosis and hepatocellular carcinoma (HCC). Yearly HBV related documented death in the world is about 780000². In our country prevalence of HBV is about 5.5% in general population³.

Another virus Hepatitis C (HCV) usually cause asymptomatic acute hepatitis and also cause end stage liver disease like chronic hepatitis, cirrhosis and HCC⁴. Estimated global prevalence of HCV is 2.5% with 118.9 million patients having RNA positive. In Asia the prevalence is 2.8% and it constitutes more than 60% of total patients in the world⁵. In Asia HCV RNA positive cases are about 71.9 million⁵. Prevalence of HCV in Bangladesh is about 0.88%⁶.

Human immunodeficiency virus (HIV) and its related disease Acquired immunodeficiency syndrome (AIDS) are another major global public health issue. In 2018 about 37.9 million people were infected with HIV of which 1.7 million were children⁷. In our country prevalence of HIV / AIDS is about 0.01% and it is lower than our neighbouring countries Nepal and India⁸.

All these three blood- borne viruses, HBV, HCV and HIV, spread through unsafe use of therapeutic injections, blood transfusion, mother to child transmission, unsafe sexual practice, razor sharing or barber shop shaving and beauty treatments including tattooing, ear-nose piercing, manicure and pedicure^{9,10}.

Razor sharing and shaves from barbers are important risk factor of blood borne virus transmission. In many countries of Asia and Africa, people use to have shaving at barber shop and roadside barber which is a route of virus transmission¹¹.

In Bangladesh, people, although statistics is not available, go to barber shops for shaving. And in villages people go to roadside barber on Hat day, but this tradition is gradually decreasing. In developed countries, barbers have to get institutional training before working as a professional. But till now in our country there is no system of such training. It mostly appears to be profession of a specific group of people in our country. Any one even without minimum educational background, one can work as barber being trained from seniors and sometimes from family members. So their knowledge regarding transmission of these viruses seems to be inadequate. With this background, this study was designed to see the knowledge, attitude and practice of barbers of Sylhet, Bangladesh regarding transmission of these viruses.

Materials and Methods

Barber shops of within city and adjacent areas outside city were selected randomly and workers were then interviewed by trained interviewers at their shops. Their demographical information and answers to different questions were recorded in predesigned data sheets. Barbers, not willing to take part in the study, were excluded. Positive answers as blood transfusion, contaminated syringe sharing, contaminated shaving instruments and unsafe sex as mode of transmission of these viruses were taken as correct answers. Answers mentioning at least one of these as mode transmission were considered as partially correct. And answers other than these were taken as wrong.

Statistical analysis

Data was analysed using statistical Package for Social Science(SPSS) version 20 (Inc., Chicago, IL USA). Mean and standard deviation and percentages were calculated for continuous data. Comparisons of variables to see difference were done by Chi-square test for categorical data. And P value < 0.05 was taken as significant.

Results

Total 403 barbers were interviewed. All of them were male. Age of them varied from 14 years to 69 years (mean 27.11 and SD 9.34). Among them 343 (85.1%) and 60 (14.9%) were working in city and adjacent areas outside city respectively (table I).

Table I: Demographic profile of barbers.

	Number	Percentage
Total	403	100
Working in city	343	85.1
Working outside of city	60	14.9
married	203	50.4
unmarried	200	49.6
Age up to 20 years	102	25.3
Age 21-30 years	206	51.1
Age 31-40 years	58	14.4
Age 41 and above	37	9.2

	Number	Percentage
Education - Illiterate	49	12.2
Class one to class Five	183	45.4
Class six to class eight	121	30.0
Class nine to SSC	40	9.9
Class 11 and above	10	2.5
Income up to 5000 taka/month	54	13.4
5001 to 10,000 taka/month	189	46.9
10001 to 15000 taka/month	111	27.5
Above 15,000 taka/month	49	12.2

In this series 49 (12.2%) were illiterate and 183 (45.4%) had educational background from class one to class five level. Only 10 (2.5%) had education background above secondary level. Income of them varied from 2,000 to 50,000 taka per month (mean 11174.94 and SD 6050.14). All barbers working outside city (60; 14.9%) had income within 2000 to 5000 taka range and 189 (46.9%) had income within 6 – 10 thousand taka per month range. Age of 206 (51.10%) were within 21 to 30 years and 102 (25.3%) were below 21 years. In this series, 101 (25.1%), 96 (23.8%) and 156 (38.7%) knew that saloon instrument could transmit HBV, HCV and HIV respectively (table II). Blood transfusion could transmit HBV, HCV and HIV was known to 136 (33.7%), 129 (32.00%) and 247 (61.30%) of our respondents respectively (table II).

Table II: Knowledge of viruses.

Transmission Sources	Hepatitis B			Hepatitis C			HIV		
	Yes (%)	No (%)	No idea(%)	Yes (%)	No (%)	No idea (%)	Yes (%)	No (%)	No idea(%)
Water	66 (16.4)	35 (8.7)	302 (74.9)	60 (14.9)	37 (9.2)	306 (75.9)	82 (20.3)	127 (31.5)	194 (48.1)
Food	43 (10.7)	51 (12.7)	309 (76.7)	40 (9.9)	50 (12.4)	313 (77.7)	59 (14.6)	147 (36.5)	197 (48.9)
Tattoo	41 (10.2)	13 (3.2)	349 (86.6)	40 (9.9)	11 (2.7)	352 (87.3)	63 (15.6)	53 (13.2)	287 (71.2)
Ear/nose prick	51 (12.7)	13 (3.2)	339 (84.1)	45 (11.2)	14 (3.5)	344 (85.4)	84 (20.8)	61 (15.1)	258 (64.0)
Saloon instrument	101 (25.1)	14 (3.5)	288 (71.5)	96 (23.8)	15 (3.7)	292 (72.5)	156 (38.7)	50 (12.4)	197 (48.9)
Surgical instrument	67 (16.6)	16 (4.0)	320 (79.4)	64 (15.9)	16 (4.0)	323 (80.1)	126 (31.3)	44 (10.9)	233 (57.8)
Dental procedure	47 (11.7)	15 (3.7)	341 (84.6)	40 (9.9)	16 (4.0)	347 (86.1)	87 (21.6)	47 (11.7)	269 (66.7)
blood transfusion	136 (33.7)	2 (0.5)	265 (65.8)	129 (32.0)	2 (0.5)	272 (67.5)	247 (61.3)	21 (5.2)	135 (33.5)
Syringe sharing	131 (32.5)	5 (1.2)	257 (66.3)	127 (31.5)	4 (1.0)	272 (67.5)	278 (69.0)	4 (1.0)	121 (30.0)
Drug addiction	113 (28.0)	3 (0.7)	287 (71.2)	103 (25.6)	3 (0.7)	297 (73.7)	257 (63.8)	1 (0.2)	145 (36.0)
Unsafe sex	166 (41.2)	8 (2.0)	229 (56.8)	158 (39.2)	8 (2.0)	237 (58.8)	317 (78.7)	1 (0.2)	85 (21.1)
Outcome									

Total cure	62 (15.4)	66 (16.4)	275 (68.2)	61 (15.1)	60 (14.9)	282 (70.0)	118 (29.3)	162 (40.2)	123 (30.5)
CLD and death	43 (10.7)	3 (0.7)	357 (88.6)	35 (8.7)	4 (1.0)	364 (90.0)	78 (19.4)	30 (7.4)	295 (73.2)
Cancer and death	36 (8.9)	27 (6.7)	340 (84.4)	31 (7.7)	26 (6.5)	346 (85.9)	167 (41.4)	24 (6.0)	212 (52.6)
AIDs							262 (65.0)	6 (1.5)	135 (33.5)

In this study 131 (32.5%), 127 (31.50%) and 278 (69.0%) barbers believed that contaminated syringe sharing could transmit HBV, HCV and HIV respectively. In this study 166 (41.2%), 158(39.2%) and 317 (78.70%) barbers respectively believed that unsafe sex could transmit HBV, HCV and HIV. It is also seen that knowledge regarding transmission of HIV was better. In this series 84 (20.84%) and 99 (24.57%) barbers' answers regarding transmission of this three viruses were correct and partially correct respectively.

Only 43 (10.7%) and 35 (8.7%) of barbers respectively knew that HBV and HCV infection might lead to cirrhosis and HCC and death (table II). On the other hand 78(19.4%) barbers of this series know that HIV infection leads to death.

Their main source of knowledge were radio and television (322; 79.90%) and news paper (166; 41.2%) (table III).

Table III: Source of knowledge for barbers.

Sources	Yes (%)	No (%)
Radio and television	322 (79.9)	81 (20.1)
Newspaper	166 (41.2)	237 (58.8)
Hospital	60 (14.9)	343 (85.1)
NGO workers	14 (3.5)	389 (96.5)
Health Workers	46 (11.4)	357 (88.6)
Books	34 (8.4)	369 (91.6)
Own Idea	223 (55.3)	180 (44.7)

But role of hospital, health workers, Nongovernment Organisations (NGO) workers, and books for dissemination of knowledge to them regarding transmission of viruses was minimum. In this group, 318 (78.9%) thought that testing and treatment measure should be taken against these viruses.

Again 49 (12.2%) who were vaccinated for HBV thought vaccination could prevent these viral diseases. In this series, 84 (20.8%), 42 (10.4%), 47 (11.7%), 18 (4.5%) and 07 (1.7%) respectively had history of surgery, blood transfusion, ear or nose prick, tattooing and drug addiction (table IV).

Table IV: Personal history and practice.

	Yes	Percentage	No	Percentage
Vaccinated for HBV	49	12.2	354	87.8
Drug addiction	7	1.7	396	98.3
H/o blood transfusion	42	10.4	361	89.6
Need surgery	84	20.8	319	79.2
Has tattoo	18	4.5	385	95.5
Has ear – nose prick	47	11.7	356	88.3
Practice at saloon				
Hand washing before new client	376	93.3	27	6.7
Sterilize instruments	230	57.1	173	42.9
Washes with tap water without sterilisation	157	39.0	246	61.04
Just wipe instrument with paper	16	3.9		
Use separate blade for every client	401	99.5	2	0.5
Use antiseptics	398	98.8	5	1.2
Dispose blades to garbage bin	371	92.1	32*	7.9

*they dispose blades improperly

In these group, 376 (93.3%) respondents told that they washed hands before serving every new clients, 230 (57.1%) sterilise instruments with chemicals, and 157 (39.0%) washed instrument with tap water before working with new customer. They uses savlon (mixture of cetrimide and chlorhexidine) for sterilisation. In this series 401 (99.5%) uses separate blades for every customers and 398 (98.8%) provide antiseptic cream (usually savlon) for skin injuries. Most of respondents disposes blades in garbage.

Answers of barbers were regarding transmission of all three viruses significantly differed with educational background. Answers of barbers regarding transmission of HIV virus also significantly differed with age, income and marital status (table V).

Table V: Relation of variables.

		Variables	Correct Answer 84 (%)	Partially Correct 99 (%)	Wrong 220 (%)	P value
HBV	Age group	Up to 20 y (102)	17 (16.66)	21 (20.59)	64 (62.74)	0.695
		21-30 y (206)	46 (22.33)	52 (24.24)	108(52.43)	
		31-40 y (58)	13 (22.41)	16 (27.58)	29 (50.00)	
		Above 40 y (37)	8 (21.62)	10 (27.03)	19 (51.35)	
	Income	Up to 5000 (54)	9 (16.66)	21 (38.89)	24 (44.44)	0.12
		5001-10000(189)	35 (18.52)	42 (22.22)	112(59.26)	
		10001-15000 (111)	28 (25.22)	23 (20.72)	60 (54.05)	
		>15000 (49)	12 (24.49)	13 (26.53)	24 (48.98)	
	Education	Class 0 to five(232)	37 (15.95)	68 (29.31)	127(54.74)	0.012
		Class 6-8 (121)	29 (23.97)	21 (17.35)	71 (58.68)	
		Class 9-10 (40)	14 (35.00)	7 (17.50)	19 (47.50)	
HCV	Marital status	≥Class 11 (10)	4 (40.00)	3 (30.00)	3 (30.00)	0.71
		married 203	43 (21.18)	53 (26.11)	107(52.71)	
		single 200	41 (20.50)	46 (23.00)	113 (56.50)	
	Age group	Up to 20 y (102)	17 (16.67)	21 (20.59)	64 (62.74)	0.695
		21-30 y (206)	43 (20.87)	47 (22.81)	116(56.31)	
		31-40 y (58)	12 (20.69)	15 (25.86)	31 (53.44)	
		Above 40 y (37)	7 (18.92)	10 (27.03)	20 (54.05)	
	Income	Up to 5000 (54)	9 (16.66)	20 (37.04)	25 (46.29)	0.184
		5001-10000(189)	34 (17.99)	41 (21.69)	114(60.31)	
		10001-15000 (111)	27 (24.32)	21 (18.92)	63 (56.76)	
		>15000 (49)	9 (18.37)	11 (22.45)	29 (59.18)	
	Education	Class 0 to five(232)	36 (15.52)	37 (15.95)	129(55.60)	0.011
		Class 6-8 (121)	27 (22.31)	17 (14.05)	77 (63.63)	
		Class 9-10 (40)	12 (30.0)	7 (17.50)	21 (52.5)	
HIV	Marital status	≥Class 11 (10)	4 (40.00)	2 (20.0)	4 (40.00)	0.955
		Married 203	39 (19.21)	48 (23.64)	116(57.14)	
		Single 200	40 (20.0)	45 (22.50)	115(57.50)	
	Age group	Up to 20 y (102)	23 (22.55)	46 (45.10)	33 (32.35)	0.000
		21-30 y (206)	81 (39.32)	102 (49.51)	23 (11.16)	
		31-40 y (58)	24 (41.38)	23 (39.65)	11 (18.96)	
		Above 40 y (37)	12 (32.43)	13 (35.13)	12 (32.43)	
	Income	Up to 5000 (54)	11 (20.37)	23 (42.59)	20 (37.04)	0.002
		5001-10000(189)	60 (31.74)	92 (48.68)	37 (19.57)	
		10001-15000 (111)	44 (39.64)	52 (46.84)	15 (13.51)	
		>15000 (49)	25 (51.02)	17 (34.69)	7 (14.28)	
	Education	Class 0 to five(232)	71 (30.60)	105 (45.26)	56 (24.14)	0.003
		class 6-8 (121)	40 (33.06)	59 (48.76)	22 (18.18)	
		Class 9-10 (40)	23 (57.5)	16 (40.0)	1 (2.50)	
HIV	Marital status	≥Class 11 (10)	6 (60.0)	4 (40.0)	0	0.013
		married 203	70 (34.48)	104 (51.23)	29 (14.28)	
		single 200	70 (35.0)	80 (40.00)	50 (25.00)	

Discussion

This study was done to see the knowledge of barbers regarding transmission of HBV, HCV and HIV and their practice in shops in Sylhet, Bangladesh. In this series, all respondents were male. In our country usually males are involved in barbering. Mostly this profession runs in family from generation to generation. And Beauty parlour workers are usually female. our report was consistent with report from Sudan, where workers at barber shop are usually male¹². In this study more than half of respondents had either none or minimum institutional education. Educational level of them is better than that of Pakistan^{13,14}, but worse than that of Sudan¹² and India¹⁵, Ghana¹⁶. Age of more than 50% of barbers were within 21 to 30 years which is consistent with report from Pakistan¹³. Mean age of our respondents was similar to that of barbers in Sudan¹². Income of our respondents were similar to income of barbers in Pakistan¹³. It is to mention that income of barbers working outside the city in our series were low. About one third of our respondents had proper knowledge about transmission of HBV and HCV. And only one fourth of our respondents believed that contaminated shaving instruments can transmit HBV and HCV. But more than 90% barbers in Italy¹⁷ are aware about the route of transmission of HBV and HCV. Only about 10% of series know that HBV and HCV can cause chronic hepatitis, cirrhosis and HCC. Knowledge of respondents was better than that of barbers of Ghana¹⁶ while poorer than that of barbers of Pakistan¹⁴. Vaccination rate in our series was slightly higher than that in Pakistan¹⁴.

It is to mention that prevalence of HBV is also higher among barbers in China¹⁸ and Morocco¹⁹. But in our country such report is not available. In Iran about 1.1% of barbers were seropositive for HCV²⁰. One study from Turkey showed presence of HBV DNA in 6.6% of used razor blades by semi nested PCR method²¹. It favours the transmission of blood borne viruses due to micro injury of skin during shaving.

Regarding HIV more than two third of respondents were aware of transmission through blood transfusion, syringe sharing and unsafe sex. But about 38% of respondents were aware of transmission through contaminated shaving instruments which is just better than the report from Ethiopia²², but far lower than report from Italy¹⁷. Education and socio-cultural difference can influence this differences. One fifth of our respondents were aware of death related to HIV and AIDS which is far lower than awareness among barbers in Italy¹⁷ and Ethiopia²². Regarding prevention, most of our respondents opine for testing and treatment. While one third were in favour of vaccination.

In our study almost all respondents use separate blades for each and every new customers. This practice is far better than that report from Italy¹⁷. Again 93% of our respondents washes hands before working with new client. But slightly more than half our barbers sterilises instruments with chemicals before using on new customer. And 43% wash their instrument with tap water, and very small group uses to wipe instrument with paper only in between two new customers. They have no good idea regarding duration

required for chemical sterilisation and other important methods of sterilisation as autoclaving or use of ultraviolet rays. Micro trauma during shaving may contaminate shaving instruments including razor blades. Inadequate sterilisation of instruments thus lead viral transmission from one customer to another. Regarding this practice, our respondents were far behind the practice in Italy¹⁷ and Ethiopia²². Education and social and cultural difference could explain this difference.

Our respondents usually do not wear gloves which are similar to the practice in India¹⁵, Ethiopia²² and Pakistan²³. Most of our respondents use to dispose used blades in garbage which increase health risk to the garbage handlers and cleaners and similar practice is reported from Sudan¹², and Ghana¹⁶.

From this study it is evident that level of education influence the knowledge about transmission of blood borne viral infection from one person to another. One study from Pakistan reported that educational intervention improved the awareness among both community people and professionals regarding transmission of HIV/AIDS²⁴. So programmed dissemination of knowledge to our barbers about transmission of blood borne viral diseases, its precaution, health hazards related to profession for them and their customers, need and methods of proper sterilisation of instruments, use of gloves, proper disposal of sharp instrument can improve their knowledge, change their practice and attitude.

Conclusion

Knowledge of our barbers regarding transmission of HBV, HCV and HIV is incomplete and inadequate. Good number of them do not sterilize instruments at all or sterilize improperly which is dangerous. So in addition to institutional education, structured training for barbers regarding their professional skill and health related affairs may improve their services along with decrease of transmission of viral diseases and related health hazards for them and also the community.

Conflict of Interest: None.

Acknowledgement

We are grateful to Department of Statistics, Shahjalal University of Science and Technology, Sylhet, Bangladesh for help in data processing.

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Medical Disorders of Pregnancy in Patients at Dhaka National Medical Institute Hospital

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Abstract

Introduction: Hypertensive disorders are the commonest complications during pregnancy responsible for maternal and foetal mortality and morbidity. The aim of the study was to determine the magnitude of percentage of disorders in admitted pregnant women. A retrospective study was done to determine the pattern of disorders during pregnancy among the admitted pregnant women National Medical Institute Hospital. This study was done during January 2017 to December 2017 at Dhaka National Medical Institute Hospital. **Materials and Methods:** 3276 pregnant women admitted had medical disorders (406) with 12.39% at the age of reproduction (20-35 years). **Results:** The commonest disorders were hypertensive disease of pregnancy (45.32%), urinary tract infection (14.78%), gestational diabetic mellitus (10.84%), anaemia (7.39%), bronchial asthma (6.40%) respiratory infectious conditions (5.42%), viral infections (3.94%), thyroid disorder (3.45%), and cardiac disease (2.45%). **Conclusion:** Hypertensive disorder is the most common medical disorder of pregnancy followed by urinary tract infection, gestational diabetic mellitus, anaemia, bronchial asthma respiratory infectious conditions, viral infections, thyroid disorder and cardiac disease in order.

Keywords: Medical disorders, Hypertension, Pregnancy, Viral infections, Thyroid disorder, Cardiac disease.

Number of Tables: 04; Number of Figures: 04; Number of References: 23; Number of Correspondence: 05.

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Introduction

Pregnancy is a normal condition which may be complicated by many medical disorders¹. Changes occurring during pregnancy are required for the successful outcome of pregnant women and foetus. Medical disorders may interfere with these adaptations and complicate the pregnancy and foetus². In some conditions, pregnancy is contraindicated and early termination may be needed for the health of mother and foetus. While Twenty percent are the result of pre-existing conditions that are exacerbated by pregnancy or its management while³ eighty percent of maternal mortality is due to the direct causes. It is to said that three quarters of mothers died from pre-existing medical or mental health problems and two thirds of them had died from medical and mental health problems⁴.

Maternal and foetal mortality and morbidity is still higher in developing countries in comparison to the developed countries but over past years maternal mortality have decreased worldwide nations. The burden of non-communicable disease like heart disease, chronic respiratory disease and diabetes are increasing in number in the period of pregnancy⁵. Medical disorders during pregnancy previously had a much worse outcome in terms of both maternal and foetal health. With the improvement and intervention of different new medical instruments may cause advancement in all the sectors especially, obstetric anaesthesia and paediatrics, more fruitful outcome can be achieved even in pregnancies with the older age group⁶. In a study done in Africa, the incidence of medical disorders in pregnant women was 15%. This study aims to find out the magnitude and types of medical disorders during pregnancy at Dhaka National Medical Institute Hospital.

Materials & Methods

This is a retrospective study done in Dhaka National Medical Institute Hospital. It is a tertiary referral institute and maternity and general hospital. Information were taken from the admission registered record of the Gynae and Obs. department of hospital from January 2017 to December 2017. Number of gravid, parity, gestational age at presentation and type of disorder were recorded for the pregnancies with medical disorders.

Results

During the study period out of 3276 pregnant women admitted, 406 had medical disorders. The age ranged from 16 to 47 years with the mean age of 31.5 years. Peak incidence (68.96%, 280) was seen at the age of reproduction (20-35 years) (Table-II) while 31.04% (126) were in the extremes of ages (figure-2). Table-1 showing that a total number of 3276 pregnant women admitted and 406 had medical disorders.

Table-I: Admitted pregnant women and percentage of medical disorders.

Total number	Number of medical disorders	Percentage
3276	406	12.39%

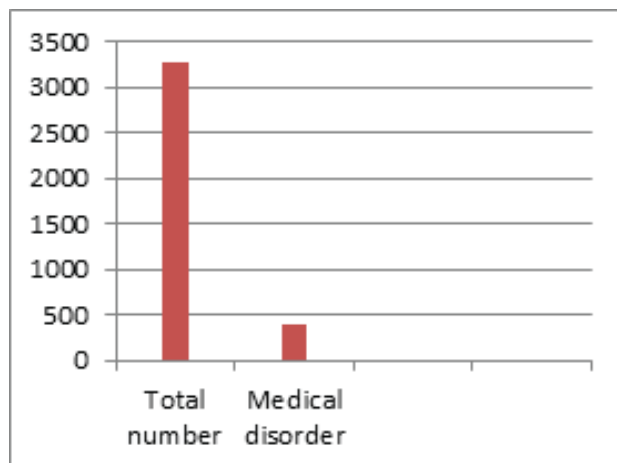
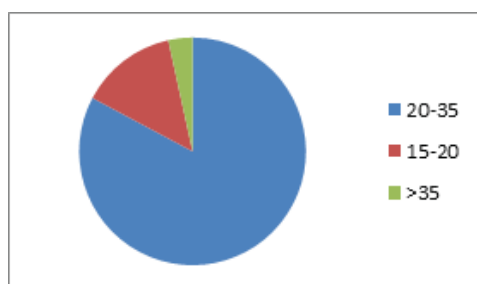
**Figure-1: Total number and medical disorders of pregnancy.**

Table-II showing peak and lowest incidence of age groups.

Table -II: Age distribution.

Total number	15-20	20-35	>35
406	56	336	14

**Figure -2: Gestational age at the time of admission.**

Hypertensive disorders were the commonest (68.2%, 184) medical cause for admission (table-III) among the pregnant women (figure 3). Majority of them had pre-eclampsia (112), (table-IV) then gestational hypertension (60) while chronic hypertension was seen in 08 women and a few (four) of them were admitted with eclampsia. Pre-existing chronic hypertension was seen among 08 women and two of them had superimposed pre-eclampsia. Renal and urinary tract disorders were the second (60) leading cause for admission (figure 3), (Table-III). Urinary tract infections (45) and pyelonephritis (15) accounted for about 14.78% of all the medical disorders during the study period (table-III). About four percent of women were admitted with viral

infectious diseases and majority (14) among them had HBsAg positive status (figure 3 and table III). Two women each had viral fever at the time of admission. Fourteen (3.45%) pregnant women had hypothyroidism while Graves's disease was seen in one woman during the study period. Respiratory disorders were seen among (22) women among whom upper respiratory tract infection (16) was the commonest one followed by GDM (table-III). Among the forty-four cases of diabetes with pregnancy two-third of them had gestational diabetes mellitus while rest had overt diabetes (table III). Acute gastro-enteritis necessitating admission was found among one pregnant woman. Anaemia was seen in thirty cases while two cases each had epilepsy and dermatological problem. Cardiac disease was seen in 10 (table-III) women at admission and one woman had psychiatric disorder during the study period.

Table-III: Types of medical disorders in pregnancy.

Hypertension	184	45.32%
UTI	60	14.78%
GDM	44	10.84%
Anaemia	30	7.39%
Bronchial asthma	26	6.40%
RTI	22	5.42%
Viral	16	3.94%
Thyroid	14	3.46%
Cardiac	10	2.45%

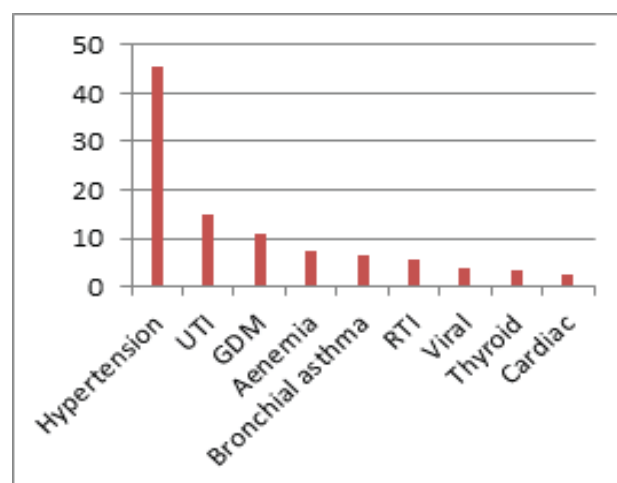
Figure -3 shows distribution of medical disorder in pregnancy**Figure-3: Distribution of medical disorders of pregnancy.**

Table-IV shows subtypes of hypertension.

Table –IV: Subtypes of hypertension.

Pre-Eclampsia	112
Gestational	60
Chronic hypertension	08
Eclampsia	04

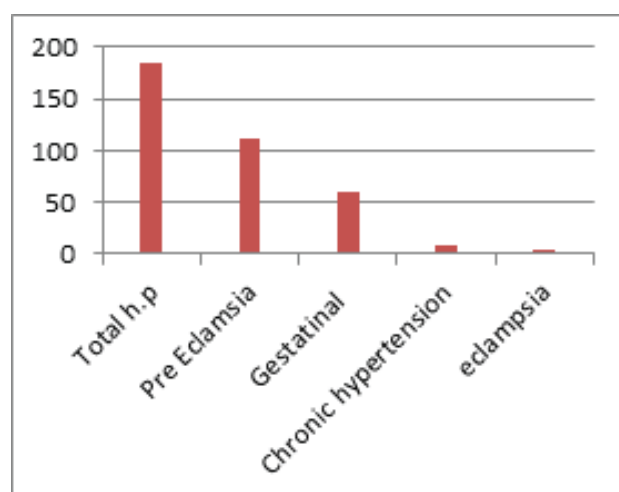


Figure-4: Subtypes of hypertensive disorders of pregnancy.

Discussion

The incidence of medical disorders with pregnancy in this study was 12.39% compared to the study done by Rozati et al⁷. In this study, hypertensive disorders was the commonest disorder while in the Nigerian study hypertensive⁹ disorder was second to the malarial which could be due to higher prevalence of malaria in Nigeria¹⁰. In a multi-centric study done in China, severe pre-eclampsia¹¹ was the commonest while in this study UTI was second to the gestational hypertension¹². Eclampsia was the least common one among the hypertensive disorders similar to other studies¹³. Urinary tract infection is the second most common medical disorder in this study which is comparable to the Nigerian study¹⁴. This signifies the necessity to screen the pregnant women for asymptomatic bacteriuria¹⁵. Higher incidence of pyelonephritis (3.2%) in pregnancy is found in this study whereas a six years database study done in Jamaica found 102 cases (0.7% of deliveries)¹⁶. Viral infection is more common while hepatitis B infection is found to be most common type among the infectious medical disorders¹⁷. A five-year record a hospital in India where out of 136 (0.3%) HBsAg positive cases only 32 pregnant women were recorded as positive¹⁸. Higher incidences of hypothyroidism is seen in this study which is similar to two year study done in 1000 pregnant women where 116 had thyroid disorders¹⁹. Anaemia necessitating admission was found in 30 cases in this study which is less compared to the other studies which had included all severities of anemia²⁰. In a six years study done in Iran, they found 50

cases of pregnancy with epilepsy²¹. Cardiac disease during pregnancy in this study is much less compared to a study done in India, where 59 cardiac cases out of 7053 deliveries was found²². Intra-hepatic cholestasis of pregnancy was seen in one case at the time of admission which is comparable to the average incidence (less than one percent) in Asian population²³.

Conclusion and recommendation

Hypertensive disorder is predominant medical disorder of pregnancy followed by urinary tract infection, gestational diabetic mellitus, anaemia, bronchial asthma respiratory infectious conditions, viral infections, thyroid disorder and cardiac disease in order.

Hypertensive disorders in pregnancy are the most common medical disorder followed by renal and urinary tract infections Infectious diseases and endocrine disorders also affect pregnancy. Endocrine disorders and viral infections are also common group of medical disorder. Pregnancy management, therefore, requires multidisciplinary approach for better outcome.

As the size of the population in the current study was small and it was limited to one hospital so it could not represent the actual picture of medical disorders of pregnancy of whole population of Bangladesh. Therefore, large scale studies of longer duration are necessary.

Conflict of Interest: None.

Acknowledgement

I must express gratitude to Professor Dr. Arzumanth Ara, head department of Gynae & Obst, Dhaka National College & Hospital, Dhaka, for allowing me to work under her on such topic. I must express respect to Professor Dr. Jahanara Rahman, department of Gynae & Obst, Dhaka National College & Hospital for her valuable suggestions and kind help during my study. My sincere thanks to Dr. Monowara Begum, senior medical officer, Gynae. & Obst department, Dhaka National College & Hospital for her active help during the period of the study. I am thankful to my husband Professor Dr. Md. Nazrul Islam, for his constant inspiration, he provided me and pain suffered during this study. It would be incomplete on part of my acknowledgement if I do not remember those patients whose sincere co-operation helpful here to complete the study. Finally I thanks my sons Md Sayed Ahsan, Md Abid Ahsan and my daughter Nazifa Nushin Nabila for their assistance in computer typing of this article.

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Intranasal Splint in Nasal Septal Surgery: Is It Necessary?

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Abstract

Introduction: After SMR/septoplasty with or without turbinate surgery, it needs to keep apart the septum and turbinates up to their complete healing otherwise there is a chance of adhesion (synechia) formation. To prevent this there are various procedures. To place an intranasal splint in one or both sides of the septum is one of them. Nowadays there raised the question of whether the splinting is necessary or not. There is no significant difference in result with or without an intranasal splint. Weighing against the co-morbidities the routine use of an intranasal splint can no longer be justified.

Materials and Methods: This is a randomized control study of 200 patients of SMR/septoplasty, done for nasal septal deviation causing symptoms in Cumilla Medical College Hospital in the period of January 2016 to December 2019. They were equally divided into two groups, group-A were operated placing an intranasal splint and group-B with no intranasal splint. They were followed up for 6 weeks to detect any synechia and co-morbidities. **Result:** The age of our patients was ranged from 13-49 years with a mean age of 22.45 years. The male to female ratio is 1.78:1. Synechia was found in 4% of the splinted group and 6 of the nonsplinted groups. Co-morbidities were detected more in the splinted group than that of non-splinted. In INS group these were found as follows: pain in the nose, face and head (26%), faint during removal of nasal splint (6%), nasal obstruction (38%), the anxiety of splint removal in the postoperative period (35%) and vestibulitis due to persistent irritation by a splint (17%). **Conclusion:** There is little significant advantage of using intranasal splint routinely in septal surgery to prevent synechia formation.

Keywords: Intranasal splint, Synechia, SMR, Septoplasty.

Number of Tables: 04; Number of Figures: 01; Number of References: 20; Number of Correspondence: 03.

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Introduction

Nasal septal surgery is one of the most common surgical procedures in otolaryngology¹. Among the septal surgeries, SMR (submucosal resection of septal bones and cartilages) is the commonest one by which a deviated portion of septal bones and cartilages are removed to make the septum straight and central in the patients of 18 years of age or more. Septoplasty is applied to remove the same as per as minimum keeping the mucoperiosteum & mucoperichondrium unseparated on one side in the patients of below 18 years of age. It may or may not be associated with turbinate reduction. Bleeding, septal hematoma, septal abscess, septal perforation, adhesion are common postoperative complications of SMR/septoplasty though the incidence is rather low. Among the complications, adhesion (synechia) between the lateral wall and septum is most common. The incidence of it can be reduced by various procedures; intranasal splinting is one of them. The reported frequency of it varies from 6.8-36%^{2,3}. For this reason, since 1955 an intranasal splint has been used^{4,5}. Apart from septal surgeries, other intranasal surgeries (FESS, polypectomy, antrostomy) may also result in adhesion formation.

An intranasal splint (INS) is a device that is placed in one or both sides of the septum with the intention of preventing adhesions, hematoma, and perforation, and to facilitate mucosal healing and support tissue alignment¹. Although their utilization varies between surgeons, and possible side effects include pain, discomfort, and infection they remain a popular perioperative adjunct⁶. INS is available in the market in various forms of various brands. Modern splints are found in a variety of shapes, sizes, and fit with additional features depending on the type of procedure. But it may be made of dental wax or hand-cut piece of X-ray film, coffee cup lid, or intravenous

fluid bag. It may be removable or absorbable, may be incorporated with nasal airways or magnet⁷. In our study, we used a hand-cut piece of the intravenous fluid bag. In spite of the wide usefulness of intranasal splint as a good intervention to minimum postoperative complications, some recent studies have created considerable doubt in their affectivity and morbidity. To evaluate the benefits and morbidities associated with intranasal splint we conducted our study.

Objectives: To determine the necessity of intranasal splint in nasal septal surgery to prevent the formation of synechia.

Materials and Methods

This is a randomized control study of 200 patients of SMR/septoplasty, done for nasal septal deviation causing symptoms done in Cumilla Medical College Hospital in the period of January 2016 to December 2019. They were divided into two groups: group-A & group-B. Group-A comprises the patients with an intranasal splint (INS) and group-B comprises the patients with no intranasal splint (NINS). Each group contains 100 patients. The age of all of the patients was between 13-49 years. Operations were done under general anesthesia with orotracheal intubation. The septum was infiltrated bilaterally in the submucosal and subperiosteal plan with inj. 2% lidocaine + 0.0005% adrenaline (Jasocaine-A, Jayson pharmaceuticals Ltd, Bangladesh) at the beginning of the operation to aid homeostasis. Through a hemitransfix incision deviated osteochondral parts were removed. The incision was closed with a 3/0 atraumatic catgut. Hypertrophied inferior turbinates of both sides were reduced by surface cautery or submucosal diathermy. No turbinectomy was done. In group-A, an intranasal splint made of a cut piece of sterile I.V. saline bag was molded in both sides of the septum and it was fixed to columella by a mattress suture with the same catgut. Both the nasal cavities were packed by a nasal pack soaked with an ointment of neomycin sulfate & bacitracin (NUBA, Biopharma Ltd, Bangladesh). After 48 hours it was removed and all the patients were discharged from the hospital with advice to come after 7 days (7th postoperative day). Patients of group-A (INS group) had the intranasal splint in the nasal cavity which removed on 1st follow up visit. All the patients of both groups came to our center for a follow-up visit weekly for 6 weeks and nasal toileting done in every visit. In each follow-up visit nasal toileting was done by electric sucker machine or Tilly's nasal dressing forceps, and examined for any complication especially adhesion. Adhesions detected in their follow up visits were released under local anesthesia by Tilly's nasal dressing forceps, or monopolar diathermy. Three patients needed second-time placement of intranasal splinting for 14 days more for a successful recovery. Pain in the postoperative period was analyzed according to visual analog score (VAS) system by asking the patient to score pain from 1-10 and was categorized as follows: mild pain 1-3, moderate pain 4-7 & severe pain 8-10. In the postoperative period, all the patients have prescribed

cefixime (400 mg) bid, flucloxacillin (500mg) q.i.d, paracetamol (500mg) t.i.d, chlorpheniramine maleate (4mg) t.i.d. In addition to these during their discharge a nasal decongestant drop, Antazol (Xylometazoline hydrochloride 0.1%, square pharmaceuticals Ltd, Bangladesh), and liquid paraffin were added to install 3-4 drops in each nasal cavity three times daily for 7days.

All the patients with deviated septum with hypertrophy of one or both inferior turbinates were included in our series. Patients with a nasal polyp, tumor, chronic sinusitis, diabetes, hypertension, previous history of nasal surgery were excluded.

Table-I: Age distribution.

Age in year	INS (group-A);n=100		NINS (group-B);n=100	
	Number	Percentage	Number	Percentage
10-20	25	25%	22	22%
21-30	45	45%	48	48%
31-40	26	26%	25	25%
41-50	04	04%	05	05%

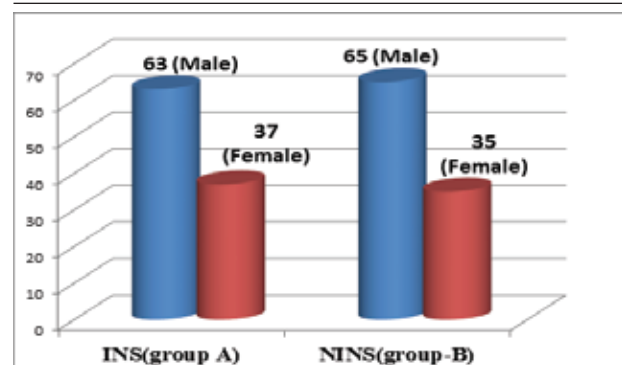


Figure-1: Sex distribution.

Table-II: Frequency of synechia formation

Adhesion formation	Number	Percentage
INS (group-A);n=100	04	04%
NINS (group-B);n=100	06	06%

Table-III: Incidence of co-morbidities.

Age in year	INS (group-A); n=100		NINS (group-B); n=100	
	Number	Percentage	Number	Percentage
Pain/headache	26	26%	05	05%
Vestibulitis	17	17%	04	04%
Fainting during splint removal	06	06%	00	00%
Nasal obstruction	38	38%	17	17%
Anxiety of splint removal	35	35%	00	00%

Table-IV: Time of synechia formation.

Synechia	NS (group-A);n=100	NINS (group-B);n=100
1 st week	00	00
2 nd week	01	02
3 rd week	02	02
4 th week	00	01
5 th week	01	00
6 th week	00	01
Total	04	06

Results

The age of our patients was ranged from 13-49 years with mean age 22.45year. Male to female ratio is 1.78:1. Synechia was found in 4% of the INS group (group-A) and 6% of the NINS group (group-B). Among the co-morbidities detected in our study pain in nose, face, and the head was 26% in the INS group and 05% in the NINS group. Faint during removal of nasal splint (6%) and anxiety of splint removal in the postoperative period (35%) were two additional terrible conditions found in INS group. Nasal obstruction was found 38% in the INS group and 17% in the NINS group. Vestibulitis noted in 17% of splinted patients and 04% in non splinted patient. 70% (7/10) synechia was formed in 2nd and 3rd week of the postoperative period.

Discussion

In our study, there was a higher incidence of adhesion in the non-intranasal splint (NINS) group. But in comparison to the intranasal splint (INS) group, the difference was not significant and this may be due to intra-operative surgical technique or post-operative nasal toileting to prevent crust formation which leads to the formation of adhesion. We found the formation of adhesion in the non-intranasal splint (NINS) group was 6% and in the intranasal splint (INS) group was 4% (Table-II). This result is comparable to other studies.

Von Schoenberg M et al⁸ found that frequency of formation of adhesion in the splinted and non splinted group was low and almost the same (2%) in their 105 patient series. Pringle MB⁹ carried out a survey on 440 consultants on the same issue and found that 33% of them never or rarely used intranasal splint and reported an adhesion rate of 5.2% NINS group and 3.9% in INS group and they commented it as non-significant. Malki D et al¹⁰ showed no statistically significant difference in the incidence of adhesions between the splinted and non-splinted patients. Follow up after 6 weeks of their surgeries the incidence of adhesion in the splinted group was 1.8% (1/55) and in non splinted group was 7.7% (4/52). Their opinion was no significant difference in the incidence of adhesions between the splinted and non-splinted groups. They concluded that the morbidity associated with nasal splints does not justify their use in routine nasal surgery if the aim is to prevent septal adhesion. Cook JA et al⁴ showed a failure of intranasal splints in preventing intranasal adhesion (6.5% in splinted vs. 7.0% in non splinted group) and concluded that there is no clear advantage of using intranasal splints and they should, therefore, be used sparingly and recommended use of nasal toilet after septal surgery. Study of Almoflehi MS¹¹ also concluded that the intranasal splints are not of significant value in preventing nasal adhesion (10% in splinted vs. 21% in non splinted group) and the recommendation was that the use of intranasal splints in septal surgery has to be individualized. Almagro KS et al¹² in their study found no significant difference in the incidence of adhesion formation between splinted and non splinted groups (2% in splinted vs. 10% in non splinted group).

On the other hand contrary to our results Campbell et al¹³

inserted a nasal splint into one side of the nose of 106 patients undergoing a variety of intranasal procedures. All adhesions occurred on the non splinted side and were more common when bilateral nasal wall procedures had been performed (8% in splinted versus 26% in non-splinted). They concluded that splints were justified for bilateral wall procedures but their increased morbidity did not justify their use in single wall procedures. Von Schoenberg et al⁷ found a low incidence of adhesions in the first-week postoperatively when intranasal splints were used and found that the highest incidence of intranasal adhesions occurred in non splinted patients who had surgery to both walls of the nasal cavity (3.6% in splinted vs. 31.6% in non splinted). Roberto et al¹⁴ found nasal splints very effective in preventing adhesion formation in patients undergoing septoplasty with turbinectomy. They found no adhesion in the splinted group but 10.6% in the non splinted group. Nabil-ur-Rahman MA¹⁵ concluded that complications were related to the type of procedure being performed and adhesions were common complications if intranasal splint were not provided. Roberto et al¹⁴ shows that the nasal splint increases co-morbidities such as pain and discomfort in the post-surgical period. On the other hand, it presented high efficiency to prevent post-surgical synechias. According to Vanita Sarin et al¹⁶ INS had a significant role in preventing intranasal adhesions but it definitely increases morbidity by causing pain, discomfort, and crust formation. On the basis of their study, they recommended intranasal splints especially in those surgeries in which both lateral walls of nose and septum are simultaneously manipulated. Kashif Mahmood et al¹⁸ found septal adhesion 3.1% in the splinted group and 3.8% in non splinted group.

Among the co-morbidities, pain in the nose, face, or head in the postoperative period is the most distressful factor associated with a nasal splint (Table-III). We noted it 26% in INS and 5% in the NINS group. In the INS group, 42.30% (11/26) complained of mild, 50% (13/26) moderate, and 7.70% (2/26) severe pain in their 1st week of the postoperative period. Some studies also found almost the same result of INS related pain^{4,14,16}. Vestibulitis or tip cellulitis due to persistent irritation by a sharp margin of the splint is another afflicted condition in the INS group and we found it 17% in the splinted group and 04% in non splinted group. Cook JA et al⁴ found it 6.5% (3/46) in their splinted group and none in the non splinted group. This high incidence may due to the use of a hand-cut device. Anxiety for splint removal (35%) and being fainted during splint removal (06%) in the INS group were another two distressful conditions in our study. Nasal obstruction is due to the formation of a mound with crust, old clotted blood, and natural nasal discharge, and it was found in both the groups but more with a splinted group (38%) as there was an additional foreign body (splint). It is 17% in the non-splinted group.

The routine use of nasal splints in SMR/septoplasty patients is still a matter of debate. Splints add significant pain and discomfort in the postoperative period^{19,20}. Patient with INS passed their post-operative period with the

anxiety of splint removal. It is recommended that their use should be individualized depending upon the procedure being performed. They are more justified when surgical procedures are performed on both medial and lateral walls of nose simultaneously^{13, 16, 17}.

Conclusion

An intranasal splint is widely acceptable to decrease the incidence of intranasal adhesion. But considering other co-morbidities the routine use of the intranasal splint can no longer be justified when the same effects can be achieved by careful nasal toileting. An intranasal splint can be recommended in those surgeries in which both nasal wall and septum are manipulated simultaneously. Regular outpatient follow-up with suction toileting are very effective in preventing adhesion formation.

Conflict of Interest: None.

Acknowledgment

We are grateful to Dr. Rafiqul Islam Sarker, Associate Professor (ENT) and Vice-Principal of Cumilla Medical College for his kind and continuous support and inspiration beyond our work.

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Changing Pattern of Post-infectious Glomerulonephritis: A Study in South-Western Region of Bangladesh

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Abstract

Introduction: In developing countries like Bangladesh, post-infectious glomerulonephritis (PIGN) is the common form of acute glomerulonephritis having its changing pattern over recent decades. The aim of the study was to analyze the clinical profile of PIGN in local scenario. **Materials and Methods:** This cross-sectional study was conducted at Shaheed Sheikh Abu Naser Specialized Hospital, Khulna during period from 2017 to 2019. A total of 67 cases of PIGN were identified on the basis of clinical features, laboratory parameters with recent history of infection. The patients' records were reviewed with respect to clinical data. Patients with reduced complement level were included. **Result:** The age range of the patients was between 2 and 55 years with male predominance. The study revealed that 32.8% of patients had a recent history of sore throat, 31.3 % of patients had a history of skin infection and rest 35% had a history of fever. Moreover, during presentation 68% of patients had hypertension and 37 % of patient had renal impairment. In this study, majority of patients (53%) presented with one plus to two plus proteinuria and the rest of the patients (37%) presented with three plus proteinuria on dipstick. After 2 weeks of follow up, the presence of hematuria found in 58 patients out of 67, proteinuria found in 14 patients out of 61 and renal impairment found in 5 patients out of 25. **Conclusion:** PIGN has been changing with respect to age, proteinuria and renal function. To follow-up periodically and reduction in overcrowding of the patients, would be one of the superior suggestions to reduce the spread of infectious diseases in our country.

Keywords: Post-infectious glomerulonephritis (PIGN), Proteinuria, Renal Impairment, Infection.

Number of Tables: 02; Number of Figure: 01; Number of References: 22; Number of Correspondence: 03.

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Introduction

Post-infectious glomerulonephritis (PIGN) is one of the oldest recognized renal diseases worldwide^{1,2}. PIGN is the commonest form of acute glomerulonephritis (AGN) in developing countries^{3,4}. Despite declining incidence of PIGN in many developed countries, there is still a significant numbers of patients in developing countries. PIGN is mainly diseases of poverty, because overcrowding and poor hygiene are prevailing. PIGN is an immune-mediated form of glomerulonephritis (GN) that typically develops 1-3 weeks after an episode of acute bacterial infection of upper respiratory tract or skin^{5,6}. Previously it was commonly caused by group A beta hemolytic streptococci. But with the time, the causative organisms have become changed with Staphylococcus and other gram negative organism's also¹. PIGN is characterized by abrupt onset of hematuria, edema, hypertension, proteinuria, oliguria and diminished renal function⁷. It is considered a benign transient condition. Though the incidence of PIGN has lowered in the past few decades, reports of epidemics and clusters of cases continue to appear worldwide. It is affecting more children than adults. It most commonly affects in children between 5-12 years and it is uncommon before the age of 3 years³. PIGN accounts for about 21% of children admitted to hospital with acute renal failure in developing countries⁸. The characteristics of the disease has changed over recent decades⁹.

The goal of this study is to review the clinicopathological spectrum of the disease in a major tertiary care renal referral hospital. But there is paucity of data in Bangladesh. Hence, the aim of this study was to analyze clinical profile of PIGN in local scenario.

Materials and Methods

The hospital based cross-sectional study was conducted in Shaheed

Sheikh Abu Naser Specialized Hospital, Khulna which located in south western region of Bangladesh, during two years period from 2017 to 2019. In this study, the terminology PIGN is used instead of post-streptococcal glomerulonephritis (PSGN). In the absence of highly sensitive diagnostic modality in resource limited countries, the definitive infective etiology could not be established in many patients presenting with acute glomerulonephritis (AGN). Since there were no classic diagnostic criteria for PIGN, the treating physician usually made a final diagnosis of PIGN on the basis of clinical features and available biochemical parameters and excluding other types of glomerulonephritis whenever necessary.

Sixty seven cases of post-infectious glomerulonephritis were identified according to clinical features (edema, hematuria, hypertension and oliguria), laboratory parameters with a recent history of infection. The patients' records were reviewed with respect to clinical data including age, sex, skin or throat infection, blood pressure, laboratory, and clinical course. Blood pressure values and definitions were based on the fourth task force report on the diagnosis, evaluation, and treatment of high blood pressure in children and adolescence¹⁰. The laboratory parameters included urinalysis, serum creatinine and complement levels. Along with the relevant clinical feature, patients with reduced complement level were included. Proteinuria was tested by dipstick. The result were recorded as negative, trace, 1+ (30 mg/dL), 2+ (100 mg/dL), 3+ (300 mg/dL) and 4+ (2000 mg/dL)¹¹. The data was analyzed descriptively for frequencies and percentage values. The tables as well as graphs were used to present the results.

Results

A total of 67 records of patients diagnosed with PIGN were included in this study. The age range of the participant patients was between 2 and 55 years with mean age of 16.4 years as shown in Table I.

Table-I: Variation of the age group of different patients.

Age Range	Number of Patients	Participant Percentage
0-4	2	2.98
5-9	16	23.8
10-14	26	38.8
>15	23	34.3

Out of 67 patients, 43 patients are male and 24 are female with male to female ratio of 1.7:1.

Recent history of sore throat was present in 32.8% of patients, history of skin infection was in 31.3% of patients and history of fever was present in 35% of patients.

At presentation 68% of patients had hypertension.

During presentation, serum creatinine more than 1.2mg/dl was in 25 patients and rest of the patient had serum creatinine less than 1.2 mg/dl. That means 37 % patient had renal impairment at presentation. Those patients presented with renal impairment were older than 10 years of age.

In this study proteinuria was evaluated with dipstick. During presentation, 4.48% of patients did not have any proteinuria. Another 4.48 % of patients had trace proteinuria during initial presentation. And rest of the patients presented with different categories of proteinuria as shown in figure 1.

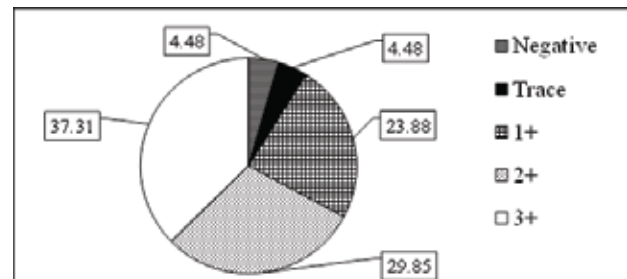


Figure-1: Dipstick test for protein at presentation

Among the patients with 3+ proteinuria (N-25) only one patient was in age group 0-4, six patients were in age group 5-9. And rests of the patients were more than 10 years of age as shown in table II.

Table-II: Age distribution 3+ proteinuria patients (N -25):

Age Range	Number of Patients	Participant Percentage
0-4	1	4
5-9	6	24
10-14	9	36
>15	9	36

After 2 weeks of follow up:

Hematuria (RBC $\geq$ 5/hpf) was present in 58 patients.

Proteinuria was in 14 patients

Serum creatinine more than 1.2 was present in 5 patients out of 25 patients. All of them were adult.

Discussion

This study revealed that among 67 patients with PIGN, 62 % patients were the school -going having age range of 5-15 years. Similar results were reported by other studies^{12,13,14}.

As this hospital is only nephrology service providing hospital in this part of the country, so all patients were included in this study.

In this study showed more cases of PIGN in male individuals which were comparable to other studies^{3,15,16}.

In this study, the history of sore throat was present in 32.8% and history of skin infection was present in 31%. A study from Nepal showed that history of sore throat and skin infection in 20% and in 31% respectively³. A recent study from Chennai, India showed history of upper respiratory tract infection in 25% and history of skin infection in 11.7% that was more similar to our study¹⁷.

In this study, 68% patients had hypertension during presentation.

A study by Gebreyesus et al. found hypertension in 64.1% of PIGN patient at the onset¹⁸. The initial clinical presentation was similar to that described in the literature, with hypertension^{9,19,20}.

In this present study, 37 % patient had renal impairment at presentation. Those patients presented with renal impairment were older than 10 years of age. A study of PIGN on children showed 31.7% of the patients had renal impairment at presentation³.

Another study of PIGN on adult showed 60% of the patients had renal impairment during presentation¹⁷. The result of this study was concordant with the result of both of the two studies, because this study included both children and adult patients.

In this study, 53% patients had mild to moderate proteinuria and 37% patients had nephrotic range proteinuria. In case of adult patient, G Natarajan. et al showed 60% had nephrotic range proteinuri¹⁷. The occurrence of nephrotic range proteinuria were 14–60% described in the different literature⁹.

Follow up: In this study, follow up after two weeks 86% patients had hematuria. A study from Bangladesh Khoybar MA et al, showed 24% patients had hematuria during discharge. In their study, period of hospitalization was 1 to 36 days (mean 12.98 days). This was may be the explanation of less number of patients with hamaturia in their study¹³.

In our study follow up after two weeks, 21% patients had proteinuria. A study in Bangladesh showed similar result¹³.

In this study 25 patients had renal impairment at presentation and after two weeks 5 patients had renal impairment. That means 7% patients had renal impairment after two weeks. Most of the studies reported excellent prognosis for children with PIGN^{21,22}. But studies in adults reported less favorable outcome¹⁷.

Conclusion

Since Bangladesh is a one of the developing countries, Post-infectious glomerulonephritis is still common in both children and adult population. PIGN has been changing in respect to age, proteinuria and renal function. Renal impairment was not uncommon in PIGN patients during initial presentation. In this study, adult patients had more amount of proteinuria than children. During follow up, persistence of hematuria was common. It is important to follow-up periodically all the patients especially in adult. Prevention of epidemics of post-infectious glomerulonephritis requires an active community participation in controlling the infection. Improvement in housing, particularly reduction in overcrowding, will hinder the spread of infectious diseases in our country.

Conflict of Interest: None.

Acknowledgement

My gratitude goes to Shaheed Sheikh Abu Naser Specialized hospital and Department of nephrology for the provision of such a golden opportunity to conduct the study.

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Stressors are Correlated with the Development of Conversion Disorder Presenting with Non-epileptic Events

Shafiul Islam^{*1}, Aminur Rahman², Muiz Uddin Ahmed Choudhury³

Abstract

Introduction: To study the socio-demographic and psychosocial correlates in patients with conversion disorder presenting with nonepileptic events and discuss its interventional implication. **Materials and Methods:** This cross-sectional descriptive study was carried out in a tertiary care hospital of Brahman Baria Medical College from January 2018 to January 2019. 151 consecutive patients with conversion disorder satisfying the inclusion and exclusion criteria were selected. They were interviewed using semi-structured socio-demographic profile proforma, Holmes and Rahe stress scale for the exploration of psycho-social stressors. The data were entered on MS excel, analyzed by SPSS-version 16.0. **Results:** The psychosocial stressors were clearly identified in all patients. Almost ninety five (94.70%, n=143) out of the total 151 subjects had a history of stressors, while in the rest 4.95% no stressors could be established. The commonest stressors were Troubles with in-laws (26.49%), Death of close family member (11.92%) and Increase in argument with significant others (10.59 %). **Conclusion:** Significantly higher number of the patients presented with the stressor of troubles with in-laws, when assessed on the Holmes and Rahe Social Readjustment Rating Scale. Detection of exact nature of correlates has immense potential for therapeutic as well as preventive field.

Keyword: Psychosocial correlates, Conversion disorder, Non epileptic events.

Number of Table: 01; Number of References: 21; Number of Correspondence: 04.

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Introduction

The term conversion disorder was introduced by Sigmund Freud, who hypothesized that the symptoms of conversion disorder reflect unconscious conflict¹. Conversion disorder is a loss or alternation in sensory or voluntary function, that cannot be fully explained by known patho-physiological mechanism². One of the common presentations of conversion disorder is “Non-epileptic events” also called “pseudo seizures”, “psychogenic”, “non-epileptic” are clinical events that resemble epileptic seizures but are not associated with abnormal cortical electrical discharges^{3,4}. Non-epileptic seizures are thought to be the result of an unconscious psychological conflict or other stressors, which is converted into symbolic somatic symptoms that relieves anxiety and protect the conscious self from stressful emotions. The symptoms

also provide considerable secondary gain to the individual, as the sick role generates attention and sympathy. Because the illness is preceded by conflicts or other stressors¹, finding the relevant stressors would be of immense potential not only for therapeutic but also for preventive purposes. Stress can be real, symbolic or imagined. Our body reacts to stress to minimize its impact. More is known about physiological response to acute stress than chronic stress. Many stressors occur over a prolonged period of time or may have long lasting repercussions. For example loss of spouse or children in young age, unexpected death of significant persons in one's life, torture or sexual assault may lead to prolonged emotional disturbance in people¹⁷.

Conversion disorder among children is a relatively rare condition in the developed countries but several epidemiological and clinical studies conducted in India have found the condition to be very common with a prevalence rate as high as 31% among inpatients admitted to Psychiatry department. Conversion disorder is more common in girls than boys¹⁸.

This study was conducted to detect psychosocial correlates in patients with conversion disorder presenting with non-epileptic events so as to have a better insight into its phenomenology and management, particularly in the socio-cultural context of the area covered by the research centre.

Materials and Methods

This cross-sectional descriptive study was conducted at a tertiary care medical college of Bangladesh. The study sample comprised of patients who presented with Non-epileptic events and were diagnosed with conversion disorder from January 2018 to January 2019 in psychiatry O.P.D. of the medical college. The diagnosis of conversion disorder was made according to the criteria laid down by DSM-V.

All patients irrespective of age and gender satisfying the inclusion and exclusion criteria were included in this study sample. Patients presenting with conversion disorder with underlying co-morbid psychiatric disorder were excluded from the study.

Detail psychiatric history, mental status examinations and relevant investigations were conducted on all patients. Socio-demographic data were collected by using semi-structured socio-demographic profile proforma. Then using Holm's and Rahe Social Readjustment Rating Scale⁵ was administered on all patients to identify the stressors. The data were entered on MS excel 2007 and analyzed by SPSS- version 16.0.

Results

The study population was 151 patients. The age of subject ranged from 10-50 years, with mean of 24.28 years. Out of 151 patients, 124 (82.12%) were females and 27 (17.89%) were males. Among all the patients (n = 52, 34.43%) were single and (n = 99, 65.57%) were married. Majority of the patients n = 71, 47.02% were illiterate, n = 43, 28.47% were primary educated, n = 27, 17.88% were matriculate, n = 8, 5.3% had higher secondary education and n=2, 1.32% were graduate. Occupationally, out of 151 patients, n = 12, 7.94% were employed and n = 49, 32.45 % were unemployed and n = 90, 59.60% were house wives. 94.70% (n = 143) out of 151 patients had history of stressors while in the rest 5.30% (n = 8) no stressors could be detected. Based upon the history, the commonest stressors were troubles with in-laws (n = 40, 26.49 %), Death of close family member (n = 18, 11.92 %), Increase in argument with significant others (Viz. husband/boyfriend/ girlfriend etc.) (n = 16, 10.59%) respectively. The detailed list can be seen in Table-I.

Discussion

The relationship between epilepsy and hysteria has been debated for many centuries. In recent decades (with the introduction of ambulatory EEG recordings, simultaneous video-monitoring and post-ictal serum prolactin measurements) neurologists and neuropsychiatrists have confidently recognised that a considerable proportion of patients attending their epilepsy clinics suffer from seizure disorders that are not epileptic but occur as a symptom of psychopathology. There are two groups of such patients, those with pseudoseizures alone and those in whom the pseudoseizures occur concurrently with epilepsy¹⁹.

The results of this study shows that conversion disorder can occur at any age being most common in adolescents and young adults although some studies suggest a peak onset in the mid to late 30s^{6,7}. Interestingly, plenty of works suggested that it is the pseudoseizure (nonepileptic event) type which is commonest in this population^{8,9}.

In India, high occurrence of conversion disorder has been reported in young adults, from poor low-income, joint families, and significantly higher in females²⁰. Also, higher prevalence has been seen in illiterates, married housewives being the largest group²¹. But less is known from this region about the clinical presentations and socio-demographic variables in conversion disorder.

It is an established fact now that conversion disorder is more common in people with lower education level and its incidence decreases with increasing level of education¹⁰. In

a similar study on conversion disorder, only 5% of the patients were university graduates, 21% had secondary school, 44% preparatory school, 22% primary school level education and 8% were illiterate¹¹.

Surprisingly, our study also reports 5 cases of nonepileptic events which occurred few days prior to marriage and one of them presented with sudden attack in the night after engagement but it is unlike the study of Mc Connell et al who reported five cases of pseudo seizures (nonepileptic events), occurring on or immediately before the wedding day¹². The major psychosocial stressors among patients of this category were premarital relationship coupled with the existing strict socio-cultural norms which most probably resulted in conflicts leading to the event.

Although there is no obvious consensus about the relationship of conversion disorder with marital status but some studies have reported married population to be more prone^{10,13}. On the other hand a Libyan study reported that the percentage of married patients suffering from conversion disorder was only 15% and 25% in males and females respectively¹¹.

Generally, conversion disorder is characterized by the sudden onset of symptoms in clear relation with the stress¹⁴ and this observation is further supported by the results of our study. We observe thirteen categories of stressors

Table-I: Observed stressors in the sample (n=151).

S. No.	Observed stressors	No. of Patients	%
1	Trouble with in-laws	40	26.49
2	Death of a close family member	18	11.92
3	Increase in argument with significant others	16	10.59
4	Personal injury or illness	13	8.60
5	Change in living condition	12	7.94
6	Spouse begins working outside home	12	7.94
7	Change in health of Family	11	7.28
8	Marriage	05	3.31
9	Gain of new family member esp. a baby girl	05	3.31
10	Loan or Mortgage	04	2.64
11	Change in financial status	03	1.98
12	Trouble with boss	02	1.32
13	Fired from job	02	1.32
14	Nil	08	5.3

which may have been reported earlier too but with different order and frequency. The varying pattern of psychosocial correlates appears to be a silent indicator of impact of modernization on the phenomenology of conversion disorder in a developing country like India. In children and adolescent the most common dissociative symptom are pseudoseizure and there are body of literature which suggests that outcome of dissociative disorders in this population is better when pseudoseizure is the presenting symptom¹⁵. Early diagnosis and presence of precipitating factors are associated with a favourable outcome¹. Although our results shows that psychosocial stressors were present in a large proportion of patients who presented with Non-epileptic events with a diagnosis of conversion disorder but this shouldn't be considered

enough particularly in the sense that identification of the exact nature of stressors is very crucial for comprehensive management of such patients.

It is well known that insight oriented psycho-therapy or behavior therapy facilitates improvement. The most important feature of the therapy is a relationship with a caring and confident therapist. With patients who are resistant to the idea of psychotherapy, it can be suggested that the psychotherapy will focus on issues of stress and coping. Any implication to the patient that he or she is malingering is very counterproductive¹⁶. Hypnosis, anxiolytics, behavior therapy and relaxation exercises are effective in some cases and their judicious use when the stressors are known precisely is more likely to further improve the efficacy.

Strength and Limitation of The Study

A sample with varying nature of psychosocial stressors relevant to contemporary socio-cultural system is the strength of this study. Secondly, one important utility of finding the exact nature of psychosocial correlates would be in the field of preventive psychiatry. A prior scientific awareness about implication of these correlates would help not only mental health professional but also the NGOs working for the cause of community mental health and allied social activity in delivering a quality service at the grass root level.

Although this study has many more strengths, it also has some limitations. Primarily this is a tertiary care, single centre work with small sample size because of which it lacks extrapolation to the community at large. As it's a cross sectional, descriptive study, it lacks follow-up for future outcomes. Administration of an indigenous and extended version of psychosocial stress rating scale could have helped in detecting more exact nature of psychosocial stressors. Despite of its limitation the study has implication for future research, particularly carrying out a community based large sample study with appropriate randomization and control would be of great value.

Conclusion

Psychosocial stressors are correlated with the development of conversion disorder. Both genders tend to develop symptoms of conversion disorder after stressful events. Significantly higher number of the patients presents the stressor of Troubles with in-laws.

Detection of exact nature of correlates seems to have immense potential for therapeutic as well as preventive field.

Conflicts of Interest: None.

Acknowledgement

I would like to thank the all library media specialists for their participation in the survey who supported my work in this way and helped me get results of better quality. Also grateful to the members of my team for their patience and support in overcoming numerous obstacles I have been

facing through my research. Nevertheless, also very much grateful to Prof Rezaul Karim for sharing his idea and views and also thanks my family, my parents and to my brothers and sister for supporting me spiritually throughout writing this article and my life in general.

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Coronavirus-A Global Emergency

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Abstract

Introduction: Coronavirus is a highly infectious contagious virus producing pandemic throughout the world with high morbidity and mortality. **Discussion:** Right now, there is no vaccine to prevent human coronavirus infections. But you may be able to reduce your risk of getting or spreading an infection by washing hands often with soap and water for at least 20 seconds, use an alcohol-based hand sanitizer that contains at least 70% alcohol if soap and water are not available. Avoiding touching your face, nose, or mouth with unwashed hands, use of face mask, avoiding close contact with people who are sick, there is no specific treatment for coronavirus. **Conclusion:** Treatment aims to relieve the symptoms. Most people will get better on their own. However, you can relieve your symptoms by taking over-the-counter medicines for pain, fever, and cough. Using a room humidifier or taking a hot shower to help ease a sore throat and cough. Getting plenty of nutritious diet, drinking fluids and taking rest.

Keywords: Novel coronavirus, Pandemic, Contagious, COVID-19, SARS, MERS.

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Introduction

Coronaviruses are a group of viruses that cause diseases in mammals and birds. In humans, the viruses cause respiratory infections which are typically mild, including the common cold; however, rarer forms such as SARS, MERS and the novel Coronavirus causing the current outbreak can be lethal. In cows and pigs they may cause diarrhoea, while in chickens they can cause an upper respiratory disease. There are no vaccines or antiviral drugs that are approved for prevention or treatment.

Coronaviruses are viruses in the subfamily Orthocoronavirinae in the family Coronaviridae, in the order Nidovirales^{1,2}. Coronaviruses are enveloped viruses with a positive-sense single-stranded RNA genome and with a nucleocapsid of helical symmetry. The genomic size of coronaviruses ranges from approximately 26 to 32 kilobases, the largest for an RNA virus. The name "Coronavirus" is derived from the Latin corona, meaning crown or halo, which refers to the characteristic appearance of the virus particles (virions): they have a fringe reminiscent of a royal crown or of the solar corona. Human coronaviruses-Severe acute respiratory syndrome (SARS) and Middle East respiratory syndrome.

Novel Coronavirus (COVID-19)

Discovery

Coronaviruses were discovered in the 1960s;³ the earliest ones discovered were infectious bronchitis

virus in chickens and two viruses from the nasal cavities of human patients with the common cold that were subsequently named human coronavirus 229E and human coronavirus OC43⁴. Other members of this family have since been identified, including SARS-CoV in 2003, HCoV NL63 in 2004, HKU1 in 2005, MERS-CoV in 2012, and 2019-NCoV in 2019; most of these have been involved in serious respiratory tract infections.

Name and Morphology

The name "Coronavirus" is derived from the Latin corona and the Greek κορώνη (korōnē, "garland, wreath"), meaning crown or halo. This refers to the characteristic appearance of virions (the infective form of the virus) by electron microscopy, which have a fringe of large, bulbous surface projections creating an image reminiscent of a royal crown or of the solar corona. This morphology is created by the viral spike (S) peplomers, which are proteins that populate the surface of the virus and determine host tropism.

Replication

The infection cycle of coronavirus- Following the entry of this virus into the cell, the virus particle is uncoated and the RNA genome is deposited into the cytoplasm. The coronavirus RNA genome has a 5' methylated cap and a 3' polyadenylated tail. This allows the RNA to attach to ribosomes for translation.

Transmissions

Human coronaviruses usually spread from an infected person to others through⁵. The air by coughing and sneezing, Close personal contact, such as touching or shaking hands, touching an object or surface with the virus on it, then touching your mouth, nose, or eyes before washing your hands, Rarely, feces (poop).

Evolution

The most recent common ancestor of the coronavirus has been placed at 8000 BCE⁶. They may be considerably older than this. Another estimate places the most recent common ancestor (MRCA) of all coronaviruses around 8100 BCE. The MRCA of Alphacoronavirus, Betacoronavirus, Gammacoronavirus, and Deltacoronavirus have been placed at about 2400 BCE, 3300 BCE, 2800 BCE and 3000 BCE, respectively. It appears that bats and birds, the warm-blooded flying

vertebrates, are ideal hosts for the coronavirus gene source (with bats for Alphacoronavirus and Betacoronavirus, and birds for Gammacoronavirus and Deltacoronavirus) to fuel coronavirus evolution and dissemination⁷.

Human Coronaviruses

Coronaviruses are believed to cause a significant percentage of all common colds in human adults and children. Coronaviruses cause colds with major symptoms, e.g. fever, throat swollen adenoids, in humans primarily in the winter and early spring seasons⁸. Coronaviruses can cause pneumonia, either direct viral pneumonia or a secondary bacterial pneumonia and they can also cause bronchitis, either direct viral bronchitis or a secondary bacterial bronchitis⁹. The much publicized human coronavirus discovered in 2003, SARS-CoV which causes severe acute respiratory syndrome (SARS), has a unique pathogenesis because it causes both upper and lower respiratory tract infections⁹.

Seven Strains of Human Coronaviruses

1. Human coronavirus 229E (HCoV-229E). 2. Human coronavirus OC43 (HCoV-OC43) 3. SARS-CoV. 4. Human coronavirus NL63 (HCoV-NL63, New Haven coronavirus). 5. Human coronavirus HKU1. 6. Middle East respiratory syndrome coronavirus (MERS-CoV), previously known as novel coronavirus 2012 and HCoV-EMC. 7. Novel coronavirus (2019-nCoV),^{10,11} also known as Wuhan pneumonia or Wuhan coronavirus¹². ('Novel' in this case means newly discovered, or newly originated, and is a placeholder name)¹⁰. The coronaviruses HCoV-229E, -NL63, -OC43, and -HKU1 continually circulate in the human population and cause respiratory infections in adults and children world-wide¹³.

Symptoms

The most common symptoms of COVID-19 are fever, tiredness, dry cough and breathing difficulties. Some patients may have aches and pains, nasal congestion, runny nose, sore throat or diarrhea. Rare features are burning sensation in whole body, chills and rigor, cold body, new onset of severe anorexia and anosmia. These symptoms are usually mild and begin gradually. Some people become infected but don't develop any symptoms and don't feel unwell. The symptoms depend on the type of coronavirus and how serious the infection is. If you have a mild to moderate upper-respiratory infection such as the common cold, your symptoms may include Runny nose, Headache, Cough, Sore throat, Fever, Not feeling well overall. Some coronaviruses can cause severe symptoms. The infections may turn into bronchitis and pneumonia, which cause symptoms such as fever, which may be quite high if you have pneumonia, cough with mucus, shortness of breath, chest pain or tightness when you breathe and cough. Severe infections are more common in people with heart or lung diseases, people with weakened immune systems, infants, and older adults.

Severe Acute Respiratory Syndrome (SARS)

In 2003, following the outbreak of severe acute respiratory

syndrome (SARS) which had begun the prior year in Asia, and secondary cases elsewhere in the world, the World Health Organization (WHO) issued a press release stating that a novel coronavirus identified by a number of laboratories was the causative agent for SARS. The virus was officially named the SARS coronavirus (SARS-CoV). Over 8,000 people were infected, about 10% of whom died¹⁴.

Middle East Respiratory Syndrome (MERS)

In September 2012, a new type of coronavirus was identified, initially called Novel Coronavirus 2012, and now officially named Middle East respiratory syndrome coronavirus (MERS-CoV)^{15,16}. The World Health Organization issued a global alert soon after¹⁷. The WHO update on 28 September 2012 stated that the virus did not seem to pass easily from person to person¹⁸. However, on 12 May 2013, a case of human-to-human transmission in France was confirmed by the French Ministry of Social Affairs and Health¹⁸. In addition, cases of human-to-human transmission have been reported by the Ministry of Health in Tunisia. Two confirmed cases involved people who seemed to have caught the disease from their late father, who became ill after a visit to Qatar and Saudi Arabia. Despite this, it appears that the virus has trouble spreading from human to human, as most individuals who are infected do not transmit the virus²⁰. By 30 October 2013, there were 124 cases and 52 deaths in Saudi Arabia²¹.

Novel Coronavirus (2019-NCOV)

In December 2019, a pneumonia outbreak was reported in Wuhan, China²². On 31 December 2019, the outbreak was traced to a novel strain of coronavirus,²³ which was labeled as 2019-NCOV by the World Health Organization (WHO)^{10,11,24}. According to Daniel Lucey at Georgetown University, the first human infections must have occurred in November 2019 or earlier²⁵. As of 30 January 2020 (16:00 UTC), there have been 214 confirmed deaths and more than 8,230 confirmed cases in the coronavirus pneumonia outbreak^{26,27,28,29}. The Wuhan strain has been identified as a new strain of Betacoronavirus from group 2B with an ~70% genetic similarity to the SARS-CoV³¹. The virus was suspected to have originated in snakes,³⁰ but many leading researchers disagree with this conclusion³². Daniel Lucey, an infectious disease specialist at Georgetown University, stated that "Now it seems clear that the seafood market is not the only origin of the virus"^{25,33}.

Diagnosis

To make a diagnosis, your health care provider will take your medical history, including asking about your symptoms, do a physical exam, may do blood tests, may do lab tests of sputum, a sample from a throat swab, or other respiratory specimens.

Other Animals

Coronaviruses have been recognized as causing pathological conditions in veterinary medicine since the early 1970s. Except for avian infectious bronchitis, the major related diseases have mainly an intestinal location³⁴.

Diseases

Coronaviruses primarily infect the upper respiratory and gastrointestinal tract of mammals and birds. They also cause a range of diseases in farm animals and domesticated pets, some of which can be serious and are a threat to the farming industry. In chickens, the infectious bronchitis virus (IBV), a coronavirus, targets not only the respiratory tract but also the urogenital tract. The virus can spread to different organs throughout the chicken³⁵. Economically significant coronaviruses of farm animals include porcine coronavirus (transmissible gastroenteritis coronavirus, TGE) and bovine coronavirus, which both result in diarrhea in young animals. Feline coronavirus: two forms, feline enteric coronavirus is a pathogen of minor clinical significance, but spontaneous mutation of this virus can result in feline infectious peritonitis (FIP), a disease associated with high mortality. Similarly, there are two types of coronavirus that infect ferrets: ferret enteric coronavirus causes a gastrointestinal syndrome known as epizootic catarrhal enteritis (ECE), and a more lethal systemic version of the virus (like FIP in cats) known in ferrets as ferret systemic coronavirus (FSC)³⁶. There are two types of canine coronavirus (CCoV), one that causes mild gastrointestinal disease and one that has been found to cause respiratory disease. Mouse hepatitis virus (MHV) is a coronavirus that causes an epidemic murine illness with high mortality, especially among colonies of laboratory mice³⁷. Sialodacryoadenitis virus (SDAV) is highly infectious coronavirus of laboratory rats, which can be transmitted between individuals by direct contact and indirectly by aerosol. Acute infections have high morbidity and tropism for the salivary, lachrymal and Harderian glands³⁸. A HKU2-related bat coronavirus called swine acute diarrhea syndrome coronavirus (SADS-CoV) causes diarrhea in pigs³⁹. Prior to the discovery of SARS-CoV, MHV had been the best-studied coronavirus both in vivo and in vitro as well as at the molecular level. Some strains of MHV cause a progressive demyelinating encephalitis in mice which has been used as a murine model for multiple sclerosis. Significant research efforts have been focused on elucidating the viral pathogenesis of these animal coronaviruses, especially by virologists interested in veterinary and zoonotic diseases⁴⁰.

Prevention

Right now, there is no vaccine to prevent human coronavirus infections. But you may be able to reduce your risk of getting or spreading an infection by- Washing hands often with soap and water for at least 20 seconds, use an alcohol-based hand sanitizer that contains at least 60% alcohol if soap and water are not available. Avoiding touching your face, nose, or mouth with unwashed hands, use face mask. Avoiding close contact with people who are sick, avoid mass gatherings, cleaning and disinfecting surfaces that you frequently touch, covering coughs and sneezes with a tissue, then throw away the tissue and wash your hands, Staying home when sick.

Treatment

There is no specific treatment for coronavirus. Treatment aims to relieve the symptoms. Most people will get better on their own. However, you can relieve your symptoms by- Taking over-the-counter medicines for pain, fever, and cough. However, do not give aspirin to children. And do not give cough medicine to children under four. Using a room humidifier or taking a hot shower to help ease a sore throat and cough. Getting plenty of rest, drinking fluids. If you are worried about your symptoms, contact your health care provider. For severe cases, treatment should include care to support vital organ functions. People who think they may have been exposed to 2019-nCoV should contact your healthcare provider immediately.

Conclusion

During previous outbreaks due to other coronavirus (Middle-East Respiratory Syndrome (MERS) and Severe Acute Respiratory Syndrome (SARS)), human to human transmission occurred through droplets, contact and fomites, suggesting that the transmission mode of the 2019-nCoV can be similar. The basic principles to reduce the general risk of transmission of acute respiratory infections include the following: Avoiding close contact with people suffering from acute respiratory infections. Frequent hand-washing, especially after direct contact with ill people or their environment. Avoiding unprotected contact with farm or wild animals. People with symptoms of acute respiratory infection should practice cough etiquette (maintain distance, cover coughs and sneezes with disposable tissues or clothing, and wash hands). Within healthcare facilities, enhance standard infection prevention and control practices in hospitals, especially in emergency departments. WHO does not recommend any specific health measures for travelers. In case of symptoms suggestive of respiratory illness either during or after travel, the travelers are encouraged to seek medical attention and share their travel history with their health care provider. Proper nutrition and hydration are vital. People who eat a well-balanced diet tend to be healthier with stronger immune systems and lower risk of chronic illnesses and infectious diseases. So you should eat a variety of fresh and unprocessed foods every day to get the vitamins, minerals, dietary fibre, protein and antioxidants your body needs. Drink enough water.

Conflict of Interest: None.

Acknowledgement

I am very much grateful to the COVID-19 patients who sacrificed their lives during this pandemic. I am also grateful to the respected COVID-19 fighter doctors and health workers who also dedicated their lives in this war against invisible enemy and pray for their departed souls.

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Acardiac-acephalus Twinning- A Very Rare Case Report

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Munshi Md. Arif Hosen ⁵, Tasnim Ahmed ⁶

Abstract

Introduction: This study highlights a very rare case which was related to abnormal monochorionic twinning status.

Case Report: This case (a 28 year old pregnant woman) came at this institute for ultrasonographic evaluation of her pregnancy status. Her ultrasonographic results were consistent with acardiac-acephalus twinning condition (which is also known as, twin reversed arterial perfusion or TRAP sequence). **Discussion:** This monochorionic twin pregnancy is a severe form of twin-to-twin transfusion syndrome (TTTS) and severe TTTS has mortality rate of about 60–100%. **Conclusion:** This case is very rare showing prevalence of about 1/35,000 overall pregnancies and accounting 1.0% of the monochorionic twin pregnancies.

Keywords: Acardiac-acephalus condition (or, TRAP sequence), Monochorionic twin pregnancy.

Number of Figure: 02; Number of References: 07; Number of Correspondence: 03.

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Introduction

Case Report:

This case was a 28 year old pregnant woman who came at this Institute in 1st September, 2016 for ultrasonographic evaluation of her pregnancy status. It was her second gravida. Her previous/first pregnancy was uneventful and age of her first child is five years. At her present pregnancy, she had complaint of pain in abdomen and excessive vomiting. Her abdominal size was unusually larger than usual. Size of her abdomen did not correspond with the stated period of her amenorrhea; fundal height was more. Her ultrasonographic evaluation was done at this institute at her 25th week of gestation. This examination showed two fetuses in her uterine cavity with single placenta. One fetus was healthy and the fetal biometry of this fetus correlated with her stated period of amenorrhea. Other fetus showed different types of anomalies-like: trunk was very short, chest cavity was small, no neck and definite head was seen. Its upper limbs were also absent but lower limbs were larger and fatty.



Figures 1: Ultrasound images of this case.



Figures 2: Images of this case (taken after delivery).

Discussion

This condition of acardiac-acephalus twinning among the monochorionic twin pregnancies is a severe form of twin-to-twin transfusion syndrome (TTTS)¹ (and severe TTTS has mortality rate of about 60–100%²). In fact-in this condition, both normal fetus (which is termed as ‘pump fetus’-as its heart pumps blood in both fetuses) and abnormal fetus (which is termed as ‘recipient fetus’-as it receives blood from the normal fetus; it is also called ‘acardiac or TRAP fetus’-as it has no heart of its own and shows reversed arterial perfusion) remain interconnected vascularly rather than having separate/independent circulation from the existing single placenta and abnormal fetal body lacks functional cardiac tissue along with absence of upper limbs and definite cranial part; this abnormal fetal part also shows reversed arterial perfusion through Doppler study of ultrasonographic examination. Moreover, due to hypoperfusion in ‘acardiac fetus’, different types of anomalies are seen-like: acardiac-acephalus (that is, no cephalic part and upper limbs are seen, only trunk and lower limbs are seen-as was present in this study case), acardiac-anceps (that is, partial cephalic part and upper limbs are seen; trunk and lower limbs are also seen-it is the highest developed form among the acardiac fetal cases), acardiac-acromus (that is, only cephalic part is seen but no trunk or limbs are seen-it is the rarest form of acardiac cases), acardiac-amorphus (that is, no recognizable human form is developed-it is the least developed form of acardiac cases)³. Regarding the pump fetus, if left untreated-these apparently normal fetuses die in 50-75% of cases⁴. Underlying causes of this mortality are related to rapid growth of the acardiac fetus, polyhydramnios, heart failure of pump fetus due to high output. Also, the rate of fatality depends on the relative size of acardiac fetus. If size of acardiac fetus is greater than 50% of size of pump fetus, survival rate for pump fetus is only 10%^{5,6}.

Conclusion

Having prevalence of about 1/35,000 overall pregnancies and accounting 1.0% of the monochorionic twin pregnancies⁷, this rare case demands the early diagnosis through ultrasonographic examination routinely in the perinatal period worldwide so that the grave but preventable sequelae of monochorionic twin pregnancy related conditions can be managed early and effectively.

Conflict of Interest: None.

Acknowledgement

All the staffs of Ultrasonography section of INMAS, Rajshahi and special thanks to Dr. Nasrin Begum, Associate Professor, INMAS, Rajshahi for her active support during this article writing.

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Psoriatic Patient, Methotrexate Is a Good Choice of Drug

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Abstract

Introduction: Psoriasis is a lifelong autoimmune disease which is characterized by white to red color patches of abnormal skin with patches of itchy and scaly. The term psoriasis derived from Greek word "psora" which means "itch". It is a chronic skin disease, touching about 2% of worldwide population. Different types of psoriasis have been reported such as plaque psoriasis, psoriatic arthritis, scalp psoriasis, flexural (inverse) psoriasis, guttate psoriasis, pustular psoriasis, nail psoriasis, erythroderma which can be diagnosed by solid conclusion such as skin biopsies etc. **Case report:** We present the case of a 55-years-old male with psoriasis. The diagnosis of psoriasis is based on the clinical features and history, as well as on histopathological examinations of patient's tissue specimens. Any final diagnosis should include a differential diagnosis which includes severe seborrheic dermatitis, Contact dermatitis, pityriasis rubra pilaris and mycosis fungoides which can be clinically indistinguishable from a severe form of psoriasis. Histopathological studies are also generally needed to achieve a definitive diagnosis. After histopathological confirmation of psoriasis methotrexate therapy has been started. **Discussion:** After comparing this case with several published articles/case reports on psoriasis we found some similarity regarding presentation, use and good response to methotrexate therapy but dissimilarity regarding response to steroid therapy. **Conclusion:** Our patient showed an excellent response to methotrexate medication.

Key words: Psoriasis, Scaly lesion, Methotrexate.

Number of Figures: 02; Number of References: 10; Number of Correspondence: 03.

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Introduction

Psoriasis is a chronic inflammatory skin disease with a strong genetic predisposition and autoimmune pathogenic traits. The worldwide prevalence is about 2%, but varies according to regions. It shows a lower prevalence in Asian and some African populations, and up to 11% in Caucasian and Scandinavian populations¹. Psoriasis can present at any age and has been reported at birth and in older people of advanced age. Accurate determination of the age of onset of psoriasis is problematic, as studies which do so typically rely on a patient's recall of the onset of lesions or determine the onset from the physician's diagnosis as recorded on the initial visit. The mean age of onset for the first presentation of psoriasis can range from 15 to 20 years of age, with a second peak occurring at 55–60 years². Positive family history for psoriasis patients is common in 30% up to 90% of cases, as genetic factors have an important role in the disease susceptibility and expression. Literature findings present a threefold increased risk of developing psoriasis in monozygotic twins compared to fraternal twins³. There are different clinical types of psoriasis. The most common of which is chronic plaque psoriasis, affecting 80% to 90% of patients with psoriasis. The hallmark of classic plaque psoriasis is well-demarcated, symmetric, and erythematous plaques with overlying silvery scale. Plaques are typically located on the scalp, trunk, buttocks, and extremities but can occur anywhere on the body. Patients might demonstrate nail involvement, which can present without concomitant plaques. Active lesions might be itchy or painful. Psoriasis can also present as an isomorphic response, where new lesions develop on previously normal skin that has sustained trauma or injury. The severity of disease can be helpful in guiding management and is classified as mild, moderate, and severe⁴. Most cases of psoriasis are diagnosed

clinically, but some pustular forms are difficult to recognize. Punch biopsy of the skin may act as a confirmatory workup procedure for atypical cases and exclude other conditions in cases of diagnostic uncertainty: atopic dermatitis, tinea corporis, pityriasis rubra pilaris, seborrheic dermatitis etc³. Psoriasis is a disease that can improve and worsen over time, but it usually does not go away completely. Treating psoriasis can improve the skin and may improve quality of life⁵. Many treatment options exist for psoriasis. The treatment choice depends on the severity of psoriasis and whether you have psoriatic arthritis or other medical conditions. For mild or localized psoriasis, topical treatments, such as topical corticosteroids and topical vitamin D, are commonly used. For moderate to severe psoriasis, 3 categories of treatments are considered—phototherapy, oral medications, and biologic medications. Phototherapy, or light therapy, uses specific ultraviolet light wavelengths to treat psoriasis. Both oral and biologic medications are systemic medications, which means that they affect not only the skin but also other parts of the body. Biologic medications reduce specific inflammation molecules that are abnormally elevated in psoriasis⁶. The Psoriasis Area and Severity Index (PASI) is an assessment tool that doctors and nurses use to record the severity of a patient's psoriasis the health condition defined by inflamed lesions and silver-colored plaques.

Case Report

A 55 years old male patient was admitted in Sir Salimullah Medical College Hospital on 23/11/19 with the complaints of itching all over the body for 20 days. He also complains of erythematous plaques with silvery scaly lesion all over the body but most prominent in scalp, trunk and extremities. Scales are dry, white, and thick. He noticed bleeding after removal of scale. He does not give any history of hair fall. He was treated with steroid by Quack. After steroid therapy patients condition was deteriorated. For better treatment he was admitted in this hospital. On examination, his temperature was recorded 97°F, pulse rate 80 beats /min, and blood pressure 120/70 mm of hg, Auspitz sign was positive. Then clinically he was diagnosed as a case of psoriasis. During admission time, his PASI score was done and the score was 33.3%. Laboratory investigations such as CBC with blood film, serum creatinine, liver function test, chest X ray P/A view revealed nothing significant. Skin biopsy was done on admission day. He was treated with cap. Cephadrine (500 mg), Tab. Fexofenadin (120 mg), Bistar shampoo, Cap. Omeprazole (20 mg) and olive oil during admission time. After three days biopsy report confirmed psoriasis. After confirmation, 10 mg methotrexate was added on every Monday and tab folison was added on every Tuesday for 2 months. After 2 weeks of methotrexate therapy patient's condition was improved. During discharge time his PASI score was 15.3%. Patient was advised to come after 15 days for follow up with the investigation result of Serum creatinine, and liver function test.



Figure-1: Before methotrexate therapy



Figure-2: After methotrexate therapy

Discussion

Our case presented with itching and erythematous plaques with silvery white scale all over the body but most prominent in scalp, trunk and extremities. Dr. R suprajya presents a case about psoriatic patient. In his case he reported that his patient present with itching all over the body and patches of 2 cms length covered by scaly lesions which are white in colour and on scrubbing powder like substances falls down and bleeding in drops⁷. The Auspitz sign refers to the appearance of small bleeding points after successive layers of scale have been removed from the surface of psoriatic papules or plaques. In this study the Auspitz sign was present. Bernhard JD conducted a study entitled "Auspitz sign is not sensitive or specific for psoriasis". In his study 41 patients' auspitz sign was positive out of 234 patients with psoriasis⁸. In our study patient's condition was deteriorated after steroid therapy.

May be the dosage schedule of steroid was wrong because it was prescribed by a Quack. Uva et. al (2012) in his study stated that Corticosteroids remain first-line treatment in the management of all grades of psoriasis, both as monotherapy or as a complement to systemic therapy⁹. Our study we found that after methotrexate therapy patient's condition was improved. Martins and Lucia (2004) in his study stated that MTX still represents a treatment option with good efficacy/cost/tolerance relationship, especially in poorer countries. The final decision of the therapeutic choice for patient with psoriasis should be based on their needs and preferences, but also on the clinical and economic consequences of the therapeutic strategy adopted, and some studies have confirmed a longer remission time and lower cost in rotating treatments with the use of MTX¹⁰.

Conclusion

Psoriasis is a multisystem inflammatory disease that is underdiagnosed and undertreated despite its prevalence and considerable effect on quality of life. Beyond skin and joint involvement, psoriasis is also associated with an array of important medical and psychiatric comorbidities that require timely therapy to improve long-term outcomes. Our patient showed an excellent response to methotrexate medication.

Conflict of Interest: None.

Acknowledgement

I am very much grateful to the dermatology and venereology department of Sir Salimullah Medical College Hospital for their contribution to my study.

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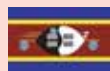
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