



RANGPUR COMMUNITY MEDICAL COLLEGE JOURNAL

(RCMC JOURNAL)

July 2019

Vol. 2

No. 2

Editorial

- **Exercise, you must know about it** 1
Mostafa MMAW

Original Articles

- **Role of Widal Test in Diagnosis of Enteric Fever** 5
Aktar A, Shahriar A, Afrin M, Rinta RM, Nausin R, Rahman M
- **Clinico-demographic Pattern & Risk Factors of Molar Pregnancy & It's Immediate Outcome of Treatment in a Tertiary Care Hospital of Northern Zone of Bangladesh** 10
Hasan M, Haque MM
- **Prevalence of Periodontal Diseases Among the Diabetic Patients in Selective Hospitals of Bogura City** 18
Ahmad M, Islam M, Ahmad MS, Akther F, Khan RH, Ahmed S
- **Upper Gastrointestinal Endoscopic Findings Among Adult Patients with Dyspepsia in Tertiary Care Hospital of Bangladesh** 25
Hasan MQ, Mondal NT, Rashid MH, Alam MR
- **Pattern of Acute Stroke in a Tertiary Hospital** 31
Yusuf MG, Begum ZN, Banu A, Hoque MA, Shaha AC
- **Prevalence of Mentally Retarded Children and Problems Related to their Educational and Treatment Facilities in North West District of Bangladesh** 36
Alam MR, Chowdhury SS, Amin MN, Mondal NT, Banu A, Sejuti A

Case Reports

- **Death From Concealed Punctured Wound In Adult** 44
Rahman SM
- **Case Report on Takayasu's Arteritis: A Rare Form of Vasculitis** 46
Akhiruzzaman, Kabir MA, Morshed MS, Islam TB
- **Pentalogy of Fallot with Maternal Gestational Diabetes Mellitus: A Rare Case Report** 48
Begum MUH, Rahman MA, Millat MB



RANGPUR COMMUNITY MEDICAL COLLEGE JOURNAL

(RCMC JOURNAL)

July 2019

Vol. 2

No. 2

Chief Patron

Nilu Ahsan

Chairman, Rangpur Group

Editorial Board

Editor-in-Chief : **Prof. Dr. M. M. A Wadud Mostafa**
Prof. & Head, Department of Physiology

Executive Editor : **Prof. Dr. Md. Abdur Rahim**
Prof. & Head, Department of Biochemistry

- Editors :**
- 1. Prof. Dr. Amaresh Chandra Shaha**
Prof. & Head, Department of Medicine
 - 2. Prof. Dr. Hamidul Haque Khandaker**
Prof. & Head, Department of Ortho-Surgery
 - 3. Prof. Dr. Aziza Begum**
Prof. & Head, Department of Gynae and Obs.
 - 4. Prof. Dr. Rawshan Ara Begum**
Prof., Department of Physiology
 - 5. Dr. Syed Mamunur Rahman**
Asso. Prof., Department of Forensic Medicine
 - 6. Dr. Motiur Rahaman**
Asso. Prof. & Head, Department of Community Medicine

- Members :**
- 1. Prof. Dr. Shamsun-nahar**
Prof. & Head, Department of Anatomy
 - 2. Dr. Ayesha Nasrin Suravee**
Asso. Prof., Department of Surgery
 - 3. Dr. Md. Ghulam Yusuf**
Asso. Prof., Department of Medicine
 - 4. Dr. Mst. Arefa Aktar**
Asstt. Prof., Department of Microbiology
 - 5. Dr. Shah Ahasanul Imran**
Asstt. Prof., Department of Community Medicine



RANGPUR COMMUNITY MEDICAL COLLEGE JOURNAL

(RCMC JOURNAL)

July 2019

Vol. 2

No. 2

Advisory Board

1. **Nazmul Ahsan Sarker**
Managing Director, Rangpur Group
2. **Prof. Dr. Maksuda Khatun**
Prof. & Head, Department of Pharmacology & Therapeutics
3. **Prof. Dr. A.K.M. Hanif Chowdhury**
Prof. & Head, Department of Cardiology
4. **Prof. Dr. Md. Aminul Islam**
Prof. & Head, Department of Surgery

Ethical Board

1. **Prof. Dr. Afruza Bulbul Akhtar**
Principal & Professor, Department of Anatomy
Rangpur Community Medical College
2. **Prof. Dr. Md. Shamsuzzaman**
Prof. & Head, Department of Pathology
3. **Dr. Md. Abdul Hakim**
Asso. Prof. & Head, Department of Forensic Medicine
4. **Dr. Md. Rezaul Alam**
Asso. Prof., Department of Dermatology & Venerology

List of Reviewers

1. **Prof. Dr. Md. Zakir Hossain**
Prof. & Head, Department of Medicine
Shaheed Ziaur Rahman Medical College, Bogra
2. **Prof. Dr. Selina Anwar**
Prof. & Head, Department of Anatomy
Rangpur Medical College
3. **Prof. Dr. Parveen Sultana**
Prof. & Head, Department of Biochemistry
Rajshahi Medical College
4. **Prof. Dr. Md. Shah Alam**
Prof., Department of Microbiology
Rajshahi Medical College

Exercise, you must know about it

Mostafa MMAW¹

Exercise is a physical stress during which synchronous movement of musculoskeletal system, affecting cardiovascular, respiratory and metabolic system principally¹. During exercise, there is an increase in metabolic needs of osteoskeletal tissue along with, more or, less other tissues of the body. Various adjustments or autoregulation are happened during exercise^{1,2,3}.

1. Supplying of various nutrients and oxygen to acting tissue involved in exercise.
2. Prevention of during exercise body temperature beyond the physiological limit.

Types of exercise-

Exercise is generally classified into two types depending upon in the muscular contraction.

1. Dynamic exercise.
2. Static exercise.

Based on the type of metabolism involved exercise again two-

1. Aerobic exercise.
2. Anaerobic exercise.

On the basis of severity of exercise, eventually it is grouped-

1. Mild exercise.
2. Moderate exercise.
3. Heavy or, severe exercise.

Dynamic exercise-

Dynamic exercise primarily involves the isotonic muscular contraction. It keeps the joints and muscle on moving. Examples are swimming, bicycling, walking etc. Dynamic exercise involves external work, which is the shortening of muscle fibres against load. In this type of exercise the heart rate, force of contraction, cardiac output and systolic blood pressure is increased, unaltered or, decreased. It is because, the diastolic blood pressure variation of peripheral resistance depend upon the degree of severity of exercise.

Static exercise-

It involves isometric muscular contraction without movement of joints. Example is pushing heavy object.

1. Professor & Head, Dept. of Physiology
Rangpur Community Medical College, Rangpur.

* For Correspondence

Static exercise does not involve external work. During this exercise, both systolic and diastolic pressure increases^{1,2,3,4}.

Aerobic and anaerobic exercise-

This grouping is done on the basis of categories of metabolism involved, like the process concern more oxygen consumption and less oxygen consumption.

Aerobic exercise-

This group of muscle works are with lower intensity of prolong period. Energy is utilized by more oxygen supply and burning of nutrients from glycogen store. After exhaustion of the glycogen store depot fat mobilized for energy. The example of this aerobic exercise are-

1. Fast and brisk walking.
2. Jogging
3. Running
4. Bicycling
5. Football
6. Swimming
7. Any outdoor game.

Anaerobic exercise-

Anaerobic exercise involves exertion for short periods followed by intervals of rest. It uses the muscles at high intensity and a high rate of work for short period. Body obtains energy by lowering muscle glycogen without oxygen. Hence it is an anaerobic exercise. Anaerobic exercise helps to increase the muscle strength. In this exercise muscle glycogen break down occurs without oxygen and produce lactic acid which leads to fatigue^{2,3,4,5,6}. Thus during this exercise pause of rest is needed. The example of this aerobic exercise are-

1. Pull up.
2. Push up.
3. Weight lifting.
4. Other modern instrumental strenuous exercise for body building^{2,3,4,5,6}.

Isotonic exercise is those where body movements are performed. The two types of isotonic contractions are-

1. Concentric isotonic, where a muscles shortness and produces movement (flexion of elbow).
2. Eccentric isotonic, where a muscle gradually lengthens while continuing to contract (weight lifting).

Isotonic exercise much tension is generated without shortening of muscle^{3,4}.

The WHO grading of muscular exercise according to heart rate and relative load index^{2,3} (Percentage of maximum oxygen utilization) RLI is as follows-

Table I:

S.No	Grade	Heart rate per minute	RLI % of maximum oxygen consumption
1.	Mild	<100	<25
2.	Moderate	100-125	25-50
3.	Heavy	126-150	51-75
4.	Severe	>150	>75

Exercise: Significantly reduce morbidity and mortality. Regular exercise has both direct and indirect effects on organ and systems of all of which contribute a good health benefits^{3,4,5,6}.

Direct effects-

1. Improve myocardial efficiency.
2. Lower blood pressure.
3. Better insulin sensitivity and glucose control.
4. Correction of dyslipidaemia.
5. Decrease LDL level.
6. Increase HDL level very significantly.

Indirect effects-

1. Better stress management.
2. Improve immune system.
3. Improve osteoarthritic condition.
4. Remarkably reduce obesity.

30-45 minutes of aerobic exercise, 3-5 times per week sufficiently signify the health benefit and decrease the cardiovascular mortality.

According to the American College of Sports Medicine any exercise (such as walking, swimming, cycling, rope skipping, machine based muscle work etc.) that involves the use of large muscle groups over prolonged periods and in rhythmic and aerobic in nature improves health and reduce risk of cardiovascular diseases. One should select exercise that is enjoyable, effortable, readily available for participation and ideally has a limited risk of injury.

For all ages walking has continually proved to be one of the best exercise for cardiovascular diseases prevention.

If a 70 kg man performs 30 minutes aerobic exercise at an intensity level of 8 METS, he burns a total of 294 Kcal (9.8 Kcal/minx30)^{2,6,7,8}.

METS stands for metabolic equivalents'. It is used to express exercise intensity. Low intensity is 3-4 METS. Moderate is 6-8 METS^{2,3}.

Average exercise body temperature may increase upto 106°F.

According to WHO work done during exercise, categorized as-

Mild exercise: 150-250 watts.

Moderate exercise: 350-500 watts.

Heavy & severe exercise: >550 watts.

If during exercise the subject feels discomfort, fatigue and pain in legs, breathlessness, giddiness, suffocation etc. the performer must discontinue the exercise.

Exercise which causes positive alteration in cardiovascular, respiratory and metabolic activities, certainly very much food for health. The summaries of effects of cardiovascular system-

1. In blood volume-

More heart rate produced during exercise and thermoregulatory system is quick activated which in turn causes loss of profuse sweat leading to-

- I. Fluid loss.
- II. Reduced blood volume.
- III. Haemoconcentration.
- IV. Severe exercise occasionally causes dehydration.

2. On the heart rate-

Heart rate increases during exercise, due to impulses of cerebral cortex to medullary V.M.C which reduce vagal tone.

In moderate to severe exercise, the heart increase above maximum effecting rate, very occasionally (180-260/min). This increase heart rate is mainly because of vagal withdrawal and increased sympathetic tone.

Increased heart rate during exercise is due to four basic factors-

- I. Impulse from proprioceptors present in the musculoskeletal system active during exercise mediated through higher center.
- II. Increased carbon di-oxide tension, which acts through medullary chemosensitive center.
- III. Rise in body temperature which acts on cardiac center via hypothalamus and directly stimulates SA node.
- IV. Circulating catecholamines which are secreted in large quantities during exercise^{3,5,6,7,8}.

3. On cardiac output-

Due to withdrawal of vagal tone and increased catecholamine, higher rate and more force of contraction according to Frank-Starling's law, increase stroke volume. This successively increases the cardiac output^{3,6,7}.

4. On venous return-

Venous return increases remarkably during exercise because of muscle pump, respiratory pump and splanchnic vasoconstriction.

5. On blood flow to skeletal muscle-

There is a great increase in the amount of blood flowing to skeletal muscles during exercise. In resting condition, the blood supply to the skeletal muscles is 3-4 ml/100 gm of muscle per minute. It increases upto 60-80 ml in moderate exercise and upto 90-120 ml in severe exercise. During the muscular activities, blood decreases when muscle contracts. In between the contractions, the blood flow increases. Blood supply to the muscles being to rise, at the preparation of exercise, due to increase sympathetic activities which cause vasodilation in muscle^{1,6,8,11,13}.

The sympathetic nerve fibres causing vasodilation in skeletal muscle are sympathetic cholinergic fibers, since this fiber secretes acetylcholine instead of nor-adrenaline. Several other factors also are responsible for increase of blood flow to muscles during exercise. These all factors cause this increase by means of vasodilation and factors-

- I. Hypercapnea.
- II. Hypoxia.
- III. Potassium ion.
- IV. Metabolites like lactic acid.
- V. Rise in temperature.
- VI. Increased sympathetic cholinergic activity.

6. On blood pressure-

Blood pressure is greatly affected during the work of exercise. Fortunately this event is greatly variable in the exercising subject, according to the grade of performance of work, like mild, moderate and severe exercise.

Exercise increases the heart rate, force of contraction of myocardium, alters vasomotor tone and skeletal muscle blood flow. In mild exercise reveals simple changes in blood pressure due to heart rate and cardiac output. Moderate exercise shows significant rise of systolic blood pressure and diastolic pressure may not change. But

moderate exercise involves isometric contraction, the peripheral resistance increases. So the diastolic pressure also increases along with systolic pressure. During severe exercise, involving isometric muscular contraction, the systolic pressure enormously increases, but the diastolic pressure significantly decreases. Decrease in diastolic pressure resting level, because of the decrease in peripheral resistance due to vasodilation caused by metabolites.

Respiratory system:

Exercise has very potent positive effect on respiratory system. This eventually increases the ventilation and perfusion to the level of zone 2 circulation. Very much improvement to Haldane and Bohr effect regarding the transport of respiratory gases for the supply of oxygen to the metabolically active tissues. The 2-3 DPG level also significantly rises during any grade of exercise, which refreshingly increases dissociation of oxyhaemoglobin and fulfill the metabolic demand^{1,8,17,18}.

Metabolic system:

Rise of BMR is noted to all grade of exercise. Correction of dyslipidaemia is significant effect of exercise, which prevents unwanted stress, atherosclerosis and coronary syndrome. For increasing the circulating HDL level exercise is always, as it is the best shield to protect the LDL, the notorious cholesterol.

Exercise prevents senescent process and slows the aging. Free radicals removed as the action of antioxidants'.

Now one consider these whole thing either completely or partially, easily it could be understood modern life cannot ignore the exercise of better of own discipline. So exercise the event, you must know about it^{6,11,12,13,14,15,16,19}.

References:

1. Essential of Medical Physiology 6th edition K Sembulingam, Prema Sembulingam.
2. Physiology. Prep manual for undergraduates 4th edition Vijaya D Gosh, Sadhana Gosh-Mendhurwar.
3. A test book of practical physiology edition. C.L Gai. and biochemistry 7th edition . Dr. B.K Agarwala, Dr. R.K agarwala.
4. Hand book of practical physiology and biochemistry 7th edition . Dr. B.K Agarwala, Dr. R.K agarwala.
5. An introductory text of respiration 4th edition. Gulins H.
6. Physiology. Ewadar E. Selkert. 5th edition.

7. Davidson's Principles and Practical of 19th edition. Medicine.
8. Concise Medical Physiology 6th edition. Sujit K. Chowdhary.
9. Ganong's Review of Medical Physiology. 23rd edition.
10. Text Book of Medicial Physiology. 11th edition. Guyton and Hall.
11. Carlson L.A. Serum lipids in men with myocardial infraction. Actamedica Scandanavica. 1960; Vol. 167, 6, 399-413.
12. Abrink MJ; Meigs J.W and Man E.B. Serum lipids, hypertension and coronary artery disease. Am J, Med 1961; 31:4-23. 4-23.
13. Assmann G. Lipid Metabolism and Atherosclerosis. Schattauer Verlag; Stuttgart. Germany, 1982.
14. Brown F.D; Kinch H.S and Doyle T.J. Serum triglyceride in health and in ischemic heart disease. The N Engl. Jour. Of Med. 1965 Vol. 273 No. 18, 947-52.
15. Canner K. Paulin S. and Werko L. Coronary Angiographic finding in correlation with age, Bodywight, Blood pressure, Serum lipids and smoking. Circulation, 1966, 33, 888-900.
16. Cotran R.S, Kumar V. and Robins S.L (edrs). Robins pathologic basis of disease, 4th edn. WB Saunders Company Philadelphia, 1989.
17. Abrink M.J. Triglyceride, lipoprotein and coronary artery disease. Archives of internal Med. 1992, 109; 345-59.
18. Cambien F. A; Jacqueseson J.L, Richard J.M, Warent P. Is the level of serum triglyceride a signicicant predictor of coronary cleat in "normocholesterolemic" Subjects ? American J of Epidemislog. 1986.
19. Carlson LA and BottigerL.E. Ischemic heart disease in relation to fasting values of plasma triglycerides and cholesterol. The lancet, 1972; 22. 206.
20. Datta C.K and Chakrabarti B.K. Studies on serum beta lipoprotein in normal and in ischemia heart disease. Ind. Jour. Med. 1969. Vol. 57, 11; 2118-2 1.

Role of Widal Test in Diagnosis of Enteric Fever

*Aktar A¹, Shahriar A², Afrin M³, Rinta RM⁴, Nausin R⁵, Rahman M⁶

Abstract:

Background: Enteric fever is a major health problem in developing countries and its diagnosis on clinical ground is difficult. Diagnosis in developing countries including Bangladesh is mostly done by Widal test. However, the value of the test has been debated Hence evaluation the result of this test is necessary for correct interpretation of the result.

Objective: The main aim of this study was assess the efficacy of Widal test for the diagnosis of enteric fever.

Materials and Methods: A Total of 200 samples of blood from suspected cases of enteric fever, 40 hwealthy and 40 febrile controls in the Department of Microbiology of Rajshahi Medical College during the period from October 2013 to September 2014 to assess the efficacy of Widal test for the diagnosis of enteric fever.

Results: In suspected cases, positive Widal test in 63(31.5%) cases. Out of 63 Widal test positive cases 10(12.5%) were in first week, 38(42.2%) in second week and 15(50%) in third week. In healthy and febrile controls the Widal test was positive in 01 (2.5%) and 05 (12.5%) cases and all were in second week. Among 63 (31.5%) Widal test positive cases, 21(19.56%) and 10 (41.66%) were found in age group 11-20 years and 21-30 years respectively. Male and female ratio in Widal test positive cases was 1.2:1.

Conclusions: The sensitivity and specificity of blood culture is much higher than Widal test. But blood culture facility is not available in all part of our country so we have to depend upon the Widal test for the diagnosis of enteric fever and its complicated cases.

Key word: Enteric fever, Widal test.

Introduction

Enteric fever is a life threatening systemic infection occurring in many developing countries of the world and continues to be a major public health problem¹. Although it has world-wide distribution but affects mainly the people living in warm climate having defective sewerage system and lack of safe drinking water. The disease is endemic in Indian subcontinent including Bangladesh with a high incidence among pediatric population². In first week patients of enteric fever present with fever, relative bradycardia, malaise, headache and cough. Abdominal pain is notice in a quarter of cases. There is leucopenia, with eosinopenia and relative lymphocytosis. Blood culture may be positive. In the second week of illness, the

patient present with high fever (around 104°F), bradycardia. Rose spots appear on the lower chest and abdomen in around one third of patients. There are diarrhea and rhonchi in lung bases. The abdomen is distended and painful. The spleen and liver are enlarged. The Widal reaction is strongly positive with anti O and anti H antibodies. Diagnosis of enteric fever still remains a problem. The clinical presentation is vague and non-specific in most of the cases and which may mimic other bacterial and viral infections. A variety of serologic test for the antigen and antibody detection such as countercurrent immune electrophoresis is a serological test based on electrophoresis. Here specific salmonellae antigen and patient antibodies are moved by electrophoresis and a visible band is formed at the optimum concentration of antigen and antibody. Its sensitivity is similar to that of the Widal test but bands are often difficult to see and the cost is higher than that of the Widal test.

TyphiDot is another rapid test used for the diagnosis the enteric fever even in areas with limited resources but not cost effective as Widal. The TyphiDot is a DOT enzyme immunoassay (Typhidot and Typhidot-Mt; Malaysian Biodiagnostic Research SDN BHD, Kuala Lumpur, Malaysia) that detects either IgM or IgG antibodies against a specific antigen on the outer membrane protein

1. Assistant Professor, Dept. of Microbiology, Rangpur Community Medical College. Mobile: 01731241390; E-mail: arefaakter567bd@gmail.com.
2. Assistant Professor, Dept. of Orthopedics, North Bengele Medical College Sirajgonj.
3. Assistant Professor, Dept. of Microbiology, Diabetic Association Medical College Faridpur.
4. Assistant Professor, Dept. of Biochemistry, Rangpur Community Medical College.
5. Assistant Professor, Dept. of Microbiology, International Medical College Tongy.
6. Assistant Professor, Dept. of Microbiology, Rajshahi Medical College.

*For correspondence

of serotype *Salmonellae typhi*. Some studies showed that the Typhidot and Typhidot-Mt gave superior results to the Widal test with higher sensitivity and specificity⁴. If this method a large number of cases over 6000 has no advantage over the Widal test and problems with the quality control of different batches of kits⁵.

The TUBEX test is a colorimetric method for the diagnosis of enteric fever but it gives false positives reaction in persons with recent *S. enteritidis* infection¹¹. Among the currently available commercial kits trialed in developing countries, TUBEX seems to perform best¹⁵ but none may actually be better than the 100-year-old Widal test⁵.

Widal is a serological diagnostic test for the detection antibody against somatic and flagella antibody in enteric fever patients. The name Widal came from the name of scientist founded in 1896 Georges FarnandIsidore Widal. It is an agglutination test demonstrating the presence of antibodies concentration against lipopolysaccharide somatic and flagellar H antigen in the serum of a patient using suspensions of somatic O and flagellar H antigens¹⁹. Commercial kits are available for the diagnosis of *Salmonella typhi*, *Salmonella paratyphi* A, B, and C. The recommended method of performing the Widal test by the tube agglutination technique where serial two-fold dilutions of serum from 1:20 to 1:1280 are tested⁷. Now a day, a rapid slide agglutination test is most commonly used technique in local laboratories and hospitals because of its convenience. The Widal test has been used extensively in the serodiagnosis of enteric fever and remains the only laboratory test available in most developing countries⁸.

One of the major drawbacks of Widal test is cross-reactivity to other bacteria of same genus and gives false positive results. So the positive results must correlate clinically before prescribing medicine. Sometimes before confirmed diagnosis antibiotic treatment start and bacteria might not be isolated from blood culture and the diagnosis relies on a combination of clinical features. In such cases, the detection of antibodies to *Salmonellae* might be the only way of confirming the clinical diagnosis⁸.

As, facilities, are not available, particularly for the blood culture in the majority of developing countries, Widal test remains a valuable tool, and the most useful complimentary test for clinical diagnosis of enteric fever¹⁶.

The use of the Widal test to diagnose enteric fever should therefore be limited to situations in which there is no other confirmatory supportive test, such as positive culture.

Similarities between typhoidal and non-typhoidal *Salmonellae* antigens mean that a serological method of diagnosis is the least accurate for enteric fever. Due to the inexperience some clinicians in endemic countries, many cases of pyrexia of unknown origin receive the diagnosis of enteric fever, based upon a false-positive Widal test result rather than a positive culture of *Salmonellae*.

Widal test is still used in the diagnosis of enteric fever and this study is the first one done to develop local recommendations for the interpretation of Widal results, in relation to blood culture to help physicians and lab personnel interpret the Widal results. Since the Widal test is easy to perform, inexpensive, and requires no specific equipment and minimal training of staff. It will be a useful as complimentary test for clinical diagnosis of enteric fever or in patients who have clinical enteric fever, but are culture negative or in localities where bacterial culturing facilities are not available.

Materials and Methods

A Total of two hundred (200) samples of blood from clinically suspected cases of enteric fever of different ages and sexes and 40 healthy and 40 febrile controls were included in this study. The patients were selected according to clinical features which include fever, chills, rigor, altered bowel habit, rose spot on the trunk, bradycardia, headache, myalgia etc. Cases having fever for 5 to 7 days with at least one of the above clinical features were considered as suspected cases of enteric fever. Widal test was done for all suspected cases using the serum sample. Rapid slide titration method using Murex reagents⁶ containing O and H antigens of *Salmonella typhi* and H antigens of *Salmonella paratyphi* A and B, with serial dilution of sera beginning at 1: 20 was done for Widal test¹².

These tests were also done for the controls and other patient with febrile condition.

Materials and Methods:

A Total of two hundred (200) samples of blood from clinically suspected cases of enteric fever of different ages and sexes and 40 healthy and 40 febrile controls were included in this study. The patients were selected according to clinical features which include fever, chills, rigor, altered bowel habit, raised spot on the trunk, bradycardia, headache, myalgia etc. (Edwards et al., 1995). Cases having fever for 5 to 7 days with at least one of the above clinical features were considered as suspected cases of enteric fever. Widal test was done for all suspected cases using the serum sample. Rapid slide titration method using Murex reagents (Murex Biotech

limited, UK) containing O and H antigens of *Salmonella typhi* and H antigens of *Salmonella paratyphi* A and B, with serial dilution of sera beginning at 1: 20 was done for Widal test (Quiroga et al., 1992).

These tests were also done for the controls and other patient with febrile condition.

Results:

A total number of 200 clinically suspected cases of enteric fever and 80 controls were studied, which contain 40 febrile controls and 40 healthy controls.

Table-I: Widal test in suspected cases and controls

Total number of cases	Widal test
Suspected cases N=200	63(31.5%)
Healthy control N=40	08 (20.0%)
Febrile control N=40	18(45.0%)

N=Number

Table I shows Widal test in suspected cases and controls. Among the suspected cases Widal test was positive in 63(31.5%). In healthy and febrile controls Widal test were positive in 8(20.0%) and 18(45.0%) respectively.

Table-II: Age distribution of Widal test positive in suspected cases.

Age groups (years)	Widal positive cases
Up to 10 N=22	7(31.81%)
11-20 N=92	21(19.56%)
21-30 N=24	10(41.66%)
31-40 N=26	11(42.30%)
41-50 N=14	6(42.85%)
>50 N=22	8(36.36%)
Total=200 (100)	63(31.5%)

N=Number

Table-II shows age distribution of Widal test positive in suspected cases. There were six age groups. Highest number of {15(16.30) +5(20.83)} culture positive cases were found in age group 11-20 years and 21-30 years. Lowest cases in age group are up to 10 years and above 40 years.

Table-III: Sex distribution of Widal test positive cases.

Sex	Widal test positive cases
Male N=116	39(33.62%)
Female N=84	24(28.57%)
Total=200(100%)	63(31.5%)

N=Number

Table-III shows sex distribution of Widal test positive cases. Among 63 (31.5%) Widal test positive cases, 39(33.62%) were male and 24(28.57%) were female. Male and female ratio in Widal test positive cases was 1.2:1.

Table-IV: Distribution of Widal test in different weeks.

Suspected cases	Widal test positive cases
H/O fever in first week N=80	10 (12.5%)
H/O fever in second week N=90	38 (42.2%)
H/O fever in third week N=30	15 (50.0%)
Total = 200	63(31.5%)

N = Number

H/O = History of

Table IV shows distribution of Widal test positive cases in different weeks. Among 200 suspected cases, history of fever in first week was in 80 cases, history of fever in second week was in 90 cases and history of fever in third week was in 30 cases.

Among 80 suspected cases (history of fever-1 week), Widal test positive cases was in 10 cases (12.5%). Out of 90 suspected cases (history of fever-2 week), Widal test positive cases was in 38 cases (42.2%). And among 30 suspected cases, Widal test positive was in 15 cases (50.0%).

Discussion:

Enteric fever is endemic in many developing countries particularly in the Indian subcontinent including Bangladesh (Rockhill et al., 1980; Saha et al., 1996).

It is a dreaded disease because of its long course and associated complications if not detected and treated early (Martinez and Ludan, 1996). Enteric fever changed its clinical features due to drug resistant *Salmonellae* leading to difficulty in clinical diagnosis (Butta et al., 1991; Butta 1996). The gold standard in the diagnosis of enteric fever is the isolation of *Salmonellae* from the clinical samples e.g. blood, stool & urine. However, isolation of the organism takes at least 72 hours and the rate of recovery by conventional culture method is often unsatisfactory, hence limiting its use in confirms diagnosis (Rubin and McWhirter, 1990). Widal test, a test has become the most useful test in the diagnosis of enteric fever in endemic areas of the developing countries where culture facilities are limited (Aquino et al., 1991).

In our study among the suspected cases, positive Widal test in 63(31.5%) cases. Our study is nearly similar with the study of Andualem et al., (2014), where positive Widal test was 39.0% cases. Our study is differs with the study of Sanjeev et al., (2013) where positive Widal test was 156(78.0%). This difference may be due to that the patient may suffer from subclinical infection with *Salmonellae*. Among the healthy control, Widal test is positive in 08(20.0%) cases and in febrile control, Widal test is positive in 18(45.0%) cases. Our study is nearly similar with the study conducted by Shahidul et al., (2011) in Bangladesh. They showed 25.0% Widal test positive in healthy control and 61.0% in febrile control. Our study differs with the study of Koeleman et al., (1992). They showed 6.0% Widal test positive in healthy control and 21.0% in febrile controls. This difference may be due to the people of that locally have well managed sewerage system and safe drinking and food habit.

In this study Widal test positive cases are 21(19.56% and 10(41.66%) and found in age group 11-20 years and 21-30 years. Similar result was reported by Krati et al., (2001) and their observation was Widal test positive cases were 36 (50.0%) and 30 (32.35%) in age group 15-30 years and >30 years. This difference may be the patients of this age are student or active worker so they have to take food from street hawkers (Pang et al., 1992).

In this study the male and female ratio for Widal test positive cases is 1.2:1. Our study is nearly similar with the study of Roohi et al., (2009). They showed male and female ratio for Widal test positive cases was 1.2:1. But study done by Ramyil et al., (2002) showed the male and

female ratio Widal test positive cases was 0.8:1 which is dissimilar with our study. This is probably the male are over cautious about their personal hygiene and safe food than that of female.

The present study shows that among suspected cases, maximum 38(42.2%) number of positive Widal test in 2nd week and fewer in 1st 10(12.5%) and 15(50.0%) in 3rd weeks. Nearly similar studies are reported by Krishna, et al., (2011) and their finding was 79.0% Widal test positive in 2nd weeks. In both controls of present study Widal positive in 2nd weeks only. *Salmonella typhi*, the causative agent of enteric fever is most frequently isolated from blood during the 1st wk of illness as it disappear from the peripheral blood during the initial days of 2nd week and 3rd week (Baker et al., 2010). Widal test is usually positive in 2nd weeks of illness as in primary immune response antibody appears within 14 days and secondary immune response within 2-4 days. Beside that patient take antibiotic in first week (Olopoenia & King, 2000).

So, we conclude that Widal test is still used in the diagnosis of enteric fever and this study is the first one done to develop local recommendations for the interpretation of Widal results, in relation to blood culture to help physicians and lab personnel interpret the Widal results. Since the Widal test is easy to perform, inexpensive, and requires no specific equipment and minimal training of staff, it will be a useful as complimentary test for clinical diagnosis of enteric fever, or in patients who have clinical enteric fever, but are culture negative or in localities where bacterial culturing facilities are not available.

Conclusion:

It may be concluded that enteric fever cases are not uncommon in this locality. A good number of patients of different ages and both sexes suffer from enteric fever every year. Widal test is easy to perform inexpensive, and require no specific equipment and minimal training of staff, it will be a useful complimentary test for the diagnosis of enteric fever, or in patients who have clinical enteric fever, but culture negative or in localities where bacterial culturing facilities are not available.

Reference:

1. Hatta M., Goris M.G., Heerkens J., Smits H.L. 'Simple dipstick assay for the detection of salmonella typhi specific IgM antibodies and the evolution of the immune response in patients with typhoid fever', *Am J Trop Ned Hyg*, 2002; 66: 416-21.
2. Saha S.K., Darmstadt G.L., Baqui A.H., et al. 'Rapid Identification and Antibiotic Susceptibility Testing of *Salmonella enteric* Serovar Typhi Isolated from Blood:

- Implication for Therapy', *J ClinMicrobiol*, 2002; 39(10): 3583-3585.
3. Saha S.K., Baqui A. H., Hanif M., et al. 'Typhoid fever in Bangladesh: implications for vaccination policy', *Pediatr Infect Dis J*, 2001; 20: 521-524.
 4. Bhutta Z.A., Mansurali N. 'Rapid serologic diagnosis of pediatric typhoid fever in an endemic area: a prospective comparative evaluation of two dot-enzyme immunoassays and the Widal test', *Am J Trop Med Hyg*, 1999; 61:654-7.
 5. Wain J, Hosoglu S. 'The laboratory diagnosis of enteric fever', *J Infect Developing Countries*; 2008; 2(6): 421-425.
 6. Dutta S., Sur D., Manna B., Sen B., Deb A.K., et al. 'Evaluation of new-generation serologic tests for the diagnosis of typhoid fever: data from a community-based surveillance in Calcutta, India', *DiagnMicrobiol Infect Dis*, 2006; 56:359-65.
 7. Anagha K, Bhalerao D, Shariar R, Kulkarni S. 'The easy and early diagnosis of typhoid fever', *J ClinDiagnRes*, 2012; 6: 198-199.
 8. Chart H., Chesty T., de Pinna E., Siorvanes L., Wain J., et al. 'Serodigagnosis of salmonella', *J Med Micro Biol*, 2007; 56: 1161-6.
 9. Watson K.C. 'Lab. & Clinical investigation of recovery of S.typhi from blood', *J ClinMicrobiol*, 1978 Feb; 7(2): 122-126.
 10. Olopoenia L.A., King A.L. 'Widal agglutination test - 100 years later: still plagued by controversy', *Postgrad Med J*, 2000; 76(892): 80-84.
 11. Oracz G., Feleszko W., Golicka D., Maksymiuk J., Klonowska A., et al. 'Rapid diagnosis of acute Salmonella gastrointestinal infection', *Clin Infect Dis*, 2003; 36: 112-5.
 12. Angulo F.J., Tauxf R. and Swaminathan B. 'Salmonella Nomenclature', *J ClinMicrobiol*, 2000; 38: 2465-2467.
 13. Carol, A., Joseph O. A. and Palmer R.S. 'Outbreak of Salmonella infection in hospitals in England and Wales', *Br, Med J*, 1989; 289: 1161-1164.
 14. Krishna S., Desai S., Anjana V.K., Paranthaaman R.G. 'Typhot (IgM) as a reliable and rapid diagnostic test for typhoid fever', *Ann Trop Med Pub Health*, 2011; 4: 42-44.
 15. Olopoenia L.A., King A.L. 'Widal agglutination test-100 years later: still plagued by controversy', *Postgrad Med J*, 2000; 76: 80-4.
 16. Singh A. and Mcfeters G. 'Detection methods of water borne pathogens', In: Mitchell, R., (ED), *Environmental microbiology*. Wiley-Liss, New York, 1992; pp: 125-189.
 17. Rubin F and McWhirter P. 'Rapid Diagnosis of Typhoid fever through identification of Salmonella typhi within 18 hours of specimen acquisition by culture of the mononuclear Cell-platelet Fraction of Blood', *J of ClinMicrobiol*, 1990; 28: 825-827.
 18. Rockhill R.C., Lesmana M., Moechtar M.A., Sutomo A. 'Detection of Salmonella Ci, D and Vi antigens by Co-agglutination in blood culture from patients with Salmonella infections', *Southeast Asian J Trop Med Publ HLTH*, 1980; 11: 441-445.
 19. Olsen S.J., Pruckler J., Bibb W., Thi MY Thanh N., TiMinh N., et al. 'Evaluation of Rapid Diagnostic Tests for Typhoid fever', *J Clin Microbial*, 2004; 42: 1885-1889.
 20. Shukla S., Patel B., Chitnis D.S. '100 years of Widal test and its reappraisal in an endemic area', *Indian Med Res*, 1997; 105: 53-7.

Original Article

Clinico-demographic Pattern & Risk Factors of Molar Pregnancy & It's Immediate Outcome of Treatment in a Tertiary Care Hospital of Northern Zone of Bangladesh

*Hasan M,¹ Haque MM,²

Abstract:

Background: Molar pregnancy is the most common form of gestational trophoblastic disease and is potentially malignant. It may endanger the life of mother if not detected early and managed properly.

Objective: The objective of the study is to find out the clinico-demographic pattern, risk factors, treatment and immediate outcome of molar pregnancy.

Materials and Methods: This is a prospective study. During the study period, from July 2013 to June 2015, 30 patients having gestational trophoblastic disease were selected by inclusion and exclusion criteria after getting admission in Gynaecology & Obstetrics Ward of Rangpur Medical College & Hospital and confirmed by history, clinical examination, serum β -hCG level and USG.

Results: Among 30 study subject's age ranged from 17 – 40 yrs. and mean (\pm SD) was 23.86 (\pm 5.42) years. Sixteen patients (53.3%) were between 20 – 30 years age group. Twenty one patients (70%) were multi-parous. Twenty one (70%) study subjects belongs to low socioeconomic status. Thirteen (43%) patients had gestational age between 12 – 16 weeks and on palpation their height of uterus were found between 16 - 20 weeks. O+ve blood group of husbands irrespective of their wife's blood group found to be risk factor. Irregular P/V bleeding was present in 28(93%) of study subjects. Palpable theca lutein cyst were present in 6(75%) which were bilateral and confirmed by USG. Suction and evacuation by electric sucker was done in 23 (78%) patients. Among 30 study subjects 18(60%) had regular follow up upto 6 weeks. Among them 15 patient's pre-evacuation β -hCG value ($>50,000$ mIU/ml) were gradually declined and became normal level within 6 weeks of follow up. Only 3 patient's β -hCG value were raised gradually and they needed chemotherapy.

Conclusion: In our study all the patients were in reproductive age group, majority were multi-parous and came from low socio-economic status. The patients whose height of uterus were more than the gestational age, their pre-evacuation β -hCG value were found to be higher. Suction & evacuation was the preferred mode of treatment and during 6 weeks follow up maximum patient's β -hCG value gradually declined. But accurate follow-up was not possible because of shortage of study period and noncompliance of the patients. So it is advocated longer study period and multi-centric study for better result and to prevent immediate and remote complications of molar pregnancy and hence reduce the maternal morbidity and mortality.

Key words: Molar pregnancy, Gestational age.

Introduction:

Molar pregnancy is characterized by multiple vesicular structure of varying sizes filling and distending the uterus, usually in the absence of an intact fetus¹. It is usually benign form but always regarded as a potentially malignant condition. The gestational trophoblastic disease includes benign hydatidiform moles (complete & partial) and it's malignant counterpart, eg. Choriocarcinoma, invasive moles and placental site trophoblastic tumors. It is more prevalent in the rice - eater zone of South East

Asia specially in Bangladesh. Incidence of molar pregnancy in this geographical area is 1 in 200 hospital deliveries². Molar pregnancy affects women throughout the reproductive age but women aged between 14 – 16 years and over 40 are particularly at risk for developing molar pregnancy. The incidence is increased in Multiparity, malnourished women, patient with low socioeconomic status, debilitated by disease such as tuberculosis, dietary deficiency of carotene, protein and folic acid women with AB blood group is at greatest risk³. A previous mole, strong family history and consanguineous marriage are the risk factors for recurrence of hydatidiform mole and choriocarcinoma⁴.

1. Assistant Professor, Department of Gynecology & Obstetrics, Rangpur Community Medical College, Rangpur.
Mobile: 01712205983, E-mail: mahfilhaque@gmail.com,
2. Assistant Professor, Deptment of Orthopedic Surgery, M. Abdur Rahim Medical College, Dinajpur.

*For Correspondence

Molar pregnancy can be subdivided into complete and partial moles based on genetic and histopathological features. Complete moles are diploid and androgenic in origin, with no evidence of foetal tissue. Partial moles are usually (90%) triploid in origin, with two sets of paternal haploid genes and one set of maternal haploid gene.

The symptom and signs of molar pregnancy are at first those of early pregnancy but general reactions are exaggerated after developing mole. Excessive vomiting, patients losses weight and looks ill, pre-eclampsia, recurrent uterine bleeding and brown discharge are the common symptoms. On examination the uterus is larger than expected for gestational dates, doughy in consistency and does not contract, fetal parts and movement are not felt and fetal heart sound is absent. Occasionally with passage of vesicles in the uterine discharge and bilateral enlargement of ovaries.

Molar pregnancy are usually diagnosed during first trimester. The combination of clinical presentation, pre-evacuation USG findings with elevation of serum β -hCG more than normal pregnancy is highly suggestive of molar pregnancy. But definitive diagnosis is made by the histological examination of the product of conception⁵.

For management purpose further investigations include complete blood count, measurement of creatinine and electrolytes, liver, kidney & thyroid function test and x-ray chest should be done⁶.

Suction, evacuation - preferably by electric sucker and curettage should be done with a wide-bore canula. At least two units of blood should be cross-matched and kept available. An abdominal hysterectomy with the mole in situ may be performed for women aged 40 and who have completed their families and non-compliance for follow up. Other indications of hysterectomy are – profuse bleeding during evacuation procedure, uterus perforated during evacuation, signs of intra-peritoneal haemorrhage due to perforating mole and when no metastasis is found outside the uterus. During hysterectomy ovaries should not be removed because ovaries regress spontaneously after removal of mole.

Routine repeat evacuation after the diagnosis of molar pregnancy is not needed. A routine USG of the uterus should always be done one week after evacuation of mole. If there is retained product, then a check Dilatation & Curettage under anesthesia should be done.

48 hours post evacuation follow up of molar pregnancy by quantitative β -hCG monitoring is mandatory. Serum β -hCG levels should be assayed every week after evacuation till 3 consecutive serum β -hCG become negative. Then monthly for 6 consecutive months. Along with β -hCG report

regular check-up including history, clinical examination including bimanual examination should be done. A chest x-ray can be done before evacuation and if the β -hCG rises, after evacuation chest x-ray should be repeated.

During follow-up period contraceptive measures should be instituted, ideally oral contraceptives are advised to avoid pregnancy for 6 months until beta-hCG values have remained normal⁷.

In our country there is no effective registration program but in the year 2000 a molar card was introduced by Obstetrics & Gynaecological Society of Bangladesh for graphical recording of serum beta-hCG level. Introduction of the molar card at the community level may facilitate the referral of the patient with all the information recorded in the card and hence it may prevent developing of Choriocarcinoma.

Materials and Methods:

This is a prospective observational study carried out in department of Obstetrics & gynecology of Rangpur Medical College & Hospital, Rangpur from July 2013 to June 2015 on a total of 30 randomly selected subjects. Women with molar pregnancy admitted in the department of gynecology, Rangpur Medical College Hospital, diagnosed on the basis of clinical examination, beta-hCG and ultra sonogram were included in the study. Patients having heart disease, kidney disease, liver disease, autoimmune disease, Choriocarcinoma, non-gestational Choriocarcinoma were excluded from the study.

After proper counseling informed written consent was taken. Complete history was taken and documented in a preformed data collection sheet. Molar pregnancy was diagnosed by history of amenorrhoea followed by irregular per-vaginal bleeding, exaggerated Signs & symptoms of pregnancy, fundal height larger than the period of gestation and per-vaginal expulsion of vesicular structures. The diagnosis was confirmed by ultrasonogram and serum β -hCG level. After confirmation of diagnosis, most of the patients treated by suction evacuation and gentle curettage. Only two patients needed total abdominal hysterectomy due to severe bleeding during suction - evacuation. Follow up of the patients was done both clinically and biochemically. Thorough physical examination including pelvic examination, estimation of periodic serum β -hCG, X-ray chest and ultrasonogram were conducted. Remission was considered after three consecutive negative serum β -hCG.

The collected data was compiled and findings were presented in the form of tables and graphs. Appropriate statistical analysis of the data was done using statistical

package for social science (SPSS) with proportion test, chi-square test and others where applicable.

Results:

A total number of 30 subjects with molar pregnancy were selected for study. Age range of the subjects was 17 years to 40 years. Mean age ($M \pm SD$) was 23.86 ± 5.42 years. The socio-demographic finding were shown in table-I.

Table I: Socio-demographic profile of the study subjects (n=30).

Parameters	No.	%		Z/P value
Age in years				
<20	11	36.7	a vs b	0.87/NS
20 - 30	16	53.3	b vs c	1.18/NS
30 - 40	03	10.0	a vs c	2.03/<0.05
			(a +b) vs c	4.38/0.001
Level of education				
Illiterate	10	33.3	a vs b	1.42/NS
Primary	17	56.7	a vs c	1.01/NS
Secondary & higher	03	10.0	b vs c	2.38/<0.01
secondary			(a +b)vs c	8.02/<0.001
Socio-economic status				
Low	21	70.0	a vs b	2.61/<0.01
middle	06	20.0	a vs c	3.00/<0.01
High	03	10.0	b vs c	0.42/>0.05
			(a +b) vs c	8.02/<0.001
BMI				
<18.5	03	10.0		
18.5 - 24.9	27	90.0		8.02/<0.001
>25	00			
Parity				
Primi	09	30.0		
Multi	21	70.0		2.13/<0.05

Table I: Shows that, 16(53.3%) women with molar pregnancy were in age group of 20 – 30 years followed by 11 (37%) women in age group below 20 years and only 03(10%) women in age group above 30 years. Significantly higher percentage (90%) of women were below 30 years of age as compared to women above 30 years (10%) of age group ($P<0.001$).

Regarding level of education, significantly higher percentage (90%) women had primary level education as compared to women with secondary and higher secondary level education (10%, $P<0.001$).

Molar pregnancy is more common in low socio-economic group, 21(70%). 06(20%) in middle class and only 3(10%) in higher group. Significantly higher percentage (90%) of women of low and middle class compared to women with higher class (10%), ($P<0.001$). Regarding BMI, it is more common in women with normal BMI, 27(90%). Significantly higher percentage (90%) of women having

normal BMI comparing with women with low BMI (10%) ($P<0.001$). Probably most of the study subjects came from low socioeconomic group. All of them were hard working and none of them were sedentary worker. So, BMI had no effect on molar pregnancy.

Here we found most of the study subjects were multiparous, 21(70%). Significantly higher percentage (70%) of multiparous women as compared to low percentage (30%) of primiparous women ($P<0.05$).

Table II: shows the blood group of the study subjects and their husbands (n=30)

Blood group of study subjects	Number of patients (n = 30)	Husband's blood group with number	Percentage
A +ve	9	O +ve 6 B +ve 3	67% 33%
B +ve	8	O +ve 5 AB +ve 3	63% 37%
AB +ve	6	O +ve 4 B +ve 2	67% 33%
O +ve	7	A +ve 4 B +ve 3	57% 43%

Blood group of wife	Blood group of husband		χ^2	p value
	O +ve	Non 'O'		
Non 'O' ($n_1=23$)	15	8	6.707	< 0.01
'O' ($n_2=7$)	0	7		

p value < 0.05 is significant

χ^2 = Chi square chart.

Table- II shows that, women with molar pregnancy having A +ve, B +ve and AB +ve blood group, and their husband had O +ve blood group was 66%, 63% & 67% respectively. Those patients who have A, B & AB blood group and their husband of O+ve blood group had higher rate of molar pregnancy. ($\chi^2/P = 6.707/ < 0.01$) which is statistically significant.

Table III: Presenting complaints of the study subjects having molar pregnancy

Clinical presentations	Number of cases	Percentage (%)
H/O. amenorrhoea	30	100
Irregular prevaginal bleeding	28	93
Hyperemesis	24	80
Pre-eclampsia	14	47
Fundal height		
>gestational age	28	93
<gestational age	02	07
Prevaginal expulsion of vascular structure	12	40

Table III: shows the clinical presentation of molar pregnancy. Among 30 patients all of them, 100% presented with H/O. amenorrhoea, 28 patients (93%) presented with irregular pervaginal bleeding, 24(80%) had hyperemesis, 14 (47%) patients had pre-eclampsia, 28(93%) patients presented with fundal height more than the period of gestation and only 2(7%) patients had fundal height less than the period of gestation due to spontaneous expulsion and 12(40%) patients had complaints of pervaginal expulsion of vesicular structure.

Table IV: Clinical features of the study subjects (n=30).

Parameters	No.	%	Groups	Mean (±SD)	Z/P
Anemia					
Mild	16	53.33	a vs b		0.70 / NS
Moderate	12	40.00	a vs c		2.96/<0.01
Severe	02	06.67	b vs c		1.96/<0.05
			(a+b)vs c		8.23/<0.001
Edema					
Present	14	46.67			0.36 / NS
Absent	16	53.33	a vs b		
Fundal height					
< 20 weeks	26	86.67		17.66 (±3.79)	0.744/<0.01
>20 weeks	04	13.33			

Range
Pulse (per minute) 80 - 100
Systolic BP (mm of Hg) 70 - 140
Diastolic BP (mm of Hg) 60 - 90
Table IV: shows that, Among 30 patients, 16(53.33%) patients were mild anemic. 12(40%) patients were moderately anemic and only 2(6.67%) patients were severely anemic. Significantly higher percentage (93.33%) of mild and moderate anemic patients were compared with low percentage (6.67%) of severely anemic patients (P < 0.001). Edema was present in 14(46.66%) patients and absent in 16(53.33%). Regarding fundal height, majority 26(86.67%) had fundal height <20 weeks and 04(13.33%) had >20 weeks. Comparing with higher percentage of woman (86.67%) whose fundal height was <20 weeks with 13.33% of woman whose fundal height >20 weeks, (P < 0.01). This is probably due to, most of the patients in our study came early due to exaggerated sign symptoms of pregnancy. The range of pulse, systolic blood pressure and diastolic blood pressure was 80 – 100/minute, 70 – 140 mm of Hg and 60 - 90 mm of Hg respectively.

Table V: Correlation of fundal height & serum β-hCG

Parameter	No. of cases	Percentage	Mean (±SD)	Z/P value
Fundal height in weeks (n = 30)				
<20 weeks	26	86.67	17.66 (±3.79)	0.744/
>20 weeks	04	13.33		< 0.01
Pre-evacuation level β-hCG (n=30)				
(Range: 35524–294160 mIU/ml) 112064.5(±79274.9)				
Parameter			'r'	'P'
FH vs β- hCG (n = 30)			0.744	<0.01 ⁸

r = Correlation coefficient,

S = Significant

Table V: shows that among 30 patients, 26 patients (86.67%) had fundal height <20 weeks and 04(13.33%) had >20 weeks. Mean (± SD) of fundal height was 17.66(± 3.79). Significantly higher percentage (86.67%) of women whose fundal height is <20 weeks compared with low percentage (13.33%) of women whose fundal height was >20 weeks (P < 0.01) which is significant. The pre-evacuation of β-hCG range was 35524 – 294160 mIU/ml and their mean (±SD) was 112064.5(±79274.9). Here a positive correlation was seen in between fundal height and β-hCG (Shown in a curve below) which is significant (P < 0.01).

Table VI: Investigation reports (pre-evacuation) of study subjects (n = 30)

Parameter	No. of cases	Percentage	Mean (±SD)
Proteinuria			
1+	16	53.34	
2+	10	33.33	
3+ or more	04	13.33	
Serum β – hCG			
(Range: 35524 – 294160 mIU/ml)			
USG findings			112064.5 (±79274.9)
Theca lutein cyst (n = 8)			
Unilateral	02	25.00	
Bilateral	06	75.00	
X-ray chest (cannon ball shadow)			
Present	00	00	
Absent	30	100	

Table VI: shows that, among 30 study subjects mild proteinuria was present in 16(53.34%), moderate proteinuria was present in 10(33.33%) and 04(13.33%) had severe proteinuria. The pre-evacuation level of β-hCG range was 35524 – 294160 mIU/ml. and their mean (±SD) was 112064.5(± 79274.9). Bilateral theca lutein cyst was found in 06(75%) of study subjects which was

detected by USG. Chest x-ray was done and cannon ball shadow was absent in all patients.

Table VII: Mode of treatment given to the patients

Treatment	No. of cases (n=30)	Percent
Suction and evacuation	23	78
Spontaneous expulsion & gentle curettage	02	06
Hysterotomy	01	04
Total abdominal hysterectomy	02	06
Chemotherapy followed by suction, evacuation	02	06

Table VII: shows that, among 30 patients, most of them, 23(78%) treated with suction & evacuation followed by gentle curettage. In 2 patients (6%) spontaneous expulsion was done, then only gentle curettage was done. Only 1 patient (4%) need hysterotomy due to height of uterus is > 24 weeks. In 2 patients (6%) total abdominal hysterectomy was done for severe bleeding during suction, evacuation.² patients (6%) diagnosed as Choriocarcinoma treated with chemotherapy followed by suction & evacuation.

Table VIII: Monitoring of β -hCG (in mIU/ml) upto 6 weeks post-evacuation.

Serial no.	48 hours after evacuation	2 nd week	3 rd week	4 th week	5 th week	6 th week
1	197310	7446	7003	2801	2408	1778
2	5273	1380	88.68	8.6	6.2	3.5
3	14582	294	32.79	6.67	4.2	2.5
4	38525	25165	7423	850.5	407.50	8.6
5	328300	17500	10700	2104	4705	1380
6	294160	4562.00	15350	850	6.67	4.2
7	65.57	7.79	5.25	2.5		
8	71216	3742	32.79	6.67	4.5	2.5
9	102950	33199	11233	8700	5130	2380
10	455500	4562	2330	16.67	7.8	3.5
11	8000	466	30.93	5.25	2.5	
12	249546	37830	24310	480	32.79	3.5
13	7682.40	9805.80	30.93	2.39		
14	3939.60	401.01	56.32	5.25		
15	228700	61778	20501	11522	3420	7.8
16	3559	67.20	12.20	6.67	5.2	
17	154100	18720	5480	860.1	8.6	2.5
18	547	13.50	5.56	2.39		

Table VIII: shows that, among 30 patients 18 patients (60%) done β -hCG during their follow up & 12 patients (40%) have not regular follow up. Among 18 patients 15 patient's β -hCG were gradually decline which was good prognostic value but only 3 patients β -hCG value is raised, they need chemotherapy.

Discussion:

This prospective cross-sectional study was conducted among the patients who were admitted in the department of Gynae & obs, RpmCH as gestational trophoblastic disease during the period of July'2013 to June'2015. Total 32 patients attending in the outpatient and inpatient department of Gynae & obs. but two patients were declined from the study. This study was conducted to find out the clinicodemographic pattern, risk factor, clinical presentation, treatment and immediate outcome of patients diagnosed as molar pregnancy.

In this study total number of 30 subjects with molar pregnancy were selected. Age range of the subjects was 17 years to 40 years. Mean age (M \pm SD) was 23.86 \pm 5.42 years. 16(53.3%) women with molar pregnancy were in age group of 20 – 30 years followed by 11(37%) in age group below 20 years and only 03(10%) in age group above 30 years. Significantly higher percentage(90%) of women were below 30 years of age as compared to women above 30 years (10%) of age group, here (P<0.001) which is highly significant. Tham et al (2003) in a study estimated that molar pregnancy was more common in extreme maternal age groups⁸. As per their claim, incidence of molar pregnancy increased with maternal age. But in our study 20 – 30 years age group presented the highest incidence. It is our social norms that early marriage and family completed before 30 years. So the pregnancy rate is at >30 years age group is declined now a days.

In this present study, 27(90%) women were primary level educated and only 03(10%) were secondary or higher secondary level educated. Here higher percentage of women (90%) who were primary level educated compared to women with higher secondary level educated (10%) (P <0.001) which is highly significant. In our study we found that most of the patients were primary level educated. Probably due to unawareness and poverty, women were less privileged in this group. About socio-economic status, majority 21(70%) came from low socio-economic group. 06(20%) in middle class and only 3(10%) in higher group. Comparing between major percentage of low and middle class which is 90% with higher class (10%), (P <0.001), which is highly significant. It is due to poverty, superstition and social custom women were married in

early age. Regarding BMI it is more common in women with normal BMI which is 27(90%). Comparing low BMI group (10%) with normal BMI group (90%), ($P < 0.001$) which is highly significant. Lower class people are hard worker and they are not sedentary worker, so they had normal BMI. In a study of Noorieh Sharifi et al (2001 – 2010) found that the study subject who came from low socioeconomic status had lower level of education. They stated that dietary factors including decreasing intake of animal fat & dietary carotene, vit. A are the risk factors for molar pregnancy⁹. There is a strong correlation between educational level and socioeconomic status. In our study those people who had lower educational level they had lower income and more prevalence of molar pregnancy.

Majority of patients in our study were multipara 21(70%), only 9(30%) patients were primipara. Comparing between two groups ($P < 0.05$), which is significant. In a study of Mahruk Fatima et al (2011) showed that most patients were multigravida though hydatidiform mole is more common in primigravida⁹. Another study was done by Ben Temime Riadh et al (2009) among 90% cases of molar pregnancy. They found that molar pregnancy were more frequent in multiparous patients (52.24%)¹⁰. These studies correlate with our study.

In this study, women having A+ve, B+ve and AB+ve blood group had their husband's having O+ve blood group 66%, 63% & 67% respectively. Those patients who have A, B & AB blood group and whose husband's blood group were O+ve have significantly higher rate of development of molar pregnancy. Here ($P < 0.01$) which is statistically significant. In a journal of gestational trophoblastic disease from Wikipedia showed that among ABO blood group, women with A +ve blood have been shown to have a greater risk than women having blood group 'O'¹¹. Another study of Noorieh Sharifi et al (2001 – 2010) found that O +ve was the predominant blood group among the studied patients. In our study we also found that there was a correlation of non-'O' blood group of wife with O +ve blood group of husband. The incidence was higher and they are more risk for developing molar pregnancy. These two studies correlate with our study.

In this present study out of 30 patients all were presented with H/O. amenorrhoea. 28 patients (93%) had irregular per vaginal bleeding, 24(80%) had hyper emesis, 14(47%) presented with pre-eclampsia and 28 patients (93%) had fundal height more than gestational age. 12(40%) had complains of pervaginal expulsion of vesicular structures. Alessandro Cavallere et al (2009) showed that abnormal vaginal bleeding in early pregnancy is the most common presentation, uterus larger for dates (25%), pervaginal

expulsion of vesicles (10%) exaggerated pregnancy symptoms including hyper emesis (10%), hyperthyroidism (5%) and early pre-eclampsia (5%). Another study of Mahruk Fatima et al (2011) found that vaginal bleeding was the commonest symptom (94.2%) apart from amenorrhoea which was present in all the cases, pre-eclampsia and hyper emesis were reported in 12 – 27% and 20 – 26% of patients and occurred almost exclusively in those with markedly elevated β -hCG values and excessive uterine size¹². The results of both the studies were more or less similar to present study.

In our study, among 30 study subjects 16(53.33%) were mild anemic and 12(40%) were moderately anemic and only 2(6.67%) were severely anemic. Significantly higher percentage of patients (83.33%) were mild and moderate anemic compared with only (6.67%) who were severely anemic, here ($P < 0.001$) which is highly significant. Majority of our patients came earlier due to slight P/V bleeding, so, most of them presented with mild anemia. Edema was present in 14(46.67%) patients and absent in 16(53.33%) patients. Regarding fundal height, 26(86.67%) had < 20 weeks and 04(13.33%) had > 20 weeks. Mean (\pm SD) of fundal height was 17.66(\pm 3.79). Here ($P < 0.01$) which is significant. The range of pulse, systolic BP and diastolic BP was 80 – 100/ min, 70 – 140 mm of Hg. and 60–90 mm of Hg. Ben Temime Riadh et al (2009) had shown in a study of 90 cases of GTD. They found 20 patients (22.22%) were anemic. Edema was not found in their cases. Koirala A. et al 2011 in a study of the demographics of molar pregnancy found that among 64 patients in their study 10(15.6%) presented with severe anaemia. In our study the patient who had edema may be due to pre-existing anemia. Most of the patients were multiparous, and due to negative iron balance their anemia is pre-existing. Besides malnutrition and low socio-economic status also causes anemia.

In table VI, regarding investigation reports, 16 patients (53.34%) were presented with 1⁺ proteinuria. 2⁺ proteinuria was present in 10(33.33%) and 3⁺ or more was present in 4 patients (13.33%). Comparing between mild and moderate proteinuria, which is significantly higher (86.66%) with severe proteinuria (13.33%), ($P < 0.001$) which is highly significant. Pre-evacuation β -hCG level was measured in 30 patients and their range was 35524 – 294160 mIU/ml. and mean (\pm SD) of β - hCG was 112064.5 (\pm 79274.9) mIU/ml. In USG finding, theca lutein cyst was found in 8 patients. Among them 06(75%) were bilateral. Chest x-ray was done in all patients. None of them had cannon ball shadow. In our study there was a positive correlation between fundal height and β -hCG

values. The cases where the fundal height were more than the period of amenorrhoea their β -hCG value were found to be high. In a study of Mahrukh Fatima et al (2011) found that excessive uterine size is one of the classical sign of hydatidiform mole. In their study out of 85 patients >70% of cases had size of uterus 4 – 12 weeks greater than gestational age. And >17% cases had size of uterus >12 weeks greater. Excessive uterine size is usually associated with markedly elevated level of hCG from trophoblastic overgrowth. Similarly theca lutein cyst developed in patients with very high β -hCG levels which induce ovarian hyper stimulation and produce bilateral multi-locular ovarian cyst. In their study cyst were found in about 39% of cases out of which 17.64% patients have cysts >6cm in size. This study shows a positive correlation with our study.

In this study most of the patients 23(78%) treated with electrical suction & evacuation followed by gentle curettage. 2 patients (6%) had spontaneous expulsion followed by gentle curettage. Only 1 Patient (4%) needed hysterotomy due to excessive fundal height >24 weeks. Another 2 patients (6%) needed total abdominal hysterectomy due to severe bleeding during suction-evacuation and 2 patients (6%) treated with chemotherapy followed by suction-evacuation as their β -hCG level was rising and diagnosed as choriocarcinoma. It is similar to the study conducted by Mahrukh Fatima et al (2011) where most of the patients, 62(72.9%) were managed by suction, evacuation & curettage. 12 women underwent an elective hysterectomy as they were older than 40 and had completed their family.

In our study we followed up the patients by doing weekly serum β -hCG upto 6 weeks. Within this time out of 30 patients, 18 patients (60%) came for follow up regularly. Among them 15 patients (83%) improved following initial management and their β -hCG were gradually declined. Only 3 patients (17%) whose β -hCG were declined slowly but remained higher than the desired level and treated by chemotherapy. Ben Temime Riadh et al (2009) in a 90 cases study of GTD shows that all patients were monitored with weekly hCG level until non-detectable for 3 weeks and then monthly hCG level until non-detectable for 1 year. β -hCG level became undetectable within 6 weeks(range 4 – 10 weeks). 9 patients (10%) developed non-metastatic gestational trophoblastic tumour. Their follow up showed an hCG level plateau recorded over a 3 week duration. In our study, out of 30 patients, only 18 (60%) came for regular follow up, rest of the patients did not come for regular follow up due to negligence, poverty, less education and unawareness.

Conclusion:

Molar pregnancy has unknown etiology and due to genetic disorder. We can not prevent it but we can prevent choriocarcinoma, the dreadful complication of molar pregnancy by proper studying and timely intervention. A very few studies related to molar pregnancy were done previously in the northern zone. So, this prospective study was done to find out the clinicodemographic pattern, risk factor, management and immediate outcome of patients who admitted in RpMCH during this study period. In our study all the patients were of reproductive age group, multi-parous and came from low socio-economic status. The patients whose height of uterus were more than the gestational age, their pre-evacuation β -hCG value were found to be higher. Suction & evacuation was the preferred mode of treatment and during 6 weeks follow up maximum patient's β -hCG value gradually declined. Early detection and proper treatment of the cases help to prevent the dreadful complications like haemorrhage, shock, infection, pulmonary embolism and perforation. So it is advocated for regular, strict and meticulous follow-up to prevent choriocarcinoma and hence reduce the maternal morbidity and mortality.

References:

1. Decherney AH, Nathan L, Goodwin TM, Laufer N. Current Diagnosis & Treatment, Obstetric & Gynaecology: Gestational Trophoblastic disease. 11th ed, United States of America, McGraw – Hill, 2013, pp859 – 869.
2. BLUE TOP GUIDELINES, OGSB Standard Clinical Management Protocols and Guidelines.
3. Kumar P and Malhotra N. JEFFCOATE'S PRINCIPLES OF GYNAECOLOGY: Gestational Trophoblastic Disease. Jaypee Brothers Medical publisher (p) Ltd; New Delhi; 7th ed, 2008, pp 160 – 173.
4. Chandra Madhudasa, Farkhunda Khursheed and Pushpa Srichand Analysis of Patients with Recurrent Molar Pregnancy in Tertiary Care Hospital. European Journal of Biological Science. 2011, vol. 3(4): pp.102-104.
5. THE MANAGEMENT OF GESTATIONAL TROPHOBLASTIC DISEASE; Royal college of Obstetricians and Gynecologist; Green – top Guideline No. 38, Feb 2010.
6. Cavaliere A, Ermito S, Dinatale A and Pedata R. Management of molar pregnancy. JOURNAL OF PRENATAL MEDICINE. 2009. VOL 3(1). PP 15 – 17.
7. Gerulath AH. Gestational Trophoblastic Disease; SOGC CLINICAL PRACTICE GUIDELINES; 2002; Vol 24(5), pp 434 – 439.
8. B.W.L. Tham, J. E. Everard, J.A. Tidy, D. Drew and B.W. Hancock. Gestational Trophoblastic Disease in the Asian Population of Northern England and North Wales. BJOG:

- An International Journal of Obstetrics & Gynaecology, June 2003, vol.110 pp.555 – 559.
9. Noorieh Sharifi, Soodabeh Shahidsales, Fatemeh Haghighi and Saha Hosseini. Gestational Trophoblastic Disease in North East of Iran: 10 years (2001 – 2010) prospective epidemiological and clinicopathological study.
 10. Ben, Temime, Riadh, Cheehia Abdellatif, Hannachi Wissai, Attia Leila, Makhoulf Taher, Koubaa Abdelhamid. Clinical Analysis and Management of Gestational Trophoblastic Diseases: A 90 Cases Study. International Journal of Biomedical Science .Dec 15, 2009. Vol 5(4), PP 321 – 325.
 11. Wikipedia, the free encyclopedia. Gestational trophoblastic disease.
 12. Mahrukh Fatima, Pashtoon Murtaza Kasi, Shahnaz Naseer Baloch, Masoom Kassi, Shah Mohammad Mari and Mahwash Kassi. Incidence, Management and Outcome of Molar Pregnancy at a Tertiary Care Hospital in Quetta, Pakistan. ISRN Obstetrics and Gynaecology. June 25, 2011.

Original Article

Prevalence of Periodontal Diseases Among the Diabetic Patients in Selective Hospitals of Bogura City

*Ahmad M¹, Islam M², Ahmad MS,³ Akther F⁴, Khan RH⁵, Ahmed S⁶

Abstract:

Background: Periodontal Diseases is one of the most common chronic disorders of infectious origin known in humans. It may present as gingivitis or periodontitis. Periodontal infection is highly prevalent in diabetic patients. Uncontrolled diabetes may result abnormally high prevalence of periodontitis.

Objective: The purpose of the study was to determine the Prevalence of periodontal diseases among the diabetic patients in selective hospitals of Bogura city.

Materials and Methods: This was a descriptive cross sectional study conducted in outdoor and indoor of Diabetology Ward of TMSS Medical College and Rafatullah Community Hospital, Bogura. A total of 300 diabetic patients were purposively enrolled and their information were taken by a semi structured questionnaire and checklist by face to face interview and observation. The questionnaire was administered on each patient followed by dental examinations. Periodontal status was assessed using the community periodontal index (CPITN) of treatment needs. The study period was January 2018 to June 2018 (06 months).

Results: In this study among the respondent's majority (34%) were between 50-59 years. According to plaque index Majority of them, 60% were in score-2. Score -3 was 29%. In terms of oral hygiene status 55.67% of respondents had moderate oral hygiene where 24% had poor oral hygiene status. According to loss of periodontal attachment. Majority of them, 61.33% had 4-5mm of loss of attachment. 22% had 6-8mm of loss of attachment. By the Gingival condition. Majority of them, 47.67% had moderate inflammation (score-2). 31% had mild inflammation (score-1). And most importantly we found that the prevalence of periodontitis among the diabetic patient was 92%.

Conclusion: This study indicated that the gestational age of pregnancy and dental visits have a definite impact on the periodontal status. Oral health education should be included as an integral part of diabetic care to increase the patient awareness.

Key words: Prevalence periodontal, Diabetic.

Introduction:

Diabetes has emerged as a major health problem in Asia. According to International Diabetes Federation every fifth diabetic in world would be an Asian by the year 2025.¹ Diabetes is associated with various systemic complications.² Periodontitis is the sixth complication of diabetes, which puts Indian population at a higher risk of developing it secondary to diabetic status.³ The two way relation of periodontal destruction and diabetes mellitus make diabetic screening essential in periodontitis.⁴

Periodontal diseases are one of the more prevalent oral diseases affecting more than 50% of Indian community.

Untreated chronic periodontitis is responsible for tooth loss in majority of the cases. Constant presence of chronic inflammation and inflammatory mediators has also been proved to be a significant risk factor of systemic disease like diabetes mellitus (DM).⁵ Epidemiological research indicates that periodontal diseases are widespread Throughout the world and evidence exists to show that their extent and severity increases with age.⁶ This view of a particularly high prevalence of periodontal diseases appears to have originated from early epidemiological studies using an index system that gave weight to gingivitis and moderate periodontitis resulting from poor oral hygiene and calculus deposition.⁷

The main types of diabetes are classified primarily on the basis of their underlying pathophysiology. Type-1 diabetes, which constitute 5-10% of all the cases results

1. Assistant Professor & Head, Dept. of Paediatric Dentistry TMSS Medical College Dental Unit, Bogura.
2. Associate Professor & Head, Dept. of Science of Dental Materials TMSS Medical College Dental Unit, Bogura.
3. Associate Professor, Dept. of Dental Public Health Rangpur Dental College Dental College, Rangpur.
4. Consultant, Professor Dental, Mirpur, Dhaka.
5. Assistant Professor & Head, Dept. of Dental Public Health TMSS Medical College Dental Unit, Bogura.
6. Assistant Professor, Dept. of Oral and Maxillofacial Surgery TMSS Medical College Dental Unit, Bogura.

*For correspondence

from autoimmune destruction of insulin producing β -cells in the pancreas leading to total absence of insulin secretion. Individuals with type 1 idiopathic DM lack immunologic markers indicative of an autoimmune destructive process of the beta cells. However, they develop insulin deficiency by unknown mechanisms and are prone to ketosis. Type-2 diabetes which constitutes about 85-90% of all cases comprises of a heterogeneous group of disorders characterized by variable degrees of insulin resistance, impaired insulin secretion, and increased glucose production. Distinct genetic and metabolic defects in insulin action and secretion gives rise to the common phenotype of hyperglycemia in type 2 DM. Type 2 DM is preceded by a period of abnormal glucose homeostasis classified as impaired fasting glucose (IFG) or impaired glucose tolerance (IGT).⁸ Asia in particular has the highest prevalence of diabetes in the world. Countries exhibiting the fastest rise in diabetic population growth include India and China, among many other developing countries.⁹

Diabetes is an alarming public health problem, affecting 245 million people worldwide. Each year seven million individuals develop diabetes and the projection for the year 2030 expects that 366 million people will have the disease worldwide. India leads the world today with the largest number of diabetic patients in any given country. Prevalence of diabetics has increased from 2.1-12.1% since 1970. WHO has issued a warning that India will be the "Diabetes capital of the world". Gingival and periodontal diseases occur in childhood, adolescent and early adulthood, but the prevalence of periodontal disease, tissue destruction, and tooth loss increases with age. Periodontal disease has been labeled as the "sixth complication of the diabetes".¹⁰

There are two different hypotheses. According to one angiopathy, abnormal collagen metabolism, abnormal polymorphonuclear cell function and altered sulcular microbial flora are found in close association with the severity of periodontitis among diabetic patients.

Another hypotheses is that no relationship exists between DM and periodontal disease when two conditions exist together. It is a coincidence rather than a specific cause and effect relationship. Severity and distribution of local irritant affects the severity of periodontal diseases among diabetic patients. No literature exist which depicts the prevalence and severity of periodontal diseases among patients with type 2 diabetes in hilly state of Himachal Pradesh. Hence, this study has been taken up to test the hypothesis that diabetic patients have more severe periodontal disease experience.¹¹

PD is a chronic bacterial infection that affects both the gingiva and the bone that supports the teeth and is caused by anaerobic Gram-negative microorganisms that are present in the bacterial plaque that adheres to the teeth.¹²

PD is a very prevalent condition. In the United States, over half the population aged 18 years or more have PD in its early stages, increasing to up to 75% after the age of 35 years; its mild to moderate forms are present in 30% to 50%, and the severe generalized form in 5% to 15% of the general adult population.¹³ PD has even higher prevalence in minorities, in poor and developing countries and a considerable global variation.

Many conditions can predispose and/or facilitate the occurrence of PD such as smoking, estrogen excess, dyslipidemia and obesity. The prevalence of obesity is increasing worldwide. This epidemic is also associated with an increased occurrence of obesity-related diseases like hypertension, cardiovascular disease, metabolic syndrome and DM that are also linked to PD.¹⁴

Diabetes mellitus (DM) is a chronic disease characterized by dysregulation of carbohydrate, protein and lipid metabolism. An elevation of blood glucose level (hyperglycemia) is the primary feature of DM and results from either a defect in insulin secretion by pancreatic beta cells, a decrease in insulin sensitivity, or a combination of both. The most common form of DM is DM type 2 (DM2), which accounts for 85% of all diabetes patients.¹⁵ The estimated world wide prevalence of DM is 220.5 million, or 2.8% of the world's population. DM currently is the twelfth leading cause of death in the world. The prevalence is estimated to rise up to 4.4%, putting DM in the top ten leading causes of death by 2030. With the increasing prevalence of DM, this already vast and world wide epidemic will increasingly pose serious problems to public health. These problems mostly arise from the complications associated with DM like myocardial infarction, cerebrovascular disease, retinopathy, nephropathy and neuropathy.¹⁶

Materials and Methods:

This was a descriptive cross sectional study conducted in outdoor and indoor of Diabetic care services of TMSS Medical College and Rafatullah Community Hospital, Bogura. A total of 300 diabetic patients were purposively enrolled and their information were taken by a semi structured questionnaire and checklist by face to face interview and observation. The questionnaire was administered on each patient followed by dental examinations. Periodontal status was assessed using the community periodontal index of treatment needs (CPITN). The study period was January 2019 to June 2019 (06

months). Data were collected through interview and observation. The periodontal exam was performed by a single dentist who had been trained by a periodontist. For the exam, a flat n° 5 mirror and periodontal probe were used. The probing depth (distance between the gingival border and base of the gingival sulcus) and gingival recession (distance between the enamel-cementum junction and border of marginal gingival tissue) were determined at six points (three on the vestibular face and three on the lingual or palatal face) on all teeth except the third molars. Clinical attachment loss was determined by summing the probing depth and the gingival recession. Dental plaque was quantified using the visible plaque index

Oral examinations were performed in a well-light room by two calibrated dentists with participants seated on a chair using a mouth mirror and a community periodontal index of treatment needs (CPITN) probe. The following were assessed: Periodontal status was assessed utilizing CPI as described by the World Health Organization. The CPI score were categorized as follows:

- 0 = Healthy periodontal status
- 1 = Bleeding observed, directly or by using mouth mirror, after probing
- 2 = Calculus and bleeding detected during probing, but the entire black band on the probe is visible
- 3 = Shallow periodontal pocket 4–5 mm, gingival margin within the black band on the probe
- 4 = Deep periodontal pocket 6 mm or more, black band on the probe not visible.

Plaque, Gingival and Pocket depth was assessed by Clinical periodontal parameters as follows:

Clinical periodontal parameters:

A) Plaque index (PI) (Löe and Silness, 1963)

Measured to assess plaque accumulation around gingival margin. The degree of plaque accumulation was assessed as follows:

- 0 = No plaque around the gingival margin.
- 1 = A thin film of plaque around the gingival margin. The plaque may be recognized only by running a probe across the tooth surface.
- 2 = Moderate accumulation of soft deposits on the gingival margin and/or adjacent tooth surface, which can be seen by naked eye.
- 3 = Abundance plaque accumulation within the gingival pocket and/or on the gingival margin and adjacent tooth surface and hard deposits on the tooth surface are seen.

B) Gingival index (GI) (Löe and Silness, 1963)

Used to measure gingival inflammation .the degree of gingival inflammation was assessed as follow:

- 0 = Normal gingiva.
- 1 = Mild inflammation, slight change in color, slight edema and no bleeding on probing.
- 2 = Moderate inflammation, redness, edema and bleeding on probing.
- 3 = Severe inflammation, marked redness, edema and tendency to spontaneous bleeding.

C) Pocket depth (PD)

The measurements were recorded by using graduated periodontal probe. PD was measured as the distances(to nearest mm)from the free gingival margin to the base of the periodontal pocket at six sites, each include midbuccal, mesiobuccal, distobuccal ,midlingual, mesiolingual, and distolingual for each teeth and the degree was assessed as follows:

- 3-5= mild periodontitis
- 5-7= moderate periodontitis
- >7= severe periodontitis

2-Radiological Assessment

X ray was done to assess bone loss.

Then the master tabulation sheet was prepared after proper checking, verifying and editing as per specific objective and key variables. All data were entered and analyzed by using Statistical Packages for social science (SPSS) software version 21.0. Then the data presentation was perfectly done by using MS Office particularly MS Word and MS Excel. All the information collected for the study was utilized only for the purpose of research and was not disclosed to anyone outside the research team. Verbal consent was taken from all participating respondents. The participation was completely voluntary. Their right to refuse to participant in the study (If they wished so) was respected.

Results:

Table I: Distribution of the respondents according to their age.

Age group	Frequency	Percentage (%)
30-39 Years	40	13.33%
40-49Years	65	21.67%
50-59 Years	101	33.67%
60 years	94	31.33%
Total	300	100%

The above table shows that among the respondent's majority (34%) were between 50-59 years and 31% were more than 60 years.

Table II: Distribution of respondents according to Status of plaque.

Plaque Index	Frequency	Percentage (%)
Score-0	06	2.00
Score-1	27	9.00
Score-2	180	60.00
Score-3	87	29.00
Total	300	100.00

Table II showed the distribution of respondents according to status of plaque. Majority of them, 60% were in score-2. Score -3 was 29%.

Table III: Distribution of the respondents according to oral hygiene status

Oral hygiene status	Frequency	Percentage
Excellent	18	6.00
Good	43	14.33
Moderate	167	55.67
Poor	72	24.00
Total	300	100

The above table showed that 55.67% of respondents had moderate oral hygiene where 24% had poor oral hygiene status.

Table IV: Distribution of the respondents according to loss of periodontal attachment

Loss of Periodontal Attachment	Frequency	Percentage (%)
0 mm	33	11.00
4-5 mm	184	61.33
6-8 mm	66	22.00
>8 mm	17	5.66
Total	300	100.00

Table IV showed the distribution of respondents according to loss of attachment. Majority of them, 61.33% had 4-5mm of loss of attachment. 22% had 6-8mm of loss of attachment.

Table V: Distribution of respondents according to Gingival condition.

Gingival Index	Frequency	Percentage (%)
Score-0 (Normal gingiva)	21	7.00
Score-1 (Mild inflammation)	93	31.00
Score-2 (Moderate inflammation)	143	47.67
Score-3 (Severe inflammation)	40	13.33
Total	300	100.00

Table V showed the distribution of respondents according to Gingival condition. Majority of them, 47.67% had moderate inflammation (score-2). 31% had mild inflammation (score-1).

Table VI: Distribution of the respondents according to their gingival findings

Group	Male	Female	Total (%)
Gingivitis	10	14	24(8.00)
Slight periodontitis	41	56	97(32.33)
Moderate periodontitis	71	64	135(45.00)
Severe periodontitis	28	16	44(14.67)
Total	150	150	300(100)

The above table showed that among the respondents 45% had Moderate periodontitis and had Slight periodontitis where 14.67% had severe periodontitis.

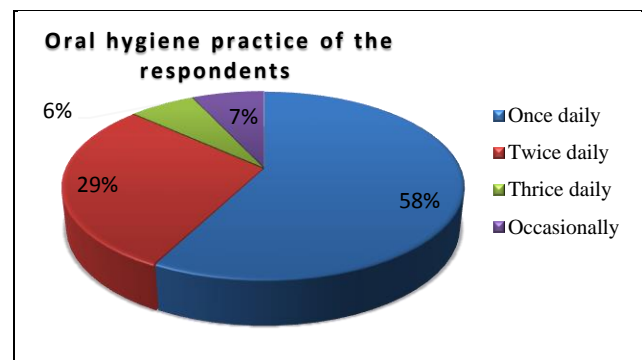


Figure 1: Oral hygiene practice of the respondents

The above figure showed that 58% of the respondents brush their teeth once daily where 7% of them brush occasionally.

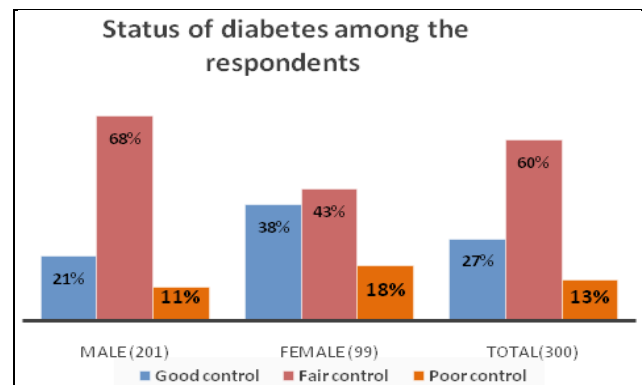


Figure 2: Status of diabetes among the respondents

The above Figure showed that among the respondents 60% had fair control on diabetes where 13% had poor control on that.

Table VII: Distribution of respondents according to diabetic status & Periodontal Condition

Control of diabetes	Healthy condition N (%)	Bleeding N(%)	Calculus N(%)	Pocket4-5 mm N (%)	Pocket ≥6 mm N(%)	Total N(%)
Good control	21(25.92%)	26(32.09%)	34(41.97%)	00(0.00%)	00(0.00%)	81(100%)
Fair control	29(16.20%)	53(29.60%)	48(26.81%)	30(16.75%)	19(10.05%)	179(100%)
Poor control	02(5.00%)	12(30.00%)	11(27.50%)	09(22.50%)	06(15.00%)	40(100%)
Total	52(17.33%)	91(30.33%)	93(31.00%)	39(13.00%)	25(8.33%)	300(100%)

Table VII: showed the distribution of Diabetic patients according to control of DM & Periodontal Condition. Periodontal disease status was increased depending on the control of diabetes. There was no pocket formation in the good control. 4-5 mm pocket was occurred in the fair and poor control. And more than 6mm pocket was found in poor control (15%)

Table VIII: Prevalence of periodontitis among the respondents

Attending patients		Gingival status of patients			
Sex	Frequency (%)	Gingivitis	Periodontitis		
			Mild	Moderate	Severe
Male	201 (67%)	24 (8%)	97	135	44
Female	99 (33%)		Total = 276 (92%)		
Total	300 (100%)		300 (100%)		

The above table proves that the prevalence of periodontitis among the diabetic patient was 92%.

Discussion:

Oral inflammatory diseases such as gingivitis and periodontitis are present in up to 75% of individuals with diabetes mellitus.¹⁷ Individuals > 45 years old with diabetes are 2.9 times more likely to have severe periodontitis than non-diabetics.¹⁸

In the current study we found that among the respondent's majority (34%) were between 50- 59 years and 31% were more than 60 years. In another related study Loe H. showed that maximum of his respondents were above 45 years of age and majority of them were male where in our study we also reveal that males were dominate females as number of respondents.¹⁹ Education is an important parameter for the socio-demographic outcome. Taylor GW in his study found that 36% of his respondents were complete their graduation which represents high demographic profile of that part of earth.²⁰ Relatively in our study we uncover that 21.33% were SSC passed, 20.67% were HSC passed, 19.33% were graduate, 16.67% were completed their masters, 10.67% were secondary level and 11.33% were primary level of education. In the present study, the respondents came from innumerable social class. The researcher diverse them into different

classes and among them among them majority were poor class, that was 35.33%. About 33.67% were lower middle class 17% were below poverty line. Jyotika KF et al in another study related to diabetes and periodontal diseases found that majority of the participating population was higher middle class.²¹

Occupation is a very important feature for any kind of chronic disease. In the existing study the researcher meticulously listed the occupation of the respondents where most of them (43.33%) were involved in service, 30% were doing business, 18.33% were housewives. J. Suzuki in a correlated study found that most his respondents were occupied with service (59%).²²

Dental plaque is one of the most important elements for generating dental disorders. In our study the researcher wisely utilized Silness-Löe plaque index for the measurement of dental plaque of the attending respondents. The scoring system of the method publicised that Majority of them, 60% were in score-2. Score -3 was 29% according to the followed scoring system. Following the same plaque scoring system in another related study.

Mattout C established that 57% of his respondents were scored 2 by the plaque index.

Oral cavity is the gateway of most of the diseases. So the role of maintenance of oral hygiene is precisely significant. In this segment we discover that 55.67% of respondents had moderate oral hygiene where 24% had poor oral hygiene status. But among the respondents some were very sincere and they maintain good oral hygiene (14.33%) and providentially we also found that 6% had excellent oral hygiene.

The all important feature of periodontitis is the formation of periodontal pocket. The deeper the pocket the severe the periodontitis. The depth of pocket is measured by the loss of periodontal attachment. The researcher examined the respondents and measured the depth of periodontal pocket of the respondents where we found that according to loss of attachment, Majority of them, 61.33% had 4-5mm of loss of attachment. 22% had 6-8mm of loss of attachment. Aline MS in his study showed 55% had 4-

5mm of loss of attachment.²³ The gingival inflammation is one of the most important sign for periodontitis. Different states of gingival inflammation represent variety of periodontitis. In the current study Majority of them, 47.67% had moderate inflammation (score-2). 31% had mild inflammation (score-1).

The gingival findings also very much related with this. The researcher divided the respondents according to their gingival findings and among the respondents 45% had Moderate periodontitis and 32.33 had Slight periodontitis where 14.67% had severe periodontitis. The different studies established that diabetes and prevalence of periodontitis is very much proportionate. So the control of diabetes is the key feature to subside the periodontal disease. In our study we found that among the respondents 59.67% had fair control on diabetes where 13.33% had poor control on that

The respondents who had good control on diabetes had relatively less or no periodontal pocket depth and in other way the respondents with poor control with diabetes had suffered with more periodontal pocket depth (15%). Diabetes is associated with various systemic complications.²⁴ Periodontitis is the sixth complication of diabetes, which puts Bangladeshi population at a higher risk of developing it secondary to diabetic status.²⁵ The two way relation of periodontal destruction and diabetes mellitus make diabetic screening essential in periodontitis.²⁶⁻²⁷

Conclusion:

A very high percentage of prevalence of periodontitis was found in diabetic individuals of Bogura population. A positive correlation of worsening of glycaemic level and increase in periodontal destruction was observed, even in the presence of similar oral hygiene status. Gingival bleeding index was not found to vary with the worsening of glycaemic status. Duration of diagnosis of diabetes mellitus was found to be directly related with periodontal destruction.

Present study was aimed to see the prevalence and severity of periodontitis in type 2 diabetics of Bogura. After complete periodontal examination, subjects were categorized according to glycosylated haemoglobin level and duration since diagnosis. Periodontal status was examined and categorized as mild, moderate and severe periodontitis. The data was analyzed and arranged to see the influence of oral hygiene index, gingival bleeding index and glycaemic control on severity of periodontitis and glycaemic status and it was compared with same oral hygiene status individuals by removing the confounding factor of oral hygiene. Approximately half of the

population with duration since diagnosis more than 5 years receiving treatment had compromised oral hygiene but were not referred to a dentist. Results of present epidemiological study drew attention for oral hygiene in population. It also threw light on the negligence of oral hygiene by the individuals and as well as concerned doctor.

References:

1. Sicree R, Shaw J, Zimmer P. Diabetes and impaired glucose tolerance. International Diabetes Federation; 2006:15-103.
2. Pickup J, Williams G. The history of diabetes mellitus. The textbook of diabetes mellitus, Oxford: Blackwell 1997:1.1-1.19.
3. Loe H. Periodontal disease: The 6th Complication of Diabetes Mellitus. Diabetes Care 1993; 16:329-334.
4. Taylor GW. Bidirectional inter-relationship between diabetes and periodontal diseases: an epidemiologic prospective. Ann periodontol 2001; 1:99-112.
5. Agarwal V, Khatri M, Singh G, Gupta G, Marya CM, Kumar V. Prevalence of periodontal diseases in India. J Oral Health Comm Dent 2010; 4:7- 16.
6. Nagarajan S, Pushpanjali K. Self- assessed and clinically diagnosed periodontal health status among patients visiting the outpatient department of a dental school in Bangalore, India. Indian J Dent Res 2008; 19:243- 6.
7. Corbet EF. Periodontal diseases in Asians. J Int Acad Periodontol 2006; 8:136- 44
8. Apoorva SM, Sridhar N, Suchetha A. Prevalence and severity of periodontal disease in type 2 diabetes mellitus (non- insulin- dependent diabetes mellitus) patients in Bangalore city: An epidemiological study. J Indian Soc Periodontol 2013; 17:25- 9.
9. Awartani F. Evaluation of the relationship between type- 2 diabetes and periodontal disease. Odontostomatol Trop 2009; 32:33- 9.
10. Grossi SG, Skrepanski FB, DeCaro T, Zamon JJ, Cummins D, Genco RJ. Response to periodontal therapy in diabetics and smokers. J periodontol 1996; 67:1094- 102.
11. Ervasti T, Knuuttila M, Pohjamo L, Haukipuro K. Relation between control of diabetes and gingival bleeding. J Periodontol 1985; 56:154- 7.
12. Negrato CA, Tarzia O. Buccal alterations in diabetes mellitus. Diabetol Metab Syndr. 2010; 2:3.
13. Greenberg MS, Libby P, Singh G et al. The American Journal of Cardiology and Journal of Periodontology editor's consensus: periodontitis and atherosclerotic cardiovascular disease. J Periodontal. 2009; 80:1021-32.
14. Edean C, Roberts-Thomson K, Wooley S. Anangu oral health: the status of the Indigenous population of the Anangu Pitjantjatjara lands. Aust J Rural Health. 2004; 12:99-103.

15. Mealy B. Diabetes mellitus. In: Greenberg MS, Glick M, eds. *Burket's Oral Medicine Diagnosis and Treatment*, 10ed. New York: BC. Decker Inc; 2003:563-577.
16. Zimmet P. Preventing diabetic complications: Primary care perspective. *Diabetes Res Clin Pract* 2009; 84: 107-116.
17. Centers for Disease Control and Prevention. National diabetes fact sheet: national estimates and general information on diabetes and prediabetes in the United States, 2011. Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, 2011. Available at: http://www.cdc.gov/diabetes/pubs/pdf/ndfs_2011.pdf Accessed June 28, 2011.
18. Iacopino AM. Periodontitis and diabetes interrelationships: role of inflammation. *Ann Periodontol*. 2001; 6:125-137.
19. Loe H. Periodontal disease: The 6th Complication of Diabetes Mellitus. *Diabetes Care* 1993; 16:329-334
20. Taylor GW. Bidirectional inter-relationship between diabetes and periodontal diseases: an epidemiologic prospective. *Ann periodontal* 2001; 1:99-112.
21. Jyotika KF, Ryan EW, Carlos FS, Sara GG, John JS, Maria FLV, Elizabeth H. Slate Periodontal Disease Status in Gullah African Americans with Type 2 Diabetes Living in South Carolina. *J Periodontal* 2009; 80:1062-68.
22. J. Suzuki, M Vallejo, P Farnili, S Ramanathan and AL Phleps, University of Pittsburgh, PA, USA, Duquesne University USA. Prevalence of periodontal disease in term parturients.
23. Mattout C, Bourgeois D, Bouchard P. Type 2 Diabetes and Periodontal Indicators: Epidemiology in France 2002-2003. *Journal of Periodontal Research* 2006; 41:253-58.
24. Aline MS, Andrea MDV, Efigenia FF, Mauro HNGA, Periodonitis in Individuals with Diabetes Treated in the Public Health System of Belo Horizonte, Brazil. *Rev Bras Epidemiol* 2010; 13:118-25.
25. Pickup J, Williams G. The history of diabetes mellitus. The textbook of diabetes mellitus, Oxford: Blackwell 1997:1.1-1.19.
26. Loe H. Periodontal disease: The 6th Complication of Diabetes Mellitus. *Diabetes Care* 1993; 16:329-334.
27. Taylor GW. Bidirectional inter-relationship between diabetes and periodontal diseases: an epidemiologic prospective. *Ann periodontal* 2001; 1:99-112.

Original Article

Upper Gastrointestinal Endoscopic Findings Among Adult Patients with Dyspepsia in Tertiary Care Hospital of Bangladesh

*Hasan MQ¹, Mondal NT², Rashid MH³, Alam MR⁴

Abstract:

Background: It is important to know the causes of dyspepsia to establish the therapeutic approach. Upper Gastrointestinal (UGI) Endoscopy is the ideal procedure for identifying the causes of dyspepsia. *Helicobacter pylori* infection is associated with various upper gastrointestinal pathologies.

Objective: To identify the upper gastrointestinal tract (UGI) endoscopic findings in patients presenting with dyspepsia and also to determine the *H. pylori* infection among the positive endoscopic findings in dyspeptic patients.

Materials and Methods: This observational study was done in the department of Gastroenterology in Enam medical college & Hospital during the period of Jan 2018 to May 2019. One hundred ten adult dyspeptic patients were undergone UGI endoscopy. Presences of normal or positive endoscopic finding were recorded. Endoscopic data were compiled and analyzed. *H. pylori* determination was performed by the Rapid Urease Test (RUT) using CLO kit those had positive endoscopic findings.

Results: Among the one hundred ten patients 68 were male and 42 were female. Mean age was 35.28 ± 1.28 years. Fifty one (46.36%) patients had normal UGI endoscopic findings and 59(53.64%) had positive endoscopic findings. Over all, positive endoscopic findings of UGI were 7(6.36%) reflux oesophagitis, 2(1.82%) haital hernia, 20(18.18%) gastritis, 5(4.54%) gastric ulcer, 14(12.73%) duodenitis, 8(7.27%) duodenal ulcers and 3(2.73%) carcinoma of the stomach. To detect *H. pylori* infection Rapid Urease Test (RUT) was done 59(53.64%) patients but the test was inconclusive in 3 patients. Of the remaining 56 patients, 42 (75%) had positive RUT result. *H. pylori* infection had present 84.21% in Gastritis, 80% in gastric ulcer, 76.92 % in duodenitis and 87.5% in duodenal ulcer.

Conclusions: In our study most of dyspeptic patients have positive endoscopic findings. Gastritis, duodenitis, peptic ulcer disease and GERD are the most common endoscopic findings of dyspepsia. *H. pylori* infection is present in significant proportion of dyspeptic patients who have positive endoscopic findings.

Key words: Dyspepsia, Endoscopy, *H. pylori* infection, Rapid Urease Test.

Introduction:

Dyspepsia refers to acute, chronic, or recurrent pain or discomfort centered in the upper abdomen. A 2017 American College of Gastroenterology guideline has further defined clinically relevant dyspepsia as predominant epigastric pain for at least 1 month.¹ Epigastric pain may be associated with other symptoms like heartburn, nausea, fullness, or vomiting. Heartburn (retrosteral burning) should be distinguished from dyspepsia. When heartburn is the dominant complaint,

gastroesophageal reflux is nearly always present.¹ The prevalence of dyspepsia varies from 7% to 41% and it is estimated that 25% of the general population suffer from dyspeptic symptoms worldwide.² The prevalence of dyspepsia in general population is 8 % to 41% in Bangladesh.^{3,4} This difference in prevalence may be due to different populations studied or differences in definition of dyspepsia used. Epidemiological factors that influence the prevalence of dyspepsia are race, culture, age, sex, alcohol consumption; cigarette smoking, use of non-steroidal anti-inflammatory drugs (NSAIDs) and *H. pylori* infection.⁵ Common causes of dyspepsia are peptic ulcer disease, gastroesophageal reflux disease, gastric cancer and other tumors, cholelithiasis, medications, e.g., NSAIDs and functional dyspepsia. Patients with dyspepsia who have not been investigated by endoscopy of upper gastrointestinal (GI) tract are categorized as uninvestigated dyspepsia. Overall, 70-80% of patients with dyspepsia have no clinically significant finding at

1. Associate Professor, Dept. of Gastroenterology, Enam Medical College and Hospital.
Email: qhasanbd@gmail.com, Mobile: 01718059707
2. Associate Professor, Dept. of Medicine, Rangpur Community Medical College and Hospital.
3. Associate professor, Dept. of Pulmonology Enam Medical College and Hospital.
4. Associate Professor, Department of Skin & VD Rangpur Community Medical College

*For correspondence

endoscopy. If no organic, systemic or metabolic cause is found to explain the dyspeptic symptoms then it is called functional dyspepsia (FD).

Esophago-gastro-duodenoscopy (EGD) is the diagnostic procedure of choice to differentiate patients with organic from those with functional dyspepsia.⁶ Although it is possible to propose endoscopy as the initial strategy for dyspepsia, the establishment of this procedure for every dyspeptic patient may not be practical approach, as the high prevalence of the syndrome will result in very high costs to any health system.⁷ Moreover, the diagnostic procedure and its cost effectiveness must be considering that a large numbers of uninvestigated dyspepsia are functional cases.⁸ Thus, the use of endoscopy in the management of uninvestigated dyspepsia remains a controversial issue worldwide.

The frequency of uninvestigated dyspepsia varies considerably in different populations and such differences may be related to true differences in the frequency of the condition or the criteria used to diagnose dyspepsia.⁹ International medical practice and academic associations have recommended using alarm signs with or without age limits, usually set at 50–55 years, to select dyspeptic patients for endoscopy.¹⁰ As for our country, the very high prevalence of *H. pylori* infection,^{11,12} which requires a complex and expensive treatment for a large number of individuals and the low availability of noninvasive tests for the diagnosis of *H. pylori* infection make the test and treat approach unfeasible. The age indication for endoscopy has not been determined in our country and the limited availability of this procedure does not allow it to be requested as the initial approach. An improved understanding of the association between dyspeptic symptoms and endoscopic findings is essential to improve the management of patients with uninvestigated dyspepsia whose approach is initially empiric and symptom based.

There is paucity of data on endoscopic profile patients with dyspepsia in our country. Therefore, this study was planned to identify the upper gastrointestinal tract (UGI) endoscopic findings in patients presenting with dyspepsia and also to determine the *H. pylori* infection among the positive endoscopic findings in dyspeptic patients.

Materials and Methods:

Study patients and setting:

This prospective observational study was performed in the department of Gastroenterology of Enam medical college and Hospital which provides open-access service to endoscopy. From Jan 2018 and May 2019, one hundred ten consecutive adult who presented with the symptoms of dyspepsia were screened for eligibility. All study participants were systematically evaluated before undergoing endoscopy. The epigastric pain may be associated with other symptoms

of heartburn, nausea, fullness, or vomiting lasting for at least one month. Patients should be younger than 90 and older than 20 years old were included in this study. The presence of alarm symptoms, including unintended weight loss (defined as decrease of more than 5% of original body weight in three months), symptoms suggestive of upper gastrointestinal bleeding, dysphagia or odynohagia, presence of mass or lymphadenopathy, persistent vomiting were also included. Patients those had predominant symptoms of gastroesophageal reflux disease (GERD), symptoms outside the epigastrium, use of proton pump inhibitors or H₂-blockers for more than two weeks, before study enrollment, presence of severe systemic disease (congestive heart failure, coronary heart disease, liver failure), presence of major psychiatric disorders, refusal to do endoscopy and difficulty for the patient to understand the aims and procedures of the study were excluded in this study.

Upper GI Endoscopy:

Informed written consent was taken for every patient during endoscopy. All endoscopic procedures were carried out using a PENTAX® video endoscope (PENTAX Corporation, Japan), no later than 20 days after the interview, to allow time for the symptomatic use of PPI or antacids. Presences of normal or positive endoscopic finding were recorded. *H. pylori* determination was performed by the Rapid Urease Test (RUT) using CLO kit that had positive endoscopic findings, validated in our country. Presence of endoscopic findings in the oesophagus (oesophagitis, ulcer, Barrett's Esophagus), stomach (Gastritis, ulcer, malignancy) and Duodenum (Ulcer, duodenitis) were recorded and described.

Study definitions:

Endoscopic inflammation in the stomach (gastritis) is diagnosed when at least one but often a combination of the following abnormalities is unequivocally visible, either focally or diffusely. White-based lesion (raised or flat) surrounded by a margin of intense erythema designated as erosive gastritis. The intervening mucosa is usually normal or simply erythematous. Unequivocal erythema/exudation, mosaic pattern, hypertrophic rugae, atrophic and nodular appearance at endoscopy was designated as non- erosive gastritis.¹³

Ulcer was defined as a discrete break in the mucosa with a clear margin. Endoscopic characteristics of ulcer were larger usually more than a few millimeters (5 mm or more); excavated with distinct border, usually single.¹⁴

Endoscopically appearance of oesophagitis was presence mucosal edema, erythema, friability, granularity and red streaks. Also the presence of erosion and ulcer.¹⁵ Endoscopic appearance of duodenitis was presence of erythema (patchy, generalized), erosions and sub-epithelial haemorrhages.

Among the positive endoscopic finding antral biopsy was taken from the lesser curvature of the stomach and rapid urease test (CLOTest®) was performed to detect *H. pylori* infection. In selected cases such as suspected malignancy, at least 4 biopsy specimens were preserved in 10% formalin, labeled appropriately and dispatched for histological examination by a histopathologist.

Statistical analysis:

Statistical Package for Social Sciences (SPSS) for Windows 16.0 (SPSS Inc., Chicago, IL, USA) was used for statistical analysis. All data were entered into a database and were verified by a second independent person. Quantitative or numerical data were presented as mean \pm standard deviation (SD) and categorical data as percentage and numbers.

Results:

Socio-demographic features:

One hundred ten selected patients were included in this study; among them 68 were male and 42 were female with a male female ratio of 1.5:2. Patient demographic data are shown in Table I. Mean age of the patients was 35.28 ± 1.28 (range 20-70 years) and 68(61.8%) were married, 35(31.8%) single, 4(3.6%) widows and 3(2.7%) was divorced. Regarding occupations; 30(27.3%) were housewife, 16(14.5%) farmer, 20(18.2%) businessmen, 18(16.4%) service holders, 7(6.4%) day laborer and 19(17.3%) students. They also came from various educational backgrounds, but mostly graduate 36 (32.7%) and SSC level 29(26.4%). Regarding monthly family income, it was <10,000 taka in 2(1.8%), 10000 to 20000 taka in 34(30.9%), 20001 to 40000 taka in 51(46.4%) and >40,000 taka in 23(20.9%). Among the risk factors, 27(24.54%) were Smoker, 15(13.64%) were NSAIDs user and 03(2.72%) were alcoholic.

Table I: Demographic profile of the patients

Features	Number(percentage)
Age:	
20-30	53(48.19)
31-40	28(25.45)
41-60	24(21.82)
>60	05(4.55)
Sex:	
Male	68(61.82)
Female	42(38.18)
Risk factors:*	
Smoking	27(24.54%)
NSAIDs use	15(13.64%)
Alcohol use	03(2.72%)

*Total will not correspond to 100%, for multiple responses.

Symptoms analysis:

Patients presented with following symptoms or alarm conditions for dyspepsia plotted in table II:

Table II: Description of the symptoms (n=110*)

Features:	Frequency (Percentage)
Symptoms onset:	
Less than 3 months	09(8.18)
3 to 6 months	45(40.91)
7 to 12 months	46(41.82)
More than 12 months	10(9.09)
Type of symptoms: *	
Upper abdominal pain or discomfort	58(52.7)
Abdominal bloating	52(47.3)
Early satiety	34(30.9)
Anorexia	36(32.7)
Nausea	41(37.3)
Vomiting	13(11.8)
Heart burn	24(21.8)
Alarm symptoms:*	
Weight loss	08(7.3)
Bleeding	02(1.8)

* Total will not correspond to 100%, for multiple responses.

Symptom onset of dyspepsia, majority of the patient's (41.82%) had 7 to 12 months and (40.91%) had 3 to 6 months. Most common clinical presentations had (52.7%) upper abdominal pain or discomfort followed by (47.3%) abdominal bloating, (37.3%) nausea, and (30.9%) early satiety. Most of the patients had multiple presenting complaints. Only (7.3%) and (1.8%) patients had evidence of weight loss and gastrointestinal bleeding respectively.

Endoscopic findings:

In present study out of 110 patients, 51(46.36%) patients had normal upper GI endoscopic findings and 59(53.64%) had positive endoscopic findings (Table III). Over all, positive endoscopic findings of upper GIT were 7(6.36%) reflux oesophagitis, 2(1.82%) hiatal hernia, 20(18.18%) gastritis, 5(4.54%) gastric ulcer, 14(12.73%) duodenitis, 8(7.27%) duodenal ulcers and 3(2.73%) carcinoma of the stomach.

Reflux disease included cases of erosive esophagitis, Barrett's esophagus and esophageal ulcer and organic dyspepsia (determined by the finding of reflux disease or peptic ulcer or malignancy). Reflux oesophagitis 7(6.36%) and peptic ulcer 13(11.81%) were the major causes of organic dyspepsia; there were 3 cases (2.73%) of upper gastrointestinal cancer (all were gastric carcinomas)

characterizing a total of 23 (20.90%) patients as having organic dyspepsia.

Table III: Endoscopic findings of the dyspeptic patients

Endoscopic findings (n-110)	Number (Percentage)
Normal findings	51(46.36)
Positive endoscopic findings	59(53.64)
Oesophagus:	
Reflux oesophagitis	07(6.36)
Erosive oesophagitis	05(4.54)
Ulcer	02(1.82)
Haital hernia	02(1.82)
Stomach:	
Gastritis	20(18.18)
Erosive gastritis	12(10.91)
No-erosive gastritis	08(7.27)
Gastric ulcer	05(4.54)
Carcinoma	03(2.73)
Duodenum:	
Duodinitis	14(12.73)
Erythematous	04(3.64)
Erosive	10(9.09)
Ulcer	08(7.27)

H. pylori infection among patients with positive endoscopic findings:

Rapid Urease Test (RUT) was done on 59(53.64%) patients those had positive endoscopic findings but the test was inconclusive in 3 patients. Of the remaining 56 patients, 42 (75%) had positive RUT result indicating H. pylori infection. Patients with gastric ulcer, gastritis, duodenal ulcer, duodenitis were positive for H. pylori infection in 80%, 84.21%, 87.5%, 76.92% cases respectively. However, H. pylori infection was not significantly associated with reflux oesophagitis and gastric cancer (Table IV).

Table IV: Relationship between positive UGI endoscopic findings and H. pylori infection among patients with dyspepsia (N=56)

Endoscopic findings	H.pylori status Positive (N=42) N (%)	H.pylori status Negative (N=14) N (%)	Total Number (%)
Reflux oesophagitis	4 (57.14)	3 (42.85)	7(12.5)
Haital hernia	-	2(100%)	2(3.57)
Gastritis	16(84.21)	3(15.79)	19(33.93)
Gastric ulcer	4(80)	1(20)	5(8.92)
Gastric carcinoma	1(50)	1(50)	2(3.57)
Duodinitis	10(76.92)	3(23.07)	13(23.21)
Duodenal ulcer	7(87.5)	1(12.5)	8(14.28)

Discussion:

Dyspepsia was the most common indication for upper GI endoscopy. The prescription for dyspepsia now accounts for over 10% of primary care, numbering 471 million in 1999 in England and Wales. This is similar to a large retrospective study from Pakistan where 52.4% and 42.6% cases underwent endoscopy for dyspepsia.^{16,17} Similar findings has been reported from India with 59% of patients undergoing endoscopy for dyspepsia.¹⁸

In resource limited settings, especially when access to endoscopy service is limited, it is very important for clinicians to know common causes of dyspepsia and frequency of H. pylori infection. Positive endoscopic findings were seen in (53.64%), while in (46.36%) were normal endoscopic findings in this study. A result from another study by Ghosh DK et al,¹⁹ showed 55.6% had normal UGI endoscopy. However, our finding are similar that of by (Tytgat et al. 2002) where meta-analysis of 22 studies from the developed countries showed positive endoscopic findings in 51% of dyspeptic patients.²⁰

In our study, among the positive endoscopic findings, gastritis was the commonest pathology reported (18.18%) in patients who presented with dyspepsia. The other common endoscopic findings included duodenal ulcer (7.27%), oesophagitis (6.36%), duodenitis (12.73%), gastric ulcer (4.54%) and gastric carcinoma (2.73%). These findings are similar to findings of Ghosh DK et al where endoscopy of upper GIT were normal 55.6% in cases, 8.3% showed reflux oesophagitis, 22.2% showed gastric erosions, 2.8% showed gastric ulcer, 5.6% showed duodenal erosions and 5.7% showed duodenal ulcer.¹⁹

Erosive esophagitis is a diagnostic marker for GERD, but many patients with symptoms that are attributable to the reflux of stomach contents into the esophagus have no endoscopic signs of esophageal erosion; this is referred to as non-erosive GERD. Erosive esophagitis is found in approximately 20% of dyspeptic patients, and a similar number of patients may have non erosive GERD.^{21,22} In this study, we found that 07(6.36%) had reflux oesophagitis, 05(4.54%) had erosive oesophagitis, and 02(1.82%) had esophageal ulcer.

Gastritis is defined as microscopic inflammation of the stomach and represents a histological not a clinical entity, as the majority of persons with gastric inflammation are completely asymptomatic. A myriad of etiological agents can induce gastritis, but the most common cause is infection by *Helicobacter pylori* and use of nonsteroidal anti-inflammatory drugs (NSAIDs).^{23, 24} In this study, out of 20(18.18%) patients with Gastritis, 12(10.91%) had erosive gastritis and 08(7.27%) had no-erosive gastritis.

Among them, 16(84.21%) were positive for *H. pylori* infection.

Recent review of literature shows that peptic ulcer disease (PUD) is found in 11% of Asian patients with dyspepsia.²⁵ Predominant cause of peptic ulcer diseases is *Helicobacter pylori* infection. *Helicobacter pylori* is found in up to 90% of patients with duodenal ulcer and 60%-80% patients with gastric ulcers.²⁶ Second but less common cause of peptic ulcer diseases is NSAIDs. Peptic ulcer disease comprised of 11.81 % in our patients who underwent endoscopy for dyspepsia. The frequency of duodenal ulcer was (7.27%) and that of gastric ulcer (4.54%). Duodenal ulcer was more common than the gastric ulcer. This is consistent with a study done in hospital, Kathmandu, where 10.1% of peptic ulcer disease was reported in patients with dyspepsia who underwent endoscopy in which 5.9% patients had gastric ulcer and 4.2% duodenal ulcer.²⁷

Apparently inflamed duodenal mucosa is often seen at endoscopy in patients with dyspepsia and the term 'duodenitis' frequently used.²⁸ Duodenitis is often associated with the presence of *Helicobacter pylori*.²⁹ A recent study has shown a poor relationship between symptoms of functional dyspepsia and histological duodenitis. Other studies have found histological duodenitis often associated with *H. pylori* (75-82%).^{29,30} In this study, 12.73% had endoscopic finding of duodenitis and 3.64% had erythematous and 9.09% had erosive duodenitis. Among them *H. pylori* positive was 76.92%.

Gastric malignancy constituted a small but significant percentage of patients with dyspepsia in this study i.e. 03(2.73%), which is similar to results reported by Khurram M et al³¹ a study was done in Pakistan. The incidence of upper gastrointestinal malignancy is raising both locally and internationally.^{31, 32} Thus, UGI endoscopy is a valuable diagnostic modality in screening malignancy, especially in elderly patients with alarm symptoms.

H. pylori infection is present in significant proportion of dyspeptic patients. The overall prevalence of *H. pylori* infection in gastric erosion 63%, in gastric ulcer 80%, in early gastric cancer 52.4 %.³³ In this study, among 56 patients those had positive endoscopic findings, 42 patients (75%) had positive RUT result indicating *H. pylori* infection. Gastritis, gastric ulcer, duodenitis and duodenal ulcer had significant association with *H. pylori* infection.

Limitation of the study:

We had several limitations. Our sample size was small. Cases of dyspepsia were diagnosed only by the appearances of endoscopic findings and we could not do

the histopathology except carcinoma of the stomach. We did not eradicate the patients who had *H. pylori* positive and failed to follow-up after given treatment. Further studies with large sample size and appropriate investigations and longer follow-up period are required to delineate the true clinical and endoscopic feature of dyspeptic patients.

Conclusions:

Dyspepsia is relatively common problem in this part of the world. Most of dyspeptic patients are showing positive endoscopic findings. Gastritis, duodenitis, peptic ulcer disease and GERD are the most common endoscopic findings of dyspepsia. *H. pylori* infection is present in significant proportion of dyspeptic patients who have positive endoscopic findings.

References:

1. Moayyedi P M, MB , Lacy B E , Andrews C N , Enns R A, Howden C W, Vakil N. ACG and CAG Clinical Guideline: Management of Dyspepsia. *Am J Gastroenterol* 2017; 112(7):988-1013.
2. Locke III GR. Prevalence, incidence and natural history of dyspepsia and functional dyspepsia. *Baillieres Clin Gastroenterol* 1998; 12:435-442.
3. Pervin I, Rahman MM, Saha M, Rahman MM. Hasan QH. Prevalence of Irritable Bowel Syndrome and Functional Dyspepsia, Overlapping symptoms and Associated Factors in a General Population of Bangladesh. *ANMA Congress* 2013.
4. Hasan M, Azad Khan AK, Roy PK, Aziz S, Huq KM, Ali SMK et al. Peptic Ulcer in Bangladesh. *BMRC Bulletin* 1987; 13:29-42.
5. Pulanic R. Epidemiology. In: M. Duvnjak, editor. *Dyspepsia in Clinical Practice*. Springer 2011; p19-27.
6. Hsu YC, Yang TH, Liou JM, Hsu WL, Lin HJ, Wu HT et al. Can clinical features stratify use of endoscopy for dyspeptic patients with high background prevalence of upper gastrointestinal cancer? *Dig Liver Dis* 2012; 44:218-223.
7. Barkun A, Crott R, Fallone C, Kennedy W, Lachaine J, Levinton C et al. A one-year economic evaluation of six alternative strategies in the management of uninvestigated upper gastrointestinal symptoms in Canadian primary care. *Can J Gastroenterol* 2010; 24:489-498.
8. Ford AC, Marwaha A, Lim A, Moayyedi P. What is the prevalence of clinically significant endoscopic findings in subjects with dyspepsia? Systematic review and meta-analysis. *Clin Gastroenterol Hepatol* 2010; 8:830-837.
9. Ghoshal UC, Singh R, Chang FY, Hou X, Wong BC, Kachintorn U. Epidemiology of uninvestigated and functional dyspepsia in Asia: facts and fiction. *J Neurogastroenterol Motil* 2011; 17:235-244.
10. Talley NJ, Vakil NB, Moayyedi P. American gastroenterological association technical review on the evaluation of dyspepsia. *Gastroenterology* 2005; 129:1756-1780.

11. Ahmad MM, Rahman M, Rumi AK, Islam S, Huq F, Chowdhury M F et al. Prevalence of *Helicobacter pylori* in asymptomatic population – a pilot serological study in Bangladesh. *Japan J Epidemiol* 1997; 7: 251-54.
12. Mahalanabis D, Rahman MM, Sarker SA, Bardhan PK, Hildebrandt P, Beglinger C et al. *Helicobacter pylori* infection in the young in Bangladesh: Prevalence, Socioeconomic and Nutritional Aspects. *International Journal of Epidemiol* 1996; 25: 894-898.
13. Tytgat GNJ. The Sydney system: Endoscopic division. Endoscopic appearances in gastritis/duodenitis. *J Gastroenterol Hepatol* 1991; 6:223-4.
14. Maratka Z. Endoscopic diagnosis and terminology of erosions and similar mucosal lesions. *Gastrointestinal endoscopy* 1996; 43(6):633–636.
15. Richter JE, Friedenberg FK. Gastroesophageal Reflux Disease. In: Mark Feldman, Lawrence S. Friedman, Lawrence J. Brandt (eds). *SleisengerFordtran's gastrointestinal and liver disease: pathophysiology, diagnosis, management*. 9th ed. Saunders; 2010.p705-726.
16. Adang RP, Vismans JF, Talmon JL, Hasman A, Ambergen AW, Stockbrugger RW. Appropriateness of indications for diagnostic upper gastrointestinal endoscopy: association with relevant endoscopic disease. *GastrointestEndosc* 1995; 42(5):390-397.
17. Gillen D, McColl KE. Does concern about missing malignancy justify endoscopy in uncomplicated dyspepsia in patients aged less than 55? *Am J Gastroenterol* 1999; 94(1):75-79.
18. Bytzer P, de Muckadell OS. Prediction of major pathologic conditions in dyspeptic patients referred for endoscopy: a prospective validation study of a scoring system. *Scand J Gastroenterol* 1992; 27(11):987-992.
19. Ghosh DK, Barua UK, Saha SK, Ghosh CK, Rahman M, Alam MR. Endoscopic evaluation of dyspeptic patients. *Bangladesh Med J* 2013; 42 (3):82-84.
20. Tytgat, G.N.J. Role of endoscopy and biopsy in the work up of Dyspepsia. *Gut* 2002; 50(Suppl IV):iv13 iv16.
21. Moayyedi PM, Talley NJ, Fennerty MB, Vakil N: Can the clinical history distinguish between organic and functional dyspepsia? *JAMA* 2006; 295:1566-1576.
22. Hammer J, Eslick GD, Howell SC, Altiparmak E, Talley NJ. Diagnostic yield of alarm features in irritable bowel syndrome and functional dyspepsia. *Gut* 2004; 53:666-672.
23. Peek RM Jr, Blaser MJ. *Helicobacter pylori* and gastrointestinal tract adenocarcinomas. *Nature Rev Cancer* 2002; 2:28.
24. Peek RM Jr, Crabtree JE. *Helicobacter* infection and gastric neoplasia. *J Pathol* 2006; 208:233.
25. Ford AC, Marwaha A, Lim A, Moayyedi P. What is the prevalence of clinically significant endoscopic findings in subjects with dyspepsia? Systematic review and meta-analysis. *Clin Gastroenterol Hepatol* 2010; 8:830-837.
26. Lee J, O'Morain C. Who should be treated for *Helicobacter pylori* infection? A review of consensus conferences and guidelines. *Gastroenterology*. 1997; 113(Suppl):99–106.
27. Thakur SK, Basnet BK. H. pylori infection among hospital attending dyspeptic patients in Kathmandu, Nepal. *Postgraduate Medical Journal of NAMS*. 2012; 12(2):1-4.
28. Lewis S, Stableforth W, Awasthi R, Awasthi A, Pitts N, Ottaway J et al. An examination of the relationship between the endoscopic appearance of duodenitis and the histological findings in patients with epigastric pain. *Int J Clin Exp Pathol* 2012; 5(6):581-587.
29. Caselli M, Gaudio M, Chiamenti CM, Trevisani L, Sartori S, Saragoni L et al. Histologic findings and *Helicobacter pylori* in duodenal biopsies. *J Clin Gastroenterol* 1998; 26: 74-80.
30. Mirbagheri SA, Khajavirad N, Rakhshani N, Ostovaneh MR, Hoseini SM, Hoseini V. Impact of *Helicobacter pylori* infection and microscopic duodenal histopathological changes on clinical symptoms of patients with functional dyspepsia. *Dig Dis Sci* 2012; 57: 967-972.
31. Khurram M, Kharr HB, Hasan Z, Umar M, Javed S, Ashgar T et al. A 12 years audit of upper gastrointestinal endoscopic procedures. *J Coll Physicians Surg Pak* 2003; 13(6):321-324.
32. Adang RP, Vismans JF, Talmon JL, Hasman A, Ambergen AW, Stockbrugger RW. Appropriateness of indications for diagnostic upper gastrointestinal endoscopy: association with relevant endoscopic disease. *GastrointestEndosc* 1995; 42(5):390-397.
33. Zhang C, Nobutaka Y, Wu Y-L, Wen M, Matsuhisa T, Matsukura N: *Helicobacter pylori* infection, glandular atrophy and intestinal metaplasia in superficial gastritis, gastric erosion, gastric ulcer, and early gastric cancer. *World J Gastroenterol* 2005; 11:791-796.

Pattern of Acute Stroke in a Tertiary Hospital

*Yusuf MG¹, Begum ZN², Banu A³, Hoque MA⁴, Shaha AC⁵

Abstract:

Background: Stroke is an important morbidity for low and middle income countries like Bangladesh. It is the leading cause of death worldwide. It was a Prospective study. The study was carried out in Department of Medicine, Rangpur Community Medical College and Hospital, Rangpur from June 2018 to June 2019.

Objective: To identify demography of acute stroke patients, determine the frequency, different risk factors and association of acute stroke with survival within one month were studied.

Materials and Methods: We studied 184 patients in Rangpur Community Medical College and Hospital who admitted with a diagnosis of acute stroke and fulfilling the inclusion criteria of this study. Data were collected in data sheet and periodic follow up was given, after discharge of a patient we communicate with patients close relatives over phone and follow up the patient in outdoor of the respective hospital.

Results: The mean age and SD was 62.59 ± 13.59 . Male was preponderance 122 (66.3%), ratio 1: 1.4, most of the patient 114 (62%) come from rural area and Muslim (89.1%). Common age group of our study population were 45-54 years (27%) and 65-74 years (28.1%), We found increase incidence of Ischemic stroke 76.1% among the study population and left cerebral hemisphere is more common site. Besides diabetes and hypertension, 33.7% of study population shows high cholesterol level and 33% presented with overweight.

Conclusion: We should emphasize healthcare development to reduce stroke occurrence.

Key words: Stroke, Diabetes, Risk factors, Population, Hypertension.

Introduction:

In Bangladesh, stroke has been ranked as the third leading cause of death after coronary heart disease and infectious diseases such as influenza and pneumonia. The mortality rate of stroke increased from 6.00% (in 2006) to 8.57%, (in 2011) with an age-adjusted mortality rate of 108.31 per 100 000 people (in 2011). The World Health Organization (WHO) ranks mortality due to stroke in Bangladesh as number 84 in the world. The reported prevalence of stroke in Bangladesh is 0.3%, although no data on stroke incidence have been recorded.¹ Stroke is the second leading cause of death worldwide, and the global effect of stroke is considerable based on disability-adjusted life years. Higher stroke incidence rates have been reported in the black populations compared with the white

populations in the United States and the United Kingdom. Stroke in young adults was shown to be increasing in a recent study from GCNKSS by Kissela et al., A similar trend for stroke in young adults was also found in ischemic stroke admissions in the United States Nationwide Inpatient Sample.² In one large study, Jane C. Khoury, Kathleen Alwell et al, shows that both black and white patients, were trends toward stroke incidence rates increasing in the younger ages and decreasing among the oldest subjects. They found that there is a trend toward a higher proportion of ischemic stroke and lower hemorrhagic stroke in ages 20–44, especially in 2005 compared to earlier periods. Among those 45–54 years old, the proportion of hemorrhagic stroke increased slightly from 1993/1994 to later periods. Their National data show that stroke risk factors (especially diabetes and obesity) are increasing at younger ages, and thus likely increasing stroke risk in the young.³ One study revealed that urban patients in Austria show a different risk profile compared to those living in intermediate or rural areas. In detail, they had higher rates of arterial hypertension, diabetes, hypercholesterolemia, smoking, alcohol consumption; peripheral artery occlusive disease, prior heart attacks and strokes.⁴ Stroke may be defined as an acute focal brain dysfunction due to vascular disease. In

1. Associate Professor, Department of Medicine, Rangpur Community Medical College & Hospital
Mobile: 01711248578, E-mail: piaslefty@yahoo.com
2. Assistant Professor, Department of Gynae & Obs. Rangpur Community Medical College & Hospital
3. Assistant Professor, Paediatrics Department, Rangpur Medical College & Hospital
4. Associate Professor, Department of Medicine, Rangpur Medical College & Hospital
5. Professor, Department of Medicine, Rangpur Community Medical College & Hospital.

*For correspondence

more than 99% of cases stroke involves the arteries. 85% sustain a cerebral infarction due to inadequate blood flow to the part of the brain due to embolism and thrombosis in situ, and most of the remainder have an intracerebral haemorrhage usually results from rupture of a blood vessel within the brain parenchyma but may also occur in a patient with subarachnoid haemorrhage if artery ruptures into the brain substance as well the subarachnoid space⁵.

Ischemic and hemorrhagic strokes are caused by an interruption of cerebral blood flow and are characterized by histopathological changes in areas of the brain and consequent neuronal death. Physical, cognitive, or behavioral changes may occur, depending on the area of the brain affected (Brust, 2012).⁶ Some data shows that among the survey respondents in their population, there was a significant increase over time in the prevalence of high cholesterol.³ But in another study concludes that increased LDL levels are major risk factor for ischemic stroke as compared to hemorrhagic stroke⁷. Surprisingly, the prevalence of diabetes and hypertension were statistically significant risk factors of stroke over time in different studies. Few studies have addressed the hemispheric differences in stroke outcome. This retrospective study addressed a few key issues in this regard, and the findings indicate that left cerebral hemispheric strokes (LHSs) are more common, more severe, and result in poorer outcomes than right cerebral hemispheric strokes (RHSs).⁸ Stroke is a medical emergency associated with a very high risk for death in the acute and subacute phases and with a continuous excess risk of death. Better prevention and management of strokes may improve the long-term survival rate.⁹

Materials and Methods:

We studied adult patient with acute stroke in the Department of Medicine, at Rangpur Community Medical College and Hospital, Rangpur Bangladesh from June 2018 to June 2019.

The sample size was calculated by using the following formula: $n = Z^2 \times pq / d^2$. n = sample size, Z = the value of standard normal variant at a given confidence interval and it is 1.96 for a 95% confidence level, prevalence of stroke in Bangladesh is 0.3%. Hence, the required sample size is less than 100. One hundred and eighty four (184) patients are studied for the convenience of the study. 184 patients were enrolled according to inclusion and exclusion criteria. The inclusion criteria were – age more or equal 20 years, CT scan or MRI proved acute stroke within one day. The exclusion criteria were – age less than 20 years, acute stroke involving brain stem. Prior permission was taken for this study from Ethical Committee of Doctors Community Medical College and Hospital, Rangpur, Bangladesh. Keeping Helsinki

Declaration for Medical Research Involving Human Subjects 1964, all patients were informed verbally about the study design, the purpose of the study and right of the participant to withdraw themselves from the project at any time, for any reason, what so ever. Written consent was obtained from each patient. All precautions were taken to protect anonymity of the participating patient. The demographic characteristics included age, sex, and residence. To find out frequency of site of stroke, right intra cerebral hemorrhage, left intra cerebral hemorrhage, subarachnoid hemorrhage, right cerebral infarct, left cerebral infarct and bilateral cerebral infarct were used as variables. For risk factors assessment we used hypertension (HTN), diabetes mellitus (DM), coronary artery disease (CAD), cholesterol level, smoker and BMI as variables. We conduct this study to see the demography, etiology, site and risk factors of study population.

Statistical analysis:

Data were processed and analyzed using Statistical Package for Social Science (SPSS) version-21. The test statistics used to analyze the data were descriptive statistics, Chi square test.

Results:

A total 184 cases fulfilling the inclusion /exclusion criteria were enrolled in this study. The mean age (years) \pm standard deviation was 62.59 ± 13.59 . Male are more 94 (51%) than females 90 (48.9%), male female ratio is 1:1.04. More patients from rural areas 114 (62%) in our study than those with urban areas 63 (38%). Ischemic stroke was observed in 140 (76.1%) patients and Hemorrhagic stroke seen in 44 (23.9%) patients. In Table-I demography of study population shown in different age groups. Common age group for stroke is 45-54 years and 65- 74 years. In our study most of the patients come from rural areas and predominant religion is Muslim. In Table-II frequency of stroke shown according to age group, in 45-54 years age group hemorrhage stroke was 7% and ischemic stroke was 19% but in 65-74 years age group hemorrhage stroke was 8.69% and ischemic stroke was 19.5% (p value significant). Distribution of site of stroke is shown according to age group in Table-III. In table-IV mortality within one month of study population is shown where female patients survive more than male patient, 37.5% patient survive and 13.5% patients died within one months of stroke. Among survivor 51% has ischemic and 10.4% has hemorrhagic stroke shown in table-V. Table-sssvi, shows risk factors of study population, hypertension (72%), DM (38%) and smoking (45%) are some common risk factors in our study population whereas 33.7% suffers from high cholesterol level p value is significant. 66% patient belongs to normal BMI and 33% were overweight.

Table I: Distribution of demography of study population in different age groups

		Age Group						Total	P value
		20-44 (%)	45-54 (%)	55-64 (%)	65-74 (%)	75-84 (%)	>85 (%)		
Sex	Male	02	30	16	26	12	08	94	0.129
	Female	06	20	20	26	16	02	90	
	Total	08 (8)	50 (27)	36 (20)	52 (28)	28 (15)	10 (5)	184	
Religion	Muslin	08	46	28	46	28	08	164	0.045
	Hindu	00	04	08	06	02	02	20	
	Total	08(8)	50(27)	36(20)	52(28)	28(15)	10(5)	184	
Residence	Rural	06	33	23	33	13	07	114	0.139
	Urban	02	17	13	19	15	03	63	
	Total	08(08)	50(27)	36(20)	52(28)	28(15)	10(05)	184	

Chi-square (X^2) was employed to test significance of difference between various age groups

Table I: shows the demography of study population according to age group, male are more than female, most of the patients were Muslim, (p value significant). Rural

people more effected than urban people in our study population.

Table-II: Frequency distribution of stroke according to age group

		20-44 n (%)	45-54 n (%)	55-64 n (%)	65-74 n (%)	75-84 n (%)	>85 n (%)	Total (%)	P value
Hg		02(1.08)	14(7)	10(5.4)	16(8.69)	00(00)	02(01)	44(23.9)	0.049
Is		06(3.2)	36(19)	26(14.1)	36(19.5)	28(15)	08(4.3)	140(76)	
Total		08(4.3)	50(27)	36(19.5)	52(28.1)	28(15)	10(5.4)	184(100)	

Hg- Hemorrhagic stroke, Is- Ischemic stroke.

Chi-square (X^2) was employed to test significance of difference between various age groups.

stroke was 23.9%. Common age group of acute stroke was 45-54 years (50%) and 64 -74 years (53%), p value is significant.

In Table-II distribution of stroke according to age group were shown, ischemic stroke was 76% and hemorrhagic

Table III: Distribution of site of stroke according to age group

		20-44	45-54	55-64	65-74	75-84	>85	Total n (%)	p value
HG	RICH	00	02	02	10	00	00	14(7.6)	0.011
	LICH	00	06	06	02	00	02	16(8.6)	
	SAH	02	06	02	04	00	00	14(7.6)	
IS	RHS	00	17	04	17	09	04	51(27.6)	0.000
	LHS	06	15	06	17	11	02	57(30.8)	
	Bilat	00	04	16	02	08	02	32(17.3)	
Total		08	50	36	52	28	10	184 (100)	

HG- Hemorrhagic stroke, RICH- Right intra cerebral hemorrhage, LICH- Left intra cerebral hemorrhage, IS- Ischemic stroke, RHS- Right hemispheric stroke, LHS- Left hemispheric stroke, Bilat- Bilateral stroke.

Chi-square (X^2) was employed to test significance of difference between various sites of stroke in different age groups

Table-III shows site of acute stroke according to age group, Left cerebral hemispheric involvement is more common than right.

Table-IV: Distribution of Mortality within one month according to gender of study population

	Male n(%)	Female n(%)	Total n(%)	p value
Survivors	23(24)	36(37.5)	59(61.4)	0.014
Non survivor	24(24.7)	13(13.5)	37(38.6)	
Total	47(48.7)	49(51.3)	96(100)	

Chi-square (X^2) was employed to test significance of difference between different gender

Table-IV shows mortality within one month according to gender of study population. Survivors 61.4% among them female 37.5% and male 24%. 38.6 % died within one month of acute stroke.

Table-V: Frequency distribution of mortality within one month of stroke patient

	Ischemic stroke	Hemorrhagic stroke	Total	p value
Survivor	49(51)	10(10.4)	59(61.4)	0.002
Non survivors	20(20.8)	17(17.7)	37(38)	
Total	69(72%)	27(28%)	96(100)	

Chi-square (X^2) was employed to test significance of difference between different groups

Table-V shows 61.4% survive within one month of acute stroke, ischemic stroke was 51% and hemorrhagic stroke was 10.4%. p value is significant.

Table-VI: Distribution of risk factors of study population according to etiology

		Haemorrhagic Stroke	Ischemic Stroke	Total	p value
HTN	Present	32(70.5)	102 (72.9)	134(72)	0.987
	Absent	12(29.5)	38(26.4)	50 (28)	
DM	Present	14(31.8)	56 (40)	70(38)	0.330
	Absent	30(68.2)	84 (59.3)	114(62)	
CAD	Present	06 (13.6)	15 (10.7)	21(12)	0.595
	Absent	38(86.4)	125(88.6)	163(88)	
Cholesterol Level	<200	12(27.3)	49 (35)	61(66.3)	0.000
	200-239	01(25)	12(07)	13(14.1)	
	>240	04(9.1)	14(10)	18(19.56)	
Smoker	Present	24(54.5)	58(41.4)	82(45)	0.127
	Absent	20(44.5)	82(57.9)	102(55)	
BMI	Normal	30 (68.2)	93(65)	122(66)	0.715
	Over weight	14(31.8)	46(33)	60 (33)	
	Obese	00(00)	02(1.4)	02 (01)	

DM-Diabetes, HTN-Hypertension, CAD-Coronary artery disease, BMI-Body mass index.

Chi-square (X^2) was employed to test significance of difference between different groups.

Table-VI shows different risk factors of acute stroke. Beside diabetes & hypertension high cholesterol level was seen in 33.7 % of study population, p value is significant

Discussion:

The mean age of the study population is 62.59 ± 13.59 that is higher than some studies.^{1,7,10} In our study population males are more than females with 76.1 % suffering from ischemic stroke and 23.9% were hemorrhagic stroke; this findings is consistent with other studies.^{1,10} 62% patient comes from rural area and rest of the study population belongs to urban areas, this result not consistent with Nazmul Islam et al and Andrija J et al study. The frequency of stroke is common in 45-54 years (27%) and 65 – 74 years (28.1%%) but Brett M Kissela et al mention in his study that there were trends toward stroke incidence rates increasing in younger ages and decreasing among older subject. In the other hand Muhammad Sajid et al observed 58.75% were 51- 70 years age group which is higher than 20-50 years age group. The mortality rate with in one month of stroke is 38 % but Klaus KaaeAndersen et al in his study “One-Month to 10-Year Survival in the Copenhagen Stroke Study: Interactions Between Stroke Severity and Other Prognostic Indicators” showed 16.6% mortality rate at one month. In this study left cerebral hemisphere stroke is more than right cerebral hemisphere, Vishnumurthy Shushrutha Hedna, et al in their article also agreed that LHSs are more common than RHSs. In risk factors assessment we found 33.7% stroke patients suffering from high cholesterol level that is lower than Bikash B et al study.¹⁰

Conclusion:

Present study concluded that ischemic stroke is more common among acute stroke with a common age group of 65 to 74 years. Left cerebral hemisphere stroke is more than right and 33.7% of study population suffers from high cholesterol level beside other common risk factors.

References:

1. Nazmul I and Ibrahim K, Burden of stroke in Bangladesh, International Journal of stroke, Sep-2012.
2. Yanzhong W, Anthony GR and Charles D.A., Age and Ethnic Disparities in Incidence of Stroke Over Time The South London Stroke Register, Stroke. 2013; 44: 3298–3304
3. Brett M. K, Jane C and Kathleen A, Temporal trends in stroke incidence in a large, biracial population, Neurology.org

4. Andrija J, Julia F and Alexandra P, Stroke risk factors and treatment variables in rural and urban Austria: An analysis of the Austrian Stroke Unit. Registry. [https:// doi.org/ 10.1371/ journal.pone.0214980](https://doi.org/10.1371/journal.pone.0214980)
5. Davidson's Principles and Practice of Medicine, Stuart H, Ian D, Mark WJ, 23 edition.
6. CaminhaCC, DenubilaJ C, and MarinhoCezar DD, Burden and Quality of Life of Family Caregivers of Stroke Patients, [https://doi.org/10.1080/ 07380577.2018.1449046](https://doi.org/10.1080/07380577.2018.1449046)
7. Sajid M, Mahfooz I and Muhammad D et al, Frequency of Ischemic and Hemorrhagic stroke and comparison of low density lipoprotein levels in these patient, PJMHS vol.9, No.3, Jul-Sep 2015.
8. Shushrutha VH, Aakash N B and Ansari S, Hemispheric Differences in Ischemic Stroke: Is Left-Hemisphere Stroke More Common?, J ClinNeurol. 2013 Apr; 9(2): 97–102.
9. Brønnum H , and Davidsen M , Long-Term Survival and Causes of Death After Stroke, Originally published1 Sep 2001[https://doi.org/ 10.1161/ hs0901.094253](https://doi.org/10.1161/hs0901.094253) Stroke. 2001; 32: 2131–2136
10. Nirmalendu BB, Abbas A, and Saifuddin M, Ischemic Strokes: Observations from a Hospital Based Stroke Registry in Bangladesh, Stroke Research and Treatment, Volume 2016, Article ID 5610797, 13 pages, [http://dx.doi.org/ 10.1155/2016/5610797](http://dx.doi.org/10.1155/2016/5610797).

Original Article

Prevalence of Mentally Retarded Children and Problems Related to their Educational and Treatment Facilities in North West District of Bangladesh

*Alam MR¹, Chowdhury SS², Amin MN³, Mondal NT⁴, Banu A⁵, Sejuti A⁶

Abstract:

Background: The present cross sectional household survey was conducted to assess the people's knowledge, attitude and practice towards mentally retarded children as well as finding the risk factors associated with development of mental retardation and facilities existing in the region to deal with the situation are, therefore, imperative.

Objective: To assess the knowledge, attitude, and health behavior of the people about the mentally retarded children.

Materials and Methods: A total of three Upazilas (i.e. Joldhaka, Nilphamari sadar and Domar) out of six Upazilas in Nilphamari District were selected using simple random sampling and from each of the three Upazilas two Unions were selected and then from each Union a minimum of two villages were selected. Thus a total of twelve villages (clusters) were selected. But during the study period 585 respondents were selected. Of the 195 were mothers/fathers of mentally retarded children and 390 were mothers of normal children.

Results: The mean age of mentally retarded children was 6.6 years where males were observed to be predominant. The mean birth weight of the baby was 2.6 kg. However, parents' illiteracy was highly prevalent among the surveyed children and poverty was evident among them (monthly income below BDT5000). Over 42% of mentally handicapped children belonged to joint family as compared to 10.5% in control group. A sizable proportion of respondents had more than one mentally retarded. About 58% of the mothers of mentally handicapped children received antenatal care while they were pregnant. A substantial proportion of mothers suffered from anaemia during pregnancy followed by convulsion (10.3%). Receiving treatment for the diseases they suffered during pregnancy was much less (23.6%). A sizable proportion of mothers of mentally retarded children were delivered by unskilled dai compared to those who did not have mentally retarded children (73.3% vs. 10%, $p < 0.001$). The incidence of prolonged labour was much higher in the case group than that in the control. Nearly half (46.2%) of the children was identified late. Nearly 65% of the mothers first sought medical help for Muteness (speechlessness), 65.6% of respondents informed that their handicapped children could eat and have meal themselves, 43.6% could respond to natural call and 36.4% put on and put off dress. Over 20% of respondents informed that at least one mentally handicapped member was present in their close relatives. About 30% of respondents in case group reported that they sought medical care for the handicapped children. More than one-quarter of mentally retarded children go to school. Of them, 28.6% go to general school and the remaining 71.4% to specialized school.

Conclusion: The study concludes that mentally retarded children are predominantly male and mostly belonged to poor deprived family where illiteracy is rampantly prevailing. Nearly half of the children are identified late in rural area which is a cause concern. Given the problems faced by the mentally retarded children in the surveyed community, it is of utmost importance to ensure social facilities like specialized school run by specially trained teachers. So long such schools have not been established; at least a special teacher can be employed to each Govt. Primary School so that they can deal with those children efficiently.

Key words: Prevalence, Mentally retarded children, Social facilities.

Introduction:

Mental retardation is the most difficult categories of childhood disability to document epidemiologically, because its causes are multi-factorial and often elusive¹. Mental retardation is a

disability characterized by significant limitations both in intellectual functioning and in adaptive behaviour as expressed in conceptual, social, and practical adaptive skills. This disability originates before the age 18 years². Mental retardation is the impairment of both intellectual and adaptive behavior. It is also known as cognitive disability. It is a condition which unlike other diseases cannot be treated with medicines but can be managed only through better understanding by the family members, special training and education of the person for improved adaptation to the immediate environment.

Several causes can lead to mental retardation. Some are prenatal such as genetic abnormality, chromosomal defects and infections of mother during pregnancy, such as

1. Associate Professor, Department of Dermatology & Venerology, Rangpur Community Medical College and Hospital, Mobile: 01716054672, E-mail: ralam63@gmail.com
2. Principal, Palashbari College, Nilphamari
3. Research Consultant, Ibrahim Cardiac Hospital & Research Institute, Shahbag, Dhaka
4. Associate Professor, Dept. of Medicine, Rangpur Community Medical College and Hospital.
5. Assistant Professor, Paediatrics Department, Rangpur Medical College Hospital.
6. Medical Officer, Dept. of Paediatrics, Dhaka Medical College Hospital.

*For correspondence

rubella, exposure to teratogens or radiation. Others are perinatal, for example birth trauma, anoxia or asphyxia during birth process or pre-maturity. Postnatal conditions like trauma to head, gross malnutrition in infancy or hypothyroidism can all lead to mental retardation.³

Most of the causes can be prevented. Conditions like hypothyroidism (low secretion of thyroxine hormone from thyroid gland characterized by hoarseness of voice, cold intolerance, rough coarse skin and myxoedema) can be prevented by use of iodized salt by pregnant mothers. To prevent goiter, Bangladesh has implemented a universal salt iodization program during the past decade, but efforts to promote this program must continue because data suggest that fewer than half of the households consume iodized salt.⁴

There are also indications that iodine deficiency alone might not account for the high prevalence of goiter among pregnant women in rural Bangladesh suggesting that other factors must be considered⁵. Infections like rubella can be prevented by vaccination of adolescent girls. Rubella is a togavirus infection characterized by an upper respiratory infection, measles-like rash, fever and lymphadenopathy. Complications include arthritis, encephalitis. Congenital rubella syndrome occurs when a woman contracts the rubella virus during her first trimester of pregnancy.

About 85% of women who catch rubella in the first trimester transmit it to their fetus. Hallmarks of the syndrome in the child are sensory-neural deafness; congenital heart defects; learning difficulties; eye defects such as cataracts, glaucoma, retinopathy and microphthalmos; and bone defects. Hepato-splenomegaly and miscarriages are also common. Good arrangements for delivery can prevent many birth injuries. Use of contraceptive can prevent pregnancy in a very young or an elderly woman thereby preventing birth trauma, chromosomal disorders and low birth weight babies. Durkin et al. (2000) showed⁶ that significant independent predictors of serious mental retardation in rural and urban areas of Bangladesh were maternal goiter and postnatal brain infections. In rural areas, consanguinity and landless agriculture were also independently associated with the prevalence of serious mental retardation.

In both rural and urban areas, independent risk factors for mild cognitive disabilities included maternal illiteracy, maternal history of pregnancy loss and small for gestational age at birth. Interventions are likely to have the greatest impact on preventing cognitive disabilities among children include expansion of existing iodine supplementation, maternal literacy, and poverty alleviation programs as well as prevention of intracranial infections and their consequences. But effective prevention can only be achieved by good understanding of the factors responsible for the condition. Once the condition has appeared,

secondary prevention can be employed to halt complications or worsening of the condition further.

An extensive iodine deficiency disorders survey was conducted in Bangladesh in 1993 to assess the latest iodine nutritive status of the country. The clinical variables of the survey were goitre and cretinism, and the biochemical variable was urinary iodine. The total number of survey sites was 78 and the total number of respondents was 30,072. The prevalence of cretinism in the country is 0.5% (hilly, 0.8%; flood-prone, 0.5%; and plains, 0.3%)⁷. Nilphamari district is one of the areas of river basins which experience heavy rains and annual flooding have a negative iodine balance. The soil of these areas is dangerously depleted of iodine. Foods and livestock grown in these areas are naturally poor in iodine and people living in these areas and dependent on foods grown locally thus become the victims of iodine deficiency.

Mentally retarded children are found all over the country. But some areas are more prone to develop mentally retarded children than the others. Nilphamari seems to be one such geographically disadvantaged area, for it is situated at the foot of Himalayan region. The reason might be iodine deficiency, maternal malnutrition (poverty with consequent low calorie intake resulting in low birth weight of babies) and inadequate provision to deal with obstructed labour (resulting in cerebral palsies). There might be many other reasons. The area is also a disadvantaged area in terms of education and economy. People's perception of health and diseases are associated with prejudice.

Materials and Methods:

The methodology for this study includes empirical field observation and field level data collection through formal and in-formal interview process. The participatory techniques as well as in-depth interviews were arranged to get a greater depth of understanding about the prevalence of mentally retarded children in the study area. Moreover, relevant quantitative information was used for this study that was collected from different secondary sources.

A total of three Upazila (i.e. Jaldhaka, Nilphamari sadar and Domar Upazila) were selected for this study based on the magnitude of the mentally retarded in the Nilphamari district. In Jaldhaka Upazila, two villages Purbo Shimulbari and Pashcim Shimulbari from Mirganj Union and Purba Kathali and Pashcim Kathali from Kathali Union were selected. In Nilphamari sadar Upazila, two villages namely Arazi Manushmara and Kishmat Pochapukur from Panchopukur Union and Mukhdhon and Dogachi from Tupamari Union were selected. In Domar Upazila; Gongapara, Gosaigonj, Pashcim Boragari and Bagdobara villages were selected from Vogdabari and Boragari Union. All these villages were selected randomly. There are 10 Govt. Primary Schools and one Health Complex in the selected villages from Jaldhaka. Nilphamari Sadar Upazila covers one Union Health Centers, one General hospital, and seven private hospitals, but there is no health center in the selected

villages. Moreover, there are 16 primary school and two health centers in Domar Upazila.

The sampling strategy was modeled after the Expanded Programme on Immunization cluster sampling method developed by the World Health Organization (WHO) for surveys in populations with no existing sampling frames (Lemeshow and Stroh, 1988), where a village was the cluster and all the 2-9 years children in a cluster were assessed for mental retardation. The selection of cluster was done using multistage simple random sampling procedure starting from selection of Upazilas to village (ultimate cluster). At first three Upazilas out of six Upazilas in Nilphamari District were selected using simple random sampling and from each of the three Upazilas two Unions were selected and then from each Union a minimum of two villages were selected. Thus a total of twelve villages (clusters) were selected. The sample size was determined using following formula option:

$$n = (Z^2 \times p \times q) / d^2, \text{ where}$$

Z = Standard normal deviate = 1.96

p = Prevalence of mental retardation in 2-9 years children = 0.05

q = $(1 - p) = 0.95$, and

d = allowable error (here 10% of 'p') = 0.005

Assuming a 0.5% prevalence of mental retardation in 2-9 years children the required sample size will be, $n = (1.96^2 \times 0.05 \times 0.95) / (0.005)^2 = 7299$.

But during the study period 585 respondents were selected. Of the 195 were mothers/fathers of mentally retarded children and 390 were mother's normal children.

Socio-demographic Issues

This study was conducted among 585 children (195 were mentally retarded children considered as the target population and 390 children were considered as the control group) in three Upazilas (Nilphamari sadar, Domar, and Jaldhaka) of Nilphamari District. The socio-demographic characteristics of the population are mainly the background issues in exploring the illness within disease of the mentally retarded children that is the core objective for this research.

Demographic Characteristics

Table I shows that the mean age and birth weight was significantly higher in case group compared to control group (6.63 ± 2.3 vs. 5.6 ± 2.3 years, $p < 0.001$; 2.6 ± 0.7 vs. 2.3 ± 0.5 kg, $p < 0.001$). Male children were predominant in the both case and control group (63.1% vs. 100%, $p < 0.001$). About 40% of children's father were farmer, 8.7% service holder, 12.3% businessman and 42.1% was involved in other diverse profession which in the control group were 64.6% 35.4% and 35.4% respectively. In the both groups majority of the respondents was Muslim (82.1% vs. 76.4%). Over half (54.4%) of children's father in case group was illiterate, 38.5% can read and write and 7.2% secondary level educated. In the control group, about 80% was illiterate, 17.7% can read and write and 2.3% are educated with Secondary School Certificate (SSC) examination. A large proportion of children's father in the both groups had monthly income of about BDT 5000.00.

Result:

Table I: Comparison of demographic characteristics between groups

Demographic variables	Group		P value
	Case (n=195)	Control (n=390)	
Age of target children* (yrs)	6.63 ± 2.3	5.6 ± 2.3	<0.001
Birth weight (kg)	2.6 ± 0.7	2.3 ± 0.5	<0.001
Sex of handicapped child:			
Male	123 (63.1%)	195 (100%)	<0.001
Female	72 (36.9%)	00	
Father occupation:			
Farmer	72 (36.9%)	126 (64.6%)	<0.001
Service	17 (8.7%)	69 (35.4%)	
Business	24 (12.3%)	00	
Other	82 (42.1%)	00	
Religion:			
Islam	160 (82.1%)	149 (76.4%)	<0.001
Hindu	32 (16.4%)	00	
Others	3 (1.5%)	46 (23.5%)	
Education:			
Illiterate	106 (54.4%)	156 (80.0%)	<0.001
Can read and write	75 (38.5%)	35 (17.7%)	
SSC	14 (7.2%)	5 (2.3%)	
Monthly family income (Taka):			
<5000	159 (81.5%)	124 (63.6%)	<0.001
5001-10000	32 (16.4%)	61 (31.3%)	
>10000	4 (2.1%)	10 (5.1%)	

Number of Children

Approximately 46% of the respondents in case group had number of children between 1-2, 42.1% between 3-4, 9.7% between 5-6 and 2.6% between 7-8. In the control group 84.1% had children between 1-2, 13.6% between 3-4 and 2.3% between 5-6. Asked about 2-9 years children in the family, about 80% of the respondents told 1-2 children, 19.5% 3-4 and 1% 5 children which in the control group were 33.6%, 58.5% and 7.9% respectively. Over 57% of the respondents in case group had 1-2 mentally retarded children and 42.9% between 3-5 children. While, in control group all of the respondents had 1-2 children

Educational Status of Mentally Retarded Children

Fifty six respondents answered this question. Nearly 30% of the respondents informed their children used to go to school; of them, 28.6% to general school and the remaining 71.4% to specialized school. Only 14.4% of respondents reported that trained person took care of their children (Table II).

Table II: Distribution by educational status of mentally retarded children

Educational status	Frequency	Percentage
Go to school	56	28.7
Type of school (n = 56)		
General	16	28.6
Specialized school	40	71.4
Trained person care child	28	14.4

Facilities and information available:

The survey area neither has any specialized schools, hospitals nor has specially trained teachers to deal with the mentally retarded children. None of the public or private organizations has any program to help these mentally handicapped children. There was no association of the parents of mentally handicapped children. Past survey data on mentally retarded children were also virtually absent (table III).

Table III: Distribution of activities of mentally retarded children

Facilities and information available	Frequency
Specialized school for mentally retarded children	00
Specially trained teachers for mentally retarded children	00
Specialized hospital for mentally retarded children	00
Park and recreation facilities with special corner for the mentally retarded	00
Natural open spaces for playing	Plenty
Number of organizations (public or private) assisting mentally retarded children	00

Illness and Issues: Mentally Retarded Children

Behavioral Pattern of Target Children

During our field visits, we considered target children with two age-groups: (a) less than six months; and (b) more than six months. In addition, we considered the response of parents and their siblings in identification of the situation of the targeted children. It was calculated that slightly over half (53.8 percent) of the targeted children were identified as having abnormal behavior at ≤ 6 months of age and 46.2 percent were for the children who were more than six months of age. In case of parents, our fieldwork shows that nearly 55 percent of the cases mothers first identified the abnormal behavior of their children, and in 38 percent cases, it was first identified by their siblings and in 7.2 percent cases fathers identified them first.

Signs and Symptoms for Mentally Retarded Children

There was a difficult situation when we started to identify the symptoms of mentally-retarded children. It was raised a number of issues whether the targeted children were similar to the characteristics of autism. Finally, one medical doctor specialized on this field confirmed us about the mentally retarded children from the autistic children. After that we started our fieldwork in order to identify the sign and symptoms of our targeted children.

Table IV: Distribution of children by signs and symptoms (n=195)

Signs & Symptoms	Frequency	Percentage
Type of problem		
Mute	151	77.4
Physically handicapped	26	13.3
Mental handicapped	10	5.1
Salivary problem	05	2.6
Failed to straight neck	02	1.0
Convulsion	01	0.5

Pregnancy Profile

Majority of the mothers stayed at their husbands' house in 1st 3 months and last 3 months of pregnancy in the both case and control groups. About 58 percent of the mothers of mentally retarded children and 71.8 percent of the mothers of healthy children received antenatal care while they were pregnant. Of them, 70.7 percent of mothers in case group and 69.6 percent in control group received ANC 3 or less than 3 times ($p=0.781$).

Disease during Pregnancy:

Table V: Comparison of diseases during pregnancy between groups

Diseases during pregnancy	Group		p-value
	Case (n=195)	Control (n=390)	
Anaemia	80 (41.0)	39 (20.0)	0.003
Hypertension	6 (3.1)	00	-
Diabetes	2 (1.0)	00	-
Convulsion	20 (10.3)	00	-
Trauma during pregnancy	3 (1.5)	00	-

Table VI: Comparison of history of past pregnancy between groups

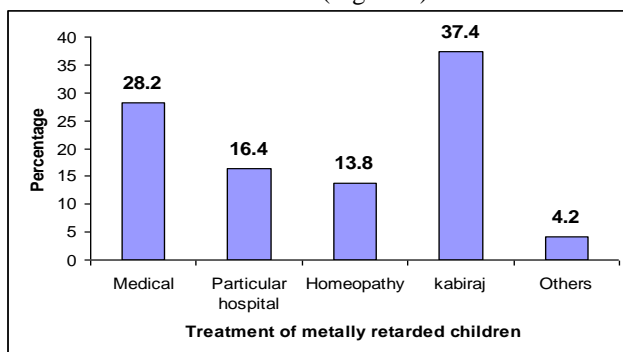
History of past pregnancy	Group		p-value
	Case (n=195)	Control (n=390)	
Received treatment during pregnancy	46(23.6)	10(4.9)	<0.001
X-ray done	6(3.1)	5(2.6)	0.720
Place of delivery			
Home	163(83.6)	178(92.0)	0.012
Health care center	13(6.7)	17(8.0)	
Hospital	19(9.7)	00	
Who delivered			
Relatives	13(6.7)	00	
Skilled Dai	39(20.0)	175(90.0)	<0.001
Unskilled Dai	143(73.3)	20(10.0)	
Mode of delivery			
Normal	186(95.4)	141(72.3)	<0.001
Forceps	5(2.6)	45(23.1)	
Scissors	4(2.0)	09(4.6)	
Duration labor (hrs)			
≤ 12 (normal)	141 (72.3)	180 (92.2)	<0.001
> 12 (prolonged)	35 (27.7)	15 (7.8)	

Birth Trauma during Delivery

Nearly one-third (31.8 percent) of babies in case group received birth trauma during the birthing process compared to 2.3 percent of babies in control group ($p = 0.036$).

Treatment of Mentally Retarded Children

In response to a question what treatment they sought for mentally retarded children, 28.2 percent told that they sought medical care, 16.4 percent received treatment in specialized hospital, 14 percent tried homeopathy, 37.4 percent took treatment from Kabiraj and 4.2 percent received traditional treatment (Figure 6).

**Figure 1: Distribution of mentally children by pattern treatment received****Activities of Mentally Retarded Children**

Nearly two-third (65.6%) of the mothers of mentally retarded children informed that their children could eat and have meal themselves, 43.6% could respond to natural call, 36.4% put on and put off dresses, 6.7% used to behave normally with their relations, 16.4% played with friends and 6.7% quarreled frequently with other inmates (Table VII).

Table VII: Distribution of activities of mentally retarded children

Activities	Frequency	Percentage
Eat and meal themselves	128	65.6
Respond to natural call	85	43.6
Put on and put off dress	71	36.4
Behave normally with relations	13	6.7
Play with friends	32	16.4
Quarrel frequently with other inmates	19	6.7

Discussion:

The present paper attempts to find the prevalence of mentally retarded children and the problems faced by them in a defined geographic area (Nilphamari). The soil of which is supposed to be deficient in iodine and iodine deficiency is a known risk factor for mental retardation. The study also aimed at finding the existing facilities and scope for making them capable and skilled enough to lead a productive life. In the present study, the mean age of mentally retarded children was 6.6 years. Males were observed to be predominant. The mean birth weight of the baby was 2.6 kg indicating that low-birth weight was not a predisposing factor for mental retardation. However, parents' illiteracy was highly prevalent among the surveyed children and poverty was evident among them (monthly income below Taka 5000). Cooney et al. (2006) reported a male predominance in his study (61%) and approximately 60.0% of children were between 5 and 10 years which is similar to the findings of the present study⁸.

Seiquira et al (1990) found that more than 50% of mentally retarded children were the victims of severe financial burden⁹. Ramaswamy (1995) reported that 61% of parents studied by them had financial constraints¹⁰. Many earlier studies on mentally retarded children also have reported financial hardship. The reasons of financial hardship in the present study area seem to be limited scope of work and low daily wages. The additional expenditure involved in caring for the mentally retarded children aggravates the hardship further. Besides, the parents themselves have to spend extra time in caring severely retarded children thereby reducing the time for income (McAndrew, 1976)¹¹.

A sizable proportion of respondents had more than one mentally retarded child indicating a genetic predisposition. Approximately 58% of the mothers of mentally handicapped children received antenatal care while they were pregnant. A substantial proportion of mothers suffered from anaemia during pregnancy followed by convulsion (10.3%). Receiving treatment for the diseases they encountered during pregnancy was much less (23.6%). Although it is known that X-ray exposure during pregnancy may cause radiation hazards, 3.1% of them had such exposure. All these might have contributed to mental retardation.

Educational intervention particularly designed to reduce the incidence of mental retardation in regions geographically prone to it should, therefore, be incorporated into antenatal care programme. A greater proportion of mothers of mentally retarded children were delivered by unskilled dai compared to those who did not have mentally retarded children (73.3% vs. 10%). This raises suspicion that they might have caused the birth trauma in majority of cases who received it. The incidence of prolonged labour was much higher in the case group than that in the control which may have led to birth asphyxia and in severe cases to cerebral palsy.

Early identification and proper treatment go a long way in better intellectual development and acquisition of the skill of the handicapped children. In our study nearly half (46.2%) of the children was identified late. So all mothers must have basic idea as to how to identify a mentally handicapped child. Muteness (speechlessness) was the predominant sign by which the mothers identified their handicapped children and nearly 65% of the mothers first sought medical help for this problem. About two-third (65.6%) of respondents informed that their handicapped children could eat and have meal themselves, 43.6% could respond to natural call and 36.4% put on and put off dress. These are good signs that despite being handicapped, most of the children could take care of themselves; but there is scope to make further improvement by training the mothers of the handicapped children as how to take care of their children. Meyer (1988) is of the opinion that recognizing abnormal behavioral signs in children helps initiate early intervention. Problematic symptoms and behaviors worsen if left untreated. Intervention in children with abnormal behavioral patterns helps build confidence and self-esteem and improves social interactions and academic success.

Behavior is a tool of communication that children use when they don't have the words to express themselves to others. Helmstetter (1994) noted that abnormal behavior in

children is considered as any types of behavior that interferes with daily functioning. Abnormal behavior can be symptoms of anxiety, depression, eating disorders, extreme defiance, rage or physical aggression to self or others¹².

It is important to pay attention to sudden changes in behavior that are outside the normal developmental milestones based on the age of the child. Kishi and Meyer (1994) reported that fighting, bullying, threatening or intimidating others are forms of aggression that signal problems. Cruelty toward animals or people, vandalism and setting fires are all abnormal behaviors that are signs for alarm in children. Any indications of self-harm behavior, such as cutting on arms or legs is also considered abnormal. These behaviors can include suicidal or homicidal thoughts and actions or attempts. Refusing to eat, wetting or soiling oneself on a daily basis are warning signs and should be acknowledged¹³.

Barr et al. (1999) evaluated the level of mental retardation of the child. This may require the services of health care professionals, including psychiatrists, developmental therapists, speech therapists and others. Once an examination has been completed, a plan to educate the child can be developed. Address the psychological issues before placing the child in a classroom. Many high-functioning children with mild mental retardation may be hampered by feelings of inferiority and depression¹⁴. It's important to understand how the child feels about her condition, which may affect social interaction and the willingness to learn. It should be determined whether a child can be placed into a mainstream student population or needs a special school.¹⁵

While a program of mainstreaming or full inclusion may challenge a mentally retarded child to succeed, don't overtax his abilities, especially if he has physical limitations. Develop a continuing set of goals. As the child grows older and progresses, thought should be given to vocational courses that can teach occupational skills. Success in educating mentally retarded children can be measured by their ability to live and work independently when they become adults. In our study, nearly 30% of the respondents told that their children go to school. Of them, 28.6% go to general school and the remaining 71.4% specialized school. Specialized school is necessary for severely handicapped children, but mildly handicapped ones could be placed in general school. The intensity level of various psychosocial problems faced by the parents of mentally retarded children has direct linkages with the level of retardation of their children. So early identification and prompt treatment remains the mainstay in managing mentally retarded children.

Number of primary schools in a Union of Northern Bangladesh are adequate and they are located as similar as Central Business District. The schools are not far from the residences of surveyed children (average 2 Km). One of the school at the center can be selected as a model school and all the social facilities for the MR children including education and health care will be available there. In this case, Upazila Health Complex will provide necessary health support at least once in a week. MR children from adjacent will also come to this model school and enjoy all the available facilities. The schools did not have trained teachers to impart education to the MR children.

Government legislation emphasizes that mentally retarded children will have equal rights to be admitted in the general school. But only ensuring the right will not solve the problem of MR children. Mentally retarded children require education different from those for general children. They also be taught by specially trained teachers who are aware of their problems and aptitude of learning. So admission could be ensured for the mentally retarded children only after posting trained teachers for handling their problems and establishing good monitoring system for their care. Moreover, by increasing health centers, pregnant mothers can get antenatal check up and nutrition advices. Ensuring supplementation of iodized salt during pregnancy and other factors that are known to be associated with mental retardation, the incidence mental retardation in newborn can be reduced. The traditional birth attendants could be trained to reduce the incidence of birth injury and referring the risk pregnancies. In addition the trained teachers, other school staff and guardians of MR children will also acquire training, so that they can play a part how to deal with the MR children. Also these MR children along with other children will participate in all the social festivals which help the children in improving their social and mental outlook. Taking all these measures in a concerted way, hopefully, will improve condition of MR children and reduce the incidence of mental retardation in the long run.

Conclusion:

From the findings of the study and discussion thereof, it can be concluded that mentally retarded children are predominantly male and mostly belonged to poor illiterate family. Nearly half of the mentally retarded children in rural area are identified late which is a cause concern. About two-third of the children can eat themselves and around 40% can respond to natural call and put-off and put-on dresses. Care of pregnant mothers during antenatal and natal period will help reducing the incidence of mentally retarded children by avoiding birth trauma and reducing the incidence of prolonged labour. Finally a concerted effort is needed to reduce the incidence and

improve the condition of mentally retarded children in the community and reduce the incidence of mental retardation in the long run. Of them specially designed educational programme during antenatal period seems to be highly important so that they can identify handicapped children at the earliest possible and do the needful.

Given the problems faced by the mentally retarded children in the surveyed community, it is of utmost importance to ensure social facilities like specialized schools for mentally retarded and handicapped children run by specially trained teachers. So long such schools have not been established; at least a special teacher can be employed to each Govt. Primary School so that they can deal with those children efficiently.

References:

1. Richmond JB, Butler JA, Stenmark S. 1983, 'Reducing childhood disability in the 80s.', *Hosp Commun Psych*; vol. 34, pp. 507-14
2. American Association on Mental Deficiency (AAMD) (1983). *Classification in Mental Retardation*. Washington, DC: American Association on Mental Deficiency
3. Islam S, Durkin M, Zaman SS 1993, 'Socioeconomic status and the prevalence of mental retardation in Bangladesh', *Ment Retard*, vol. 31, pp. 412-7.
4. Bellamy C. 1988, *The state of the world's children.*, Oxford University Press 1988.
5. Filteau SM, Sullivan KR, Anwar US et al. 1994, 'Iodine deficiency alone cannot account for goiter prevalence among pregnant women in Modhupur, Bangladesh', *Eur J Clin Nutr* 1994; vol. 48, pp. 293-302.
6. Durkin MS, Khan NZ, Davidson LL, Huq S, Munir S, Rasul E and Zaman SS. 2000, 'Prenatal and Postnatal Risk Factors for Mental Retardation among Children in Bangladesh.', *Am J Epidemiol*. vol. 152, no. 11, pp. 1024-33.
7. Yusuf HK, Quazi S, Kahn MR, Mohiduzzaman M, Nahar B, Rahman MM et al 1996, 'Iodine deficiency disorders in Bangladesh. *Indian J Pediatr* 1996; 63(1):105-10).
8. Cooney G, Jahoda A, Gumley A, Knott F (June 2006). "Young people with intellectual disabilities attending mainstream and segregated schooling: perceived stigma, social comparison and future aspirations". *J Intellect Disabil Res* 50 (Pt 6): 432-44.
9. Seiquira EM; Rao PM; Subbakrishna DK; Prabhu GG (1990): Perceived burden and coping styles of the mothers of mentally handicapped. *NIMHANS Journal*, 8 (1): 126-129.
10. Ramaswamy, K. (1995). Parental Attitude towards Mentally Retarded Children. *Indian Journal of Clinical Psychology*, Vol. 22, pp. 631-715.
11. McAndrew I (1976): Children with a handicap and their families. *Child Care, Health and Development*, 2: 102-108.

12. Helmstetter, E., Peck, C. A., & Giangreco, M. F. (1994). Outcomes of interactions with peers with moderate or severe disabilities: A statewide survey of high school students. *Journal of The Association for Persons with Severe Handicaps*, 19, 263-76.
13. Kishi, G. S., & Meyer, L. H. (1994). What children report and remember: A six-year follow-up of the effects of social contact between peers with and without severe disabilities. *Journal of The Association for Persons with Severe Handicaps*, 19, 277-89.
14. Barr O, Gilgunn J, Kane T, Moore G. Health screening for people with learning disabilities by a community learning disability nursing services in Northern Ireland. *J Adv Nurs*. 1999; 29:1482-1491.
15. Borthwick-Duffy SA (1994): Epidemiology and prevalence of psychopathology in people with mental retardation. *Journal of Consulting and Clinical Psychology*, 62 (1): 17-27.

Case Report

Death From Concealed Punctured Wound in Adult

*Rahman SM¹

Abstract:

Death from concealed punctured wound in new born and infant is not uncommon. But in case of adult, death due to concealed punctured wound is rare. Here we present a case report of death from a concealed punctured wound in adult.

Conclusion: *In this case report death was due to shock and hemorrhage in the pleural cavity due to the mentioned injury, which was antemortem and homicidal in nature.*

Recommendation: *Meticulous external examination is necessary to find out the accurate findings in autopsy.*

Key words: *Concealed, Punctured wound, Autopsy, Deceased, Mortuary.*

Introduction:

Puncture wounds, particularly to the plantar surface of the foot, are common and occur in all age groups.¹ These wounds are produced by sharp or blunt instrument being driven through the skin into the deeper structures. The instruments usually used are knives, dagger, stickles, pins, needles and scissors.² Concealed punctured wounds are the wounds caused on concealed parts of the body, in order to cause undetectable injury to the vital organ of the body. Usual sites are – the fontanelle of a newborn to kill it by injuring the brain, nape of the neck to injure the base of the brain, axilla and under the fold of the female breast to injure the lungs and heart. Other sites are nostrils, fornix of the upper eye lids, soft palate, vagina, rectum, etc. Fatal penetrating injuries can be caused without leaving any readily visible external marks. These injuries may not be detected unless carefully. Though punctured wound can be accidental, suicidal and homicidal, concealed punctured wound are always homicidal in nature.³

Concealed punctured wound is common in children and rare in case of adult. In this case report we are going to present a case of death from concealed punctured wound in adult, from Rangpur Kotowali thana UD case no 254, dated 17.10.2011. Deceased was Md. Ashadul Islam 40 years, son of late Moslem Uddin, Village – Bellugati (Mozid Para), PS- Kotowali, District- Rangpur.

Case history

On 18.10.2011 at 11.30 AM a dead body was brought to the Rangpur Medical College morgue to do autopsy by investigating police officer SI Md. Kobirul Islam (with

Constable no-398, Sri Ananta Kumar). The investigating officer stated in inquest report that he collected the dead body from Bellughati (mirazipara) of Rangpur sadar, in front of the house of Sahar Ali, the body of the deceased was found by the side of the road and the dead body was identified by Sahar Ali. He noted that the deceased worn half armed shirt and the left side of the shirt were torn. He found no external injury or abnormality on the body. He came to know from present public that the deceased was quarreled with Mr. Kasiruddin and his wife, during that time the deceased suddenly fall down to the ground and expired. So, IO send the dead body to the Forensic medicine department of Rangpur Medical College for post mortem examination to find out the exact cause of death.

PM examination was done on 18.10.2011 at 11.30 AM. General findings-Rigor mortis was present, mouth-closed, eyes open and there was no mark of injury in the body. Internal findings-after opening of the thoracic cavity, clotted blood was present in left sided chest cavity and injury was present in ascending aorta. Other thoracic organs were congested. Brain and abdominal organs were healthy. After getting the findings of thoracic cavity, we extensively search the body particularly chest for any mark of injury. Finally we found a small penetrating injury on the upper part of the left axilla, about 4 inches depth and directed medially, the investigating officer missed the injury in inquest report. Then was called to confirm the injury and correct the inquest report. After postmortem examination the autopsy surgeon commented that death was due to shock and hemorrhage in the pleural cavity due to the mentioned injury, which was antemortem and homicidal in nature.

1. Associate Professor, Dept. of Forensic Medicine
Rangpur Community Medical College, Rangpur

*For correspondence

Discussion:

There are very few case reports of death from concealed punctured wound in adult. Concealed punctured wound may be suicidal, accidental and homicidal. Suicidal concealed punctured wound are on accessible parts, commonly in heart region, rare in abdomen. Usually single but two may be present, one approximation to other. Homicidal concealed punctured wound may be in any parts of the body, but commonly in heart and neck region to attack the heart and brain.² In this case report we have found the wound in upper part of the left axilla, that injured the aorta. So the site of concealed punctured wound is similar to that of the previous report. Causes of death in punctured wound are injury to vital organs like brain, heart, liver, kidney, lungs etc; intracranial haemorrhage causing cerebral compression; cardiac tamponade due to accumulation of blood in pericardial sac; haemothorax, pneumothorax, pyothorax; haemorrhage leading to shock; choking due to occupation of larynx and trachea by blood, in case of injury to neck-vessels and larynx or trachea; vagal shock due to injury to larynx, urinary bladder, diaphragm; air and fat embolism; infection, abscess, septocaemia, peritonitis; diaphragmatic hernia, duodenal fistula leading to pancreatitis etc.⁴ In our case the death probably occurred due to haemorrhagic and neurogenic shock. Injury to the aorta and presence of clotted blood in left sided pleural cavity indicate hemorrhage and sudden death can be explained by neurogenic shock.

External hemorrhage is not necessary a criterion for the danger to life. There may be very little external hemorrhage and yet profuse haemorrhage may take place internally owing to some vital organ having been penetrated, the signs of which may be delayed.⁵ In this case there was no obvious external marks of injury/haemorrhage, which was easily missed by the investigating officer and by the autopsy surgeon at first sight. Puncture wound in hairy areas (scalp and/or pubes) can be located by visual and palpable search. Among other sites not anticipated as the point of occurrence of puncture wounds are the ears, nostrils, medial canthus of eyes, frontonelles in newborn, nape of the neck, axilla, under

fold of female breast, vagina, rectum etc. Extreme difficulty may be faced in locating wounds at this site. The agent/instrument used in such case may be small in cross section, like knitting needle, safety pin etc.⁶ In this case site of the punctured wound was not visible on external examination, even there were no marks of bleeding, and the puncture site was detected only after internal examination by searching the internal injuries. As the puncture site was on the left side, probably the victim and assailant was in front of each other. (The two persons were quarrelling with each other). The instrument used in this injury was a knitting needle. So there was no obvious external mark of injury and bleeding. The investigating officer mentioned tearing of the shirt; this may be a guide to search the mark of injury which was missed by the IO and autopsy surgeon. So, proper examination of the cloths is necessary before examining the dead body.

Conclusion:

In this case report death was due to shock and hemorrhage in the pleural cavity due to the mentioned injury, which was antemortem and homicidal in nature.

Recommendation:

Meticulous external examination is necessary to find out the accurate findings in autopsy.

Reference:

1. Reinherz RP, Hong DT, Tisa LM, et al. Management of puncture wounds in the foot. *J Foot Surg* 1985; 24:288.
2. PV Chadha; Jaypee Brothers Medical Publisher Ltd. Hand book of Forensic Medicine and Toxicology, 5th edition.; Wounds, pages 64-95.
3. K.S. Narayan Reddy; In K. Suguna Devi; The Essentials of Forensic Medicine and Toxicology, Thirtieth Edition; Mechanical Injuries, pages 163-220.
4. Nandy A. Principle of Forensic Medicine. 2nd edition. New central book agency. Mechanical injuries 2004; 209-262.
5. K. Mathiharan and Amrit K. Patnaik; Modi's Medical Jurisprudence and Toxicology, twenty-third Edition, Lexis Nexis, Butterworths Wadhwa; Injuries by Mechanical Violence, pages 685-726.
6. Krishan Vij; Text book of Forensic Medicine and Toxicology, 5th edition; Injuries by sharp force.

Case Report

Case Report on Takayasu's Arteritis: A Rare Form of Vasculitis

*Akhiruzzaman¹, Kabir MA², Morshed MS³, Islam TB⁴

Abstract:

This is a case of Takayasu's arteritis admitted in the hospital with fever, weakness in left hand, pain over back of the chest, dizziness and vomiting for several times. All pulses were absent in left hand and bruit was present over both right and left carotid artery & over left subclavian artery. ESR was raised but CRP (C-Reactive Protein) was negative. Patient was anaemic but other systematic examinations revealed normal findings. Treatment was started with tab. Prednisolone (20mg) and tab. Methotrexate (10 mg) along with other drugs. Patient's condition was improving and she was kept in close observation for next few months.

Key words: Takayasu's arteritis, Vasculitis, Rare vascular disease.

Introduction:

Takayasu's or pulseless disease is a form of large vessel granulomatous vasculitis with massive intimal fibrosis and vascular narrowing.¹ Takayasu's Arteritis (TA) has been recognized worldwide and overall incidence has been estimated to be 2/1,000,000 per year.² Though anyone can be affected but most commonly young or middle-age women are affected in Asian subcontinent.³ Females are about 8–9 times more likely to be affected than males.⁴ It mainly affects the aorta and its branches, as well as the pulmonary arteries. Due to obstruction of the main branches of the aorta, including the left common carotid artery, the brachiocephalic artery, and the left subclavian artery, Takayasu's arteritis can present as pulseless upper extremities.¹ Although the cause of Takayasu arteritis is unknown, the condition is characterized by segmental and patchy granulomatous inflammation of the aorta and its major derivative branches. This inflammation leads to arterial stenosis, thrombosis, and aneurysms.⁵ The genetic contribution to the pathogenesis of Takayasu's arteritis is supported by the genetic association with HLA-B*52. A 2013 large collaborative study uncovered multiple additional susceptibility loci for this disease, increasing its number of genetic loci to five risk loci across the genome.⁶

Some people develop an initial "inflammatory phase" characterized by systemic illness with signs and symptoms of malaise, fever, night sweats, weight loss, joint pain, fatigue, and fainting. Fainting may result from subclavian

steal syndrome or carotid sinus hypersensitivity. There is also often anemia and marked elevation of the ESR and C-reactive protein.⁷

Case History

This 21 years old normotensive, non diabetic, non smoker female, hailing from Faridpur and got admitted with low grade intermittent fever for one and half month without chill and rigor, significant weight loss, claudication pain in left hand while raising above head which subsides after taking it down. For last one month non-radiating pain in back of the chest and neck was felt which was aggravating by flexion of neck. Patient also has dizziness for last 15 days associated with felling of darkness while rising from supine to sitting position. Patient was severely anaemic, pulse was absent in left hand as well as blood pressure was not recordable in same arm. Bruit was present over both right and left carotid artery and over left subclavian artery. Other systematic examinations revealed normal findings

Investigations and Findings

Following investigations were done and findings were as follows:

- Complete blood count with ESR:

Hb%	8.1g/L
ESR	85 mm in 1 st hour
RBC	4.42 millions/mm ³ of blood
Neutrophils	69%
- ECG: Normal finding
- Colour doppler study of arch of aorta: Stenosis at origin of right common carotid artery (RCCA), left common carotid artery (LCCA) and left subclavian arteries (Figure-1)
- Montoux test: Negative
- X-ray cervical spine (lateral view): No abnormality found
- Chest X ray P/A view: No abnormality found
- CRP: Negative

1. Assistant Professor, Community Medicine, Diabetic Association Medical College, Faridpur. Mobile: 01936105141, Email: akhiruzzaman.88@gmail.com
2. Associate Professor, Biochemistry, Diabetic Association Medical College, Faridpur
3. Lecturer, Community Medicine, M. Abdur Rahim Medical College, Dinajpur
4. Lecturer, Dept. of Biochemistry, Diabetic Association Medical College, Faridpur.

*For correspondence

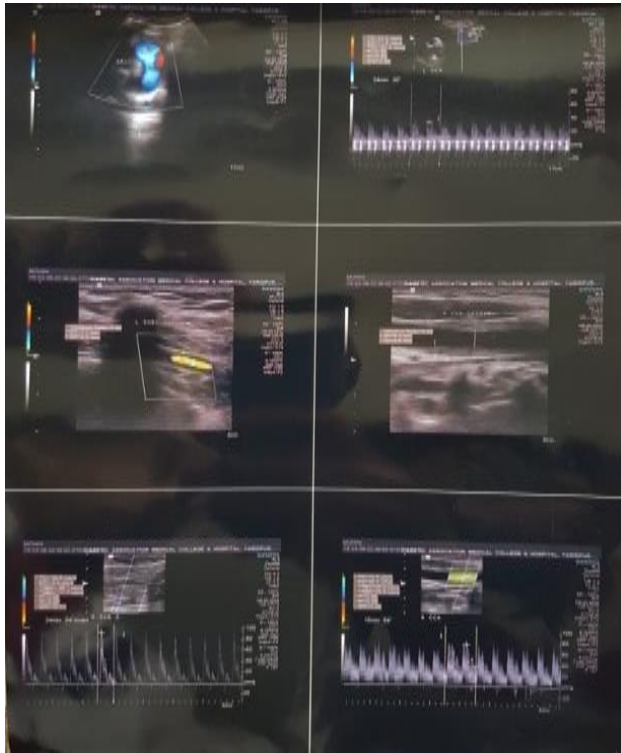


Figure1: Stenosis at origin of RCCA, LCCA and left subclavian arteries

Treatment

- Bed rest
- TAB. PREDNISOLONE (20mg) twice daily for one month, then once daily for 7 days, then half tablet for 7days
- TAB. METHOTREXATE (10 mg) one tablet weekly
- TAB. FOLINIC ACID1 tablet weekly (day after taking methotrexate)
- Physiotherapy

Follow-up

After discharge from hospital patient came for regular follow-up and condition was improving day by day.

Discussion:

Takayasu's arteritis is a rare disease all over the world as well as in Bangladesh. According to distribution of the sex, female are most commonly affected in this disease

and this patient is also a female around 18years of old.³ The common features of this disease is fever, weakness of the hand, pain and dizziness all of which are present in this case.⁵ Normally CRP is increased in TA patients but in this case it was negative. Treatment with prednisone in the initial dose of 60 mg/day (1.3 mg/kg) was introduced together with given orally methotrexate in a dose of 20 mg/m²/week and this patient also treated by same drugs but dose was different due to patient factors.⁵

Conclusion:

Takayasu's arteritis is not commonly occurring disease but if we fail to early diagnosis and proper treatment it may be life threatening. Discussing with common features and its management may help to other health professionals to be aware about this vascular disease.

References:

1. Trystula M. The health related quality of life (hrql) of a patient with severe takayasu's arteritis complications before and after endovascular treatment. *Acta Neuro psychologica*. 2016 Apr 1; 14(2).
2. Reinhold-Keller E, Herlyn K, Wagner-Bastmeyer R, Gross WL. Stable incidence of primary systemic vasculitides over five years: results from the German vasculitis register. *Arthritis Rheum*. 2005; 53:93–9.
3. Soto ME, Espinola N, Flores-Suarez LF, Reyes PA. Takayasu arteritis: clinical features in 110 Mexican Mestizo patients and cardiovascular impact on survival and prognosis. *Clin Exp Rheumatol*. 2008; 26(3): pp; 9–15.
4. James, Berger WD, Timothy G.. *Andrews' Diseases of the Skin: clinical Dermatology*. Saunders Elsevier. 2006.
5. Sadurska E, Jawniak R, Majewski M, Czekajska-Chehab E. Takayasu arteritis as a cause of arterial hypertension. Case report and literature review. *European Journal of Pediatrics*. 2012 May 1; 171(5), pp: 863-9.
6. Güher SD, Travis H, Kenan A, Gokhan K, Patrick C, Sibel AZ,. "Identification of Multiple Genetic Susceptibility Loci in Takayasu Arteritis". *American Journal of Human Genetics*. 2013; 93(2): 298–305.
7. Kiyoshi S, Takako M, Masatomi I,. "FDG-PET of Takayasu's Arteritis". *Journal of General Internal Medicine*. 2014; 29(7): 1072–1073.

Case Report

Pentalogy of Fallot with Maternal Gestational Diabetes Mellitus: A Rare Case Report

Begum MUH¹, Rahman MA², Millat MB³

Abstract:

Gestational Diabetes Mellitus (GDM) is common worldwide as well as in Bangladesh. It is associated with a number of malformations in offspring including cardiac defects. However, to the best of our knowledge, there is no published case report of Pentalogy of Fallot with GDM. Herein, we introduce a twenty two days' male termed baby with Penatology of Fallot (POF) observed in associated with uncontrolled maternal GDM.

Key words: Gestational Diabetes Mellitus, Macrosomia, Cardiac malformation, Pentalogy of fallot, Perinatal complications.

Introduction:

The prevalence of gestational diabetes mellitus (GDM) is rising worldwide, along with overweight and obesity. Gestational diabetes is defined as diabetes developed in the second or third trimester of pregnancy that is clearly not overt diabetes. It is usually recognized at 24 to 48 weeks of gestation on the basis of abnormal glucose tolerance testing.¹ The prevalence of GDM is rising and has been reported in the range of 3-5% globally.² Exact cause of GDM is not known. Products of the placenta including tumour necrosis factor α (TNF- α) and human placental lactogen are thought to play key roles in maternal insulin resistance and hence GDM. A number of risk factors³ are associated with GDM, such as advanced maternal age (>40 years), obesity, smoking, non-white ancestry, family history of type 2 diabetes, and weight gain. Other risk factors are polycystic ovarian syndrome and obesity,⁴ low fiber and high glycaemic index diet⁵, lack of physical activity,⁶ and prior GDM⁷ previous macrosomic baby, family history of DM. All women not known to have diabetes mellitus should undergo for a 75-gram oral glucose tolerance test (OGTT) at 24 to 28 weeks of gestation to diagnose GDM based upon the finding of one the following abnormality: fasting glucose ≥ 5.1 mmol/L (92 mg/dl), or at one hour ≥ 10.0 mmol/L (≥ 180 mg/dl), or at 2 hours 8.5 mmol/L (≥ 153 mg/dl).¹ Individuals with an HbA1c of 5.7% to 6.4% are also considered at increased risk, and some have suggested that

a cut-off of $>5.8\%$ will identify all women with overt diabetes, with excellent sensitivity for GDM as well.⁸

Maternal GDM is associated with a number of perinatal complications,⁹ such as intrauterine fetal death, perinatal asphyxia, premature birth, polycythemia, hyperviscosity, hyperbilirubinemia, neonatal respiratory distress, birth injuries, hypoglycemia, hypocalcemia, hypertrophic cardiomyopathy, congenital malformations including congenital heart defect. Long term complications of offspring of mothers with GDM are at risk of obesity, insulin resistance, type 2 DM, and cardiovascular disease.¹⁰ Reducing the impacts of GDM on offspring is very important and can be reduced by: prevention of GDM, optimizing screening for GDM, optimizing treatment of GDM, and postnatal interventions in offspring. Prevention of GDM would certainly negate both the maternal and offspring complications of GDM. Preventative measures include weight management and physical activity. pregnancy obesity, as measured by pregnancy BMI, is a risk factor for the development of GDM,¹¹ as is excessive gestational weight gain.¹² Higher levels of physical activity both pregnancy and during early pregnancy appear to protect against development of GDM.¹³ Treatment of GDM includes dietary advice, blood glucose monitoring, and insulin therapy with usual antenatal care.¹⁴ Insulin has traditionally been the first drug of choice for treatment of GDM if diet and lifestyle advice fail to lower glucose adequately. Oral anti-diabetic agents including metformin and glibenclamide are increasingly considered attractive alternatives to insulin with equivalent efficacy to insulin, lower cost, ease of administration and patient preference. Metformin is now used as first line therapy for GDM.¹⁵

Though Tetralogy of Fallot is a more common congenital heart disease and its association with GDM is found in some cases, but Pentalogy of Fallot is very rare. To the

1. Associate Professor, Dept. of Paediatrics, Rangpur Community Medical College, Rangpur. Mobile: 01712546647 E-mail: uhabibarp27@gmail.com
 2. Classified Specialist in Medicine & Gastroenterologist, Dept. of Gastroenterology Combined Military Hospital, Dhaka Cantonment
 3. Lecturer, Dept. of Biochemistry, Rangpur Army Medical College.
- *For correspondence*

best of our knowledge, there is no published case report of Pentalogy of Fallot associated with maternal GDM.

Case Report:

A twenty two days' male termed baby was admitted with history of cough, respiratory distress, excessive crying and less feeding well for four days. He was borne by lower uterine caesarean section in 37+ weeks of gestation. He was the Second issue of 33 years of aged lady who developed GDM in current issue. His birth weight was 4.1 kilogram. His mother had been suffering from uncontrolled gestational diabetes mellitus. During examination after hospitalization, his weight was 3.3 kilogram, with cyanosis, poor activity, respiratory rate 68 breath/ min, heart rate 135 beats/min, chest in-drawing was present; on heart auscultation there were loud 2nd heart sounds and murmurs, lung bases were congested as evidenced by fine crackles; abdominal examination showed hepatomegaly; oxygen saturation (SPO₂) was 83% with O₂ inhalation. Initially the patient was managed with nothing per oral, oxygen inhalation, intravenous parental nutrition, frusemide and intravenous antibiotics. After 5 days of admission the baby become haemodynamically stable and his echocardiography was done, that showed complex congenital heart disease comprising



Figure 1: Chest X-ray Anterior posterior view showing gross cardiomegaly

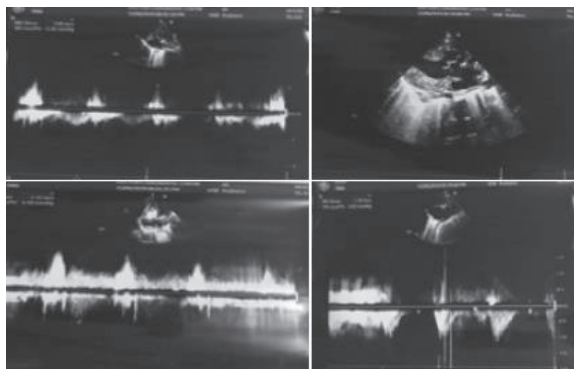


Figure 2: Echocardiography

Figure-2 showing complex congenital heart disease comprising of large atrial septal defect (ASD secundum), large sub-membranous sub-aortic ventricular septal defect (VSD), right ventricular outflow truck obstruction, overriding of aorta, and concentric right ventricular hypertrophy suggestive of Pentalogy of Fallot's (POF) of large atrial septal defect (ASD secundum), large sub-membranous sub-aortic ventricular septal defect (VSD), right ventricular outflow truck obstruction, overriding of aorta, and concentric right ventricular hypertrophy suggestive of Pentalogy of Fallot's (POF). Other investigations revealed, chest x-ray- cardiomegaly, complete blood count- normal and positive C-reactive protein (CRP). The patient was transferred to National Institute of Cardiovascular Diseases (NICVD) Dhaka, Bangladesh for further management.

Discussion:

Gestational diabetes is known to occur in at least 1-5% of all pregnancies and is associated with an increase in perinatal and maternal morbidity.¹⁶ The combination of physiological, lifestyle, ethnic and genetic factors predisposes some women to develop GDM.¹⁷ Fetal exposure to hyperglycaemia during embryogenesis, in women with poorly controlled diabetes mellitus, is known to be associated with congenital abnormalities, including congenital heart disease (CHD).¹⁸ Animal models have demonstrated that diabetic embryopathy is a complex process influenced by metabolic signaling, cell signaling, maternal and fetal genotypes and environmental factors as well as exposure to hyperglycaemia.¹⁹ Type 1 DM is the recognized risk for fetal congenital heart disease.²⁰ Gestational diabetes is also associated with increased risk of congenital heart defect such as atrial septal defect (ASD), ventricular septal defect (VSD), patent ductus arteriosus (PDA) and very rarely Pentalogy of Fallot. In a study of 543 cohorts, congenital heart defect was detected in 2.76% cases and also with a 26.7% risk of a concomitant extra cardiac abnormality.²¹ In type1 DM pregnancies, CHD was 3.1%, with a risk of a concomitant extra cardiac abnormality of 25%. Congenital heart defects detected during study were, atrioventricular septal defect (AVSD), VSD, hypoplastic left heart syndrome (HLHS), pulmonary stenosis (PS), pulmonary atresia (PAT), multiple aorto-pulmonary collaterals (MAPCA), transposition of the great arteries (TGA), intact ventricular septum (IVS), double outlet right ventricle (DORV), total anomalous pulmonary venous drainage (TAPVD), and double inlet left ventricle (DILV). In our case study we found Pentalogy of Fallot associated with poor controlled GDM.

Manuscript Preparation and Submission: Guidelines for Authors

Uniform Requirements for Manuscripts Submitted to RCMC Journal following the guideline of "International Committee of Medical Journal Editors" updated April 2010.

General Principles:

The text of observational and experimental articles is usually (but not necessarily) divided into the following sections: Introduction, Methods, Results, and Discussion. This so-called "IMRAD" structure which is a direct reflection of the process of scientific discovery. Long articles may need subheadings within some sections (especially Results and Discussion) to clarify their content. Other types of articles, such as case reports, reviews, and editorials, probably need to be formatted differently. Authors need to work closely with editors in developing or using such new publication formats and should submit supplementary electronic material for peer review.

Preparation of manuscripts:

Type manuscripts double-spaced in all portions, including the title page, abstract, text, acknowledgments, references, individual tables, and legends. Leave 1-inch margin on all sides with number in every page so that it is possible for editors and reviewers to edit the text line by line and add comments and queries directly on the copy. As a general rule, articles should not exceed 4000 words. Over-length manuscripts will not be accepted for publication.

Title page

The title page should have the following information:

1. Article title: Concise titles are easier to read than long, convoluted ones and should not exceeding 50 characters.
2. Authors' names, highest academic degree, affiliations, and complete address for correspondence including mailing address, telephone number and E-mail address.

Abstract

Structured abstracts are preferred for original research and systematic reviews. The abstract should provide the context or background for the study and should state the study's purpose, basic procedures (selection of study subjects or laboratory animals, observational and analytical methods), main findings (giving specific effect sizes and their statistical significance, if possible), principal conclusions, and funding sources in a running

manner and not under separate headings with three to five key words for use as indexing terms. Do not cite references in the abstract. Be concise (250 words, maximum). Limit use of acronyms and abbreviations. Abbreviations must be defined at the first mention. Because abstracts are the only substantive portion of the article, and the only portion many readers read, authors need to be careful that they accurately reflect the content of the article.

The Text:

The following are typical main headings: Introduction, Materials and Methods, Results, Discussion and Conclusion.

- **Introduction:** Provide a context or background for the study (that is, the nature of the problem and its significance). The purpose(s) of the study should be clearly stated. Provide only directly relevant references, and do not include data or conclusions from the work being reported.

- **Materials and Methods:** Identify type of study and describe the study subjects and methods used. Provide methods of statistical analysis. Cite reference(s) for standard study and statistical methods. Describe new or modified methods. Identify apparatus (with name and address of manufacturer) used. Generic names of drugs must be given. Manuscripts that describe studies on humans must indicate that the study was approved by an institutional Ethical Committee and that the subjects gave informed consent.

Describe statistical methods with enough detail to enable a reader with access to the original data to verify the reported results. When possible, quantify findings and present them with appropriate indicators of measurement error or uncertainty (such as confidence intervals).

- **Results:** Present only important results/ observations in logical sequence in the text, tables or illustrations with relevant statistics. Do not repeat in the text all data in the tables or illustration; emphasize or summarize only important observation. Use graphs as an alternative to tables with many entries; do not duplicate data in graphs and tables.

- **Tables:** Each table must be typed on a separate sheet and double-spaced. These must be self explanatory. Including data in tables rather than text frequently makes it possible to reduce the length of the text. Do not use internal horizontal or vertical lines. Table should have brief title

for each, should be numbered consecutively using Roman numbers and be cited in the consecutive order. Authors should place explanatory matter in footnotes, not in the heading. Explain all nonstandard abbreviations in footnotes, and use the following symbols, in sequence:

- **Illustrations (Figures):** Figures should be either professionally drawn and photographed, or submitted as photographic-quality digital prints. For x-ray films, scans, and other diagnostic images, as well as pictures of pathology specimens or photomicrographs, send sharp, glossy, black-and-white or color photographic prints, usually 127 x 173 mm (5 x 7 inches). Figures should be made as self-explanatory as possible. All photographs, graphs and diagrams should be referred to as figures numbered consecutively in the text in Roman numerals.

- **Units of Measurement:** Measurements of length, height, weight, and volume should be reported in metric units (meter, kilogram, or liter) or their decimal multiples. Temperatures should be in degrees Celsius. Blood pressures should be in millimeters of mercury, unless other units are specifically required by the journal. Authors must consult the Information for Authors of the particular journal and should report laboratory information in both local and International System of Units (SI). Editors may request that authors add alternative or non-SI units, since SI units are not universally used. Drug concentrations may be reported in either SI or mass units, but the alternative should be provided in parentheses where appropriate.

- **Discussion:** Emphasize new and important results and the conclusions that follow including implications and limitations. Do not repeat in detail data or other information given in the Introduction or the Results section. Relate observations to other relevant studies. New hypothesis is appreciated; however they should be clearly labeled as such. Recommendations may be included only when appropriate.

- **Acknowledgments:** All acknowledgements including financial supports should be placed as the last element of the text before references.

- **References:** Rangpur Community Medical College Journal follows the Vancouver system of references which are based on the formats used by the US National Library of Medicine (NLM) in the index medicus. In the text, references should be numbered consecutively as superscript and appear on top of the line after the punctuation. Accuracy of reference data is the author's responsibility.

Verify all entries against original sources, especially journal titles, inclusive page numbers, publication dates.

Abstracts may be cited only if they are the sole source and must be identified in the references as "Abstract". "In press" citations must have been accepted for publication and add the name of the journal or book including publisher. Author should follow the style of RCMC Journal to cite reference. Examples of references are given below:

Articles in Journal:

1. Standard journal article

a. List all six authors when six or less:

Halpern SD, Ubel PA, Caplan AL. Solid-organ transplantation in HIV-infected patients. *N Engl J Med*. 2002 Jul 25;347(4):284-7.

As an option, if a journal carries continuous pagination throughout a volume (as many medical journals do) the month and issue number may be omitted.

Halpern SD, Ubel PA, Caplan AL. Solid-organ transplantation in HIV-infected patients. *N Engl J Med*. 2002;347:284-7.

b. More than six authors:

Rose ME, Huerbin MB, Melick J, Marion DW, Palmer AM, Schiding JK, et al. Regulation of interstitial excitatory amino acid concentrations after cortical contusion injury. *Brain Res*. 2002;935(1-2):40-6.

c. Optional addition of a database's unique identifier for the citation:

Halpern SD, Ubel PA, Caplan AL. Solid-organ transplantation in HIV-infected patients. *N Engl J Med*. 2002 Jul 25; 347(4):284-7. PubMed PMID: 12140307.

2. Organization as author

Diabetes Prevention Program Research Group. Hypertension, insulin, and proinsulin in participants with impaired glucose tolerance. *Hypertension*. 2002;40(5):679-86.

3. Both personal authors and organization as author (List all as they appear in the byline.)

Vallancien G, Emberton M, Harving N, van Moorselaar RJ; Alf-One Study Group. Sexual dysfunction in 1,274 European men suffering from lower urinary tract symptoms. *J Urol*. 2003; 169(6): 2257-61.

4. No author given

21st century heart solution may have a sting in the tail. *BMJ*. 2002; 325(7357):184.

5. Volume with supplement

Geraud G, Spierings EL, Keywood C. Tolerability and safety of frovatriptan with short- and long-term

use for treatment of migraine and in comparison with sumatriptan. *Headache*. 2002;42 Suppl 2:S93-9.

6. Issue with supplement

Glauser TA. Integrating clinical trial data into clinical practice. *Neurology*. 2002;58 (12 Suppl 7):S6-12.

7. Volume with part

Abend SM, Kulish N. The psychoanalytic method from an epistemological viewpoint. *Int J Psychoanal*. 2002;83(Pt 2):491-5.

8. Issue with part

Ahrar K, Madoff DC, Gupta S, Wallace MJ, Price RE, Wright KC. Development of a large animal model for lung tumors. *J Vase Intery Radiol*. 2002;13(9 Pt 1):923-8.

9. Issue with no volume

Banit DM, Kaufer H, Hartford JM. Intraoperative frozen section analysis in revision total joint arthroplasty. *Clin Orthop*. 2002;(401):230-8.

10. No volume or issue

Outreach: bringing HIV-positive individuals into care. *HRSA Careaction*. 2002 Jun:1-6.

11. Pagination in roman numerals

Chadwick R, Schuklenk U. The politics of ethical consensus finding. *Bioethics*. 2002;16(2):iii-v.

12. Type of article indicated as needed

Tor M, Turkey H. International approaches to the prescription of long-term oxygen therapy [letter]. *Eur Respir J*. 2002;20(1):242.

Lofwall MR, Strain EC, Brooner RK, Kindbom KA, Bigelow GE. Characteristics of older methadone maintenance (MM) patients [abstract]. *Drug Alcohol Depend*. 2002;66 Suppl 1:S105.

Books and Other Monographs

13. Personal author(s)

Murray PR, Rosenthal KS, Kobayashi GS, Pfaller MA. *Medical microbiology*. 4th ed. St. Louis: Mosby; 2002.

14. Editor(s), compiler(s) as author

Gilstrap LC 3rd, Cunningham FG, VanDorsten JP, editors. *Operative obstetrics*. 2nd ed. New York: McGraw-Hill; 2002.

15. Author(s) and editor(s)

Breedlove GK, Schorfheide AM. *Adolescent pregnancy*. 2nd ed. Wiecegrek RR, editor. White Plains (NY): March of Dimes Education Services; 2001.

16. Organization(s) as author

Advanced Life Support Group. *Acute medical emergencies: the practical approach*. London: BMJ Books; 2001. 454 p.

17. Chapter in a book

18. Rashid M. Food and Nutrition. In Rashid KM, Rahman M, Hyder S, editors. *Textbook of Community Medicine and Public Health*. 4th edn. RHM Publishers; 2004. p. 126-140.

19. Dissertation

Borkowski MM. *Infant sleep and feeding: a telephone survey of Hispanic Americans [dissertation]*. Mount Pleasant (MI): Central Michigan University; 2002.

Other Published Material

20. Newspaper article

Tynan T. Medical improvements lower homicide rate: study sees drop in assault rate. *The Washington Post*. 2002 Aug 12;Sect. A:2 (col. 4).

21. Audiovisual material

Chason KW, Sallustio S. *Hospital preparedness for bioterrorism [videocassette]*. Secaucus (NJ): Network for Continuing Medical Education; 2002.

22. Dictionary and similar references

Dorland's illustrated medical dictionary. 29th ed. Philadelphia: W.B. Saunders; 2000. Filamin; p. 675.

Unpublished Material

23. **In press or Forthcoming** (Note: NLM prefers "Forthcoming" rather than "In press" because not all items will be printed.)

Tian D, Araki H, Stahl E, Bergelson J, Kreitman M. Signature of balancing selection in Arabidopsis. *Proc Natl Acad Sci U S A*. Forthcoming 2002.

Electronic Material

24. CD-ROM

Anderson SC, Poulsen KB. *Anderson's electronic atlas of hematology [CD-ROM]*. Philadelphia: Lippincott Williams & Wilkins; 2002.

25. Journal article on the Internet

Aboud S. Quality improvement initiative in nursing homes: the ANA acts in an advisory role. *Am J Nurs [Internet]*. 2002 Jun [cited 2002 Aug 12];102(6): [about 1 p.]. Available from: <http://www.nursingworld.org/AJN/2002/june/Wawatch.htmArticle>

26. Monograph on the Internet

Foley KM, Gelband H, editors. *Improving palliative care for cancer [Internet]*. Washington: National Academy Press; 2001 [cited 2002 Jul 9]. Available from: <http://www.nap.edu/books/0309074029/html/>.

27. Homepage/Web site

Cancer-Pain.org [Internet]. New York: Association of Cancer Online Resources, Inc.; c2000-01 [updated 2002 May 16; cited 2002 Jul 9]. Available from: <http://www.cancer-pain.org/>.

28. Part of a homepage/Web site

American Medical Association [Internet]. Chicago: The Association; c1995-2002 [updated 2001 Aug 23; cited 2002 Aug 12]. AMA Office of Group Practice Liaison; [about 2 screens]. Available from: <http://www.ama-assn.org/ama/pub/category/1736.html>

29. Database on the Internet

Open database: Who's Certified [Internet]. Evanston (IL): The American Board of Medical Specialists. c2000 -[cited 2001 Mar 8]. Available from: <http://www.abms.org/newsearch.asp>

Closed database: Jablonski S. Online Multiple Congenital Anomaly/Mental Retardation (MCA/MR) Syndromes [Internet]. Bethesda (MD): National Library of Medicine (US); c1999 [updated 2001 Nov 20; cited 2002 Aug 12]. Available from: <http://www.nlm.nih.gov/archive//20061212/mesh/jablonski/syndrome-title.html>

30. Part of a database on the Internet

MeSH Browser [Internet]. Bethesda (MD): National Library of Medicine (US); 2002 - Meta-analysis [cited 2008 Jul 24]; [about 2 p.]. Available from: [http://www.nlm.nih.gov/cgi/mesh/2008/MB_cgi?mode=&index=16408&view=c&concept=MeSH Unique ID: D017418](http://www.nlm.nih.gov/cgi/mesh/2008/MB_cgi?mode=&index=16408&view=c&concept=MeSH%20Unique%20ID%3AD017418).

31. Blogs

Holt M. The Health Care Blog [Internet]. San Francisco: Matthew Holt. 2003 Oct - [cited 2009 Feb 13]. Available from: http://www.thehealthcareblog.com/the_health_care_blog/.
Kidney Notes.com [Internet]. New York: Kidney Notes. c2006 - [cited 2009 Feb 13]. Available from: <http://www.kidneynotes.com/>.

Wall Street Journal. HEALTH BLOC: WSJ's blog, on health and the business of health [Internet]. Hensley S, editor. New York: Dow Jones & Company, Inc. c2007 - [cited 2009 Feb 13]. Available from: <http://blogs.wsj.com/health/>.

Submission of manuscripts

Papers are accepted for publication with an understanding that they are submitted solely to the Journal of Rangpur Community Medical College. Statements and opinions expressed in the papers, communications and letter herein are those author(s) and not necessarily those of editor or

publisher. Three hard/ printed copies in A4 size paper should be sent to the editor. In addition, an electronic/digital version of the article composed in MS word should be submitted in a CD. Manuscript submission on email instead of disc is allowed.

Authorship:

Authorship must be clearly stated and in order of descending frequency depending on the contribution on the paper. No gifted, guest or ghost authorship is allowed and this will be treated illegal. The authors must state clearly their contribution, conflict of interest, financial involvement if any and sign the letterhead individually. They also must state that this paper is not sent to any other journal in any form for publication.

Reviews and action:

Manuscripts are usually examined by the editorial staff and are sent to outside reviewers. Author's suggestion regarding the names of possible reviewers is encouraged, but editorial board reserves the right of final selection.

Proofs:

Correspondence and proofs for correction will be sent to communicating unless otherwise stated. Author should check the proof carefully. Changes or additions to the manuscript are not allowed at this stage.

Under taking:

We the undersigned, give an undertaking to the following with regard to our article entitled
..... submitted for publication in the RCMC Journal.

- 1) The article mentioned above has not been already published or submitted for publication in any form, in any other journal.
- 2) We also agree to the authorship of this article in the following sequence.

Author's name

- 1)
- 2)
- 3)

All correspondence should be sent to:**Editor-in-Chief**

RCMC Journal
Rangpur Community Medical College
Medical East Gate, Rangpur
email: principal@rcmcbd.com
Tel: +88-0521-53881-2,
Fax: +88-0521-61114

For Subscription:

Annual subscription for institution	:	BDT 300.00
Individual	:	BDT 200.00
Senior faculty	:	BDT 300.00
Overseas Patrons	:	US\$ 20.00



RANGPUR COMMUNITY MEDICAL COLLEGE JOURNAL (RCMC JOURNAL)

Rangpur Community Medical College

Medical East Gate, Rangpur

email: principal@rcmcbd.com

Tel: +88-0521-53881-2, Fax: +88-0521-61114