

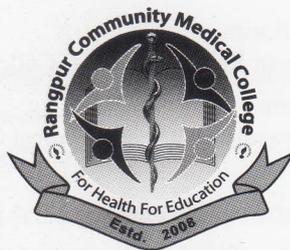
RANGPUR COMMUNITY MEDICAL COLLEGE

JOURNAL

VOL 1, NO 2, DECEMBER 2011



AN OFFICIAL PUBLICATION OF
RANGPUR COMMUNITY MEDICAL COLLEGE, RANGPUR



RCMC Journal

Volume 1 Number 2 December 2011

An Official Publication of

Rangpur Community Medical College

Medical East Gate, Rangpur, Bangladesh

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From the Desk of Editor-in Chief

Dear Doctors,

We feel very honor that our second publication is now in front of you.

This Journal contain the articles which really time trusted informative, regarding the important few problems which our community every day facing.

We very much grateful if you participate in the field of publication with due criticism and giving experience full articles to us.

Dear Doctors please study it, collect it and send your glorious comments to the sector of improvement.

Thanking-

M.M.A Wadud Mostafa

Professor & Head, Dept. of Physiology
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Exercise, you must know about it

M.M.A Wadud Mostafa

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.

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

Aerobic and anaerobic exercise-

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

Aerobic exercise-

This group of muscle works are with lower intensity 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 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 period 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 like 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 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
	Heavy	126-150	51-75
	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 fibers secrete 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 the grade of performance of work, like mild, moderate and severe exercise.

Exercise increases the heart rate, force of contraction of myocardium alter 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 changed. 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 vasodilatation 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 Helden and Bhore 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 refreshly increase 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 prevent 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 xeriatric process and slows the aging. Free radicas 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 prctical physiology edition. C.L Ggai.and biochemistry 7th edition . Dr. B.K Agarwala, Dr. R.K agarwala.
4. Hand book of prctical 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. Ewdar 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 Medicinal 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, Bodyweight, 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 significant 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.

Original Article

EFFECTS OF FINASTERIDE ON PROSTATIC STROMAL AND EPITHELIAL COMPONENT OF TESTOSTERONE – INDUCED BPH

Shamsun-Nahar¹, Selina Anwar², Shamim Ara³
Md. Motahar Hossain⁴, Narayan Chandra Saha⁵, Samsuzzaman Sarker⁶

Abstract:

Context: Inhibitory effect of Finasteride was studied histologically on prostate of adult male rats. There were significant reduction in the relative proportion of stromal & epithelial component of prostate tissue with different doses of Finasteride on testosterone induced BPH.

Study design: Experimental.

Place and period of study: The study was carried out in the Department of Anatomy, Dhaka Medical College, Dhaka.

Materials: The experiment was carried out on total number of 48 healthy young Long Evans male rats within the age range of 8-10 weeks weighing between 180-200gms.

Methods: The rats were divided into four groups. Group-A (control) receiving no drug only vehicle (olive oil) and experimental group-B receiving Testosterone Propionate (TP), group-C TP+Finasteride (4mg) group-D TP+ Finasteride (8mg).

Results There were significant reduction ($P < 0.001$) in the mean diameter of prostatic acini & number of acini with different doses of Finasteride on testosterone induced BPH.

Conclusion: From the present study it may be concluded that finasteride have varying degree of inhibitory effect on prostate which is dose dependent. So there is need for further studies with larger sample, using different doses for different duration.

Keyword: Prostate, finasteride.

RCMCJ 2011; 1(2): 6-9

Introduction:

Benign prostatic hyperplasia is a hyperplastic process of the stromal epithelial elements of the prostate & which is related with aging and hormone dihydrotestosterone^{1,2,16}. Glenn et al (1992) carried out a study with finasteride to evaluate the safety & effective use of finasteride in a large number of men with BPH¹⁰. Rittmaster et al (1992) reported the evidence for atrophy & apoptosis in the ventral prostate of rats given finasteride and treated animals were given 40mg/kg finasteride daily subcutaneously for 14days & sacrificed on 15th day⁶. The prostatic stroma regains its embryonic capability for inducing epithelial glandular formation (McNeal, 1988).

The stroma is the primary site of conversion of testosterone to dihydrotestosterone Shapiro et al (1992) observed that the relative proportion of stromal & epithelial hyperplasia is related to the development of benign prostatic hyperplasia.

The aim of present study was to observe the inhibitory effect of finasteride on prostatic histology.

Materials & Methods:

The experimental study was carried out on a total number of 48 healthy young Long Evans male rats within the age range of 8-10weeks weighing between 180-200gms. The results were expressed as mean \pm SD. 95% significance level ($p < 0.05$) was considered statistically significant. Analysis were done by SPSS using the relevant tests of significance (paired "t" test, one way Anova).

In the present study finasteride was used in a dose of 40mg/kg and 50mg/kg body weight administered subcutaneously^{6,7}. The drug was induced for 14 days and the animals were sacrificed by cervical dislocation under

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ether anesthesia. After sacrifice the abdomen was opened and prostate, testes and seminal vesicles were dissected out. The ventral prostate was fixed in 10% formol saline solution. The tissues were processed following histological procedure. From each group, histological studies were carried out on selected specimens.

Estimation of percentage volume of the histological components: -

Microscopically, prostate gland consist of fibrous, muscular and glandular components.

Integrating eyepiece:

The proportional volume of prostatic structural components were determined using a 'point counting' technique. A replica of Zeiss I integrating eyepiece was prepared with a transparent plastic sheet and was placed into the eyepiece. The Zeiss eyepiece, designed by Henig (1958, cited by Aherne and Dunnill 1966) contains a graticule of 25 points as shown in fig- 3.4

The point counting procedure:

The counting was done under light microscope in low magnifications following Laurini (1987) cited by Anwar S (1999) in slides stained with routine H & E stain. At a low magnification, using an X 10 objective and X 10 eyepiece, the position of each point of the graticule, falling on any component of prostatic tissue, was recorded in each field (as shown in fig-3.3). Then eyepiece with the graticule was rotated 90 degrees keeping the field constant. Again, the positions were recorded. Thus, for each field, 50 points were recorded. Five (5) such fields were chosen randomly from each tissue section (slide). Then repeating the process. For 5 (five) fields on each slide, therefore, (50x5) or 250 point positions were recorded. As one good section

(slide) from each of the 4 (four) blocks prepared from each prostate was examined, a total of (250x4) or 1000-point positions were recorded for each prostate (Appendix- VI).

The total number of points was summed up and expressed as a percentage of the total number of points of prostatic tissue. This percentage represent the proportional volume of the prostatic tissue.

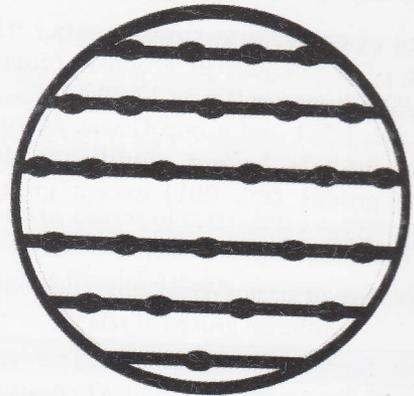


Figure 3.4 Integrating eyepiece for microscopic study showing 25 points (after Aherne and Dunnill 1966).

Grouping of the animals:

The experiment was carried out on 48 Long Evans rats. The rats were divided into four groups as Group A (Control), Group B (Testosterone propionate treated), Group C (Finasteride 4mg+ Testosterone Propionate treated), and GroupD (Finasteride 8mg + Testosterone Propionate treated). Each group comprised of 12 (twelve) rats and was randomly selected.(Table I)

Table I

Grouping of rats, doses of drugs, and vehicle, duration of treatment and sacrifice schedule of the experiment.

Groups (n)	Feeding status	Dose of drugs (mg/kg) body wt or olive oil as vehicle	Route of administration	Duration of treatment (days)	Day of sacrifice (15th days)
A (Control) 12	Normal food + water	Vehicle (olive oil) 0.2 ml	Subcutaneous	14	15
B (Experimental control) 12	Normal food + water	Testosterone propionate 200g	Subcutaneous	14	15
C (Experimental) 12	Normal food + water	Testosterone propionate 200g + Finasteride 4mg	Subcutaneous	14	15
D (Experimental) 12	Normal food + water	Testosterone propionate 200g + Finasteride 8mg	Subcutaneous	14	15

Study of isolation and identification of *Shigella* species among dysentery patient by culture & serology

M.H Ansari¹, K.Z Mamun², S.M Samsuzzaman³

Abstract:

Background: Shigellosis is a global human health problem and an important public health problem, especially in developing countries as well as Bangladesh, where substandard hygiene and unsafe water supplies abound. Besides, an increased in resistance against many different drugs among *Shigella* isolates has been observed in last two decades. **Objective:** To see the prevalence of *Shigella* infection among patients having dysentery. To determine the role of *Shigella* in dysentery. **Methods:** A cross-sectional study was conducted between July, 2009 to June, 2010 at Dhaka Medical College, Dhaka on stool samples collected from patients with diarrhea & dysentery from ICDDR'B Matlab-Chadpur. Stool samples yielding growth for *Shigella* species, were identified by culture, biochemical test and were further identified for serotypes by slide agglutination test. Then species identification was confirmed by polymerase chain reaction. **Result:** Out of 104 samples, 77(74%) were yielded growth, of which 28 (26.92%) were *Shigella* species, 7 (6.73%) were *Salmonella*. *Shigella flexneri* was the predominant serogroup 26 (92%) followed by *Shigella boydii* 02(08%). All the twenty six *Shigella flexneri* were identified by species specific DNA of *Shigella flexneri* by polymerase chain reaction. **Conclusion:** *Shigella* is the predominant bacterial cause of dysentery in Bangladesh. Species identification of *Shigella* was by culture and serotyping. During this study period, no Enterohemorrhagic *Escherichia coli* was isolated on Sorbitol MacConkey agar media.

Keyword: *Shigella*, Culture & serology.

RCMCJ 2011; 1(2): 10-14

Introduction:

Diarrhea occurs worldwide and causes 4% of all deaths³¹ (WHO, 2010). Each year, an estimated 2.5 billion cases of diarrhea occur among children under five years of age. The global death toll from diarrheal diseases is about two million per year (1.7-2.5 million deaths), ranking third among all cases of infectious disease deaths worldwide¹⁵ (Kosek *et al.*, 2003). Diarrheal disease is the second leading cause of death in children under five years, and is responsible for death of 1.5 million children every year³². Diarrhea due to infection is wide spread throughout the developing world. In Southeast Asia and Africa, diarrhea is responsible for 8.5% and 7.7% of all deaths

respectively. Diarrhea is a rare occurrence for the people who live in developed countries where sanitation is available, access to safe water is high and personal and domestic hygiene is relatively good. Worldwide around 1.1 billion people are depriving of safe water and 2.4 billion have no basic sanitation³¹. Diarrheal disease is a problem of serious concern especially in developing countries. In Africa, Latin America and Asia, it is estimated that one billion cases of diarrhea occur each year²⁷. In developing countries, it is amongst the top five causes of morbidity and mortality while in developed countries the mortality is low and morbidity is variable²³. An average of 3.2 episodes of diarrhea per year per child has been reported, but in developing countries, this number can be high as 12 episodes per year per children^{11;33}. Bangladesh and other developing countries are facing high mortality and morbidity from diarrheal diseases especially in infants and young children. Every

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year, a rural child suffers on average from 4.6 episodes of diarrhea, from which about 2,30,000 children die. Among the different pathogens responsible for diarrhea, *Shigella* species plays an important role in causing inflammatory diarrhea & dysentery and considered as a global health problem. The genus *Shigellae* is divided into four serogroups : A (*Shigella dysenteriae*) ; B (*Shigella flexneri*); C (*Shigella boydii*); and D (*Shigella sonnei*). Shigellosis is endemic in Bangladesh, and it is estimated that dysentery accounts for 20% of deaths related to diarrhea among children. Out of the four species *Shigella flexneri* is the most commonly isolated species and responsible for endemic infection. In developing countries, *Shigella flexneri*, the main serogroup (60%). In developed countries, *Shigella sonnei* is the most common (77%) serogroup. In Bangladesh *Shigella flexneri* is the most frequently isolated serogroup (58%).

Material and methods:

A cross sectional study was conducted in clinical microbiology department of Dhaka Medical College, Dhaka. Fecal samples were collected from diarrheal patient's all age group passing loose stool mixed with mucus and or blood from ICCDR, B, Matlab, Chandpur. The study was carried out for a period of one year from July, 2009 to June, 2010.

All stool specimen were received in transport media phosphate buffer saline (PBS) then inoculated in MacConkeys agar media & Sorbitol MacConkey's agar media (for identification of EHEC) and then incubated at 37°C in aerobic environment for next 24 hours. After overnight incubation the suspected non-lactose fermenting was subcultured on Salmonell-Shigella agar media (Oxoid). Colonies morphologically suggestive of *Shigella* were tested for confirmation of their identity by different biochemical tests. The biochemical tests used for identification were oxidase test, triple sugar iron, citrate utilization test, motility, indole & urease test. The biochemically confirmed isolates were further reconfirmed by serotyping using commercially available antisera from Denka Seiken, Japan.

Results:

Table I shows age and sex distribution of the study population. Among the 104 study population, highest percentage (19.22%) was found in 1-5 years age group and lowest percentage (6.73%) was found in 11-20 years age group. Male was predominant than female. The ratio between male and female was 1.6:1.

Table II shows education level and socioeconomic status of study population. Among the 104 study population the highest percentage (58.65) of dysentery was found in

illiterate group and 40.38% were found in lower income group.

Table III shows rate of isolation of *Shigella* in relation to education level and socioeconomic status of the study population. Among the 104 study population the highest percentage (27.86) of *Shigella* was found in illiterate group and 30.95% were found in lower income group.

Table IV shows rate of isolation of enteric pathogen in study population. Among the 104 study population, *Shigella* was 26.92% and *Salmonella* was 6.73%.

Table V shows age specific isolation rate of *Shigella*. Among the 104 study population, the highest percentage (55%) was found in 1 -5 years age group and second highest percentage (45.45%) was found in 6-10 years age group.

Table VI shows different *Shigella* species identified by polyvalent antisera. Among 28 *Shigella*, *Shigella flexneri* was 26 (92.86%) and *Shigella boydii* was 2 (7.14%).

Table I

Age and sex distribution of the study population (n=104).

Age group (Year)	Male n (%)	Female n (%)	Total no. of patients n (%)
1-5	14 (13.46)	6 (5.76)	20 (19.22)
6-10	6 (5.76)	5 (4.80)	11 (10.56)
11-20	3 (2.88)	4 (3.85)	7 (6.73)
21-30	8 (7.70)	5 (4.80)	13 (12.51)
31-40	11 (10.60)	3 (2.86)	14 (13.46)
41-50	13 (12.50)	4 (3.84)	17 (16.35)
51-60	4 (3.85)	6 (5.76)	10 (9.62)
>61	5 (4.80)	7 (6.73)	12 (11.55)
Total	64 (61.54)	40 (38.46)	104 (100.00)

Table II

Education level and socioeconomic status of the study population (n = 104).

Parameter	No of patients Positive for <i>Shigella</i>
Education level	
Literate	43 (41.35%)
Illiterate	61 (58.65%)
Socioeconomic status	
Lower income group	42 (40.38%)
Middle income group	36 (34.62%)
Higher income group	26 (25.00%)

Table III

Rate of isolation of *Shigella* in relation to education level and Socioeconomic status of the study population (n=104).

Parameter	Total no of patients	No of patients Positive for <i>Shigella</i>
Education level		
Literate	43	11 (25.58%)
Illiterate	61	17 (27.86%)
Socioeconomic status		
Lower income group	42	13 (30.95%)
Middle income group	36	9 (25.00%)
Higher income group	26	6 (23.07%)

Table IV

Rate of isolation of enteric pathogen in study population (n=104).

Pathogens	No of positive culture
<i>Shigella</i>	28 (26.92%)
<i>Salmonella</i>	7 (6.73%)

Table V

Age specific isolation rate of *Shigella* (n = 104)

Age group (year)	Total no. of patents	No. of patients positive for <i>Shigella</i>
1 - 5	20	11 (55.00%)
6 - 10	11	5 (45.45%)
11 - 20	7	2 (28.57%)
21 - 30	12	1 (8.33%)
31 - 40	15	2 (13.33%)
>41	39	7 (17.94%)

Table VI

Different *Shigella* species identified by polyvalent antisera (n=28).

Name of the species	Identified by polyvalent antisera	Percentage
<i>Shigella flexneri</i>	26	92.86%
<i>Shigella boydii</i>	2	7.14%
Total	28	100.00%

Discussion:

Among the different pathogens responsible for diarrhea, *Shigella* species plays an important role in causing inflammatory diarrhea and dysentery and considered as a global health problem^{18,24}. Approximately 1.1 million deaths are attributed to *Shigella* infections in developing countries, 80% of which occur in Asia, 60% of deaths occur under five years age group¹⁷ (Kotloff et al., 1999). In Bangladesh, the disease is hyperendemic and occasionally flares up into epidemics. The incidence of

shigellosis is higher in the winter (October-January) and in the hot summer (April-May) the most common isolate is *Shigella flexneri* (ICDDR, B, 2010). The isolation rate of *Shigella* in routine surveillance of hospitalized diarrheal cases in ICDDR'B is approximately 11-12%¹⁴.

In this study, among 104 study population, male was more predominant than female and the ratio between male and female was 1.6:1. The results of the present study are in accordance with results of others^{21,30,1}. In International Centre for Diarrheal Diseases Research, Bangladesh (ICDDR, B) Stoll et al. (1982) reported that 60% of the patients were male and 40% of the patients were female. A study carried out in Ethiopia, reported male patients were predominant than female and percentage of male and female was 53.5% and 46.5% respectively³⁰. In the present study, male patients are predominant than female. This increased frequency among male patients might be due to male goes outside than female for earning and frequently visits restaurant. They visit hospital more due to any illness and also more male patients than female patients are referred to laboratory for investigation¹.

In this study, among 104 study population, the percentage of patients with shigellosis was significantly higher (58.65%) in illiterate group than literate group. In ICDDR, B Broek et al. (2005) reported that the rate of infection with *Shigella* was more common in illiterate group⁵. Similarly a study conducted in Teknaf, Bangladesh, Hossain et al. (1990) reported that the incidence of shigellosis was higher in illiterate group¹³. In India, shigellosis was also higher in illiterate group¹⁰.

In this study, among 104 study population, the percentage of patients with *Shigella* infection was significantly higher (40.38%) in lower income group than middle income (34.62%) and higher income group (25%). In Bangladesh, Khan et al. (1985) reported that shigellosis was more common in poorer condition¹⁶. A study conducted in ICDDR, B reported that the incidence of shigellosis was higher in lower income group²⁸. In Trinidad, Orrent (2008) reported that shigellosis was highest among lower income group²². In India, the highest percentage of shigellosis was observed in lower income group¹⁰. Shigellosis occurs predominantly in developing countries and is most common where overcrowding and poor sanitation exist. It occurs in densely populated areas and institutions where populations are in close contact with each other, such as day-care centres, cruise ships, institutions for people with mental or psychological problems, and military barracks^{12;25}.

In the present study, out of 104 stool samples, 77 (74%) yielded growth and remaining 27 (26%) yielded no growth of organisms. These 27 stool samples which yielded no growth might be due to the fact that organisms were killed

during transport. Among the 77 isolated organisms, 28 (26.92%) were *Shigella* and 7 (6.73%) were *Salmonella*. A study conducted in Teknaf, Bangladesh, the isolation rate of *Shigella* was 42.1%¹³. In Taiwan, a study carried out where the isolation rate of *Shigella* was 37%⁸. From Uganda, Legros et al. (1987) reported that the isolation rate of *Shigella* was 35%¹⁹. The isolation rate of *Shigella* was higher in these studies than the isolation rate of present study¹⁹. In contrast, another study in Bangladesh conducted by Shahid et al. (1985) reported much higher isolation rate of *Shigella* (58%)²⁶ and lower isolation rate of *Shigella* (20.2%) were reported in India⁹.

In this study, among 28 isolated *Shigella*, predominant age group was 1-5 years (55%) followed 6-10 years (45.45%). A study conducted in ICDDR, B by Stoll et al. (1982) reported that 37% cases were from children between 1 and 5 years²⁸. Another study carried out in Ethiopia by Yismaw et al. (2006) reported that 36.4% cases were from children between 1 and 5 years³⁰. In Iran, Mashouf et al. (2006) reported 33.8% cases were from children between 1 and 5 years²¹. The isolation rate of *Shigella* was lower in these studies than the present study. In Trinidad, Orrentt, (2008) observed that shigellosis was highest among 1-5 years age group²². In contrast to the findings of the present study, a study from Nepal reported that 79% of *Shigella* species were isolated from children aged less than 5 years which is much higher than the present study⁴.

In this study, among 28 isolated *Shigella*, 26 (92.86%) were *Shigella flexneri* and 2 (7.14%) were *Shigella boydii*. *Shigella dysenteriae* and *Shigella sonnei* were not found in the present study. Similar studies carried out in ICDDR, B reported 66% *Shigella flexneri*, the most predominant serogroup followed by 16% *Shigella dysenteriae*, 7% *Shigella sonnei* and 5% *Shigella boydii*²⁸. Another study conducted in ICDDR, B by Khan et al. (2004) reported similar results where among isolated *Shigella*, *Shigella flexneri* was the most commonly isolated species (54%) followed by *Shigella dysenteriae* (20%), *Shigella boydii* (16%) and *Shigella sonnei* (10%)¹⁶. In contrast, a study carried out in Bangladesh reported that 39% were *Shigella flexneri*, 59% *Shigella dysenteriae* type 1 and 2% *Shigella sonnei*²⁰.

In the present study, *Shigella dysenteriae* was not isolated from any stool samples. This might be due to the fact that the study period did not coincide with peak incidence of *Shigella dysenteriae*. The sample collection period in this study was October to February and reported peak incidence of *Shigella dysenteriae* was April to June²⁸. In this study, all the stool samples were collected from rural area of Matlab, Chandpur. *Shigella dysenteriae* is mainly found among the people who live in urban area where the

population density is higher like refugee camp, military camp, day care centre, mental hospital etc. On the other hand, *Shigella flexneri* is predominant among the people who live in rural area where the population density is lower¹². *Shigella dysenteriae* is more fastidious than other *Shigella* species, during transportation some of the organisms may not have survived in the present study.

Conclusion: *Shigella* is the predominant bacterial cause of bloody diarrhea in Bangladesh. Species identification of *Shigella* was by culture and serotyping. Species identification of *Shigella* can also be done by identifying directly from the stool sample but in this study, *Shigella* species is identified from culture. During this study period, no Enterohemorrhagic *Escherichia coli* were isolated on Sorbitol MacConkey agar media.

Reference:

1. Ahmed K, Shakoory FR, Shakoory AR. Etiology of Shigellosis in northern Pakistan. *Journal of Health Population and Nutrition* 2003; 21:32-39.
2. Albert MJ, Bhuyan NA, Talukder KA, Faruque SG, Nahar S, Faruque MS. Phenotyping & genotypic changes in *Vibrio Cholera* 0139 Bengal. *Journal Clinical Microbiology* 1997; 35:2588-2592.
3. Antoine B, Adjei D, Nathalie G, Etienne D, Marcillan D. Virulence factors and resistance profile of *Shigella* isolated during infectious diarrhea in Abidjan. *Journal of Applied Science* 2010; 6:594-599.
4. Bhattacharya SK, Khanal B, Bhattarai NR, Das ML. Prevalence of *Shigella* species and their antimicrobial Resistance Patterns in Eastern Nepal. *J Health Popul Nutr* 2005; 23:339-342.
5. Broek JM, Roy SK, Khan WA, Ara G, Chakraborty B, Banu B. Risk factors for mortality due to shigellosis: A case-control study among severely malnourished children in Bangladesh. *Jour Health Pop Nutr* 2005; 23:259-265.
6. Collee JG, Duguid JP, Fraser AG, Marmion BP, Simmons A. Mackie and McCartney's Practical Medical Microbiology, 14th edition. Churchill livingstone, USA. 1996.
7. Coimbra RS, Lenormand P, Grimont F, Bouvet P, Matshuta S, Grimont PAD. Molecular and phenotyping characterization of potentially new *Shigella dysenteriae* serotype. *Journal of Clinical Microbiology* 2001;39:618-621.
8. Chi-Hung Wu, Li-Tung Huang, I-Fei Huang, Jien-Wei Liu, Jin-Bor Chen, Chi-Di Liang et al. Acute non-outbreak shigellosis: Ten years experience in Southern

- Taiwan. *Chang Gung Med J* 2009; 32:59-65.
9. Dutta S, Rajendran K, Roy S, Chatterjee A, Dutta P, Nair GB et al. Shifting serotypes, plasmid profile analysis and antimicrobial resistance pattern of *Shigellae* strains isolated from Kolkata, India. *Epidemiol Infect* 2002; 129:235-43.
 10. Dutta P, Bhattacharya SK, Sen D, Mitra U, Manna B, Pal SC. Shigellosis in children. *Indian Pediatrics* 1992; 25:1125-1130.
 11. Guerrant RL, Kosek M, Moore S, Lorntz B, Brantley R and Lima AA. Magnitude and impact of diarrheal diseases. *Arch Med Res* 2002; 33:351-5.
 12. Gupta A, Polak CS, Bishop RD, Sobel J, Mintz ED. Laboratory confirmed shigellosis in United States. *Clin Infect Dis* 2004; 38:1372-1377.
 13. Hossain MA, Albert MJ, Hasan KZ. Epidemiology of shigellosis in Teknaf, a coastal area of Bangladesh. *Epidemiol Infect* 1990; 105:41-49.
 14. Islam MS, Hossain MS, Hassan MK, Rahman MM, Fuchs G, Mahalanabis D et al. Detection of *Shigella* from stool of dysentery patients by culture and polymerase chain reaction technique. *J Diarrheal Dis Res* 1998; 16:248-251.
 15. Kosek M, Bern C and Guerrant RL. The global burden of diarrheal disease, as estimated from studies published between 1992 and 2000. *Bull WHO* 2003; 81:197-204.
 16. Khan MU, Roy NC, Islam R, Huq I and Stoll B. Fourteen Years of Shigellosis in Dhaka: An Epidemiological Analysis. *Oxford Journals Medicine International Journal of Epidemiology* 1985;85:607-613.
 17. Kotloff KL, Winickoff JP, Ivanoff B, Clemens JD, Swerdlow DL, Sansonetti PJ et al. Global burden of *Shigella* infection: implication for vaccine development and implementation of control strategies. *Bull World Health Organ* 1999; 77:651-66.
 18. Katouli M, Pacherny A, Jaafari A, Asghar A, Moghaddam F, Dehaghi NH et al. The role of *Shigella* species in childhood diarrhoea in Iran and their antibiotic resistance. *Scand J Infect Dis* 1989; 21: 415-419.
 19. Legros D, Ochola D, Lwanga N, Guma G. Antibiotic sensitivity of endemic *Shigella* in Mbarara, Uganda. *East Afr Med J* 1998; 75:160-161.
 20. Mamun KZ, Tabassum S, Hussain MA, Shears P. Antimicrobial susceptibility of *Shigella* from rural community in Bangladesh. *Annals of Tropical Medicine and Parasitology* 1997; 91:643-647.
 21. Mashouf RY, Akber MA, Hashemi SH. Epidemiology of *Shigella* species isolated from diarrhoeal children and drawing their antibiotics resistance pattern. *Iranian Journal of Clinical Infectious Diseases*, 1990; 1:149-155.
 22. Orrent FA. Prevalence of *Shigella* serogroups and their antimicrobial resistance patterns in Trinidad. *Journal of Health Population and Nutrition* 2008; 26:456-462.
 23. Ocklitz HW, Dorfell JE, Schulz RB. Enteritis the GDR: The value of oral rehydration for treating children with enteritis. *J Diarrheal Dis Res* 1984; 2:209.
 24. Rohde JE. Selective primary health care: strategies for control of disease in the developing world. *Rev Infect Dis* 1984; 6:840-54.
 25. Shane AN, Tucker NA, Crump JA, Mintz ED, Painter JA. Risk factors and cost of multicomunity outbreak shigellosis. *Archives of Pediatrics and Adolescent Medicine*. 2003; 157:601-603.
 26. Shahid NS, Rahaman MM, Haider K, Banu H, Rahman N. Changing pattern of resistant *Shiga bacillus* (*Shigella dysenteriae* type 1) and *Shigella flexneri* in Bangladesh. *J Infect Dis* 1985; 152:1114-1119.
 27. Snyder JD, Merson MH. The magnitude of the global problem of acute diarrhoeal disease: a review of active surveillance data. *Bull WHO* 1982; 60:604-613.
 28. Stoll BJ, Glass RI, Huq MI, Khan MU, Banu H, Holt J. Epidemiologic and clinical features of patients infected with *Shigella* who attended a diarrheal disease hospital in Bangladesh. *J infect Dis* 1982; 146 (in press).
 29. Talukder KA, Islam MA, Khajanchi BK, Dutta DK, Islam Z, Safa A et al. *J Clin Microbiol* 2003;41:5053-5058.
 30. Yismaw G, Ngeri C, Kassu A. A five years antimicrobial resistance pattern observed in *Shigella* species isolated from stool samples in Gonder University Hospital, Ethiopia. *Ethiopian Journal of Health Development* 2006; 20:194-198.
 31. WHO. Diarrhoeal diseases, 2010. Available at: Who.int/vaccine_research/.../index.html access on 10.02.2010.
 32. WHO. Diarrhoeal diseases, 2009. Available at: c:/.../WHO1.htm access on 11.02.2010.
 33. WHO. Changing history. World health report, 2004. Available at: Who.int/vaccine_research/.../index.html access on 10.02.2010.

Original Article

KNOWLEDGE, ATTITUDE AND PRACTICE OF RURAL MOTHERS REGARDING BREASTFEEDING

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Abstract:

Breastfeeding is the best and safest way of feeding infants for the first 4-6 months of life. It provides the perfect nutrition for infants and lays the foundation for the healthy psychological development. Besides it also immunizes the child against common infections. Inappropriate infant and young child feeding practices have been identified as a major cause of malnutrition. Initiation of breast feeding within one hour in South Asian countries varies from 16% to 75%; and in Bangladesh it is 42%. A National Campaign for the Protection and Promotion of Breastfeeding (NCPBF) was launched in 1989 to improve the breast feeding situation in the country.

This was a descriptive type of cross sectional study done at the different villages in the Gangachara upazila under the district of Rangpur, during the period of January 2012 to February 2012. The study was done on all the married women who had at least one under 5 year child. A total 440 mothers were included in the study. Majority (86%) of the respondents were in age group in between 18-27years. Among the respondents regarding knowledge about benefit of breast feeding, majority (89.09%) responded in favor of child's physical benefit. In the study population, 90.90%, 62.50% and 18.19% had better knowledge about exclusive breast feeding, about total period of breast feeding and about technique of breast feeding respectively. The study showed 98.86% had positive attitude to breast feeding and 95% practiced breast feeding full time. The knowledge about breast feeding is not satisfactory in our country but attitude and practice are high in our rural mothers.

Key words: Knowledge, Attitude & Practice.

RCMCJ 2011; 1(2): 15-19

Introduction:

"It begins at birth our very first act after birth is to suck our mother's milk. This is an act of affection, of compassion, without that act, we cannot survive that's clear, that's the way of life, that's reality"¹. Health is a fundamental human right. It is central to the concept of quality of life. Health and its maintenance is a major social investment and is World-wide social goal. Health is multidimensional. This health may be assessed by such indicators as death rate, infant mortality rate and expectation of life. Ideally, each piece of information should be individually useful and when combined should permit a more complete health profile of individuals and communities. Breastfeeding is the best and safest way of feeding infants for the first 4-6 months of life. It provides

the perfect nutrition for infants and lays the foundation for their healthy psychosocial development².

Besides, it also immunizes' the child against common infections³. In countries with a moderate or high infant mortality rate, artificially fed infants are at least 14 times more likely to die from diarrhoea than are breastfed children, and four times more likely to die from pneumonia⁴. In communities with a high prevalence of malnutrition, breastfeeding may substantially enhance child survival up to three years of age⁵. In addition to its direct nutritional value for the infant and young child, breastfeeding contributes to women's health by reducing the risk of breast cancer⁴. Lactational anovulation associated with amenorrhoea resulting from exclusive breastfeeding, represents an important child-spacing mechanism⁶. Breastfeeding also facilitates the establishment of a strong relationship between the mother and her infant and leads to better neurodevelopment in the child⁷.

Inappropriate infant and young child-feeding practices have been identified as a major cause of malnutrition. Initiation of breastfeeding within one hour in South Asian

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countries varies from 16% to 75%, in Bangladesh it is 42%. Exclusive breastfeeding rates in Bangladesh lies around 46% during this period and this rate becomes stagnant from last decade. Most newborns in low-income countries die, not of anemia, not of severe acute malnutrition, but of sepsis. This sepsis in newborns (37% of whom are low birth weight in Bangladesh) is in part a nutrition issue—brought on by delaying anti-infective breast milk and often expressing and throwing away colostrums. Four parameters of Infant and Young Child Feeding (IYCF) have been identified as important in tracking under 5 child survivals to achieve Millennium Development Goal 4. These are 1) Breastfeeding initiation within 1 hour of birth, 2) Exclusive breastfeeding rate <6 months, 3) Complementary feeding at 6-9 months and 4) Continued breastfeeding at 20-23 months. A national campaign for the protection and promotion of breastfeeding (CPPBF) was launched in 1989 to improve the breastfeeding situation in the country. Workshops were conducted in the different Medical College Hospitals in the country, to create awareness about the importance and benefits of breastfeeding, and to suggest the introduction of breastfeeding policies in hospitals. In November 1991, the Honourable President of Bangladesh, the Honourable Prime Minister, and the Minister for Health and Family Welfare signed the "Dhaka Declaration", pledging to protect, promote, and support breastfeeding⁸. In 1992, UNICEF launched the Baby Friendly Hospital Initiative (BFHI)⁹. A subcommittee of the CPPBF was formed to take the responsibility of the BFHI, and to collaborate with the Ministry of Health to implement this initiative. Health professionals received training of trainers, and in turn helped to conduct the UNICEF/WHO 18-hour breastfeeding course in their own and other hospitals. So this present study was designed to assess the current knowledge, attitude and practice of mothers regarding breastfeeding in rural Bangladesh and the factors affecting these.

Methodology

This was descriptive type of cross sectional study. All married women who had at least one less than 5 years child were included in the study. The 4th year medical students of Rangpur Community Medical College collected the data from five different villages of Gangachara Upazila under Rangpur district. The sampling was taken purposefully in a partially structured questionnaire and sample size was 440. The data were processed and analyzed in SPSS windows version 16.0.

Result

A total 440 mothers were included in the study. The age range of the respondents was 15 to 32 years. Among them

27% (119) were in the age group of 18-22yrs, 33% (145) were in the age group of 23-27 yrs, and 26% (115) were in the age group of 28-32 yrs. Among the study group 91% (399) were Muslim and 9% (41) were Hindus. The majority 91% (400) of the respondents were housewives and 5% (21) were service holders. Among the respondents 33% (145) were illiterate, 36% (158), 195% (84), 8% (33), 3% (13) and 2% (7) had primary, secondary, higher secondary, graduate and post graduate education respectively. Among the respondents 47% (208) had monthly income less than 1500 taka, 34% (148) had 1500-3499 taka and 4% (18) had more than 7499 taka. Among the study group 66% (290) had 2 or less and 34% had 3 or more children.

Table I

Socio-demographic profile of the respondents (n=440)

Age group	Frequency	Percent
<18 years	61	14%
18-22 years	119	27%
23-27 years	145	33%
28-32 years	115	26%
Religion:		
Muslim	399	91%
Hindus	09	4%
Education:		
Illiterate	145	33%
Primary	84	19%
Secondary	33	8%
Higher secondary	13	3%
Graduate and above	07	2%
Monthly income:		
<1500 Tk/m	208	47%
1500-3488 Tk/m	148	34%
3500-5499 Tk/m	16	03.63%
5500-7499 Tk/m	18	04.1%
>7500 Tk/m	18	4%
No of children:		
2 or less	290	66%
3 or more	150	34%

Among the respondents 96.13% (423) provided knowledge that colostrum is the early days of breast product, 02.73% (12) knew that it is other than that and 01.14% (5) had no knowledge about colostrums. Among the respondents 90.9% (400) had knowledge that colostrum improved child health, 40.90% (180) said it act as vaccine, 47.27% (208) said it act as medicine and 18.63% (82) said it clear newborns intestine. Among the respondents 39.1% had better, 40.90% had well and 18.63% had poor and 01.37% had no understanding about benefits of colostrum.

Table II

Knowledge of the respondents about colostrum (n=440)

Responds	Frequency	Percent
Colostrum is the early days of breast product	423	96.13%
Colostrum is not the early days of breast product	12	02.73%
No knowledge about the colostrum	05	01.14%
Colostrum improved child health	400	90.90%
Colostrum act as vaccine	180	40.90%
Colostrum act as medicine	208	47.27%
Colostrum clears child intestine	82	18.63%
Better understanding about benefit of colostrum	172	39.10%
Well understanding about benefit of colostrum	180	40.90%
Poor understanding about benefit of colostrum	88	20%

Among the respondents regarding knowledge about breast feeding, 89.09% (392) responded in favor of child's physical benefit, 50% (220) in favor of mother's physical benefit, 47.27% in favor of family benefit, 53.18% (234) in favor of economical benefit, 16.36% (72) in favor of social benefit, 11.81% (52) in favor of state benefit. Among the respondents 31.14% had better knowledge about the benefit of breast feeding, 52.96% (233) had well and 11.1% (70) had poor. Among the respondents 90.90% (400) had better knowledge about exclusive breast feeding. Among the respondents 62.50% (275) had better knowledge about total period of breast feeding and 37.50% (165) had poor. Among the respondents 18.19% (80) had better knowledge about technique about breast feeding, 41.45% (182) had well and 40.45% (178) had poor.

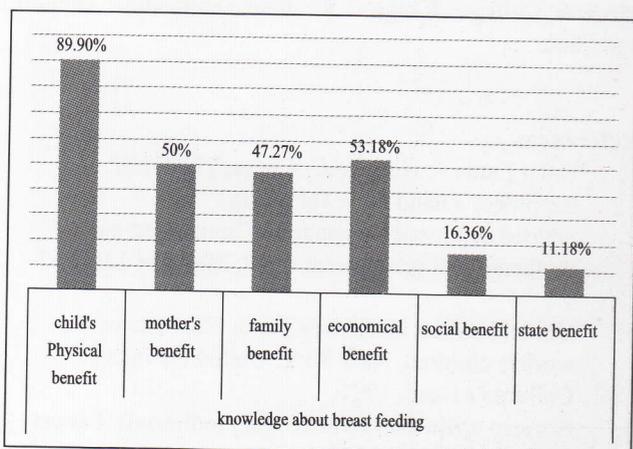


Figure 1: Showing percent of knowledge about benefit of breast feeding.

Table III

Frequency of grading of knowledge about breast feeding of the respondents (n=440)

Responds	Frequency	Percent
Better knowledge about benefit of breast feeding	137	31.14%
Good knowledge about breast feeding	233	52.96%
Poor level of knowledge about breast feeding	70	15.90%
Better knowledge about exclusive breast feeding	400	90.90%
Better knowledge about total period of breast feeding	275	62.50%
Poor knowledge about total period of breast feeding	165	37.50%
Better knowledge regarding technique of breast feeding	80	18.19%
Good knowledge regarding technique of breast feeding	182	41.36%
Poor knowledge regarding technique of breast feeding	178	40.45%

Among the respondents 98.86% (435) showed positive attitude to breast feeding and 1.1% (05) had negative.

Table IV

Frequency of attitude of breast feeding of the respondents (n=440)

Attitude	Frequency	Percent
Positive attitude	435	98.86%
Negative attitude	05	1.1%

Among the respondents 95% (418) practiced breast feeding full time, 1.36% (06) practiced at times, and 03.64% (16) did not. Among the respondents 05.91% (26) had taken additional food regularly, 23.64% (104) at times and 05.91% (26) had not.

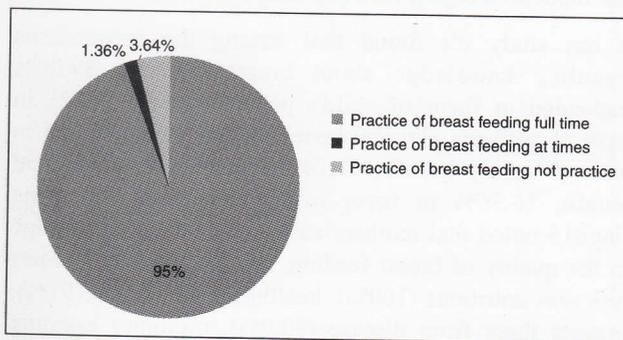


Figure 2: Showing Percent of practice of breast feeding.

Table V

Frequency of food intake before breast feeding of the respondents (n=440).

Responds	Frequency	Percent
Additional food taken	310	70.45%
Additional food not taken	26	05.91%
Food taken At times	104	23.64%

Among the respondents 15% (03) did not feed their children due to unwillingness, 40% (08) due to physical illness, 40% (08) due to breast illness, and 05% (01) due to other causes.

Table VI

Distribution of causes of not practicing breast feeding among the respondents (n=20).

Causes	Frequency	Percent
Unwillingness	03	15%
Physical illness	08	40%
Breast illness	08	40%
Others	01	05%
Total	20	100%

Discussion:

In our study it's found that nearly all respondents know that colostrum is the early day's breast product of the mother. About half of the respondents knew that feeding of colostrum is good for their baby's health. This result is consistent with the findings of Vijay L. Grover et al.¹², they found that colostrum was thought to be harmful for the baby according to 52 per cent of the mothers.

In our study, it's found that a 62.50% of the respondents fed breast milk to their babies up to two years. Vijay L. Grover et al.¹², found that majority (83.5%) of the children were breastfed till one year of age. Kar, M. et al.¹³ indicates that breast feeding is near universal with 98 per cent of infants being breast. Pant and Chothia et al.¹⁴ also reported a high level of awareness amongst mothers.

In our study it's found that among the respondents regarding knowledge about breast feeding, 89.09% responded in favor of child's physical benefit, 50% in favor of mother's physical benefit, 47.27% in favor of in favor of family benefit, 53.18% in favor of economical benefit, 16.36% in favor of social benefit. Bhavana Singh¹⁵ noted that mothers assessed on their knowledge on the quality of breast feeding, most mother said breast milk was nutritious (100%), healthier for children (97%), protects them from disease (80.0%), promotes bonding between mother and child (99%), and 81.0% agreed it was cheaper than buying supplements. However, only 32.0% agreed it had contraceptive benefits whereas 38.0% disagreed and 30% had no idea about it.

Among the respondents 90.90% had better knowledge about exclusive breast feeding. In other studies it was found 51%¹⁴.

Regarding attitude, it is found that 98.86% of the respondents were in favour of breast feeding to their

children. A 95% of the respondents fully practiced breast feeding. Vijay L. Grover et al. noted the similar and found that majority of the women had a correct knowledge and a positive attitude towards breast feeding which they put into practice. They revealed that majority of the respondents had good knowledge and a positive attitude towards breast feeding.

Conclusion and Recommendations:

Level of knowledge on understanding of colostrum, benefits of colostrum feeding and that of breast feeding were satisfactory.

Erroneous beliefs and suboptimal practices regarding breastfeeding exist in both areas of studies.

To improve ideal infant feeding practices need to be vigorously addressed, particularly through antenatal and maternal and child clinics.

Effort is needed to monitor, evaluate and strengthen the effectiveness of health education Programmers.

Early identification for any breast milk code violation should be stressed.

National strategic components for the support of breastfeeding in terms of early initiation during the first hour, implementing the baby-friendly hospital initiatives, and implementing of the international code of marketing of breast milk substitute are strongly recommended.

Acknowledgement

Financial and technical support for this study was made by Rangpur Community Medical College, Rangpur. Study participants, doctors and students who helped in data collection are greatly acknowledged. We would like to acknowledge Chairman, Managing Director and Deputy Managing Director and Principal, Rangpur Community Medical College, Rangpur for their tremendous support and guide.

Reference:

1. Dalai Lama & Howard.C. Cutter, The art of happiness a hand book for living.
2. Ahmed S. Practical support for breastfeeding mothers. Post grad doctor 1997; Mar/Apr 13(2):65-9.
3. United Nations Children's Fund. The state of the world's children. New York: United Nations Children's Fund, 1991.
4. A warm chain for breast feeding (editorial). Lancet 1994; 344(8932): 1239-41.
5. Briend A, Wojtynaik B, Rowland MGM. Breastfeeding, nutritional state and child survival in

6. rural Bangladesh. Br Med J 1988;296:879-82.
6. Breast-feeding and fertility regulation: current knowledge and programme policy implication. A WHO/NRC Meeting. Bull WHO 1983; 61(3):371-82.
7. Lucas A, Morley R, Cole TJ, Lister G, Leeson-Paynee. Breastmilk and subsequent intelligence quotient in children born pre-term. Lancet 1992; 339:261-4.
8. Talukder MQK. Bangladesh campaign for the protection and promotion of breastfeeding. Bangladesh J Child Health 1992; 16:25-31.
9. Haider R. The Baby-friendly Hospital Initiative and activities in Bangladesh. Bangladesh J Child Health 1993; 17(3):72-4.
10. Park k. parks textbook of preventive and social medicine. 18th edition. publisher :Banarsidasbhanot, Jabalpur, India ,Jan 2005: 391-399
11. Rashid KH. Rahman M and Hyder S.A testbook of community medicine and public health. 4th edition RHM publishers,Dhaka .2004 : 149-157.
12. Vijay L. Grover, Pragti Chhabra and O.P. Aggarwal. Knowledge, attitude and practices of Breast feeding in a rural area of East delhi. Health and Population- Perspectives and Issues 1997; 20(2):49-56.
13. Kar, M. and DE. R. Breast Feeding Practices - Impressions from an Urban Community. Ind J Pub Hlth 1991; 35:93-97.
14. Pant I. and chothia, K. Maternal. Knowledge Regarding Breast Feeding and Weaning Practices. Ind J Ped 1990; 57:395-400.
15. Bhavana Singh, Knowledge, Attitude and Practice of Breast Feeding - A Case Study. European Journal of Scientific Research 2010; 40(3):404-422.

Original Article

Pattern and Prevalence of Ear Diseases in a District Sadar Hospital of Bangladesh

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Abstract:

It is accepted epidemiologically that the pattern of various diseases differs in different geographical regions. The difference occurs between countries or within various regions of a country depending on social, economic, racial and environmental factors. Diseases of ear are no different. Many workers have reported various patterns of ear diseases in different countries. So far, no such report is available in our country for Gaibandha region.

So this venture was undertaken to study the pattern of ear disease in the District Sadar hospital of Gaibandha, Bangladesh. All the newly diagnosed cases attending the ENT OPD of, Gaibandha Sadar Hospital, during the period of one year starting from 01/07/2009 to 30/06/2010 were included in the study. Diagnosis was done on detailed clinical examination; radiological and laboratory investigations were done whenever required. CSOM (23.73%), Impacted wax (13.77%), Acute otitis media (9.78%), Otomycosis (7.67%) and Presbycusis (7.57%) were the commonest group of disorders. OME (2.95%), F.B. in the ear (3.33%), Otosclerosis (0.15%) were on fewer side. Out of the 5254 attendants, children below 11 were the commonest group (27.33%).

Key words: Pattern of Ear diseases, CSOM, Gaibandha.

RCMCJ 2011; 1(2): 20-23

Introduction:

A basic understanding of the global burden of disease is an essential part of a modern medical education. This knowledge is crucial for participating in discussions, of priority setting, healthcare rationing and funding for health and health-related research.¹ To date, Most of the available research works related to ENT diseases in our country are done in tertiary level hospitals. But number of patients attending to District Sadar hospitals is not few and ignoring their importance will not help to achieve our goal of health for all. So a study was planned with the aim to identify the pattern of ear diseases among patients who attended the outpatient section of the Department of ENT of Gaibandha Sadar Hospital.

Gaibandha is a district in Northern part of Bangladesh, under Rangpur Division. Gaibandha has a total area of 2179.27 square kilometers. The total population of the district, according to a 2003 estimate, is 2,117,959 with average literacy rate is 24.3%; The main occupations of Gaibandha district are agriculture 44.45%, agricultural

laborer 27.72%, It is a district affected by flood and river erosion. 1.1 million people are poor².

Gaibandha Sadar Hospital is the largest secondary care hospital in the Government sector for the 2.1 million people. People from the whole district come to this hospital for receiving outdoor and indoor facilities at a very low cost. So the outdoor patient picture of this hospital may reflect the scenario of a flood affected poor area of Bangladesh.

Materials and Methods:

It is a cross sectional descriptive type of study. All cases attending to the outpatient department (OPD) of ENT of the hospital were analyzed. Patients having problems of ear were included in the study. All cases were diagnosed by a consultant having Postgraduate qualification in ENT. At first the patients were categorized by primary disease of ear, nose, throat and head-neck. Patients having solely problems of nose, throat and head-neck were excluded from the study. Then all possible efforts were made to establish the diagnosis of ear disease. Diagnosis was primarily clinical, supported by relevant investigations. If needed, proper investigation (like radiology, imaging, audiometry) was done from the hospital or from private

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laboratories, within or outside the district. If otoscopy was not enough, examination of the ear under microscope was done in the nearby medical college hospital whenever possible.

Various Ear diseases were grouped into 17 groups and the frequency of cases in each group were studied. Descriptive statistics was used to analyze the data.

Results

The total number of patients who attended outpatient department of ENT of Gaibandha Sadar Hospital during the study period from 1st July 2009 to 30th June 2010 was 14421. Number of new otorhinolaryngological cases was 10232 thus forming 70.95% of the total number of cases. The new otological cases were 5254 that forms 51.23% of the new cases of ENT OPD[table I].

Out of 5254 otologic attendance, 3085 (49.32%) were males and 3159 (50.67%) were females, giving a sex ratio of 0.98:1 [Figure 1].Most of the people had a monthly income between 5000/- to 10,000/- per month [Figure 1].

Age ranged from 4 weeks to 93 years with 27.33% of patients below 11 years.

The most frequent otologic conditions included chronic suppurative otitis media (CSOM) 23.73%, ASOM 9.78%; and wax impaction 13.77%, [Table II]. 545 pure tone audiograms (PTA) and tympanograms were advised but only 155 could do it.

Table I

Distribution of patients coming to ENT OPD in respect of their category of diseases.

Disease	No. of patients	Percentage
Ear	5254	51.23%
Nose	1645	16.16%
Throat	2488	24.31%
Head & Neck	845	8.25%
Total	10232	100%

Table II

Distribution of patients coming to ENT OPD in respect of their category of EAR diseases

Disease	Age range									Total	%
	0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	>81		
ASOM	361	82	34	14	10	3	6	4	0	514	9.78
CSOM	545	286	168	81	93	44	21	4	5	1247	23.73
OME	110	12	4	7	9	7	5	1	0	155	2.95
Impacted wax	57	64	78	117	124	45	150	80	10	724	13.77
F.B. in the ear	117	12	19	6	14	5	2	0	0	175	3.33
Otitis externa	2	4	2	0	3	3	5	2	2	23	0.43
Furunculosis of ext. ear	24	58	41	28	19	13	9	3	0	195	3.71
Traumatic rupture of TM	11	23	25	5	8	6	0	0	0	78	1.48
Herpes Zoster oticus	0	0	0	0	1	1	0	0	0	2	0.03
Otomycosis	17	39	57	106	89	76	12	6	1	403	7.67
Otosclerosis	0	0	3	2	3	0	0	0	0	8	0.15
Presbycusis	0	0	0	0	02	112	140	123	21	398	7.57
Impairment of hearing due to other causes	12	14	21	4	9	12	11	9	7	99	1.88
Vertigo of various aetiology	0	0	2	1	1		1	0	0	5	0.09
Pre auricular sinus	24	19	2	2	1	0	0	0	0	48	0.91
Congenital ear malformation	2	2	0	0	0	0	0	0	0	4	0.76
Deaf child	42	14	0	0	0	0	0	0	0	56	1.06
Others	112	123	321	234	113	104	112	1	0	1120	21.31
Total	1436	752	777	607	499	431	473	233	46	5254	
Percentage(%)?	27.3	14.3	14.7	11.5	9.4	8.2	9	4.4	.87		

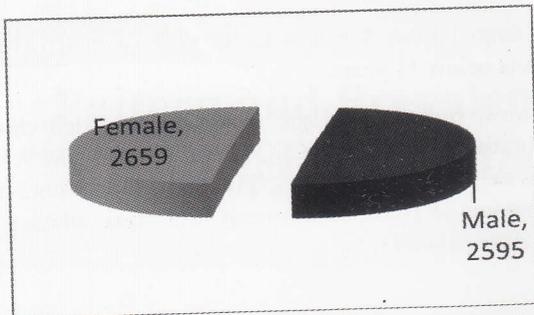


Fig- 1: Pie chart showing the sex distribution of otological cases

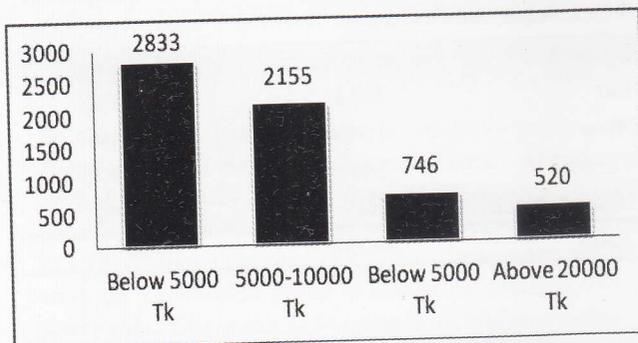


Fig 2: Monthly income of the patients/guardians.

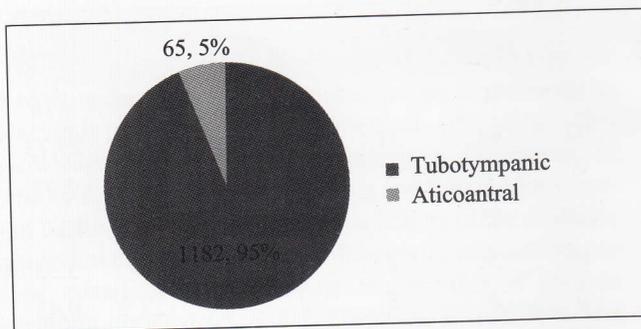


Fig 3: Types of CSOM

Discussion

Gaibandha Sadar Hospital is a 50 bedded hospital recently upgraded to 100 beds. During the study period, total 10232 new cases attended the ENT out patient department among which otological cases making the main bulk that is 51.23%. This has also been observed by Salisu ³ & Kishve ⁴ who also found ear cases are the major cases of ENT clinics. Ear disease was followed by pharyngo-esophageal (24%) and nasal disorders (16%). Head-neck diseases were found among 8% of the total number of cases (Table 1).

The importance of otology as a subspecialty therefore cannot be overemphasized.

Ear diseases in our study population were found to be little more common among female (51%); however this difference was not statistically significant. This may be due to the fact that adult male patients usually not been able to attend the OPD at day time as they are involved in their works during that period. Majority of the patients belonged to age group 0-10 years .Most of the patients (46%), were from lower socioeconomic status. CSOM was found the most common otological problem, 23%. This does correlate the work Kishve⁴ & Eziyi et al⁵ who also found CSOM as the most commonly presented otological problem. CSOM was found most commonly in paediatric groups. CSOM is a fairly common disease in our country especially in rural areas.⁶ Data of survey in Bangladesh in 1980's showed a high prevalence of CSOM in rural urban and kindergarten school children with prevalence of 43.2/1000, 32.6/1000, 16.3/1000.⁷ Poor living conditions, overcrowding, hygiene and nutrition have been suggested as a basis for the wide spread prevalence of chronic suppurative otitis media in developing countries.⁸ A recent WHO study estimated that 4.5% of total Bangladeshi population (near about 6.8million) is suffering from CSOM⁹.

Impacted Wax found to be the second most common problem and found at all age groups. ASOM and OME were also found common in pediatric group patients with frequency of 9.78 % and 2.95% respectively. In elderly group impacted wax, presbycusis, CSOM was found to be the common problems. This does correlate with the work of Afolabi & Ijadula ¹⁰ who also found this diseases common in elderly citizens.

Among the CSOM cases only 5% cases were found to be atticoantral variety, rest of them were tubotympanic variety. Though Menon et al¹¹ found unsafe variety to be 11% but that study was carried out in a tertiary level hospital. Cholesteatoma was found in few cases, while sequele of CSOM such as meningitis, brain abscess, and mastoid abscess and lateral sinus thrombosis were found in 4% of the atticoantral cases. In these patients with intracranial suppurations, ENT referrals are usually very late and are associated with poor prognosis.

FB impaction in the ear (3.33%) was found to be common in pediatric groups which were usually paddy or seed. In elderly cases it was usually the cotton bud or match sticks. The major problems associated with these conditions were attempted extraction/syringing at home or

peripheral health facility in which case patients tend to come with external ear trauma, tympanic membrane perforation, ossicular damage and otitis media Otosclerosis was found not to be common, only 8 cases (0.15%) was confirmed to have otosclerosis.

A lot of patients seen came with nonspecific itching,

otalgia or suspected hearing impairment which could not be established. These 1120 cases are categorized to "Others" group.

In-depth assessment of these patients was lacking as all patients were seen in general otorhinolaryngology clinic and not in specialized clinics. Total factors responsible for this may have included large patient population in the clinic, lack of sub-specialist and lack of diagnostic tools such as pure tone audiometry, impedance audiometry, electrocochleography, Inaccessibility of these and other diagnostic tools such as CT scan and magnetic resonance imaging (MRI) greatly hampered the in-depth assessment. Conclusion:

Many necessary investigations could not be done due to lack of local facilities and economic disability of the poor patients. So, strengthening the District Sadar hospitals with equipment and manpower is our recommendation

Reference:

1. Guideline for the development of Academic Goals and Objectives for a KP Global Health Experience. Kaiser Permanente Northern California Residency Programs.2012. [Internet].Available from. http://residency.kp.org/ncal/current_residents/global_health/developing_goals.html
2. Gaibandha District, Bnglapedia, National encyclopedia of Bangladesh.2006. [internet] Available from: www.banglapedia.org/httpdocs/HT/G-0004.HTM
3. Abubakar Salisu. Otolaryngology Practice in Nigerian Tertiary health institution: A 10-year review. *Annals of African Medicine*. 2010;9(4):218-21.
4. Kishve, Sanjay P. Ear, Nose, and Throat disorders in Paediatric patients at a rural hospital in India. *Australasian Medical Journal (Online)*. October 14, 2010. [Internet].Available from: [http://www.amj.net.au/index.php?journal=AMJ&page=article&op=view&path\[\]=494](http://www.amj.net.au/index.php?journal=AMJ&page=article&op=view&path[]=494)
5. J.A.E. Eziyi, YB Amusa, OV Akinpelu. Prevalence of Otolaryngological disease in Nigerians. *East and Central African Journal Of Surgery*. July-December 2010; 15(2): 85-89.
6. Amin MN, Datta PG, Amin AS. Incidence of hearing impairment amongst the school going children. *Journal of Bangladesh college of Physicians and surgeons*. 1992; 10(1): 23-25.
7. ICDDR,B Periodicals. Acute otitis media during first two years of life in rural community in Bangladesh. *Journal of Health, Population and Nutrition*. 2007, 25(4):1.
8. Mills RP. Management of chronic otitis media. In : Kerr AC, editor. *Scott B ROWN'S Otolaryngology. Otolaryngology*. Sixth edition. Oxford, UK. Ed Booth. JB Butterworths. Heinmann 1997; 3/10/1 -3/10/11.
9. Global burden of disease due to chronic suppurative otitis media; disease, deafness, deaths,DALYs. World health Organization. [Internate] . available from. www.who.int/pbd/deafness/activities/hearing_care/otitis_media.pdf
10. O.A. Afolabi, G.T.A. Ijaluola. Pattern of Ear disease among Older People. *East and Central African Journal Of Surgery*. . [Internet].Available from <http://www.bioline.org.br/js>
11. Mustaq Ali Menon, Salman Matiullah, Zeba Ahmed, Muhammad Saleem Marfani. Frequency of Un-Safe Chronic Suppurative Otitis Media in Patients with Discharging Ear. *JLUMHS*. August 2008, 102-105[Internet].Available from: www.lumhs.edu.pk/jlumhs/Vol07No02/pdfs/v7n2oa10.pdf

Study of excised breast mass and comparison by diagnostic tool of FNAC and histopathology for diagnosis of carcinoma breast.

Ayesha Nasrin Suravee¹, Md. Abdul Quayum², Md. Rezaul Alam³.

Abstract:

Background: The differential diagnosis of a lump in the female breast is one of the most important clinical problems that arise in relation to this organ. It is one of the most common symptoms of breast diseases that cause women to seek advice from their clinician. The main problem of breast lump consists in its risk of being malignant. The incidence of lesions of the breast where FNAC or excision biopsy is indicated is missed due to that many women with breast lump that are benign on clinical examination never undergo biopsy. Furthermore, many small fibro adenomas in female adolescents are observed frequently. **Objective:** To evaluate the findings of FNAC open biopsy. To compare between two findings for diagnosis of breast carcinoma. **Methods:** A cross sectional study was conducted between January, 2008 to December, 2009 at Rangpur medical college hospital, Rangpur, Bangladesh. This is a hospital based prospective study. **Result:** In this study the sensitivity of FNAC is 90.4% for the presence of carcinoma and the specificity is 100% for the absence of malignancy. The positive predictive value is 100% and negative predictive value is 93.5% and the overall diagnostic accuracy of this series is 96%. **Conclusion:** Breast lump is a common surgical problem. A twentythree months prospective study was carried out to evaluate the effectiveness of fine needle aspiration cytology (FNAC) as a diagnostic method. Fifty cases of clinically palpable breast lumps were subjected to FNAC. In all cases tissues were examined histologically after excisional biopsy or definitive surgery. Results of FNAC were compared with histological diagnosis.

Keywords : Breast lump, FNAC & Histopathology.

RCMCJ 2011; 1(2): 24-28

Introduction:

The differential diagnosis of a lump in the female breast is one of the most important clinical problems that arise in relation to this organ. It is one of the most common symptoms of breast diseases that cause women to seek advice from their clinician. The main problem of breast lump consists in its risk of being malignant¹.

Although in majority of cases a provisional diagnosis can be made on the basis of thorough history taking, careful assessment of physical characteristics use of an orderly sequence of investigation is required in nearly all the cases

of breast lump to attain a definite diagnosis. Mammography is a useful method for diagnosing breast disease even before a mass becomes clinically palpable. Yet false-positive and false-negative results occasionally occur. About 5% of palpable lesions may be missed during mammography because of their location or the breast is being extremely dense¹. So it is not recommended in women before the age of 30 years. Often it does not reveal modularly type of cancer. Other diagnostic methods, such as fine needle aspiration cytology, Ultrasonography, incision biopsy etc. are also important investigations for the diagnosis of breast lump².

The incidence of lesions of the breast where FNAC or excision biopsy is indicated is missed due to that many women with breast lump that are benign on clinical examination never undergo biopsy. Furthermore, many small fibro adenomas in female adolescents are observed frequently³.

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This is a small scale study. The purpose of which is to compare the accuracy of FNAC for the diagnosis of breast lump which may help for their correct diagnosis and thus reduce the incidence of surgery in benign breast disease.

Carcinoma of breast is one of the most dangerous causes of breast lump. Delay in diagnosis of carcinoma breast may lead to metastasis. Preoperative confirmation by histopathology is mandatory as treatment of carcinoma breast is not only the excision of lump but also may need to do mastectomy.

Open surgical biopsy was prerequisite formerly in most cases needed for breast surgery. So in many of these cases second surgery were needed after positive histopathological report. To minimize this problem, FNAC was introduced as a very simple procedure that can be performed in out patients department. As sensitivity and specificity of FNAC increases with modernization of technology it is now considered as important diagnostic tool for lump in body including breast lump.

There are many studies worldwide which compare between FNAC and histopathology of open biopsy for the diagnosis of breast lump but these types of studies are not known in Bangladesh. In this study we will correlate the findings of FNAC for the diagnosis of breast lump with histopathological report after surgery or open biopsy.

Material and methods:

A cross sectional study was conducted in Surgery department of Rangpur Medical College, Rangpur, Bangladesh. The study was carried out for a period of one year from January, 2009 to December, 2010. All female patients with breast lump of any age attended in Rangpur medical college hospital was the study population and the total number of cases were 70. Of them 60 were selected according to selection criteria mention here with. First diagnosis of breast lump was established by taking history, physical examination and investigation. Patients were assessed to make sure that they were within selection criteria.

Results:

Table I shows age distribution of the study population. The age distribution demonstrates that 30% of the patients were less than 30 years, another 30% between 30-40 years and rest 40% more than 40 year of age.

Table II shows four (8%) of patients had a history of pain in the breast. Of them 2(50%) patient's pain was localized and 2(50%) diffuse.

Table III shows the clinical diagnosis. Before aspiration, clinical diagnosis were established by talcing

through history and performing physical examination. Clinically a reasonably confident diagnosis could be made in 44 (88.0%) cases, of which 28 (56.0%) were diagnosed to be benign and 16 (32.0%) were to be malignant. Of the remaining 6 (12.0%) cases the clinical diagnosis were uncertain and a suspicion of malignancy could not be ruled out.

Table IV shows the cytological diagnosis. Out of 50 cases, cytologically 26(52.0%) cases were found to be benign, 19(38.0%) cases diagnosed as malignant, 2(4.0%) cases were found to be suspicious of malignancy 2(4.0%) cases were reported atypical and in 1(2.0%) cases smears were unsatisfactory for cytological examinations.

Table V shows histological diagnosis of all patients. Histologically 29(58.0%) cases were benign and 21(42.0%) cases were malignant.

Table VI shows Fine Needle Aspiration Cytology (FNAC) of swelling detected that 38% of patients had carcinoma and 62% benign tumour. In histopathological examination, 42% of patients had carcinoma and 58% benign tumour. For calculation purpose suspicious & atypical groups from FNAC are included in benign groups.

Table VII shows the present study was intended to determine the accuracy of FNAC in diagnosing carcinoma breast. Before going to the test findings, it would be worthwhile to interpret the components of accuracy of a screening test against a confirmatory diagnosis, which is considered as the 'Gold Standard'.

Table I.

Distribution of patients by age (n=50).

Age (years)	Frequency	Percentage
<30	15	30.0
30-40	15	30.0
>40	20	40.0

Mean age = 37.5 ± 13.1 years; range= 16- 60 years.

Table II.

Clinical presentation.

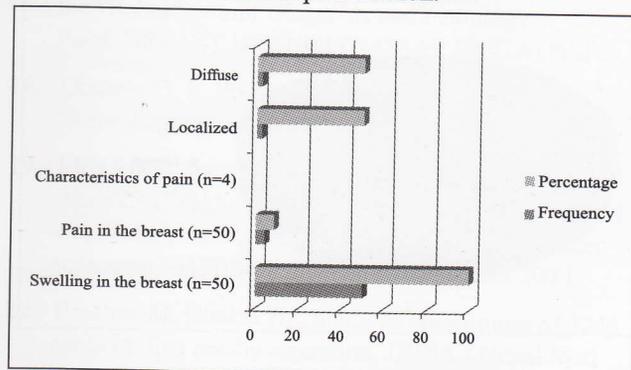


Table III

Distribution of patient by clinical diagnosis:

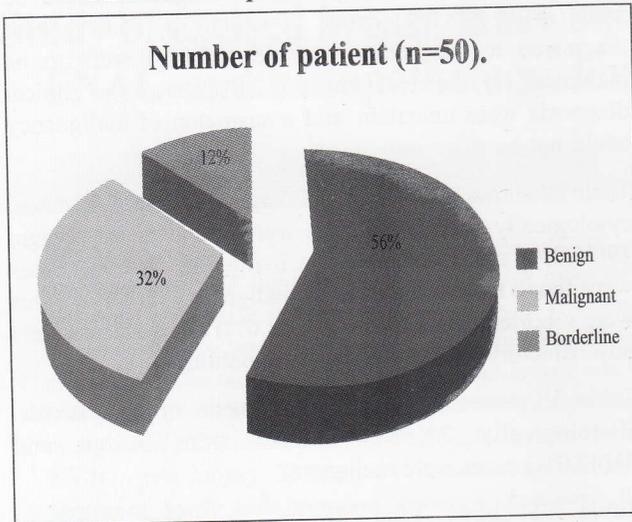


Table IV

Distribution of patients by Cytological diagnosis:

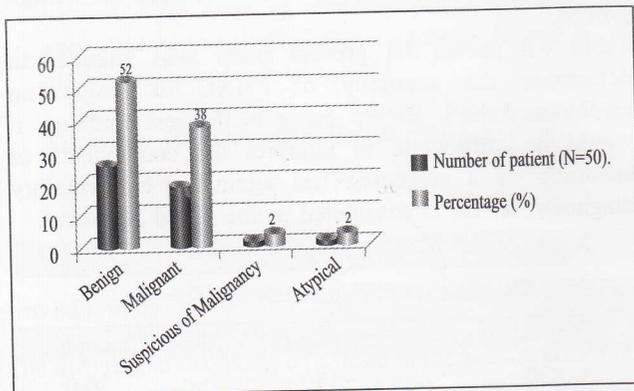


Table V

Distribution of patients by Histological Diagnosis

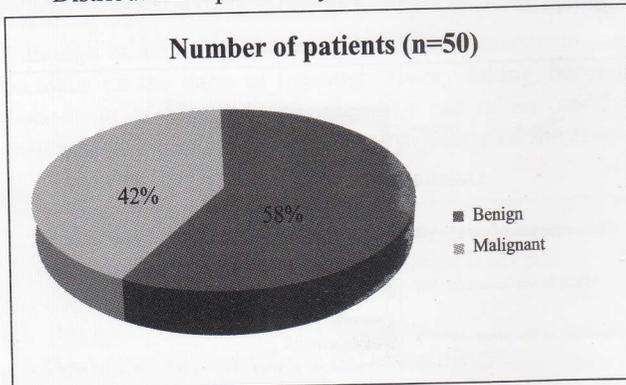


Table VI

Distribution of patients by age (n=50).

Diagnosis	Frequency	Percentage
FNAC		
Carcinoma	19	38.0
Benign tumou	31	62.0

Histopathology

Carcinoma	21	42.0
Benign tumour	29	58.0

Table VII

Calculation of sensitivity and probability of disease after histopathological test.

FNAC	Carcinoma breast present	Carcinoma breast absent	Total
+veT	21 (a)	0 (b)	21
-veT	0(c)	29(d)	29
Total	21	29	50

Discussion:

Fine needle aspiration cytology is a diagnostic method which has been thoroughly validated in many tissue including thyroid, breast, lymph node, salivary gland, prostate and other tissues. The method permits the accuracy with which malignant cells can be identified by an experienced cytologist leaves the diagnosis of malignancy beyond doubt in cases where an adequate cytological sample is obtained.⁴

Though it is now widely used as a method of detecting the nature of tumor mass of various organs it has got a limited practice in our country, particularly outside Dhaka. It is necessary to use this method more widely in our country.⁵

The primary aim of my study was to determine diagnostic correlation between fine needle aspiration cytology report and the final histopathology of the breast lump. In other words, how accurate and reliable was FNAC in diagnosing breast pathology which could help us in proceeding towards definitive treatment without doing additional operation.^{6,7,8}

Morphological diagnosis of lesion from cytological smears needs experience. In this study, the slides were grouped into four: a) malignant, b) benign, c) atypical, d) suspicious of malignancy.⁹

The clinical diagnosis was recorded as benign, malignant and borderline in which diagnosis was not certain. The final diagnosis was obtained in each case by histological

report of exisional biopsy. In the present study 50 cases were selected by inclusion and exclusion criteria's.^{10, 11}

The result of present study reveal that when the tumours were examined by FNAC procedure 26 (52.0%) were diagnosed as benign, 19 (38.0%) malignant and 2 (4.0%) cases were suspicious of malignancy and 3 (6.0%) cases were atypical. All lesions with a cytological diagnosis of malignancy were confirmed by histological examination which could be considered as gold standard test.^{12,13,14,15}

Among thirty one (31) cases of benign tumors (For calculation purpose suspicious & atypical groups from FNAC are included in benign groups.) as diagnosed by cytological (FNAC) examination while re-examined by histological procedure twenty nine was confirmed benign and two were actually malignant.^{16,17,18}

So both the test were equally specific in the diagnosis of ca breast. On the other hand positive predictive value for FNAC is 1 and negative predictive value is .94. There was no false positive cytologic diagnosis in this study. The overall diagnostic accuracy of FNAC is 96%.^{19, 20}

A total of 89 cases of breast lump was handled by Aziz M et al in whom both FNAC and histopathology results were available for comparison. In malignant disease, sensitivity of the FNAC was 85.29% with 100% specificity, 14.7% false negative rate, 100% positive predictive value and 98.79% negative predictive value.^{21,22}

In another retrospective study of 220 diagnosed cases of breast lesion done by Nggada HA et al 2007²⁴ at the University of Maiduguri Teaching Hospital (UMTH), Nigeria between the periods of January 2001 and December 2005 had showed the diagnostic accuracy of FNAC was 97.7%, sensitivity was 95.7%: and specificity was 98.7%. The false negative and false positive rates were 2.9% and 1.9% respectively.^{23, 24}

Reference:

1. Richard sainsburi, Breast in Williams NS, Bulstrode C.J.K. O,Connell P. Ronan. Bailey and Love's short practice of surgery. 25th edition London: Hodder Arnold, 2008, 827-848.
2. Sadler TW. Langman's Medical Embryology, 6Ul ed. Baltimore: Williams and Wilkins. 1990; 349-350.
3. Knapp RN, Muller JT. Triage for breast biopsy. Am J Surg 1976; 131: 626-628.
4. Furnival CM, Hocking MA, Hughes HE, Reid MM, Blumgart LH, Aspiration cytology in breast cancer: it relevance to diagnosis Lancet 1975, 6: 446-449.
5. Ansari NA, Derias NW. Fine needle aspiration cytology. J Clin Pathol 1997; 50:541-543.
6. Martin ME. Elites EB Biopsy by needle puncture and aspiration. Ann Surg 1930; 62: 169-181.
7. Zajdela A, Ghossein NA, Pilleron JP, Ennuyer A. The value of aspiration cytology in the diagnosis of breast cancer: Experience at the Foundation curie Cancer 1975; 15: 499-506.
8. Hindle WH, Navin J. Breast aspiration cytology: A neglected gynecologic procedure. Am J Obstet Gynecol 1983, 146: 482-487.
9. Wanebo HS, Felaman PS, Wilhelon MC, Covell JL, Binns RL. Fine needle aspiration cytology in lieu of open biopsy in the management of primary breast cancer. Ann Surg 1984; 199: 569-579.
10. Kumarasinghe MP, Sheriffdeer AH. Aspiration cytology of breast lumps. Ceylon Med J 1993; 38: 17-119.
12. Skanne P, Karesen R, Jacobser U, Amlie E, Sauer T, Skjortan F. Investigation of palpable breast tumour: patient flow and quality assessment of the triple diagnostic procedure. Tidsskr-Nor-Laegeforer 1995; 4 15: I965-I969.
13. Gardeki TI, Hogbir BM, Melcher DH, Smith RS. Aspiration cytology in the preoperative management of breast cancer. Lancet I 980; I I : 790-792.
14. Thomas JM. Fitzharris BM, Redding WH, Williams JE, Trott PA, Powles TJ, Ford HT,
15. Eisenberg AJ, Hajdu SI, Wilhelmus J, Melamed MR, Kinne D. Preoperative aspirationcytology of breast tumours. Acta Cytol I986; 30: 135-I46.
- I 6. Gupta Rk, Dowle C. Fine needle aspiration cytology of tubular carcinoma of the breast in a young woman. Diagn- cytopathol I991; 7: 72-74.
17. Shyyan, Roman, Shahla Masood, Rajendra Badwe A, Kathleen Errico, Laura Liberman, Vahit Ozmen, Helge Stalsberg, Heman Vargas, and Laszlo Vass, for the Global Summit Diagnosis and Pathology Panel, BREAST HEALTH GLOBAL INITIATIVE
18. Obaseki D. E, Fine needle aspiration cytology in tumor diagnossis, 2008.
19. Ellis I 0, Humphreys S, Michell M, Pinder S E, Wells C A, Zakhour H D, Guidelinesfor non-operative diagnostic procedures and reporting in breast cancer screening, NHSBSP Publication No 50, June 200 I.
20. Pradhan M, Dhakal HP. Study of breast lump of 2246 cases by fine needle aspiration. JNMA J Nepal Med Assoc. 2008 Oct-Dec; 47(I 72):205-9.

21. Khemka, A, Chakrabarti, N., Shah S: Palpable Breast Lumps: Fine-Needle Aspiration Cytology versus Histopathology: a Correlation of Diagnostic Accuracy. The Internet Journal of Surgery. 2009 Vol 18, Number 1.
22. Aziz M, Ahmad N, Zahid J, Faizullah, Aziz M. Comparison of FNAC and open biopsy in palpable breast lumps. J Coll Physicians Surg Pak. 2004 Nov; 14(11):654-6.
23. Nggada HA, Tahir MB, Musa AB, Gali BM, Mayun AA, Pindiga UH, Yawe KD, Khalil MI. Correlation between histopathologic and fine needle aspiration cytology diagnosis of palpable breast lesions: a five-year review. Afr J Med Med Sci. 2007 Dec; 36(4):295-8.
24. Ahmed HG, Ali AS, Almobarak AO. Utility of fine-needle aspiration as a diagnostic technique in breast lumps. Diagn Cytopathol. 2009 Dec; 37(12):881-4.

Original Article

Total serum level of T₃, T₄ and TSH in female school going children of northern area of Bangladesh

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Abstract:

Background: Iodine deficiency is a global public health problem. At least two billion people in the world were suffering from inadequate iodine intake, of which two hundred eighty five million were school aged children. Female are more vulnerable than male.

Measurement of thyroid hormones in rural and urban female school going children may give an idea about thyroid status of our female children and also helps to develop awareness about prevention of thyroid disorders.

Objectives: This study was carried out to assess T₃, T₄ and TSH in urban and rural female school going children who apparently look euthyroid without any visible goiter. Subclinical hypothyroid state, if found will be helpful in taking preventive measures

Key words: Serum T₃, T₄, TSH, iodized salt, Bangladesh.

RCMCJ 2011; 1(2): 29-32

Introduction:

Iodine is required for normal thyroid activity. There are increased thyroid activities during rapid growing periods of puberty. Low iodine intake has wide range of adverse effects on health in this period¹. These effects are manifested by goiter, decreased serum thyroid hormones, increased serum thyroid stimulating hormone of the children.²

Iodine deficiency disorders are widely prevalent in a chronic environmental iodine deficient region. In chronic iodine deficient areas, apparently normal school going children attain a lower mental and psychomotor level, an affect potentially grave consequences for adult life.³

Iodine deficiency is a global public health problem and is the main cause of preventable mental retardation. At least

two billion people in the world were suffering from inadequate iodine intake. Two hundred-eighty five million school-aged children from above mentioned population were suffering from iodine deficiency.⁴⁻⁹

The present study was aimed at evaluation of thyroid status in growing children who apparently look euthyroid without any visible goiter. Subclinical hypothyroid state if found among apparently normal children will be helpful in taking preventive measures. So that in futures the children born in iodine deficient areas will always be at part in all respects with the children of the non-goitrous region.

Bangladesh is a developing country, majority of the people live in the rural area. They are ignorant about thyroid disorders. So this study will be helpful to assess the thyroid status of school-going children as well as to adapt appropriate measure to prevent this deficient condition that may contribute in building a wise nation.

Materials and Methods:

This cross sectional study was carried out in the Department of Physiology, Rangpur Medical College, between July 2007 and June 2008. Study was conducted on a total number of hundred school going children, age ranging from 10 to 15 years. From these 27 are rural female and 29 are urban female school going children.

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5. Medical Officer, Gongchara Upojella Health Complex, Rangpur.

Group A (n=29) = urban female school going children

Group B(n=27) = rural female school going children

Sampling method : By random cluster sampling

All the children of both groups had the residents of different areas of Rangpur district. Children with any other diseases were excluded from the study.

List of school in urban and rural area was collected, numbering was done. Then from these schools, selection of school was done by using random numbertable. From the numbers of student, lottery was done.

After selection, all the subjects were asked to attend the department of Physiology, Rangpur Medical College. History of intake of iodized salt was taken. All children enrolled for the study were asked to bring a teaspoon of salt which was tested for iodine content by the rapid iodine spot test. The change in colour of the salt after the addition of a drop of starch solution was matched with the colour given on the test kit.

Data Analysis method:

All data were recorded systematically in a preformed history sheet and all statistical analysis was done by using the soft were SPSS 12.0 for Windows. Comparisons of serum T₃, T₄, TSH between two groups were done by unpaired t-test. P values <0.05 were considered significant.

Laboratory facilities:

Centre for Nuclear Medicine and Ultrasound, Rangpur.

Collection of blood and sample processing:

5 ml of venous blood was collected from ante-cubital vein of each subject with all aseptic precautions by a disposable syringe. Test tubes were kept in slanting position till formation of clot. Serum was separated by centrifuging the blood at 3000 rpm for 5 minutes. The clear supernatant serum was taken and kept in one screw-capped dry clear vial and was preserved for estimation of serum thyroid hormones and serum thyroid stimulating hormone at -20°C. All the tests were carried out as early as possible.

Laboratory Investigation:

Bio-chemical analysis of serum were carried out for the estimation of-

1. Serum thyroxine by Radioimmunoassay (RIA).
2. Serum triiodothyronine by Radioimmunoassay (RIA).

3. Serum thyroid stimulating hormone by Immunoradiometric assay (IRMA) in the laboratory of Center for Nuclear Medicine and ultrasound, Rangpur, Bangladesh.

Results:

T₃ (triiodothyronin)

The mean ± SE of T₃ in the urban and rural female school going children were 1.76 ± 0.05007 and 1.18 ± 0.0479 respectively. There was significant difference between the two groups (P < 0.001).

T₄ (thyroxin)

The mean ± SE of T₄ in the urban and rural female school going children were 88.59 ± 1.478 and 78.48 ± 1.025 respectively. There was significant difference between the two groups (P < 0.001).

TSH

The mean ± SE of TSH in the urban and rural female school going children were 2.39 ± 0.075 and 3.48 ± 0.106 respectively. The mean serum TSH level of rural school-going children was significantly higher than the urban school-going children (P < 0.001).

Table I

Mean ± SE of Serum T₃, T₄, TSH level (n mol/L) in urban and rural female school-going children

Parameters	Group A (Urban) Mean ±SE	Group B (Rural) Mean ±SE	Value of "t"	Value of "p"
Serum T ₃ level	1.76 ± 0.05007	1.18 ± 0.0479	7.82	<0.01
Serum T ₄ level	88.59±1.478	78.48±1.025	5.62	<0.001
Serum TSH level	2.39±0.075	3.48 ± 0.106	8.4	<0.001

Iodized salt

Out of 29 urban children, all had the history of taking iodized salt. On the other hand, out of 27 rural children, 20 had the history of taking iodized salt. Others take iodized salt infrequently. Twenty five cooking salt sample were collected from rural school-going children for presence of iodine. Out of 25 salt sample, only 10 (40%) salt sample were iodized and 15 (60%) were non- iodized.

Discussion:

The present study was undertaken to compare the serum T₄, T₃, TSH levels in urban and rural female school-going children in Rangpur district. Children of growing age have increased iodine demand. They are particularly vulnerable to less iodine intake, because juvenile thyroid is less able to compensate for a low iodine environment. The rural

area in this study is a flood prone area and it is in the northern part of Bangladesh.

The mean serum TSH level of rural female school-going children was significantly higher than the serum TSH level of urban school-going children ($P < 0.001$) but all TSH levels in both groups were within normal physiological limit.

Some observed high TSH level in rural children due to iodine deficiency.¹⁴ Some others also observed high TSH level in rural children in spite of USI program.¹⁵ They concluded that high TSH level in rural children was due to intake of natural goitrogens.

In rural female children serum T_4 and T_3 levels were significantly lower than the urban children ($P < 0.001$). These lower levels of thyroid hormones may be the cause of increased serum TSH level in rural children and these lower thyroid hormones levels may be due to decreased iodine in the serum of these children. The causes of this sub clinical hypothyroidism may be due to iodine deficiency.

Results of salt analysis for iodine content reveals that 40% of the population in the studied area was consuming non-iodized salt while 60% of the population was consuming iodized salt. Further analysis showed that 40 % consuming salt contain iodine. Higher percentage of household consuming non-iodized salt could be due to higher price of iodized salt with low purchasing power of the people in study area. This result is similar to those of others.¹⁶

From the present study it is difficult to draw any direct conclusion regarding etiology of such condition but from indirect evidence as discussed earlier it may be concluded that sub-clinical hypothyroidism is common in rural female school-going children who could be due to less iodine intake from food and limited consumption of iodized salt and also take goitrogenic substances like cabbage, cauliflower, turnip. These results are similar to those¹⁰⁻¹³ who reported high goiter prevalence in rural female children was due to inadequate iodized salt consumption.

Conclusion:

In light of above discussions, it may be concluded that lower levels of serum T_3 and serum T_4 in rural female school-going children in this study may be due to less iodine intake. They also give the history of taking goitrogenic substances like cabbage, cauliflower as main vegetables. Use fullness of iodine in the development of

normal physio-psychological function is not well informed to rural people where the study was conducted. Again economical constrain also play a pivotal role for consumption of non-iodized salt by the rural people. So, the role and importance of iodine in the physio-psychological development should be published more vigorously in mass media for better awareness. Iodized cooking salt may be supplied to such a goiter prone area at a subsidized rate to improve the sub clinical goiter prevalence. Use of iodized salt is encouraged to overcome the situation observed in the group studied.

References:

1. Thakur C, Saikia TC and Yadav RNS. Total serum levels of T_3 , T_4 and TSH in school-going children of Dibrugarh district. *Indian J Physiol Pharmacol* 1997; 41(2):167-70.
2. Donnel CMM, Harris M and Zacharin RM. Iodine deficiency and goiter in school children in Melbourne, 2001. *MJA* 2003; 178(4):159-162.
3. Brahmabhatt SR, Fernley RA, Brahmabhatt RM, Eastman CJ and Boyages SC. Biochemical Assessment of Iodine Deficiency Disorders in Baroda and Dang Districts of Gujarat State. *Indian Pediatrics* 2001; 38:247-255.
4. Ozkan B, Olgun H, Ceviz N, Polat P, Taysi S, Orbak Z et al. Assessment of goiter prevalence, iodine status and thyroid functions in school-age children of rural Yusufeli district in eastern Turkey. *The Turkish journal of pediatrics* 2004; 46:16- 21.
5. Zimmermann MB, Hess SY, Adou P, Toresanni T, Wegmuller R and Hurrell RF. Thyroid size and goiter prevalence after introduction of iodized salt: a 5-year prospective study in school children in Cote d' Ivoire. *American Journal of Clinical Nutrition* 2003; 77(3):603-667.
6. Chandra AK, Sing LH, Tripathy S, Debnath A, Khanam J. Iodine nutritional status of children in North east India. *Indian J of Pediatry* 2006; 73:795-798.
7. Skeaff SA, Thomson CD and Gibson RS. Mild iodine deficiency in a sample of New Zealand schoolchildren. *European Journal of Clinical Nutrition* 2002; 56(12):1169-1175.
8. Zimmermann MB. Assessing Iodine Status and Monitoring Progress of Iodized Salt Programs. *J. Nut.* 2004; 134: 1673-1677.
9. Sullivan KM, Shahriari A, Houston R, May W, Mendoza I, Salamatullah Q, Solomons NW,

- Schultink W, Gross R, Xu F, Maberly GF. Comparison of Different Indicators of Iodine Deficiency in School Children. *Int. J Endocrinol Metab.* 2005; 1:1-9.
10. Sarkar S, Biswajit M, Sharbari Basu. Iodine deficiency in school going children of Pondichery. *Indian J of Pediatr* 2007; 74:731-4.
 11. Cooper DS, Cevallos JL, Houston R, Chagnon N and Ladenson PW. The Thyroid Status of the Yanomano Indians of Southern Venezuela: 1992 Update. *Journal of Clinical Endocrinology and Metabolism* 1993; 77(3): 878-880.
 12. Pardede LVH, Hardjowasito W, Gross R, Dillon DHS, Totoprajogo OS, Yosoprawot W L and Untoro J. Urinary Iodine Excretion is the most appropriate outcome indicator for iodine deficiency at field condition at district level. *The Journal of Nutrition* 1998; 128 (7): 1122-1126.
 13. Briel TV, West CE, Hautvast J GAJ, Vulsma T, Vijlder JJM and Ategbo EA. Serum hyroglobulin and urinary Iodine Concentration Are the Most Appropriate Indicators of Iodine Status and Thyroid Function under Conditions of Increasing Iodine Supply in School children in Benin. *J. Nutr* 2001; 131:2701-2706.
 14. Emenkel D, Stach B, Bauch K, Kottzsch V. Changes in the thyroid status of school children in relation to improved dietary iodine intake. *Pediatr Grenzgeb* 1990; 29(4):331-8.
 15. Zimmermann MB, Connolly K, Bozo M, Bridson J, Rahner F and Grimci L. Iodine supplementation improves cognition in iodine deficient school children in Albania; a randomized, controlled, double-blind study. *Am J Clin Nutr* 2006; 83; 108-14.
 16. Sebotsa MLD, Daunhauser A, Jooste PL and Joubert G. Prevalence of goiter and urinary iodine status of primary school-children in Lesotho. *Bull World Health Organ* 2003; 81(1).

Case Report

Death From Concealed Punctured Wound In Adult

R. K. Barman, S. M. Rahman, R. N. Mondal

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.

RCMCJ 2011; 1(2): 33-34

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, dragger, 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.

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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 teared. 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.

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, septocemia, 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, frontanelles 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.

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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.

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The title page should have the following information:

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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

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The Text

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

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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:

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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**
Glaser 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 Vasc 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. Wiczgrek 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

Abood 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.htm>Article

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=concept MeSH Unique ID: D017418.

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/. KidneyNotes.com [Internet]. New York: KidneyNotes. 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/>.

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