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## Non Communicable Diseases (NCDs) and its control

Diabetes mellitus, cardiovascular diseases (such as heart attacks and stroke), cancers and chronic respiratory diseases (such as COPD & asthma) are considered as non-communicable diseases, hereafter termed as NCDs.

NCDs are also known as chronic disease and are not caused by acute infection. NCDs leads to prolonged health consequences and require long term treatment and care. The number of NCDs are increasing globally. They are associated with high mortality rate. It is reported that world wide NCDs causing 71% (about 41 million people) of total number of deaths each year. Among them deaths are resulting annually from cardiovascular diseases (17.9 million), cancer (9.0 million), respiratory diseases (3.6 million) and diabetes mellitus (1.6 million).<sup>1</sup> In each year more than 15 million people die from NCDs between the age of 30-69 years. About 77% of all NCDs deaths are in low and middle income countries.

In Bangladesh the number of NCDs are also increasing. NCDs causes about 59 % (8,86,000) of total deaths in Bangladesh in a year.<sup>2</sup>

NCDs are the result of a combination of genetic, physiological, environmental & behavioral factors. Peoples of all age group and countries are affected by NCDs. There are risk factors which are associated with the development of NCDs. The risk factors are

- i ) Modifiable major risk factors (tobacco use, physical inactivity, the harmful use of alcohol, unhealthy diet).
- ii) Metabolic risk factors (raised blood pressure, hyperglycemia, over weight/obesity and hyperlipidaemia).<sup>3</sup>

So an important way to control NCDs is to focus on reducing the risk factors associated with the disease. A comprehensive approach is needed to involve different sectors including health, finance, transport, agriculture planning and others to reduce the risk factors of the disease and thereby prevent and control them.<sup>4</sup>

In addition to that for the management of NCDs screening, early detection and treating these diseases and providing palliative care for the patient in need should be ensured.<sup>4</sup> There is socioeconomic impact of NCDs. Poverty is closely linked with NCDs. The rapid rise of NCDs is predicted to impede poverty reduction in low income countries.<sup>3</sup>

To address NCDs it is necessary for us to achieve the global target of a 25% relative reduction in the risk of pre-mature mortality from NCDs by 2015 and SDG target of a one third reduction of premature deaths from NCDs by 2030.<sup>4</sup>

It is evident from the above discussion that by reducing major risk factors, treatment and managements of NCDs and awareness regarding the health, economic and social issue associated with NCDs among the peoples can prevents the premature deaths resulting from NCDs throughout the world.

**Professor Dr. Jalal Uddin Chowdhury**

MBBS (DU), Ph.D (Japan)  
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4. Non Communicable Diseases and their prevention: A global regional and Bangladesh perspective. Professor Dr. MSA Mansur Ahmed, Department of Non Communicable Diseases, Bangladesh University of Health Science. published in national Bulletin of Public Health (NBPH) (from Internet).

# Journal of Dhaka National Medical College & Hospital

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### **Instruction for Authors:**

Dhaka National Medical College Journal offers manuscript of original articles, review articles and case report based on clinical and laboratory related research in medical and allied science of various disciplines. The aim of this publication is to create a awareness for medical profession to share experiences which will help others to render better patient services. Manuscripts are received provided they are not under simultaneous consideration by any other publication. Submission of a manuscript for publication implies the transfer of the copyright from the author to the publisher upon acceptance. Accepted manuscripts become the permanent property of the Dhaka National Medical College Journal and cannot be reproduced by any means in whole or in part without the written consent of the publisher. It is the author's responsibility to obtain permission to reproduce illustrations, table, etc from other publication.

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Each of the following section should begin on separate page-

- ⊙ Title page
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Should not exceed 250 words.

Three to five keywords below the abstract may be used.

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Original Article

## Correlation of Thyroid Hormones With Gestational Age in Normal Pregnancy

Shyamal Chandra Banik<sup>1</sup>, Farjana Ahmed<sup>2</sup>, Md. Ziaur Rahman Mamun<sup>3</sup>, Ferdous Towhid<sup>4</sup>, Khushruha Rahman Khan<sup>5</sup>, Mahaboba Rahman<sup>6</sup>

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### Abstract

**Background:** Pregnancy has a profound impact on the thyroid gland & its function.

**Objective:** To correlate TSH, FT<sub>4</sub> & FT<sub>3</sub> levels with gestational age to observe their relationship.

**Method:** This cross sectional study was conducted in the Department of Physiology, Sir Salimullah Medical College, Dhaka from July 2016 to June 2017. Total 90 apparently healthy pregnant women of different trimesters, age ranged from 20 to 35 years were selected as study group (Group I). Again according to gestational age, study group was subdivided into 1st trimester of gestation (Group Ia, n=30), 2nd trimester of gestation (Group Ib, n=30) and 3rd trimester of gestation (Group Ic, n=30) respectively for comparison. For correlation, serum TSH, FT<sub>4</sub> and FT<sub>3</sub> levels were measured. The statistical analysis was done by Unpaired t test and Pearson's correlation coefficient test.

**Results:** In this study, mean serum TSH level was positively correlated with gestational age and both mean serum FT<sub>4</sub> & FT<sub>3</sub> levels were negatively correlated with gestational age and these relationships were statistically highly significant.

**Conclusion:** There is a negative association of thyroid hormone (FT<sub>4</sub> & FT<sub>3</sub>) levels with gestational age.

**Key words:** Thyroid hormones, Gestational age, Pregnancy.

### Introduction

Pregnancy is followed by a series of hormonal and metabolic changes that involve most maternal endocrine systems.<sup>1</sup> Pregnancy is a state of stress which influences thyroid gland and its function in multiple ways.<sup>2</sup> Not only the maternal hypothalamo-pituitary thyroid (HPT) axis undergoes a series of adjustment but also the fetus develops its own HPT axis and the placenta also plays an active role in iodine and thyroxine transport and metabolism.<sup>3</sup> Thyroid function in pregnant women is modified by various factors such as 50% increase in plasma volume, increased levels of protein binding thyroid hormones including TBG, hCG, increase in estrogen concentration.<sup>4</sup> Thyroid hormones have most profound effects on the terminal stages of fetal brain development including synaptogenesis, dendrites growth & axons myelination and neuronal migration.<sup>5</sup> The average duration of pregnancy is about 280 days or 40 weeks when calculated from the first day of the last menstrual period. 1st trimester considered as 1st 12 weeks, 2nd trimester considered as 13-28 weeks & 3rd trimester considered as 29-40 weeks.<sup>6,7</sup>

### Methods

This cross sectional study was conducted in the Department of Physiology, Sir Salimullah Medical College (SSMC), Dhaka from July 2016 to June 2017. The study was approved by the Institutional Ethics Committee of SSMC. For this, 90 apparently healthy pregnant women aged 20-35 years of different trimesters were selected as study group (group I). On the basis of gestational period, group I was further subdivided into three groups such as 1st trimester of gestation (Ia), 2nd trimester of gestation (Ib) & 3rd trimester of gestation (Ic) and each group was consisted of 30 different pregnant women of different trimesters. They were selected from Out Patient Department (OPD) of Obstetrics & Gynaecology of SSMC and Mitford Hospital by consecutive purposive sampling. All the subjects were belonged to middle socioeconomic status. Subjects having history of any chronic or systemic diseases, known thyroid abnormalities, goitre, twin pregnancy, psychiatric illness etc. were excluded from the study.



After selection the aim, benefits, risks and the procedure of the study were explained to each subjects and a written consent was taken. Detailed personal, family, medical and occupational histories were taken and thorough physical examination of all subjects were done and recorded.

With all aseptic precautions, seven (7) ml of venous blood was drawn from antecubital vein. Serum TSH, FT4 and FT3 levels were measured by chemiluminescent microparticle immunoassay (CMIA) method in the laboratory of Department of Biochemistry, BSMMU, Dhaka. Data were expressed as mean ± SD. The statistical analysis was done by using SPSS version 22. Unpaired t test and Pearson's correlation coefficient test were used to compare the data as applicable. p value <0.05 was considered as level of significance.

**Results**

Table I shows the mean (±SD) serum TSH level was significantly & gradually higher in 3rd trimester and the mean (±SD) serum FT4 & FT3 levels were significantly & gradually lower in 3rd trimester in comparison to that of 1st trimester.

**Table-I: Serum thyroid stimulating hormone (TSH), free thyroxine (FT4) and free triiodothyronine (FT3) levels of the subjects in different groups (N=90)**

Parameters	Groups		
	Ia (n=30)	Ib (n=30)	Ic (n=30)
TSH (mIU/L)	1.42 ± 1.47	2.16 ± 1.13	2.82 ± 0.71
FT4 (pmol/L)	16.14 ± 1.45	13.12 ± 2.02	11.75 ± 1.48
FT3 (pmol/L)	4.66 ± 0.58	3.66 ± 0.49	3.33 ± 0.40

**Statistical analysis**

Groups	p-value		
	TSH	FT4	FT3
Ia vs Ib	0.034*	<0.001***	<0.001***
Ia vs Ic	<0.001***	<0.001***	<0.001***
Ib vs Ic	0.008**	0.004**	0.006**

Data are expressed as mean ± SD. For statistical analysis, Unpaired t test was performed for comparison between the groups. Group I: Study group, Group Ia: 1st trimester of gestation, Group Ib: 2nd trimester of gestation, Group Ic: 3rd trimester of gestation, n= number of subjects. \*\*\*= Significant at p<0.001, \*\*= Significant at p<0.01, \*= Significant at p<0.05, N= Total number of subjects.

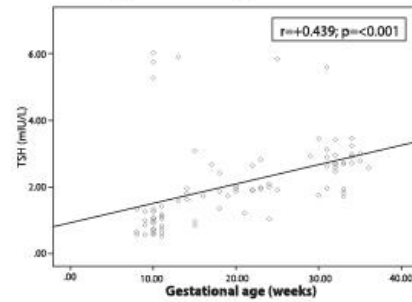
In this study, serum thyroid stimulating hormone (TSH) level was positively correlated (r = +0.439), serum free thyroxine (FT4) level was negatively correlated (r = -0.679) and serum free triiodothyronine (FT3) level was negatively correlated (r = -0.693) with gestational age and these relationships were statistically (p<0.001, p<0.001) highly significant (Table-II).

**Table-II: Correlation of serum TSH, FT4, FT3 levels with gestational age in study subjects (N=90)**

Parameters	r-value	p-value
Serum TSH	+0.439	<0.001***
Serum FT4	-0.679	<0.001***
Serum FT3	-0.693	<0.001***

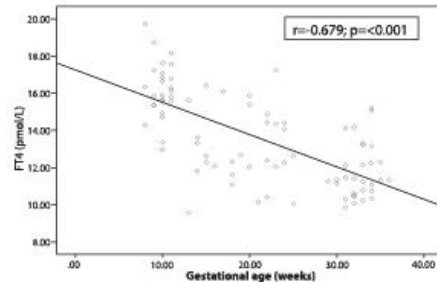
Pearson's correlation coefficient (r) test was performed to compare relationship between parameters of study group, N = Total number of subjects, \*\*\*= Significant at p<0.001.

Again, figure-I: shows that, there is a positive association of TSH level with gestational age.



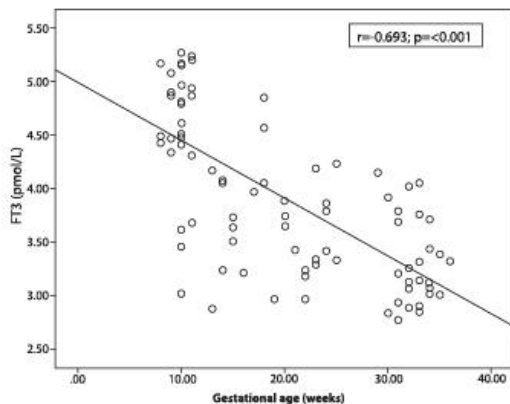
**Figure-I: Correlation of serum TSH level with gestational age in the study subjects (N=90)**

Figure-II: shows that, there is a negative association of FT4 level with gestational age.



**Figure-II: Correlation of serum FT4 level with gestational age in the study subjects (N=90)**

Figure-III: shows that, there is a negative association of FT<sub>3</sub> level with gestational age.



**Figure-III: Correlation of serum FT<sub>3</sub> level with gestational age in the study subjects (N=90)**

#### Discussion

In this study, serum TSH, FT<sub>4</sub> & FT<sub>3</sub> showed significant variation during different trimesters of gestation which is supported by other studies.<sup>8,9</sup>

In this study, serum TSH level showed significant ( $p < 0.001$ ) positive correlation with gestational age. This findings are in consistent with those of other researchers.<sup>10,11</sup> On the other hand, Patal et al.<sup>12</sup> found that there was no correlation between serum TSH and gestational age.

Serum FT<sub>4</sub> level was negatively correlated with gestational age and it was statistically significant ( $p < 0.001$ ). Similar relationships were also observed by others.<sup>13</sup> On the contrary, Bautista et al.<sup>14</sup> found that FT<sub>4</sub> level was significantly and positively correlated with gestational age.

Serum level of FT<sub>3</sub> showed significant ( $p < 0.001$ ) negative correlation with gestational age. This finding is in agreement with that of other investigator.<sup>12</sup> On the other hand, Bautista et al.<sup>14</sup> found no correlation between serum FT<sub>3</sub> and gestational age.

#### Conclusion

In this study it was observed that serum TSH level was positively correlated and FT<sub>4</sub> & FT<sub>3</sub> levels were negatively correlated with gestational age. So, interpretation of thyroid function tests needs trimester specific reference interval.

#### Acknowledgement

Authors of this study acknowledge the tremendous support from Biochemistry departments of BSMMU for conducting thyroid function testing. The authors are also thankful to the study subjects for their active & enthusiastic participation.

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Original Article

## Frequency of Sepsis in Diarrheal Adults and Their Outcome in a Urban Hospital

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### Abstract

**Objective:** Aim of this study to describe factors associated with sepsis in diarrheal adults and to see clinical and laboratory profile of those patients as well as to see outcome of sepsis in diarrheal patients.

**Methodology:** This was observational prospective study done among 200 diarrheal patients admitted in an urban hospital from June 2019 to February 2020.

**Results:** Among 200 adult diarrheal patients, 67.5% were male, 32.5% were female and 44.44% male and 53.58% female subsequently developed features of the sepsis. Hyponatremia (75%) and Hypokalemia (65%) was the commonly observed electrolytic imbalance and 55% of respondent developed AKI. Prior antibiotic use, systematic steroid intake and presence of co-morbidity were most significant risk factors for development of sepsis.

**Conclusion:** Diarrheal adults who had history of steroid intake for long, prior antibiotic use and who had multiple co-morbidities are in high risk to develop sepsis.

**Keywords:** Sepsis, Diarrhea, Acute Kidney Injury (AKI)

### Introduction

Diarrhea is a global problem. Diarrhea was the eighth leading cause of mortality, responsible for more than 1.6 million deaths as reported in 2016. More than a quarter (26.93%) of diarrheal deaths occurred among children younger than 5 years, and about 90% (89.37%) of diarrheal deaths occurred in South Asia and sub-Saharan Africa.<sup>1</sup> There is evidence that clearly shows that diarrheal disease disproportionately affects locations with poor access to health care, safe water, and sanitation, and low-income or marginalized populations.<sup>2</sup> This also means that although challenges exist, diarrheal mortality is largely avoidable. Renewed efforts to reduce disease burden are urgently needed.

An inequitable proportion of diarrhea morbidity and mortality occurs in low-income countries, which have fewer resources and less robust infrastructure to manage burden compared to high-income countries.<sup>3</sup> Hence, the global health community has made prevention and treatment of diarrheal diseases a priority to alleviate this burden.

Patients typically present with features of sepsis evident by infection, tachycardia, fever, and leukocytosis. Progression of sepsis resulting in hypotension and/or absent peripheral pulses from poor peripheral

perfusion in the absence of dehydration is termed severe sepsis.<sup>4,5</sup> Unresponsiveness to isotonic fluid (30 ml/kg bolus of normal saline/ ringer's lactate over 10-15min) and require the support of inotropes/ vasopressors, is termed as septic shock. Oliguria, acute kidney injury, and altered mental status signify the presence of organ dysfunction.<sup>6</sup> Diarrheal pathogens may translocate from gut to blood stream and cause sepsis. Several literatures presented this diarrhea, sepsis interplay mostly in children from Bangladesh.<sup>7,8</sup> Following SSC recommendation, we administer the first antibiotic early which helps to reduce in-hospital mortality.<sup>9</sup>

### Methodology

Prospective observational study was conducted at Dhaka National Medical College Hospital from June-2019 to February-2020.

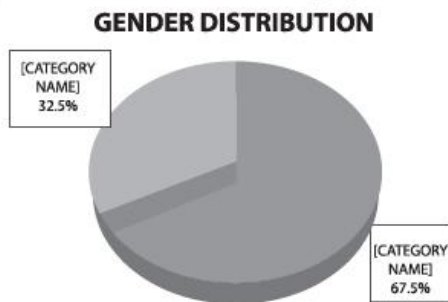
In this study, we included 200 diarrheal patients aged  $\geq 18$  years who were hospitalized with or without features of sepsis. We had excluded patients having cardiogenic shock and hospital acquired severe sepsis. Infection or presumed presence of infection plus tachycardia plus hyperthermia ( $\geq 38.5^{\circ}\text{C}$ ) or hypothermia ( $\leq 35.0^{\circ}\text{C}$ ) or abnormal white blood cell numbers are the criteria of sepsis.<sup>10,11</sup>

A combination of sepsis and poor peripheral perfusion evident by hypotension and/or absent peripheral pulses without dehydration constituted severe sepsis.<sup>10</sup> Data was collected using structural questionnaire at the day of admission as well as in every follow up in next successive days up to discharge of patients. Data was processed and analyzed with the help of computer program SPSS version 20.

**Results**

Total number of patient or N=200

**Figure-I:** Gender distribution of study population.



**Table-I: Age Distribution Patients**

Age Group	Sepsis				p-value
	Male- 135		Male- 135		
	Total No.	%	Total No.	%	
20-30	12	8.88%	4	6.15%	
30-39	28	20.74%	17	26.15%	
40-49	39	28.88%	10	15.38%	
50-59	30	22.22%	23	35.38%	<.005
60-69	11	8.15%	7	10.76%	
70-79	10	7.40%	4	6.15%	
80 Above	5	3.70%	3	4.62%	

**Table-II: Frequency of sepsis in 200 diarrheal patients and gender distribution.**

	Sepsis			
	YES		NO	
	Total No.	%	Total No.	%
Male (135)	60	44.44%	75	55.56%
Female (65)	35	53.85%	30	46.15%

Laboratory Characteristics of Diarrheal patient, n=200

**Table-III: Laboratory Characteristics of Diarrheal patient**

	No of Patients	%
Raised leucocyte count	95	47.50%
Hyponatremia	150	75.00%
Hypokalemia	130	65.00%
Hypocalcemia	80	40.00%
Hypomagnesaemia	70	35.00%
AKI	110	55.00%

**Table-IV: Clinical characteristics of diarrheal patients**

Characteristics	Sepsis				p-value
	YES- 95		NO- 105		
	Total No.	%	Total No.	%	
Complains of fever	80	84.21%	25	23.81%	<.005
Prior antibiotic use	45	47.37%	23	21.90%	
Systemic steroid intake	25	26.32%	20	19.05%	
Co-morbidity	64	67.37%	36	34.29%	
Dehydration	90	94.74%	84	80.00%	
Pneumonia	9	9.47%	4	3.81%	
Hypoxemia	5	5.26%	0	0.00%	
Referral	4	4.21%	0	0.00%	

**Discussion**

In this study, we studied diarrheal adults to explore clinical and laboratory factors associated with sepsis. Male predominancy was observed among hospitalized diarrheal patients (67.5%) in maximum study related with diarrheal disease in adult shows maximum hospitalized patients were male.<sup>4,5</sup> Tendency to development of sepsis is more common among hospitalized female diarrheal patients (53.84%). This data is corresponding with study of River et al where he mentioned late hospitalization and initial negligence of female diarrheal patients may be responsible for this kind of results.<sup>12</sup>

In this study among 200 hospitalized diarrheal patients, 75% developed hyponatremia and 65% of patient developed hypokalemia. This data closely matched with study of Schmidt et al.<sup>13</sup> Incidence of AKI was observed among 55% of respondents which is very high in comparison to study done by Baleon et al<sup>14</sup> where incidence of AKI was 25% which may be due to lack of knowledge of patients about rehydration during diarrheal illness.

Among the clinical characteristics, dehydration was the commonly observed clinical features. 94.74% among the sepsis patients and 80% among the non-sepsis patients, fever was the second commonly observed clinical features. 88.89% among the sepsis patients and 24.76% among the non-sepsis patient. These data are closely related to study done by Jones et al.<sup>15</sup>

Sepsis rate was significantly high among the diarrheal patients who previously has history of antibiotic use, systemic steroids intake and those who had multiple co-morbidities. These factors were mentioned as a risk factor of sepsis in study performed by Waljee AK et al.<sup>16</sup>

In our study, we referred 4% of patients of diarrhea who developed features of severe sepsis as we don't have facilities to manage this type of critically ill patients.

#### Conclusion

Our study suggests, sepsis is common in diarrheal adults and rate of progression from sepsis to severe sepsis and septic shock is around 4.2%. Hyponatremia and hypokalemia are the commonly observed electrolyte incidence. Systematic steroids intake, prior antibiotic use, presence of co-morbidity was independently associated with sepsis in diarrheal patients. In developing country like Bangladesh, proper history taking, rigorous follow-up and early identification of organ dysfunction are essential for a better outcome.

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Original Article

## Estimation of stature from Arm span-An anthropometric study on adult Bangladeshi women

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### Abstract

**Background:** Upper limb is the most movable part and main working tools of human body. Anthropometry is used in identification of individuals, criminals and a person in accidental death like fire, ship & air accidents, etc. and prevention of impersonation in Forensic criminology.

**Objectives:** To measure the individuals stature, arm span and assess the relationship between them.

**Methods:** This is descriptive and analytical type of study which was carried out in the department Anatomy, Sir Salimullah Medical College, Dhaka from July 2010 to December 2011. The ethical permission was taken from Institutional Ethics Committee (IEC) of SSMC. The number of subject was 100 right handed adult Bangladeshi women belonging to age group of 25 to 45 years. Arm span along with stature were measured directly from the subjects by direct physical method. The data were then statistically analyzed by computation to find out its normative value. Regression analysis was done to see the correlation between stature and this variable.

**Result:** Arm span showed significant positive correlation with the stature.

**Conclusion:** Stature estimation is an important tool in various departmental sciences.

**Key words:** Anthropometry, Arm span, Stature.

### Introduction

Anthropometry is the science that deals with the measurement of size, weight and proportion of the human body. This was adapted by medical scientists to estimate the body size the measurement of the human individual for the purposes of understanding human physical for over a hundred years.<sup>1</sup> Anthropometry, literally meaning "measurement of humans", refers to variations.<sup>2,3</sup> It is used to assess health, survival of individuals and reflect the economic and social well being of populations. Anthropometry is a widely used, inexpensive and non-invasive measure of the general nutritional status of an individual or a population group.<sup>4</sup> Stature is a component of measurement of body mass index (BMI).<sup>5</sup> Arm span is equal to stature and can be used to measure BMI in deformed lower limb persons. Process of measurement of upper limb is called upper limb anthropometry which includes measurement of shoulder, arm, forearm and hand

region of human body.<sup>2</sup>

### Materials & Methods

The study was a descriptive and analytical type. This study was carried out on 100 adult Bangladeshi women in the Department of Anatomy, Sir Salimullah Medical College (SSMC), Dhaka and was conducted from July 2010 to December 2011. Measurement of stature was taken by a stadiometer. To measure the stature the subject was said to stand with her heel together and her back as straight as possible so that her heels, buttocks, shoulders and the head pressed against the upright position of the instrument. The arms were hung freely by the sides with the palm facing the thighs. The subject's head was positioned in the Frankfort horizontal plane, and the head plate was brought in contact with vertex in the mid saggital plane [Figure 1(A)+I(B)] and then readings were taken to the nearest 0.1 cm.<sup>6</sup>





**Figure-I(A): Procedure for measuring stature**



**Figure-I(B): Procedure for measuring stature**

Arm-span was measured with a flexible measuring steel tape from the tip of the middle finger on one hand to the tip of the middle finger on the other hand with the tape passing in front of the clavicles with the individual standing with her back to the wall with both arms abducted to 90°, the elbows and wrists extended and the palms facing forwards.<sup>7</sup> All the readings were taken to the nearest 0.1 cm (Figure-II).

Regression formula is used for estimation of the stature from anthropometric measurements of body:

Stature = value of constant + regression coefficient x variable.

Value of the constant and the regression coefficient for each variable was calculated using SPSS version 16.0 program.

**Data processing and analysis**

The data were put into the computer. Then the data were analyzed with the help of SPSS version 16.0 for Windows program keeping in view the objective of the study. Pearson’s correlation coefficient test was performed to measure the relationships between the variables and two-sample Z-test was performed to compare between means.



**Figure-II: Procedure for measuring the arm-span using a measuring steel tape**

**Result**

The stature of the 100 Bangladeshi adult women subjects ranged from 141.00 to 160.00 centimeters, as shown in Table-I. More than 65% of them measured between 147.5 and 157.5 cm (Figure-III). The table-I also reveals that measured arm span varied from 142.5 to 169.0 centimeters with constant 64.36 and regression co-efficient 0.55. In more than 65% of the subjects, the arm span was between 147.5 and 162.5.00cm (Figure-IV). Table-II shows the range & mean (± SD) calculated stature from physically measured variable and their difference with the measured stature. No significant difference was found between the measured & calculated stature from arm span (Table-II). The measured arm span also showed significant positive correlation (r=0.774, p=0.000) with the measured stature (Figure-V).

**Table-I: Stature and physically measured arm span with corresponding constant & regression co-efficient**

Variables	Range (cm)	Mean (cm) ± SD	Constant	Regression Co-efficient
Stature	141 – 160	149.61 ± 5.07		
Arm span	142.5– 169	153.89 ± 7.08	64.36	0.55

Data are expressed as mean ± SD

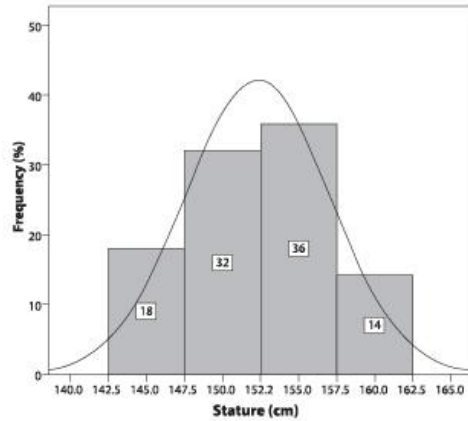
**Table-II: Calculated\* stature and their relationships with the measured stature**

Variables	Range	Mean ± SD	Significance of difference between calculated stature and physically measured stature (Z-value)
Stature	141.00 – 160.00	149.61 ± 5.07	0.000 (NS)
Calculated stature (cm)			
Arm span	142.72-157.29	148.98 ± 3.89	

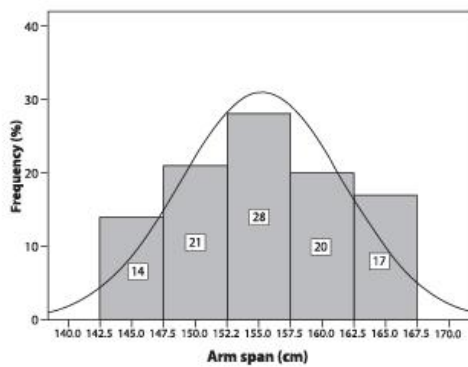
NS= Non-significant at 5% level of significance on two-sample Z-test.

n=100 for each variable

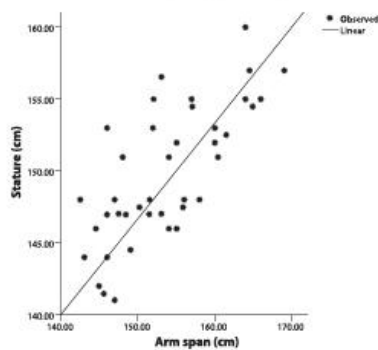
\* The calculated stature against each variable was obtained by using regression equation (stature= constant+ regression co-efficient x variable)



**Figure-III: Histogram showing the frequency distribution of stature (n=100).**



**Figure-IV: Histogram showing the frequency distribution of arm span (n=100).**



**Figure-V: Scatter diagram with regression analysis showing significant positive correlation between the measured stature and arm span ( $r=0.774$  and  $p= 0.000$ ).**

**Discussion**

The present study was conducted on arm span of one hundred adult Bangladeshi women. The stature, arm span were measured by direct physical methods. The study was designed to get normative values of the variables for the adult Bangladeshi women, to observe the possible correlation between physical measurements with the stature. Regression co-efficient and constant of all the physical variables for estimating the stature were also tried to be estimated from the obtained measurements of the physical variables. Significance test was done between calculated and observed values. The arm span of South Indian,<sup>7</sup> North Indian,<sup>8</sup> American,<sup>6</sup> Malawian,<sup>9</sup> Ethiopian,<sup>10</sup> Thai<sup>11</sup> were higher than that of the present study population. The present study was compared with the women of Bangladesh, Gujarat, West Bengal, South India, North India, Malaysia, Jordan, Thailand, Ethiopia, South Africa, America, Germany, Mauritius, and similarities, dissimilarities were found when compared with the mean values.

**Conclusion**

This study provides the direction to construct baseline data of arm span anthropometry of Bangladeshi adult women. Arm span showed significant positive correlation with the stature. It would be useful in the field of anatomy, anthropology, archeology, ergonomics, forensic medicine and nutritional science.

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**Original Article**

## **Evaluation of CT findings among Headache Patients at Neurology OPD in a Tertiary Care Hospital: A retrospective study**

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**Abstract:**

**Background:** Headache is the most common complain of the patients presenting to Radiology Department for the purpose of doing a CT scan for headache evaluation.

**Objective:** (1) To find out the organic cause in patients with chronic headache with or without neurologic abnormality with the use of computed tomography (CT), (2) to know the age prevalence, (3) to know the sex variation.

**Methods:** All patients with complaints of chronic headache in the Department of Neurology OPD from August 2018 to July 2019 were included in the study. Total of 220 cases were included. Patients were divided into three groups based on CT scan findings: (1) Those with normal CT scan, (2) Those with minor abnormality (Not altering the patient management), (3) Those with clinically significant abnormality (Altering the management protocol). Results were tabulated and analyzed for the diagnostic yield from imaging in evaluation of patient with history of headache.

**Results:** Out of 220 patients, 128 had normal CT (58.18%) and 92(41.82%) had abnormal CT findings. Among the abnormal CT findings major and minor abnormalities constitute 17.27% and 24.55% respectively that will help in further management. Headache is common in both male (52.73%) and female (47.27%). No significant difference between them. Most common age group affected is 41 -60 years (35%)

**Conclusion:** The prevalence of intracranial abnormalities detected by CT scan in this study was almost similar to previous studies provided normal neurological examinations. In the absence of neurological abnormality, CT scan did not offer minimum advantages.

**Keyword:** Computed tomography scan, Headache

**Introduction**

Headache is the commonest symptom in practice. It is the most common illness among general people. 90% of the people have at least one episode of headache per year and severe headache is found in 40% of the population yearly.<sup>1</sup> Population based study suggest that about 4% of adult have daily or near daily headache.<sup>2</sup> There are two most common cause that make the patient consult with doctor for headache. One being the patient is afraid of having a brain tumor and the other because the pain is so severe that influencing his or her quality of life. Majority of headache patient does not require any imaging, especially there is no neurological deficit.<sup>3,4</sup> Neuroimaging is essential tool for new onset headache, gradual worsening headache, changing pattern of headache, history of epilepsy with

headache, history of head injury, personality change with headache<sup>5,6</sup> and presence of red flag sign (new onset headache after 50 years of age, changing headache pattern, associated with systemic illness, personality change, raised intracranial pressure, early morning headache, worsening with coughing, sneezing or straining).<sup>3</sup> In recent years, there is increasing trend for neuroimaging, especially in pediatric age group, though there is no neurological deficit to exclude intracranial mass lesion and patient desire also an important consideration for doing neuroimaging for headache evaluation.

**Materials And Methods**

This is a retrospective study conducted in the Neurology OPD, Dhaka National Medical Institute

Hospital from August 2018 to July 2019 for a period of 12 months. The clinical data and the computed tomography (CT) images of the patients undergoing cranial CT scan for the evaluation of headache were retrospectively reviewed from the record book of OPD, Neurology Department, Dhaka National Medical Institute Hospital. Then the total data were tabulated on age, sex and CT findings.

**Results**

**Table-I: Age-wise distribution with and without abnormality on imaging**

Abnormal CT Finding	≤ 20 years	21-40 years	41-60 years	61-80 years	81-100 years	Total	P-Value
Present	1(0.45%)	6(2.73%)	46(20.91%)	33(15%)	6(2.73%)	92(41.82%)	0.0001
Absent	27(12.27%)	62(28.18%)	31(14.09%)	7(3.18%)	1(0.45%)	128(58.18%)	
Total	28	68	77	40	7	220	

**Table-II: Summary of age wise distribution with and without abnormality on imaging**

Group	Observation	Mean	Std. Dev	P-Value
CT finding absent	128	35.055	15.188	0.0001
CT finding Present	92	60.185	13.853	
Total patient	220	45.564	19.180	Min 3- Max 95

Table-I, II represent that abnormal CT findings were more common in above 41 years of age. Mean age of all patients was 45.564 ±19.180 (Min 3-Max 95). There was a statistically significant difference (p=0.0001) of age of abnormal CT finding present (60.185±13.853) and absent (35.055±15.188) groups.

**Table-III: Gender distribution with and without abnormality on imaging**

Abnormality on CT	Male	Female	Total	P-Value
Present	51(23.18%)	41(18.64%)	92(41.82%)	0.495
Absent	65(29.55%)	63(28.64%)	128(58.18%)	
Total	116	104	220	

During gender distribution, abnormal CT scan findings were found among 51(23.18%) male and 41(18.64%) female. There was no significant difference between male and female (p=0.495)

**Table-IV: Prevalence of the positive CT scan brain of the patient presenting with headache (N=220)**

CT scan finding	Total (%) (N=220)
Normal	128 (58.18)
Abnormal	92 (41.82)
Total	220 (100.0)

Table-IV represents total 220 cases of headache patient underwent CT scan Brain and CT scan finding was abnormal in 92(41.82%) cases and normal in 128(58.18%) cases.

**Table-V: Spectrum of CT scan brain detected abnormality**

Parameter	Value	Value
<b>Major abnormality</b>		
Acute Cerebral Infarction	31	38
Intracerebral Hematoma	4	
ICSOL	1	
Meningioma	1	
Metastasis	1	
<b>Minor abnormality</b>		
Degenerative Cortical Atrophy	42	54
Arachnoid cyst	2	
Old infarct	10	

Table V represents the spectrum of CT scan detected abnormality where, out of 92 patient 38 (17.27%) patients had major abnormality and 54(24.55%) patients had minor abnormality.

**Discussion**

In our study, total 220 patients with headache underwent CT scan of brain. Normal CT finding was 58.18% and CT detected abnormality was 41.82%. Highest probability for detection of abnormalities was found in above 41 years of age. There is no association between sex and abnormal CT finding. Our study represents that the mean age of the patients were 45.564 ±19.180. Rate of detection of abnormal CT findings in term of frequency was detected more in the age group above 41 years with abnormality found in 41-60 years age group 20.91% and in 61-80 years age group 15%. One study conducted by Kahn CE et al,<sup>7</sup> over a period of three years similar study found abnormal CT finding in 10% and rate of detection of abnormal CT finding were higher in older age group compared to younger. These findings were similar to earlier studies conducted by Carrera GF et al<sup>8</sup> and Ayugun D et al<sup>9</sup> respectively which showed

increasing age to be strongly associated with abnormal CT findings in patient with history of chronic headache.

Our study showed abnormal CT finding were present in total 41 female cases and 51 male cases. No significant difference according to gender distribution could be concluded from our study. There are no available source in literature in order to determine the relationship of gender based distribution and abnormal CT findings in patient with history of headache.

In this study, we found that a total 41.82% patients have some abnormalities in CT scan (Table 1 and 2). Of these 24.55% of patient had minor abnormality, not requiring change in management and 17.27% of patient had major abnormality requiring change in the management protocol. In a study, only 10% of cases CT finding were abnormal. According to meta-analysis, major abnormalities detected in patient with headache ranged from 0.0% to 6.7% in ten studies.<sup>10</sup> In a study conducted by Subedee also showed that minor and major abnormality was 7.14% and 3.57%, respectively.<sup>11</sup> Observation in this study are near close to other studies.

### Conclusion

Screening of headache patients with CT scan of brain not only helps in identifying an abnormality but also rule out structural cause for headache. Although CT scan is very useful for the evaluation, it should never be allowed to replace the proper clinical history taking and detailed clinical examination.

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Original Article

## Pattern of Injuries in Fatal Railroad Accident in Dhaka Medical College Mortuary-An Autopsy Based Study

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### Abstract:

**Objectives:** Objectives of this study are to find out the pattern of injuries presented among the railroad accidents victims along with related causes and to evaluate the present situation of railroad accidents in our country.

**Material and Methods:** This is a retrospective study which was carried out on 100 cases of fatal rail road accidents brought to the mortuary for autopsy in the Department of Forensic Medicine & Toxicology, Dhaka Medical College, during the period from 1st October 2017 to 30th September 2018.

**Results:** A total of 100 post mortem cases were studied. Among these 81% were male and 19% were female. Highest incidence of railroad accident was observed among the age group 21 to 40yrs (48%), followed by 41 to 60yrs (36%), 0 to 20yrs (11%) and above 60(5%). Regarding religion almost all cases were Muslim (92%) whereas 5% were unknown and 3% were Hindu. Among these 55(55%) dead bodies were identified and 45(45%) cases were unidentified. The victims of fatal railroad related deaths mainly succumbed to head injury (71%) followed by injury to thoraco-abdominal organs (15%), multiple injuries (11%) and septicemia (3%). Regarding injury pattern in different parts of the body, 100% victims had multiple abrasion and bruises all over the body, fracture were present in (87%) cases, (67%) victims had laceration in different parts of body, (47%) had injury to different organ, (5%) victims had decapitation, (5%) victims had amputation of limbs.

**Conclusion:** It can be concluded from the present study that accidental railway deaths in future can be reduced by implementing safety measures such as improved integrated surveillance system and safety engineering techniques, reduced public access to railway tracks by strict vigil, security measures, and better law enforcement at stations.

**Key Words:** Railroad accident, Injury, Autopsy.

### Introduction:

Bangladesh railway (BR) has a total length of around 2955 route kilometers at the end of the years 2017-2018 that transported 90.05 million passengers and 4554.4 thousand metric ton freights that year. Bangladesh Railway is divided into two zones i.e. East zone & West zone comprising 466 railway stations.<sup>1</sup> The railway is considered one of the safest modes of transportation since the dawn of the invention of this mode of transportation. High numbers of accidents in rail has become a serious concern and people gradually losing their trust to choose the railway as their trusted mode of

transportation for long-haul journeys. At the same time, this is creating more pressure in an already exhausted transportation system and adding numbers to the death toll became of accidents.<sup>2</sup> The term accident has been defined as an occurrence in the sequence of events which usually produces unintended injury, death or property damage.<sup>3</sup> In developed countries, they are the most common cause of death below the age of 50 years, and in young men this trend is even more marked.<sup>4</sup> Railway injuries are not uncommon, especially in countries with many 'level crossing', where a public road crosses a railway track with either no

barrier at all or with only a flimsy lifting pole.<sup>5</sup> Trauma related to railway accident victims is instantly fatal and extremely mutilated. Certain features such as wheel marks on the body, dirt and grease contamination and the manner of severance of tissues deserve special observation to rule out criminal violence.<sup>6</sup> Trains are a common means of committing suicides owing to easy availability and higher chances of mortality. Apart from this, train accidents can also be used as a means of masking homicidal deaths to mimic the event as an accidental or suicidal railway death. Many of these fatalities do not raise any medico-legal questions as most of these events are witnessed, but in some cases the expertise of an autopsy surgeon is sought for a legal conclusion for the manner and nature of the injuries sustained. Cases of deaths due to railway injuries are important in respect to medico-legal investigation to find out the underlying cause and manner of death.

**Fatal railroad injuries may be sustained in the following way:**

01. While walking along the rail or track
02. While crossing the rail or track
03. Jumping in front of running train
04. When a person is pushed suddenly in front of a running train
05. When a suicide lies down on the railway track when a train is coming
06. When an unconscious person is laid on the track
07. When a person accidentally falls or intentionally jumps or is pushed down from a running train
08. When the head or some others part of the body is extended out of the door or window of a running train.
09. When two trains collide
10. When train is derailed
11. When there is outbreak of fire in running train
12. When passengers standing on the roof of the train are electrocuted by the high tension live wire carrying electric current or are struck against an overhead structure, e.g. an over bridge.<sup>7</sup>

**Material and Methods**

This is a retrospective study was carried out on 100 cases of fatal Rail road accidents brought to the mortuary for autopsy in the Department of Forensic Medicine & Toxicology, Dhaka Medical College, during the period from 1st October 2017 to 30th September

2018. The information regarding age, sex, religion, date and time of accident and death was gathered from relatives, police inquest report, dead body challan and clinical details from hospital records. During autopsy, detailed examination was carried out and data regarding both external and internal injuries was carefully recorded and analyzed.

**Results**

A total of 100 post mortem cases were studied. Among these 81% were male and 19% were female (Figure-I). Highest incidence of Railroad accident was observed among the age group 21 to 40yrs (48%), followed by 41 to 60yrs (36%), 0 to 20yrs (11%) and above 60(5%)(Table-I). Regarding religion almost all cases were Muslim (92%) whereas 5% were unknown and 3% were Hindu (Figure-II). Among these 55(55%) dead bodies were identified and 45(45%) cases were unidentified(Table-II). The victims of fatal railroad related deaths mainly succumbed to head injury (71%) followed by injury to thoraco-abdominal organs (15%), multiple injuries (11%) and septicemia (3%) (Figure-III). Regarding injury pattern in different parts of the body, 100% victims had multiple abrasions and bruises all over the body, fracture were present in (87%) cases, (67%) victims had laceration in different parts of body, (47%) had injury to different organ, (5%) victims had decapitation, (5%) victims had amputation of limbs (Table-III).

**Table-I: Age distribution of Railroad accident victims (n=100)**

Age in years	Numbers of victims	Percentage
0-20	11	11
21-40	48	48
41-60	36	36
>60	5	5

**Table-II: Identity status of victims (n=100)**

Identity status	Numbers	Percentage
Known	55	55
Unknown	45	45

**Table-III: Distribution of injury pattern on the body of victims (n=100)**

Types of injury	Numbers of victims	Percentage
Multiple abrasion	100	100
Multiple bruise	100	100
Fracture	87	87
Laceration	65	65
Organ rupture	47	47
Decapitation	5	5
Amputation of limbs	5	5



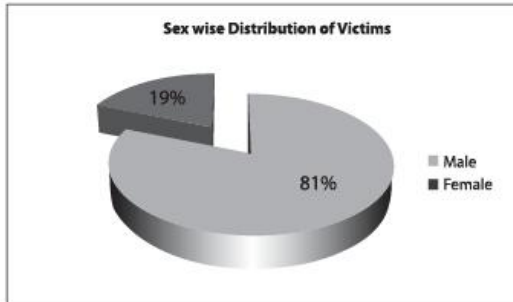


Figure-I: Sex wise Distribution of Victims

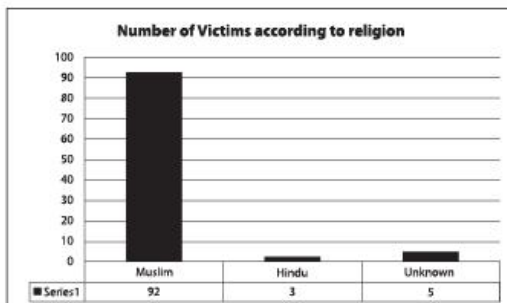


Figure-II: Number of Victims according to religion

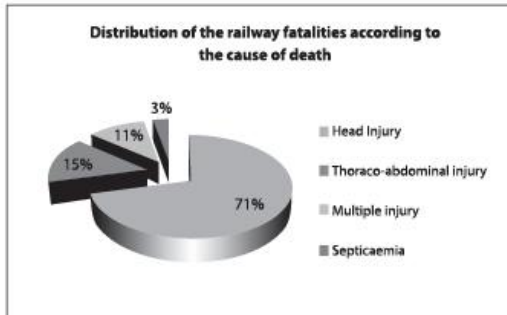


Figure-III: Distribution of the railway fatalities according to the cause of death

**Discussion**

Deaths have occurred in association with railways since the inception of the railway industry. Trains are one of the important modes of transport in our country and have become part of the day-today life of the people. The study was carried out on 100 cases of fatal Rail road accidents brought to the mortuary for autopsy in the Department of Forensic Medicine & Toxicology, Dhaka Medical College, during the period from 1st October 2017 to 30th September 2018. In the present

study, males are the commonest victims (81%) of railway related death which is in accordance with the study conducted by other authors.<sup>8-12</sup> Males being the working group prefer railways as the cheap, quick and comfortable mode of transport for traveling from one place to another and are therefore more vulnerable than females. On the contrary, females are involved in various indoor activities mostly due to cultural background and extra precaution taken by family members to keep them safe. (Figure-I)

In our study, the age group most commonly associated with railway related death was between 21-40 years and significantly less in the extreme ages. This age group is more vulnerable, as it is the age for marriage and settlement. In this modern era where there is struggle in each and every step of life and increased stress for early settlement, little failures combined with other factors compel the victim to take decision for ending his life. This corresponds with other studies undertaken.<sup>8-12</sup> (Table-I)

In our study most of the victims who succumbed to death due to railway injuries belong to Muslims followed by Hindus (Figure-II). This can be explained by higher density of Muslim population in the study region than other communities.

In the present study, 55% of railway fatalities autopsied were identified and remaining 45% dead bodies were unidentified until the time of postmortem examination. (Table-II)

Most common cause of death in our study was head injury (71%) which results instantly death to victims. It was followed by injury to vital thoraco-abdominal organs (15%) followed by multiple injuries (11%), septicemia (3%). This is quite corresponds with other studies undertaken.<sup>8-12</sup> (Figure-III)

In spite of various measures taken by the railway department to reduce the railway related deaths like displaying signboards, construction of overhead pathways, manned crossing levels, advertisement in electronic media, frequent announcement of upcoming trains at railway stations most of the victims fail to comply with. Victims when under the influence of alcohol lack self-control and capacity to judge, are either unaware of the upcoming train or unable to judge on which track train is moving sustain fatal trauma.<sup>11</sup>

Regarding injury pattern in different parts of the body, all the victims had multiple abrasion and bruises all

over the body followed by fracture were present in (87%) cases, (67%) victims had laceration in different parts of body most likely due to primary and secondary impact injuries, (47%) had injury to different organ mostly intra-abdominal solid organs, (5%) victims had decapitation, (5%) victims had amputation of limbs. This is quite corresponds with other studies undertaken.<sup>8-12</sup> (Table-III). Greater public awareness needs to be created by educating the public about the dangers of railway trespassing. These measures, together with improved railway design may help to reduce the fatalities and financial loss incurred by the Railway department.

#### Conclusion

For a country densely populated country like Bangladesh, railways can be the only sustainable mode of transportation for mass transit. An increasing number have already taxed the capacity of the roadways hence the government of Bangladesh has taken up some mega projects to increase the connectivity & capacity of Bangladesh railway. So to ensure safety & reliability is of paramount importance right now. Corrective approaches can lessen the number of train accidents, specially the numbers of derailments, and consequently railway can become the mode of choice for long-haul journeys. Strict enforcement of railway safety regulations and improving emergency medical services may prevent untimely deaths and disabilities.

#### Recommendation

- A boundary wall on both sides of the track wherever possible would be erected and existing wall be repaired.
- Fencing should be done around the rail track and between the two railway tracks, especially within city limits to prevent suicides having easy access to it.
- By means of posters and advertisements in the media, people should be encouraged to use over bridges/under bridges at railway stations instead of using shortcuts of crossing rail tracks.
- The fact that the economically productive age-group are mostly involved, an urgent public policy response with special reference to education, engineering, environment, and emergency care.
- Self-vigilances, adherence to the rules/ regulations.
- Awareness campaigns concerning safety rules targeted at the high-risk groups.
- The autopsy surgeon should be well versed with the pattern of injuries which is very important to help the law governing authorities to reach a definite conclusion. It can be concluded from the present

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study that accidental railway deaths in future can be reduced by implementing safety measures such as improved integrated surveillance system and safety engineering techniques, reduced public access to railway tracks by strict vigil, security measures, and better law enforcement at stations.

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Original Article

## Therapeutic effectiveness of Glyceryl Trinitrate (GTN) in the Treatment of uncomplicated Chronic Anal Fissure (CAF)

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### Abstract:

**Objective:** To determine the therapeutic effectiveness of Glyceryl trinitrate (GTN) in the treatment of uncomplicated chronic anal fissure

**Materials and Methods:** Prospective observational Study conducted in a private hospital in Dhaka City from Jan 2019 to Dec 2019. Forty eight patients of chronic anal fissure were included in this study. There were 28 (58.33%) females and 20 (41.66%) males with mean age of 37. Pain was documented using visual analogue scale. At presentation all patients (100%) perceived pain as severe pain on Visual Analogue Scale. Patients were started treatment with local application of Glyceryl Trinitrate (GTN) gel, twice daily and reassessed after 04 weeks and 08 weeks of treatment respectively. Pain and healing of fissure were documented.

**Results:** Significant pain relief was observed in 46% patient & fissure healing was observed in 31.25% patient. The commonest side effect of treatment was headache (26%).

**Conclusion:** Glyceryl trinitrate is very effective in the treatment of chronic anal fissure and is the drug of choice in conservative treatment of anal fissures and in patients with contraindications for surgery

**Keywords:** Chronic anal fissure, Glyceryl Trinitrate, Visual analogue scale

### Introduction

Anal fissure is a painful tear in the distal anal canal, which usually involves only the epithelium but in the long term, involves the full thickness of the anal mucosa.<sup>1</sup> Fissures are caused by stretching of the anal mucosa beyond its capability. It affects nearly all age groups but particularly the adults.<sup>2</sup> Majority of the anal fissures occur in the posterior midline of the anal canal.<sup>3</sup> The typical symptoms of anal fissure are anal pain during and after defecation associated with passage of bright red blood per rectum. The pain is often severe and may last for several minutes or hours.<sup>4</sup> The most common cause is spasm of the internal anal sphincter muscle which results in impaired blood supply to the anal mucosa. The result is a non-healing ulcer, which may become infected by fecal bacteria. It has indurated edges on proctoscopy. Fissure base may reveal the presence of internal sphincter muscle fibres and sentinel skin tags may be present.<sup>5</sup> Chronic anal fissure usually does not heal without some form of intervention. Treatment is directed at reduction of

internal sphincter tone and anal canal pressure. The gold standard of treatment of chronic anal fissure is lateral internal sphincterotomy resulting in healing rate of up to 98% of the patients.<sup>6</sup> Among conservative modalities diet modification, stool softeners, laxatives and sitz bath are recommended. Analgesics and antibiotics are also used concomitantly. Second line therapy includes Glyceryl trinitrate (GTN) ointment, botulinum toxin, anal dilatation, calcium channel blockers, local anesthetics and steroids. GTN is emerging as first line treatment.<sup>7</sup> It is a neurotransmitter mediating the relaxation of internal anal sphincter. Topical GTN results in healing of two thirds of chronic anal fissures.<sup>8</sup> A regimen using 0.2% GTN ointment applied twice daily to anal canal for 8 weeks is the most commonly prescribed form of treatment.<sup>9</sup> Headache is the major side effect of the treatment that is usually mild and transient.<sup>10</sup> Due to our social traditions and taboos patients especially ladies do not readily accept the surgical treatment and ultimately suffer for long time. This study will help to

determine the efficacy of Glyceryl trinitrate in the treatment of chronic anal fissure as an alternative for surgical procedure if the patient is unwilling for surgery.

**Materials and Methods**

Prospective observational Study conducted in a private hospital in Dhaka City from Jan 2019 to Dec 2019. Forty eight patients of chronic anal fissure reporting with symptoms of pain in anal region during and after defecation and passage of bright red blood per rectum for more than one month duration and fulfilling the inclusion criteria i.e. 12-60 years of age from both sexes and diagnosed cases of chronic anal fissure. Patients having other anal pathologies and having history of migraine were excluded from the study. Patients underwent per rectal examination for confirmation of chronic anal fissure. Demographic information such as name, age, gender, and address were included in the study. Detailed history of the patient was taken followed by physical examination. Complications if any were registered. Patients were assessed for their current status. Pain was evaluated by visual analogue scale and data entered in a proforma. Patient were explained the treatment options available and the benefits of surgical procedure. Informed consent regarding unwillingness for surgery and willingness for conservative management using Glyceryl Trinitrate was taken. Prior permission was taken from hospital ethical committee. Patients were prescribed Glyceryl Trinitrate ointment, local application twice daily application for a period of two months. Patient were requested to visit again after one and two months of treatment respectively and assessed for pain and improvement in symptoms. Based upon the follow up assessment data was collected and entered into a proforma. Study variables were pain, bleeding episodes per rectum and complications.

**Data Analysis**

All the data was entered on SPSS version 15.0 for analysis. The descriptive variables were used to calculate frequencies and the data was presented as tables and figures.

**Results**

Forty eight patients were included in the study. There were 28(56.33%) females and 20 (41.66%) males shown on table 1. Age of the patients range between 16 to 59, mean ages was 37 years. The commonest age group affected was 20-30 years (41.66%) and least affected was 51-60 years (4.16%) table 2. All patients (100%) had severe pain on Visual Analogue Scale at presentation. After 04 weeks of Glyceryl Trinitrate application, 14

(29.16%) had mild pain, 30 (62.5%) had moderate pain and 4 (8.66%) had severe pain as shown in Table No 3. Re-evaluation of the patients after completing 08 weeks of treatment with GTN revealed that 22 (45.83%) patients had become pain free, 15 (31.25%) had mild pain, 9 (18.75%) had moderate pain and only 2 (4.16%) had severe pain as shown in Table No 4. Fissure healing was observed in 31.25% patient shown in table 5.

This showed that 46% patients had significant relief with GTN application for a period of 02 months. Fissure healing was observed in 50% patient. The common side effect of the treatment was headache which was effectively managed by Paracetamol.

**Table-I: Sex of the population**

Study population	Male	Female
48	20(41.66%)	28(58.33%)

The commonest age group affected was 20-30 years (41.66%) and least affected was 51-60 years (4.16%)

**Table-II: Age of the study group**

Age Distribution	N	%
<20	3	6.25%
21-30	20	41.66%
31-40	13	27.08%
41-50	10	20.83%
51-60	2	4.16%
<b>Total</b>	<b>48</b>	<b>100%</b>

**Table-III: Pain on visual analogue scale after 4 weeks**

Pain	N	%
Mild pain	14	29.16%
Moderate pain	30	62.5%
Severe pain	4	8.33%
<b>Total</b>	<b>48</b>	<b>100%</b>

**Table-IV: Pain on visual analogue scale after 8 weeks**

Pain	N	%
Pain free	22	45.83%
Mild	15	31.25%
Moderate	9	18.75%
Severe	2	4.16%
<b>Total</b>	<b>48</b>	<b>100%</b>

**Table-V: Healing of anal fissure after 8 weeks**

Healing	N	%
8 weeks	15	31.25%
Non healed	33	68.75%
<b>Total</b>	<b>48</b>	<b>100%</b>

**Discussion**

Lateral internal sphincterotomy (LIS) is considered the gold standard for the treatment of anal fissure. There is a wide variety of management options for conservative management but their effectiveness in the healing of anal fissures is variable. Healing may be temporary and recurrent fissures may need a change in treatment.<sup>11</sup> Conservative management include laxatives, diet modification, Sitz bath, anal dilatation, Botox injection. Drug options include Glyceryl Trinitrate ointment, nifedipine ointment, isosorbide dinitrate (ISDN), diltiazim, and clove oil. Nitric Oxide (NO) has been identified as the chemical messenger of the intrinsic non-adrenergic, noncholinergic pathway mediating relaxation of the internal anal sphincter. Exogenous NO donors such as GTN and ISDN also reduce anal pressure by relaxation of the internal anal sphincter.<sup>12</sup> Memon MR et al<sup>13</sup> compared lateral internal sphincterotomy with local application of Glyceryl Trinitrate and found relief in 30% patients using Glyceryl Trinitrate but 100% relief was observed in patients undergoing LIS. Hashmat and Ishfaq<sup>14</sup> in their study for comparison of surgical and pharmacological sphincterotomy found similar results with 100% cure in surgical group and 64.3% relief in chemical sphincterotomy group. Mustafa et al<sup>15</sup> found relief in 70% of patients using Glyceryl Trinitrate and that oral nifedipine was equally effective to GTN in reducing anal pressure. Headache was the common side effect for GTN application. Sajid et al<sup>16</sup> in their research compared Botox and diltiazem with Glyceryl Trinitrate in two different studies and found both to be equally effective except that GTN was more associated with headaches. Jawaid et al<sup>17</sup> compared local application of diltiazem with Glyceryl Trinitrate and found them equally effective with 82.5% patients improving in GTN application but headache was the commonest side effect in GTN group. Scholefield et al<sup>18</sup> in there study found that after eight weeks of treatment healing rates were 24% in the placebo group compared with 50% in the 0.1% GTN group, 36% in the 0.2% GTN, and 57% in the 0.4% GTN group. This study is comparable to this study in which we had a relief in pain in upto 46% of the patients included in the study.

Loder et al<sup>19</sup> reported that resting pressure remained reduced for up to 9 hours after topical application of 0.2% GTN. In another study anal pressures had returned to pretreatment values in all 6 patients by 6 hours after application of topical 0.2% GTN. A fissure-healing rate of 43%, suggests that GTN should be used as firstline therapy for chronic anal fissures, LIS being reserved for fissures not responsive to GTN and recurrent fissures. Watson et al,<sup>20</sup> found that when anal fissures were treated with topical 0-2% glyceryl trinitrate on a twice daily regimen. An adequate pressure reduction (30%) was found in four of 13 patients. At six weeks the fissure healing rate was only 33%. Botulinum toxin injection is an effective alternative to surgery for the treatment of uncomplicated idiopathic anal fissure. Gui and coworkers<sup>21</sup> used another technique, injecting botulin toxin into the internal anal sphincter on both lateral sides as well as posteriorly at the fissure site. One month after treatment anal resting pressure was reduced by 24%. After short-term follow up the healing rate was 84%. Glyceryl trinitrate and ISDN are much cheaper than botulinum. The only side effect reported so far is mild transient headache. Lund et al<sup>22</sup> treated twenty one consecutive patients with chronic anal fissure. At six weeks the healing rate of fissures was 86%. For chronic anal fissures, the healing rate at 12 weeks of 50% in the study was lower than 86% in previous studies. No patients developed incontinence or soiling after GTN, which is more favorable than 7% transient incontinence in patients with treated with botulin toxin, or the reported incontinence rates of up to 30% in patients treated by lateral sphincterotomy. Headaches were reported by 60% of patients. Although surgery is the gold standard for the treatment of chronic anal fissure but in our socioeconomic conditions where there are financial constraints and patients specially females are reluctant to undergo surgery by male surgeons and patients having contraindications for surgery, Glyceryl Trinitrate use can be effective alternative treatment for such patients.

**Conclusion**

Conservative treatment with Glyceryl trinitrate (GTN) is an effective measure for the management of chronic anal fissure. This approach can be applied for uncomplicated chronic anal fissure and in patients who are unwilling for surgery or in whom surgical intervention is contraindicated. It is least invasive and has good patient compliance.

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Original Article

## Evaluation of Clinical Features And Outcome Of Ectopic Pregnancy

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### Abstract:

**Background:** An ectopic pregnancy occurs outside the uterus and is a relatively common condition among women of childbearing age. Most ectopic pregnancies occur in the Fallopian tube (so-called tubal pregnancies), but implantation can also occur in the cervix, ovaries, and abdomen.

**Objective:** To evaluate different presentation and outcome of ectopic pregnancy.

**Material and Methods:** This study was undertaken among the patients admitted in the Department of Obstetrics and Gynaecology, Dhaka National Medical College Hospital, Dhaka during the period from October 2017 to March 2018. Clinical evaluation of cases of ectopic pregnancy in terms of sociodemographic factors, presentations, risk factors, examination findings, per operative findings and management offered to the patients.

**Results:** Most of the patients were 20-30 years age group and mean age was 28.08±4.24 years. Commonest presentation was lower abdominal pain (94%), amenorrhoea (100%), P/V bleeding (38%) and syncopal attack (48%). Previous history of abortion/MR (50%), history of pelvic infection (30%) and history of D&C (16%) constitute the main bulk of risk factors. Most of the patients managed by laparotomy followed by salpingectomy which is still the standard treatment in many cases.

**Conclusion:** Study has found that previous abortions are major etiological factor for ectopic pregnancy than previous pelvic infection. Most of the patients were managed by laparotomy. The general public should be made aware the sign and symptoms of ectopic pregnancy. Proper and modern diagnostic tools and training programme for these should be made available in all tertiary level hospital.

**Key words:** Ectopic pregnancy, Fallopian tube, Abdomen.

### Introduction

Ectopic pregnancy is a condition where the fertilized ovum gets implanted and develops in a site other than normal uterine cavity. It presents a major health problem for women of childbearing age. Given the potential mortality & reduced subsequent fertility associated with this condition, the trend toward increased ectopic pregnancy is of serious concern.<sup>1</sup> Over the last few decades, the incidence of ectopic pregnancy has increased almost to the extent of an epidemic disease. Ectopic pregnancy is one of the commonest acute abdominal emergencies.<sup>2,3,4</sup>

The most common sites of Ectopic pregnancies are Fallopian tube (95 to 98% of cases) including ampullary (55%) isthmic (25%), fimbrial (17%), Interstitial (2%). However they can occur in other locations such as

uterine cornue (22.5%) ovary, cervix, and abdominal cavity.<sup>5</sup> It is more common on the right side. Ectopic pregnancy may be concurrent with an intra-uterine pregnancy (Heterotrophic), but these circumstances are rare.<sup>6</sup> It may occur any time from menarche to menopause. One study has conducted that 75% Ectopic pregnancy occurs in the age group 20-30 years.<sup>4</sup>

Multiple factors contribute to the relative risk of ectopic pregnancy. The rising incidence is strongly associated with an increased incidence of PID. The incidence of tubal damage increases after successive episodes of PID (i.e. 13% after 1 episode, 35% after 2 episodes, 75% after 3 episodes). History of prior ectopic pregnancy (7- to 13-fold increase), History of tubal surgery and conception after tubal ligation, Use of fertility drugs or assisted reproductive technology (4-fold increase),

use of an intrauterine device (3-4%), smoking and STD relative risk of Ectopic pregnancy increases with the age of mother, 35-44 years (3-4 fold increase).<sup>7</sup>

Diagnosis of Ectopic pregnancy mostly depends on proper history taking and accurate physical examination. The classic signs and symptoms of ectopic pregnancy include short period of amenorrhoea (85%) followed by abdominal pain (100%) & per vaginal bleeding or intermittent bleeding (50%). Fifty percent have a palpable adnexal mass and 75% presented with cervical movement tenderness. Approximately 20% of patients with Ectopic pregnancy are haemodynamically compromised at initial presentation, which is highly suggestive of rupture.<sup>7</sup>

Management of Ectopic pregnancy depends on proper history taking, physical examination, relevant investigations, improvement of general condition of the patient and then specific treatment. Specific treatment of Ectopic pregnancy are of following types: (i) Expectant management, (ii) Medical management (use of Inj. Methotrexate, 20% potassium chloride, prostaglandins, RU486, Hyperosmolar glucose, vasopressin & actinomycin), (iii) Laparoscopy (if the patient is haemodynamically stable- 35% of Ectopic pregnancy are currently managed Laparoscopically), and (iv) Laparotomy followed by Salpingostomy or Salpingectomy & Salpingo-oophorectomy. The advent of methotrexate treatment for ectopic pregnancy has reduced the need for surgery. This intervention may be laparoscopic or through a larger incision known as a laparotomy.<sup>7</sup>

**Materials and Methods**

It was a descriptive type of cross sectional observational study was undertaken among the patients admitted in the Department of Obstetrics and Gynaecology, Dhaka Medical College Hospital during the period from October 2012 to March 2013. Total 50 samples were included in this study. Data were collected using a structured questionnaire (research instrument) containing all the variables of interest. The questionnaire was finalized following pre-testing, after taking informed consent from eligible patient. Patient's details were taken from history, record of admission and physical examination was performed and complications were evaluated. Data were analyzed using statistical package for social science (SPSS) for windows version 20.

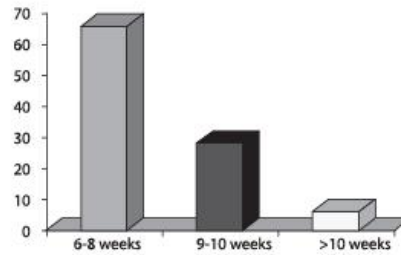
**Results**

**Table-I: Age distribution of patients (n=50)**

Age (in years)	Number	Percentage	Mean±SD
20-25	12	24	28.08±4.24
26-30	26	52	
31-35	9	18	
36-40	3	6	
<b>Total</b>	<b>50</b>	<b>100</b>	

**Table-II: Presenting symptoms of ectopic pregnancy (n=50)**

Symptoms	Number of cases	Percentage
Abdominal pain	47	94
H/O of amenorrhoea	50	100
Syncopal attack	24	48
Loss of appetite	10	20
P/V bleeding	19	38
P/V discharge	13	26
Fever	3	6



**Fig-1: Duration of pregnancy (n=50)**

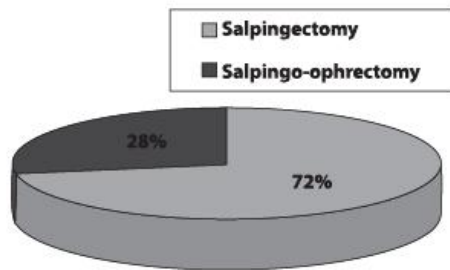
**Table-III: Predisposing factors (n=50)**

Risk factors	Number of cases	Percentage
Previous abortion/MR	25	50
Pelvic infection	15	30
Previous C/S	6	12
Previous D&C	8	16
Previous IUCD insertion	3	6
Previous ectopic pregnancy	1	2
Previous tubal ligation	1	2
Previous appendicectomy	1	2
Endometriosis	2	2



**Table-IV: Sites of ectopic pregnancy (n=50)**

Site	Number of cases	Percentage
<b>Tubal</b>		
Isthmus	6	6
Ampulla	44	88
<b>Ectopic sac</b>		
Tube	33	66
Ovary	17	34



**Fig-II: Types of operation performed (n=50)**

**Table-V : Management**

Management	Number of cases	Percentage
Laparotomy	42	84
Medical management	7	14
Expected treatment	1	2

**Table-VI: Post operative hospital stay (n=50)**

Hospital stay	Number of cases	Percentage
Less than 7 days	44	88
More than 8 days	6	12
<b>Total</b>	<b>50</b>	<b>100</b>

**Discussion**

Ectopic pregnancy is an implantation of a fertilized egg outside the uterine cavity. It is an important cause of maternal morbidity<sup>8</sup> and mortality. The incidence of ectopic pregnancy varies greatly throughout the world<sup>8</sup> and incidence is increasing world wide.<sup>9</sup>

Ectopic pregnancy may occur at any age during the reproductive period. In this study maximum patients (52%) belonged to the age group 26-30 years. The range varied between 20-40 years. Almost similar observation has been made by Archibong et al.<sup>10</sup> and Khan et al.<sup>11</sup> where showed 79.99% patients in 15-34 years of age

group. Another study Tom et al. found 81.9% were among the age group of 21-30 years.

The presenting symptoms of ectopic pregnancy were analyzed. It was found that almost all patients had history of amenorrhoea, 94% had lower abdominal pain, 38% had P/V bleeding and 48% gave history of syncopal attack. This finding consisted with Pradhan et al.<sup>12</sup> where they found that 94.4% had abdominal pain and 72% had ammenorrhoea. Storeide<sup>13</sup> had found that 100% had lower abdominal pain, 81% presented with amenorrhoea and 88% with abnormal vaginal bleeding.

This study showed the patients who presented with amenorrhoea, majorities (66%) had short period (6-8 weeks) of amenorrhoea. In a study by Khan et al.<sup>11</sup> showed that 35% had no history of amenorrhoea and 65% had history of amenorrhoea and among them 61.67% had 6-8 weeks amenorrhoea. So other study including this study has showed that commonest duration of amenorrhoea is 6-8 weeks. Another study by Airede et al.<sup>14</sup> found Abdominal tenderness (93%), ammenorrhoea (84%) and vaginal bleeding (62%) were the commonest presentation.

Among the risk factors that was identified in this series are history of previous abortion/MR (50%), pelvic infection (30%), history of ovulation inducing drugs (29.09%) and history of D&C that(16%) constituted the main bulk of risk factors for ectopic pregnancy and H/O taking IUCD (3.63%) came to the next. But no patient had IUCD in situ when presented with ectopic pregnancy. Gharoro et al.<sup>15</sup> showed that 63% had history of previous abortion and 41% had pelvic infection.

Sinnathuria et al.<sup>16</sup> believed that infection following induced abortion is a major cause of PID in Asia and the risk of ectopic pregnancy is 10 times higher in areas with a high incidence of illegal abortion<sup>15</sup> and 6 times higher following clinical salpingitis.<sup>17</sup> Several case control studies have reported a strong association between ectopic pregnancy and chlamydial trachomatis infections<sup>18</sup> and gonococcal infection.<sup>19</sup> Unfortunately our patients were not screened for these organisms. Bouyer et al.<sup>20</sup> in a large case control, population based study in France have shown that 1.1% cases had history of previous ectopic pregnancy. So previous history of ectopic pregnancy also a risk factor for recurrent ectopic pregnancy.

This study showed that 72% operation was unilateral salpingectomy and 28% was salpingo-ophorectomy. Airede et al.<sup>14</sup> reported unilateral salpingectomy was the most frequent procedure that was performed. Pradhan et al.<sup>12</sup> studied that 75% were salpingectomy, 22% salpingo-ophorectomy and 3% salpingostomy.

Archibong et al.<sup>10</sup> has noted that in 90% cases salpingectomy was performed. Most of patients presented with ruptured or grossly damaged tube when conservative treatment where not possible. Another study Khan et al.<sup>11</sup> have shown unilateral salpingectomy in 71% cases, unilateral salpingoophorectomy in 2% cases, unilateral salpingectomy with other sided tubectomy in 24.66% cases, salpingostomy done in 4 cases, removal of abdominal pregnancy in 4 cases and resection of rudimentary horn in 3 cases.

This study shows that in majority (88%) of cases, ampulla were affected and in 66% cases ectopic sac was in fallopian tube. Lozeau et al.<sup>21</sup> reported pregnancies in the fallopian tube account for 97 percent of ectopic pregnancies, 55 percent in the ampulla; 25 percent in the isthmus; 17 percent in the fimbria; and 3 percent in the abdominal cavity, ovary, and cervix. Another study by Pradhan et al.<sup>12</sup> found 80% in ampulla, 11.1% in isthmus, 5.6% in fimbria and 2.8% in ovary.

After opening the abdomen tubal ectopic pregnancy were detected in right side than the left 64% and 36% respectively. Most of our patients 68% had ruptured tubal pregnancy which reflects lack of health facilities in the community level and delay in the diagnosis and delay to take our patients to tertiary level hospital in the moribund state. In 32% cases tubes were found distended and unruptured. Almost similar observation has been made by Bouyer et al.<sup>22</sup> in 10 year population based study of 1800 cases have shown that most (70%) of the tubal pregnancy occur in ampullary part. This study also shows that current IUCD use protects against interstitial pregnancies, which are the most difficult to manage.

This study shows majority of patients were managed by laparotomy (84%) followed by blood transfusion, 58% needed resuscitation, 14% needed medical management, 12% laparoscopic and 2 needed expected management. Medical treatment with systemic methotrexate is considered an acceptable management option for women presenting with haemodynamically stable patients with unruptured,

small ectopic sac and low serum HCG values. A randomised trial of clinically stable women with unruptured tubal ectopic pregnancies compared the efficacy of a multiple dose systemic methotrexate regimen to laparoscopic salpingostomy.<sup>23</sup> A study that pooled results from four randomised trials that compared single dose systemic methotrexate to laparoscopic salpingotomy found medical treatment to be significantly less successful than surgery.<sup>24</sup>

### Conclusion

This study showed that history of short period of amenorrhoea, abdominal pain, P/V bleeding, syncopal attack were common clinical presentations. The main risk factors were history of previous abortion/MR, history of D&C, ovulation inducing drugs. Most of the patients were managed by laparotomy followed by salpingectomy. The frequency can be reduced by awareness of reproductive health care, liberal contraceptive utilization and acceptable adequate family planning method. Early diagnosis and timely referral may be helpful in treating the patients prior to tubal rupture with decreased morbidity and mortality. We believe that there is a window of opportunity to ascertain the exact causes and suggest appropriate interventions to reduce this upward trend of ectopic pregnancy.

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Review Article

## Hemophilia: What a dental surgeon needs to know?

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### Abstract:

Hemophilia is a medical condition that can cause medical emergency for dentist. Hemophilia patients have high risk of bleeding during various dental procedures. A dentist must know the impact of blood dyscrasias in the management of their patients. A good history taking in these patients is required to prevent any unwanted incident in the operator, & more so if any invasive treatment is planned. So management of bleeding in these patients during & after surgery is the biggest challenge for the dental surgeons. Here we present a review on management of hemophilic patient in different dental procedure for which literature obtained from published articles, books & manual.

**Key words:** Hemophilia, Factor VIII, Oral health, Dental management.

### Introduction

Bleeding disorders are the group of disorders in which blood does not clot properly. An affected individual may bleed spontaneously or for longer than a healthy person may.<sup>1</sup> Dentists may encounter patients with various types of bleeding disorders in their day to day practice. Initial recognition of such bleeding disorders & their possible systemic causes play a significant role in reducing potential complications. Bleeding disorders can be classified as coagulation factor deficiencies, platelet disorders, vascular disorders & fibrinolytic defects.<sup>2</sup> Among these, hemophilias are the most frequently occurring congenital plasmatic hemorrhagic diathesis. It is the commonest X-linked hereditary bleeding disorders affecting more than 400,000 people worldwide, which occurs due to absence or deficiency of plasma clotting factors, resulting in prolong & uncontrolled bleeding either spontaneously or following trauma.<sup>3</sup> Two commonest forms of hemophilia are Hemophilia A & Hemophilia B, both are inherited as X linked recessive pattern, but incidence is different. Hemophilia A is related to factor VIII deficiency & occurs in 80-85% of patients & has an incidence of 1:5000 in male population. Hemophilia B (Christmas disease) is a deficiency of factor IX & is diagnosed 10 times less frequently than hemophilia A. It accounts 10-15% of hemophilia cases with incidence of 1:15000.<sup>4,5</sup> Uncommon types are, Hemophilia C or Rosenthal syndrome that result in deficiency of factor IX, parahemophilia or Owren's syndrome (deficiency of factor V) & acquired hemophilia.<sup>1,6</sup> Hemophilia is one of

the pervasive bleeding disorders in the world that entail attention. It challenges the skills of dental specialists by inducing bleeding during treatment, which can even be life threatening in certain cases. The aim of this article is to review Hemophilia with an emphasis on its management in different dental procedure.

### Epidemiology

Hemophilia is prevalent worldwide & occurs in all racial & socioeconomic groups.<sup>4</sup> According to the report of the annual global survey (AGS) 2020, published by the World federation of Hemophilia(WFH) with participating 144 countries, total number of hemophilia A or B & types of unknown is 241, 535 of which 24.6/100,000 males for all hemophilia A where 9.5/100,000 males for severe Hemophilia A & 5.0/100,000 males for all hemophilia B where 1.5/100,000 males for severe Hemophilia B. Number of Hemophilia A & Hemophilia B patients with clinically identified inhibitors was 5013 & 363. However, these figures are an underestimate than actual ones. So majority of the patients remain under diagnosed & it is true that most of them are living in the developing countries. In Bangladesh (population 160 millions) would have 10800 hemophilics. But reported cases are only 424(367 Hemophilia A & 57 Hemophilia B) & there is no inhibitors. Among the reported cases, only 9 cases are under 5 years of age.<sup>7</sup> The severity of hemophilia has been classified into the following three forms by the Scientific & Standardization committee of the International Society on Thrombosis & Hemostasis.[Table-I]<sup>8</sup>

**Table-I: Relationship of factor level to the severity of Hemophilia**

Severity	Clotting factor level
Severe	<1 IU dl - 1 (<0.01 IU ml - 1) Or <1% of normal
Moderate	1-5 IU dl - 1 (0.01-0.05 IU ml - 1) Or 1-5% of normal
Mild	5-40 IU dl - 1 (0.05-0.40 IU ml - 1) Or >5-40% of normal

**Clinical feature in Hemophilics**

Severe cases may manifest with massive intrauterine hemorrhage leading to still birth & neonatal intracranial hemorrhage. Tendency towards easy bruising, massive hemorrhage after trauma or minor surgical procedures are commonly encountered. Spontaneous hemorrhage from the middle ear ,epistaxis, hemarthrosis (70-80%) & bleeding into soft tissues (10-20%) may occur. Bleeding from central nervous system (CNS) constitutes less than 5%. Complications in hemophiliacs include musculoskeletal complications such as chronic hemophilic arthropathy, synovitis, contractures, pseudotumor formation, development of inhibitors against factor VIII & most importantly transfusion related infections such as human immunodeficiency virus (HIV), hepatitis B virus (HBV), hepatitis C virus (HCV), hepatitis A virus.<sup>9,10</sup>

**Prevalence of oral diseases in Hemophilics**

The main oral diseases affecting patients with hemophilia are bleeding from multiple sites in the mouth from gingiva & extraction sockets. Patients may have history of multiple bleeding events over their lifetime. Poor oral hygiene & iatrogenic factors can also induce the oral bleeding. In toddlers, oral ulcerations & ecchymosis involving lips & tongue are common. A study by Sonis & Musselman found an average of 29.1% bleeding events per year in hemophilia patients out of which 9% involved oral structures(labial frenum 60%;tongue 23%; buccal mucosa 17%;gingiva& palate 0.5%).<sup>11</sup> Hemarthrosis of temporomandibular joints is unusual. Therefore,for dental consideration through history taking is mandatory for proper diagnosis & management of hemophilia.<sup>12</sup>

**Investigation & Evaluation**

**Diagnosis of hemophilia:** At birth hemophilia is diagnosed either due to known family history or after presenting with clinical history of exaggerated bleeding response to minor trauma.

**Prenatal testing:** A gene test can be performed during pregnancy. For this, a sample of placenta is removed

from the uterus & chorionic villus sampling (CVS) test perform.<sup>13</sup>

Two different approaches of the genetic evaluation of bleeding disorders now are used: tracking the defective chromosome in the family (linkage analysis) or identification of the disease-causing mutation in the patient's coagulation factor gene(direct mutation detection).<sup>14,15</sup>

**Blood testing:** If a doctor suspects a child may have hemophilia a blood test can determine whether the patient has hemophilia A or B. Blood tests can be performed from the time of birth onwards.<sup>13</sup>

**Laboratory evaluation:** Laboratory test related to the differentiation of hemophilia types. It demonstrates normal platelet count, normal bleeding time (BT),prolonged activated partial thromboplastin time (APTT), normal prothrombin time (PT).Screening tests show a prolonged activated partial thromboplastin time in severe & moderate cases but may not show prolongation in mild hemophilia. APTT is considered normal if the control APTT & the test are within 10s of each other. Control APTT is usually 25+10s. It is determined by adding an activator to plasma (e.g. kaolin) along with extract of phospholipid. Normal bleeding time assesses the vascular & platelet phases of blood clotting but is of limited sensitivity.PT test evaluates the extrinsic system & measures the presence or absence of clotting factor I,II,VII,X. In order to standardize PT in1983,the World Health Organization (WHO) introduced the international normalized ratio (INR).It is the ratio between the PT of a patient in seconds & control PT standardized by means of International Sensitivity Index (ISI).For a PT value within the normal range, INR=1.<sup>2,16,17</sup> Definitive diagnosis is established by quantification of the procoagulant activity of factor VIII, which is found to be reduced in hemophilia A & factor IX ,which is found to be reduced in hemophilia B. For specific study, correction study with deficient plasma might identify the types of hemophilia &with normal plasma might suggest presence of inhibitors. Quantitative assay of FVIII, FIX helps in identify the types of hemophilia & its severity.

**Management Strategies:**

Hemophilia is managed through a combination of education, clotting factor replacement & comprehensive care. A number of dental procedures do not require augmentation of coagulation factor levels. There may be four therapeutic management options depending on the type of haemophilia:

1. Coagulation factor replacement therapy;
2. Release of endogenous factor stores using desmopressin(DDAVP);
3. Improving clot stability by antifibrinolytic drugs, for example, tranexamic acid;
4. Local haemostatic measures.<sup>18</sup>

**Providing dental treatment to Hemophilic patients:**

The management of patients with hemophilia depends on the severity of the condition (mild, moderate, severe) & the invasiveness of the planned dental procedure.<sup>19</sup> If the procedure has limited invasiveness & the patient has a mild bleeding disorder, only slight or no modification will be required. In patients with severe bleeding disorders, the goal is to minimize the challenge to the patient by restoring the hemostatic system to acceptable levels & maintaining hemostasis by local adjunctive methods.<sup>20</sup> Avoidance of brusque maneuvers during dental management & local hemostatic measures are recommended. It is also essential to prevent accidental damage to the oral mucosa when carrying out any dental procedure by the cautious use of saliva ejectors, protection of soft tissues during restorations, taking care in the placement of X-ray films. Aspirin & its derivatives must be avoided. Restorable sutures are recommended if needed.<sup>19</sup>

**Surgical treatment**

Hemophilia patients are at high risk of secondary bleeding following oral surgery. International guidelines advise the use of clotting factor replacement therapy for all invasive surgical interventions in patients with hemophilia.<sup>21</sup> The World Federation of Hemophilia (WFH) recommends the use of factor concentrates to cryoprecipitate or fresh frozen plasma for replacement therapy in the patients with hemophilia. Surgical treatment must be planned to minimize the risk of bleeding or hematoma formation. Patients's hematologist must be consulted before treatment initiation regarding the factors levels, factor replacements, type of surgery & the need for systemic hemostatics. If necessary, replacement therapy comprising coagulation factor VIII or desmopressin (DDAVP) [Table-III],<sup>22</sup> is administered. All the measures to reduce the risk of infection (administration of antibiotics, topical antiseptic mouthwash) must be instituted. Aspirin, aspirin containing medication, NSAIDs should be avoided which may prolong bleeding. For the patients taking warfarin, their INR

should be measured before the surgical procedure. The normal therapeutic range is 2.0-3.0. According to current recommendations, most surgical procedures can be performed without altering the warfarin dose if the INR is less than 3.0.<sup>23</sup> In pre-operative management, Factor VIII is given 1 hour before procedure, Dose in units = weight in kg x 25. Tranexamic acid 1g(30mg/kg) by i/v or orally 1 hour before surgery.

**Pain control by local anesthesia**

Although there are no restrictions with respects to the type of local anesthetics, but Local anaesthesia injection technique should be avoided in the absence of factor VIII replacement. Nerve block anaesthesia (inferior alveolar or posterior superior alveolar nerve) are contraindicated unless there is no better alternative & prophylaxis is provided as the anesthetic solution is deposited in a highly vascularized area, which carries a risk of hematoma formation. The commonly used blocks require minimum clotting factor levels of 20% to 30%. Infiltration anesthesia may be used with caution but lingual infiltration must be avoided. An anesthetic with vasoconstrictor should be used when possible. Alternative techniques, including sedations with diazepam or nitrous oxide-oxygen analgesia, can be employed to reduce or eliminate the need of anesthesia. Patients undergoing extensive treatment requiring factor replacement may be treated under general anesthesia in a hospital operating room.<sup>20</sup>

**Table-II: Dental anaesthetic procedure**

No hemostatic cover Required	Hemostatic cover Required
Buccal infiltration	Inferior dental block
Intra-papillary injection	Lingual infiltration
Intraligamentary injection	

**Oral Surgery**

Surgery must be performed with caution to reduce trauma to soft tissues. Proper suture placement may help to prevent clot formation postoperatively & surgical stent should be fabricated to protect the surgical site during healing. Post extraction bleeding should initially be managed with pressure & other local hemostatic agents such as fibrin glue, oxidized cellulose. Anti fibrinolytic agents such as tranexamic acid (1g 4 times daily) for 7 days. Epsilon aminocaproic acid (50mg/kg 4times daily) continued for 7days.<sup>24,25</sup> Persistent oozing & bleeding following the procedure requires hematologist consultation.<sup>26</sup>

**Table-III: Clotting factor administration in hemophilia patients prior to surgery**

Condition	Dose of Factor VIII
Mild Bleeding	Dose: 15U/kg factor VIII every 8-12h for 1-2days Target: 30% of normal level.
Major bleeding	Dose: 50U/kg factor VIII every 8-12h for 7-14 days Target: 80-100% of normal level
Adjuvant Therapy	Desmopressin, tranexamic acid or epsilon Aminocaproic acid (for mild disease)

**Elective treatment**

**Scaling & Periodontal Procedures:** Periodontal health is of critical importance in patients with bleeding disorders.<sup>2</sup> as inflamed & hyperemic gingival tissue are at increased risk of bleeding. Patients with coagulopathies may neglect their oral health due to fear of bleeding during tooth brushing & flossing which leads to increase gingivitis, periodontitis & caries.<sup>20</sup> Routine periodontal probing, supragingival scaling & polishing (ultrasonic scaling) is unlikely to cause prolonged bleeding for patients., especially those with mild conditions.<sup>27</sup> Factor replacement therapy is seldom needed for subgingival scaling & root planning if those procedures are done carefully. For severely inflamed tissues, initial treatment with chlorhexidine mouthwashes & gross debridement is recommended to reduce tissue inflammation before deep scaling.<sup>28</sup> Periodontal surgery is regarded as a high risk procedure with significant risk of blood loss & poses greater challenge to hemostasis than a simple extraction.<sup>25</sup>

**Prosthodontic procedure**

These procedures do not usually involve a considerable risk of bleeding. Trauma should be minimized by careful post insertion of removable prosthesis. Oral tissue should be handled delicately during the various clinical stages of prosthesis fabrication to reduce risk of ecchymosis.<sup>20</sup>

**Endodontic treatment**

Endodontic therapy is preferred over extraction whenever possible, as endodontic treatment generally has low risk of bleeding in patients with hemophilia. However, if vital pulp tissue is present at the apical foramen this may bleed for some time & can cause pain. the use of 4% sodium hypochlorite for irrigation & calcium hydroxide paste appears to minimize this problem. Reaming through the apex should be avoided. Endodontic surgical procedures may require factor

**Restorative procedure**

General restorative procedures do not pose a significant risk of bleeding. Care should be considered to avoid injuring the gingiva while placing rubber dam clamps, matrices, wedges & soft tissue trauma. A rubber dam should be used to prevent soft tissue lacerations. High-speed suction can injure the mucosa in the floor of the mouth & cause hematoma & ecchymosis, thus they should be used carefully[20].

**The latest treatment procedure-Gene therapy**

Through the introduction of a functional gene into a target cell, gene therapy aims to restore, modify or enhance cellular functions.<sup>30</sup> In 1984 the current recombinant treatment of hemophilia was the isolation & cloning of the genes that produce clotting factor VIII & clotting factor IX. Hemophilia is an ideal disease to target for gene therapy since it is caused by mutations in a single identified gene. So recombinant technology made it possible to prepare replacement factor from mammalian & human cells rather than human plasma. A slight increase in factor activity can make a severe hemophilic to be mild. Main issue remains: finding of a gene delivery system which is nonimmunogenic so as to allow for long term expression. More than 25 patients with hemophilia have now been treated in phase I gene-therapy protocols.<sup>4</sup> However, hemophilia is no longer a life-threatening disease with current therapy that is both safe & effective.<sup>31</sup>

**Conclusion**

Hemophilic patients form privilege group for dental professionals because of uncontrolled bleeding during dental procedure which may be life threatening. Moreover, maintenance of oral hygiene & prevention of oral disease is of great significance to improve the quality of life & avoid the dangers of surgery. Improvement in communication among hematologist, general physician, oral physician & surgeon & those in general dental practices is necessary for effective dental management of hemophilic patients. So proper medical history & consult with hematologist always be helpful to prevent bleeding complications & successful dental practice management.

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## Case Report

# Subacute Sclerosing Panencephalitis

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### Abstract:

Subacute sclerosing panencephalitis (SSPE) is a late complication of measles virus infection. It presents with psychiatric manifestations, progressive dementia, myoclonic jerks and other focal neurological signs. The diagnosis is based on characteristic clinical manifestations, presence of characteristic periodic EEG discharge and demonstration of raised antibody titer against measles in plasma and CSF. In our case, patient presented with myoclonic jerk, characteristic EEG and raised level of antibody in CSF.

### Introduction

Subacute sclerosing panencephalitis (SSPE) is a progressive neurological disorder caused by persistent measles virus infection.<sup>1</sup> The latency period between acute measles and first symptoms of SSPE is usually 4 to 10 years but ranges from 1 month to 27 years.<sup>2</sup> SSPE is characterized by progressive mental decline, myoclonus and raised anti-measles antibody titer in the cerebrospinal fluid. Electroencephalography (EEG) in SSPE characteristically reveals generalized periodic complex or discharges. A periodic EEG record typically consists of generalized and synchronous bursts of sharp-slow wave complexes. A typical discharge is polyphasic, with duration varying from 0.5 to 2 seconds; high voltage (300-1,500 mV); and repetitive (occurring every 4-15 seconds). We are reporting a child with rapidly evolving encephalopathy and the child's cerebrospinal fluid demonstrates a high titer of anti-measles antibodies.<sup>3,4,5</sup>

### Case Report

A 16 yrs old boy from Jurain, Dhaka got admitted in SSMCMH with the complaints of jerky movements of whole body for last 1 year and was unable to speak and stand for last 1 month. From his childhood, he had some behavioral abnormalities and slowness in mental status, so his parents took attention from traditional healer. 7 months back, he suddenly developed convulsion which starts at night, occurs several occasions in a single day, more at night and patient fears to sleep. Subsequently he was maltreated by traditional healer for 8 months.

Then he was admitted in BSMMU and got treatment as a case of focal seizure. His symptoms were temporarily relieved for 2 months after starting treatment but subsequently he developed same type of problem in more severe form.

After admission, we found he was unable to speak and stand and myoclonic jerks. His vital signs are normal, not anemic or icteric. His muscle power is reduced in both limbs but bulk is normal with no clonus or fasciculation. His jerks of both upper and lower limbs are exaggerated and plantar response is equivocal. His sensory function, cranial nerves are intact. His bowel and bladder habit are normal. On fundoscopic examination, there is no KF ring or sunflower cataract.

On query of his mother, she mentioned that his growth and development was normal except delayed speech. He got vaccination as per EPI schedule except measles vaccine. He had no history of fever with rash in his early childhood.

Investigation report reveals CBC, serum electrolytes, S. creatinine, CXR P/A view is normal. His brain imaging like MRI is normal. CSF study shows total cell count is 20/mm<sup>3</sup>, 90% neutrophils and 10% lymphocyte among them. Gram stain and Z. N. stain shows no bacilli. Glucose is 5.6 mmol/L (normal range is 2.2-3.8 mmol/L), protein is 0.86 g/L (normal range 0.15-0.45). Plasma lactic acid level is increased 6.44 mmol/L (normal range 0.5-2.2). His 24hrs urinary copper level is 28.4 microgram/L and serum ceruloplasmin level is 110 mg/L (reference range 200-600).

His EEG demonstrates presence of frequent periodic generalized burst composed of polymorphic slow waves of 1-3 seconds followed by stretches of attenuation at an irregular interval of 5-14 seconds which may be consistent with subacute sclerosing panencephalitis (SSPE). His IgG Antibody against Measles is positive and titer is 352.9 mIU/ml (>200 mIU/ml positive, <150 mIU/ml negative).

#### Discussion

In this patient, because of the presence of anti-measles antibody in high titer in cerebrospinal fluid, a reasonable diagnosis of SSPE can be considered. There are certain important points that need to be highlighted, initial progressive subacute mental deterioration of the boy was misdiagnosed as psychiatric abnormality by the parents and took attention from traditional healers. His myoclonus was initially diagnosed as partial seizure in a tertiary care hospital and that was reason for delayed diagnosis of the case.

At least three of the following five criteria should be met for SSPE diagnosis:<sup>6,7</sup>

- a) a typical clinical picture of progressive subacute mental deterioration with typical signs like myoclonus and neurodiagnostic features consistent with SSPE;
- b) characteristic EEG changes;
- c) CSF globulin levels greater than 20% of total CSF protein;
- d) raised titers of measles antibodies in blood and CSF in the absence of other antibodies, including against HSV and VZV and
- e) typical histopathological findings on brain biopsy or autopsy.

According to the WHO definition, acute encephalitis syndrome is characterized with fever and change in the mental status (such as confusion, disorientation, coma, or mutism) with or without seizures. Acute encephalitis syndrome is highly endemic to certain parts of India. In India, Japanese encephalitis is the leading cause of acute encephalitis syndrome. Dengue, West Nile virus, herpes simplex, mumps, Epstein-Barr, and influenza are other viruses that can clinically present with acute encephalitis syndrome. In measles-endemic countries, fulminant SSPE should also be included in the list of causes of acute encephalitis syndrome.<sup>8,9</sup>

Our case also highlights the importance of universal coverage of measles vaccination. The situation remains grim, and approximately 50% of the global

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measles-associated deaths occur in India.<sup>10</sup> Our patient missed measles vaccination in EPI schedule.

#### Conclusion

SSPE is an uncommon and fatal complication of childhood measles. It is a progressive and incurable condition resulting in death typically within one to three years of onset of symptoms. Clinical presentation widely varies ranging from progressive weakness, seizures, pyramidal and extrapyramidal symptoms and coma. Although SSPE is a very rare disease, still on the background of characteristic clinical manifestation and classical EEG findings, diagnosis is easy.

As available treatments are very costly and are available only at a few centers in the world, so effective measles vaccination seems to be the only solution to problem of this dreadful neurological disorder.

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