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Ad-din womens medical college

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Abstract

Each paper requires an abstract (includes Objective, Methods, Results, Conclusion and Key words) of not more than 150 words in unstructured abstracts (review article or case report) or 250 words for structured abstract (original article) summarizing the significant information and findings. Authors must give two to five key words that identify the most important subjects covered by the paper. Abbreviations, diagrams, and references in the abstract should be avoided.

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Introduction

It includes the purpose of the study or the rationale for the study or the summarized observations. Only strict pertinent references to be given but data or conclusion from the work should not to be included.

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In this section, selection of the observational or experimental subject (patient or laboratory animals, including control) should be described clearly. The age, sex and other characteristics of the subjects should be identified. The methods, apparatus, and procedure used in the study with sufficient details should be mentioned properly to allow other worker to reproduce the result. References should be given to establish methods, including statistical methods. Precisely identification

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Place explanatory matter in footnote, not in the heading. For uniformity of style, authors should use symbols for footnotes such as *, §†,‡.

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This section should present comprehensive analysis of the results in the light of relevant previous study. It should emphasize the new and important aspect of the study and the conclusions that follow from them. Repetition of detailed data or other materials given in introduction or result section should be avoided.

Conclusion

Should be linked with the goals of the study. Recommendation may be included when appropriate and it can include the implication of the findings and their limitations.

Acknowledgements

Acknowledgements, if any, should be placed at the end of the body of the text and be limited to no more than 100 words. This section may be used to acknowledge the help of those who do not qualify for authorship or to acknowledge funding, donated resources, or significant material contributions to the research.

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Ethical approval

The authors should mention the name of the ethical approval authority of their study either in Materials and Methods section, if the study has been done on human subjects, laboratory samples or laboratory animals.

Authorship Statement

A form must be signed by all listed authors indicating the contribution to the paper made by each. The corresponding author is responsible for obtaining signatures from all listed authors and using a check-off form, should indicate by name what each author contributed to each of the various aspects of the study:

- concept of research work
- study design
- data collection or processing
- statistical analysis
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An official organ of Ad-din women's medical College

Editorial

Antibiotic Resistance – A Burning Problem at Present Era

During the last 80 years, the development of effective antimicrobial drugs has reduced the incidence of life-threatening bacterial infections. Since 1940sthese drugs have greatly reduced illnesses and death from infectious diseases. However, that achievement has steadily been eroded by the emergence of antibiotic resistance. Antimicrobial resistance is a natural consequence of exposure to antimicrobial drugs and is not a new phenomenon, but at present era the rate at which resistance is emerging is a great threat for public health. When antibiotics are underused, overused or misused, the process of antibiotic resistance is increased[1].

Bangladesh appears to be an important reservoir of many multidrug-resistant organisms because of availability of antibiotics without prescription, prescribing antibiotic by the salesman or habit of self-medications.

Antibiotic resistance occurs when bacteria change its characters, chemically modifying the antibioticsrender it inactive, through physical removal or modification of target site so that it is not recognized by the antibiotic[2]. Also by plasmid mediated drug resistance also responsible for MDR organism. Plasmid-mediated resistance is the transfer of antibiotic resistance genes which are carried on plasmids. The plasmids can be transferred between bacteria within the same species or between different species via conjugation. Plasmids often carry multiple antibiotic resistance genes, contributing to the spread of multidrug-resistance (MDR). Antibiotic resistance mediated by MDR plasmids severely limits the treatment options for the infections caused by Gram-negative bacteria, especially *Enterobacteriaceae* family[3]. Low permeability of the bacterial outer cell walland production of enzyme like β lactamase causes destruction of β lactam ring of the antibiotic. Bacteria often develop resistance to β-lactam antibiotics by synthesizing a β-lactamase, an enzyme that attacks the β-lactam ring of the antibiotics like penicillin and cephalosporin groups[4]. Resistance can be acquired by mutation in its own DNA or acquisition of resistance-conferring DNA fromanother. Bacteria may be inherently resistant to an antibiotic for example, an organism lacks a transport system for an antibiotic or lacks the target of the antibiotic molecule as in the case of Gram-negative bacteria, the cell wall is covered with an outer membrane that establishes a permeability barrier against the antibiotic.

Antibiotics strictly target bacteria, but it is sometimes difficult to differentiate between viral and bacterial infections clinically without doing relevant investigations as well as culture and sensitivity tests as per requirement. Four hundred and twenty nine young children with broncholitis with admitted in different hospitals of Bangladesh were evaluated. The main modalities of treatment wrer antibiotics (99%) and ceftriaxone in (72.5%)[5]. It is not always sure that infection is due to bacteria, so there may be a possibility of prescribing antibiotics even in viral infections It is the responsibility of a physician to do counseling regarding the importance of culture sensitivity tests whenever required before prescribing an antibiotic and prescribe appropriate antibiotics as per sensitivity tests until and unless there is a clinical emergency and suspecting for a life threating infection in a hospital admitted patients.Another issue with antibiotics is the inability to monitor patient intake. When antibiotics are not taken for the entire prescribed course, pathogenic bacteria can adapt at the presence of low dose antibiotics, and eventually form a population that is completely resistant to the antibiotic regardless of the dosage.Easy availability of antibiotics for humans and animals, indiscriminate administration of antibiotics by village doctors and a lack of compliance with standards among healthcare providers, are significant contributors for the development of antibiotic resistance in Bangladesh and the wider South East Asia region. Other different ways of antibiotic resistance studied in ICDDR,B as follows.

- Transmission dynamics of multi-drug resistant E. coli causing urinary tract infection in Bangladesh. Some MDR urinary tract infectingUro-PathogenicE. coli (UPEC) strains share the same genetic lineages with those isolated from food sources, indicating the possibility of foodborne transmissions of antibiotic resistant UPEC[5].
- Spatial and temporal dynamics of antimicrobial resistance transmission from the outdoor environment to humans in Bangladesh is very common. The environment in Bangladesh is ideal for the rapid spread and development of antimicrobial resistance due to high density of populations; lack of clean drinking water; poor infrastructure for sanitation; and the availability of inexpensive antimicrobials from over the counter suppliers and inadequate regulations[5].
- Co-occurrence of heavy metal and antibiotic resistance in microorganisms due to arsenic contamination in Bangladesh. Exposure to arsenic through drinking water is a serious public health problem in different areas of Bangladesh. Arsenic exposure may contribute to the development of antibiotic resistance in bacteria proven in animal model[5].

The 6 main causes of antibiotic resistance by WHO have been linked to:

- Over-prescription of antibiotics
- Patients not finishing the entire antibiotic course
- Overuse of antibiotics in livestock and fish farming
- Poor infection control in hospital and clinics
- Poor hygiene and sanitation
- Absence of new antibiotics being discovered.

On the other hand bacterial colonization of the skin and mucous membranes often occurs in patients of intensive care unit (ICU) with virulent organisms such as methicillin-resistant Staphylococcus aureus (MRSA), extended-spectrum beta-lactamase (ESBL) producers, and multidrug-resistant Gram-negative bacteria (MDR-GNB) is an emerging problem at the present era because of advancement of NICU, ICU care throughout the world. A high percentage of hospital –acquired infections are caused by highly resistant bacteria that is the methicillin- resistant Staphylococcus aureus (MRSA)[7].

Mycobacterium tuberculosis (MDR-TB and XDR-TB) now a days is an emerging issue because of unresponsiveness to first line of anti TB drugs and require costly long-term treatment.

In 2016, the WHO-endorsed Antibiotic Awareness Week took place from 14–20 November, acknowledging the global importance of this growing public health issue. A Global Action Plan (GAP) on antimicrobial resistance has been developed and endorsed by the WHO. The "Global action plan on antimicrobial resistance" has 5 strategic objectives:

- To improve awareness and understanding of antimicrobial resistance.
- To strengthen surveillance and research.
- To reduce the incidence of infection.
- To optimize the use of antimicrobial medicines.
- To ensure sustainable investment in countering antimicrobial resistance.

All countries are required to develop their own national action plan based on the GAP, and start implementing it at local level.

Prof. Dr. Mahmuda Hasan
Profssor of Paediatrics
Ad-din Women's Medical College. Dhaka

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Original Article

Outcome of Pregnancy in Thalassemia Patients in Ad-din Women`s Medical College Hospital

Nahid Yasmin[1], Mst. Atia Sultana[2], Sayma Sultana[3], Husne Ara Khatun[4], Shireen Ayesha Siddiqua[5]

ABSTRACT

Objective: Recent advances in the management of thalassemia have significantly improved life expectancy and quality of life of patients with this hemoglobinopathy, with a consequent increase in their reproductive potential and desire to have children.To observe the outcomes of pregnant women with different types of thalassemia.

Materials & Methods: Prospective observational study. Fifty patients were selected by purposive sampling. Among thepatients attending ANC and Obstetrics & Gynecology ward of AWMC in the set duration of 6 months period; the pregnant patients with thalassemia were enrolled.Data were collected by the active participation of the patients' &interviewed by the preformed data collection sheet.

Results: The data analysis of 50 patients yielded the following results.The mean age of 50 mothers were 25.9 (±5.16) years. The maximum 36 (72%) patients were from 20-30 years age group. Among the 50 thalassemia mothers 8(16%) suffered from beta thalassemia major and 42 (84%) suffered from beta thalassemia minor.Pregnancy was safe in the mothers with thalassemia major as they were under regular ANC and under regular supervision of hematologists so that they could avoid all the pregnancy induced thalassemia related complications.But most thalassemia minor cases were undiagnosed or less emphasized before conceive. So the neglected cases faced most complications. Total 48(96%) mothers gave birth successfully. Every mother conceived a singleton pregnancy. No secondary complications of iron overload developed or worsened during pregnancy. Only 7(14%) were born with low birth weight. Among them 2(28.57%) found as IUD. APGAR score of neonates at 1 min <7 were found in case of 8(16%) and at 5 min were 3(6%). 12 (24%) babies required ICU admission.

Conclusion: Provided that a multidisciplinary team is available, pregnancy is possible, safe and usually has a favorable outcome in patients with thalassemia.

Keyword: Thalassemia,Outcome, Pregnancy.

Introduction

The various types of thalassemia have specific names related to the severity of the disorder. Clinical classification is by phenotype: 1. Thalassemia major 2. Thalassemia minor. Thalassemia may be characterized by reduced or absent production of one or more globin chains, thus disrupting the ratio of α- and β-globin chains in adult hemoglobin A. At the level of α- or β-thalassemia minor, most patients are asymptomatic, and may only be diagnosed after investigation for incidentally detected mild anemia with microcytic, hypochromic red cells. At the other end of the spectrum, β-thalassemia (β-Thai) major is associated with absence or severe deficiency of β-globin chain synthesis leading to a profound and symptomatic anemia that requires regular and life-long transfusion support.According to World health Organization (WHO), there are about 3% beta-thalassemia carriers in Bangladesh.[1]More than 70,000 babies are born with thalassemia worldwide each year and there are 100 million individuals who are asymptomatic Thalassemiacarriers.[5] Thalassemia minor is the commonest hemoglobinopathies in Bangladesh. There are more than 60,000 thalassemia patients in this

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country. Many of these patients are getting married due to a sheer lack of awareness[1]. Thalassemia is a group of genetic, inherited disorders of the blood. More specifically, it is a disorder of the hemoglobin molecule inside RBCs. The basic defect in the thalassemia syndromes is reduced globin chain synthesis withthe resultant red cells having inadequate hemoglobin content. The pathophysiology of thalassemiasyndromes is characterized by extravascular hemolysis due to the release into the peripheral circulation ofdamaged red blood cells and elytroid precursors because of a high degree of ineffective erythropoiesis[1]. Thalassemia major (homozygous thalassemia) results from the inheritance of a defective β-globin genefrom each parent. This results in a severe transfusion-dependent anemia. The heterozygous state, β-thalassemia trait (thalassemia minor) causes mild to moderate microcytic anemia with no significantdetrimental effect on overall health. Modern advances in medical care have enabled patients with Thalassemia Major (TM) to survive successfully into adulthood. The prolonged life expectancy and improvement in quality of life of thalassemia patients has redefined the challenges that couples face as they now have a realistic chance of creating a family.In recent years, TM survival rates have improved with patients suffering fewer complications due to the advances in transfusion treatment and the use of chelation therapy.[2] As a consequence, pregnancy is feasible in these patients. The main cause of infertility in TM is due to pituitary gland haemosiderosis leading to hypogonadotropic hypogonadism[3]. Patients with TM are characterized by severe hemolyticanemia and are dependent on frequent blood transfusions, which consequently results in tissue haemosiderosis. Patients with thalassemia minor, a clinically milder disorder, present with absence of symptoms to mild and moderate anemia. In thalassemia major cases iron deposition affects the cardiac, hepatic and endocrine systems[4]. The usual advanced treatment during pregnancy as follows- Women with thalassemia who have undergone splenectomy or have a platelet count greater than 600 x 109/l are usually offered low-molecular-weight heparin thromboprophylaxis as well as low-dose aspirin (75 mg/day)[5]. Women with thalassemia major or minor have a prothrombotic tendency due to the presence of abnormal red cell fragments. Besides, there are huge pregnancy related complications of both mothers and fetus like preterm delivery, frequency of miscarriage, infective episodes during pregnancy and postpartum period, improper development of fetus as well as still birth[6]. The purpose of this study was to observe the clinical outcomes of pregnant women with thalassemia admitted into obstetric ward in order to document the effectiveness of modern therapeutic advances.

Materials & Methods

The Prospective observational study was conducted in department of Obstetrics & Gynecology of Ad-din Women Medical College Hospital, 2 Bara Moghbazar, Dhaka from October 2015 to June 2016. Fifty patients with diagnosis of β-thalassemia admitted during this period were selected on the basis of purposive sampling. The patients with sickle cell disease and other haemoglobinopathies like HbE trait, disease and E β-thalassemia were excluded from the study.The patients were vividly informed about the study.The hematological profiles of term pregnancy clients were done. The outcome of pregnancy in thalassemia mothers were observed and recorded by a pre structured, peer reviewed and tested case record form. At first, the thalassemia patient was diagnosed through adequate history, proper clinical examination and relevant investigations. From history known case of thalassemia major and minor**,** history of splenectomy, thalassemia faces**,** growth retardation, history of chronic anemia or blood transfusion and history of thalassemia related other complications helped to diagnose thalassemia clinically. Examination usually upholded some positive characteristics in favour of thalassemia likeslanting eyes, flat nasal bridge, Mongolian face**,** bosselated forehead, growth retardation**,** endocrine and cardiac complications CBC (Hb%, ESR, MCV, Platelet count), PBF, RBS, USG of whole abdomen, ECG, Hb electrophoresis were the hematological and imaging profiles that were done to get a confirmatory diagnosis.Antepartum Management was done like- Folic acid, iron supplementation and blood transfusion as required. Review was done through multidisciplinary approach with the members of obstetrician, hematologist, cardiologist and endocrinologist-upto 28 weeks monthly and thereafter fortnightly. And each review was performed by doing thyroid function, cardiac function, blood sugar and as per complications. Blood transfusion was given to theβ-thalassemia major and minor patients as per required. Besides, Thromboprophylaxis has given to splenectomized patient. Low dose aspirin 75mg/day was prescribed in the patient whose platelet count was less than 6 lac/cmm.Intra-partum Management was done as intravenousdeferoxamine 2gm over 24h forβ

thalassemia majoronly during labour. Continuous fetal monitoring was done. Active management of third stage of labour was done to minimize blood loss. Blood transfusion during labour was given only when patients Hb concentration was less than 10gm%. Ethical clearance was taken from the Ethical Review Committee of AWMC before starting the research.

Data analysis and interpretation

All data were checked and edited after collection.Chart by spreadsheet of Windows 7 were done. Frequency distribution and normal distribution of all continuous and categorical variables were calculated.Cross tabulation was prepared and comparisons were made between the respondents from different age, sex, co morbidities, wound type, underlying pathology. Chi-square analysis was done to analyze data in SPSS version 22. 'P' values <0.05 was considered as statistically significant.

Results

There were only 50 respondents finally enrolled in this study after scrutinization by eligibility criteria. Maximum 36 (72%) respondents were from age group 20-30 years followed by 13 (26%) from 31-40 years age group. Only 1 (2%) mother was over 40 years of age. The mean age of the subjects was 25.9±5.16 years (The age range was 20-41 years Figure-I. Among the 50 mothers the maximum 38(76%) mothers reached the term pregnancy whereas 10 (20%) demonstrated premature pregnancy. Only 2 (4%) patients postdated pregnancy Figure-2. Out of 50 mothers 30 (60%) mother proclaimed parity 1 whereas 19 (38%) mother proclaimed 2-4 parity. Only 1 (2%) mother proclaimed parity >4 Figure-3. Among 50 mothers 34 (68%) underwent irregular antenatal checkup whereasmothers underwent regular checkup were 10 (20%) in number. Only 6(12%) mothers did not face any antenatal checkup Figure-4. Among the 50 thalassemia mothers 8(16%) suffered from beta thalassemia major and 42 (84%) suffered from beta thalassemia minor Figure-5. Among the 50 cases the history of patients regarding thalassemia has been featured in Table-I. Among the 50 mothers38 (76%) took no chelation therapy whereas 10 (20%) used to take deferoxamine and 2(4%) used to take Deferasirox 0(0%) took Deferiprone Figure-6. Among the 50 patients distribution of blood transfusion during Thalassemia major 50% & Thalassemia minor 30% Table-II. Among the 50 patients the obstetric risk factors which were accompanied with thalassemia were displayed in Table-III. The pregnancy outcome amongThalassemia mothers were depicted in Table-IV. Distribution of neonatal birth weight showed that 42% neonate born with normal birth weight, 14% were born with low birth weight and 2% baby was overweight Table-V. Among the 50 neonates of 50 mothers 2 (4%) died before birth. Other 48 neonates featured the different outcome portrayed in Table-VI.

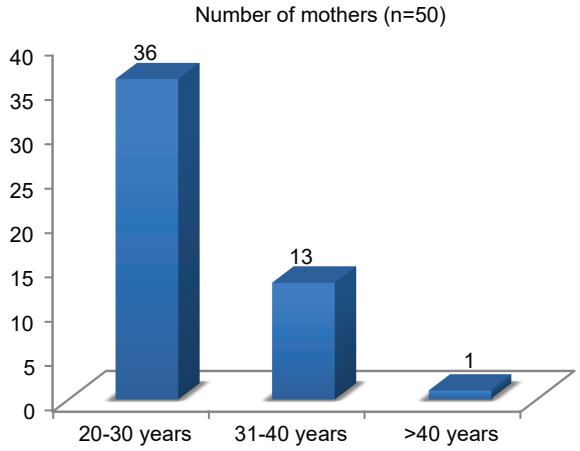

Fig.-1: Age distribution (n=50)

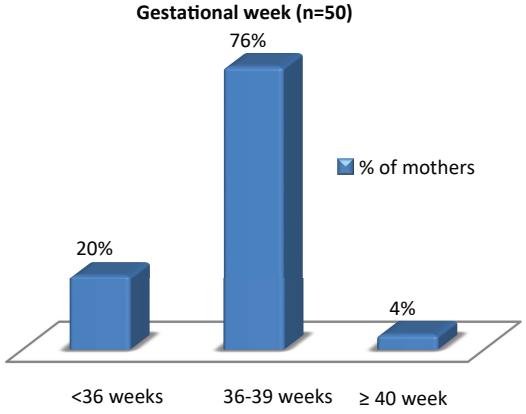

Fig.-2: Gestational age(n=50)

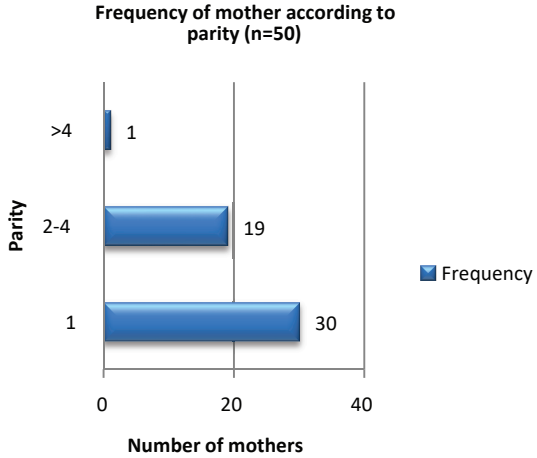

Fig.-3: Parity of respondents (n=50)

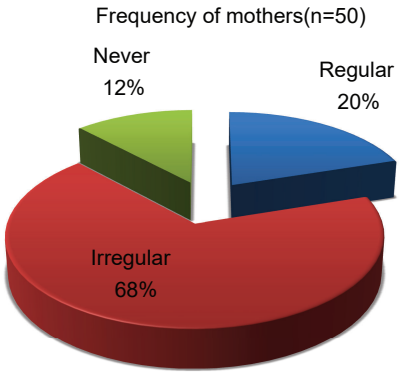

Fig.-4: Antenatal checkup(n=50)

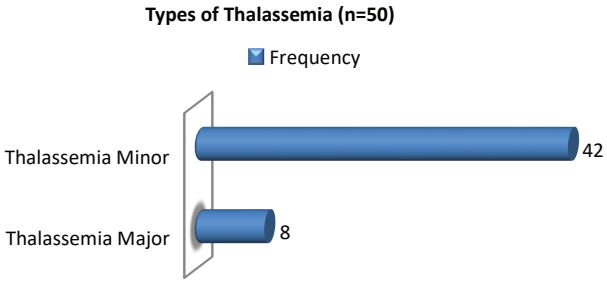

Fig.-5: Different types of thalassemia among respondents(n=50)

Table-I: Patient's history regarding splenectomy (n=50)

Variables	Total No (%)
Age (years), mean(±SD)	25.9 (±5.16)
Age at diagnosis (years)	8.2±9.9
Age at first transfusion (years)	12.4±10.3
Splenectomy done	3 (6%)
Age at splenectomy (years)	14.7±9.6
Transfusion requirement (irrespective of pregnancy)	
Frequently (≥ 8 times per year)	12 (24%)
Occasionally	15 (30%)
Never	11 (22%)
Received chelation	12 (24%)

Data presented as n (%) or mean ± standard deviation. Frequently transfused = those requiring at least four transfusions/year. Occasionally transfused = those transfused in a lifetime under certain conditions such as surgery of pregnancy.

Table-II: Distribution of blood transfusion during pregnancy (n=50)

Type of thalassemia	Total patients patient (n=50)	No. of received blood transfusion	%
Thalassemia major	8	4	50%
Thalassemia minor	42	13	30%

Table-III: Obstetric risk factors of subjects with β-thalassemia(n = 50)

Maternal outcome	Frequency No (%)
Preeclampsia	2 (4%)
Gestational diabetes	1 (2%)
Hydramnios	1 (2%)
Oligohydramnios	5 (10%)
Intrauterine growth restriction	4 (8%)
Premature rupture of membranes	4% (8%)
Preterm labor	10 (20%)
Maternal anemia (Hb <10 mg/dL)	22(44%)
& required blood transfusion (all were newly diagnosed thalassemia minor)	
SF levels at the end of pregnancy (ng/mL)	1,357.5 (336–3,054)

*Number of patients

Table-IV: Pregnancy outcome(n=50)

Pregnancies	Total (n=50) No (%)
Live births	48 (96%)
Intrauterine fetal deatha	2 (4%)
Pre-term deliveryab	10 (20%)
Cesarean deliverya	35(70%)
Intrauterine growth restrictionac	4 (8%)
Thrombotic events	0(0%)
DVT antepartum	0 (0%)
DVT in pregnancy and postpartum	1 (2%)
Placental thrombosis	0 (0%)

Data presented as n (%). [a]After excluding abortions; DVT= deep vein thrombosis [b]defined as delivery at <37 weeks of gestation. [c]defined as <10th percentile for gestational age.

Table-V: Distribution of birth weight of neonates (n=50)

Birth weight*	Frequency(n = 50) No (%)
<2500 grams	7 (14%)
2500-4000 grams	42 (84%)
≥ 4000 grams	1 (2%)

* All mother had the singleton pregnancy.

Table-VI: Neonatal outcome in β-thalassemia mother (n=50)

Neonatal Outcome	Thalassemia major	Thalassemia minor
Meconium-stained amniotic fluid	2 (4%)	0%
IUD	2 (4%)	0%
IUGR	0%	4(8%)
ICU admission	6 (12%)	6 (12%)
Apgar score at 1 min<7	6 (12%)	2(4%)
Apgar score at 5 min<7	3 (6%)	0%

*Number of neonates.

Discussion

Thalassemia is a very common hematological entity which is not very much uncommon in our country. This study was performed on patients with β-thalassemia to determine the maternal andfetal outcomes and describe most risk factors associated with β-thalassemia during pregnancy. This study consisting 50 β-thalassemia subjects among whom 8(16%) mothers belong to β-thalassemia major and rest of 42(84%) was bearing β-thalassemia minor. Perinatal mortality 2(4%) and Apgar score at 1min <7 were 8 (16%) and at 5 min 3(6%) after delivery which were very similar in to the previous studies results.[7] Thalassemia has been associated with an increased incidence of obstetrical complications.Adverse pregnancy outcome are detected, especially low birth weight (Wt.< 2500gr, 14%), IUGR (8%) and preterm delivery (20%). All the IUGR babies were found in thalassemia minor patients. Chronic maternal anemia during gestation might lead to fetal hypoxia which was found in 22(44%) mothers, and predisposing the fetus to IUGR. Interestingly no IUGR babies were born in chronic anemic mother[8]. In our study, no significant association was found between hemoglobin levels and IUGR among thalassemic women like another study by EyalSheiner and colleagues' study and suggested that a different mechanism is responsible for IUGR in thalassemia minor patients.[9] It is essential to maintain that hemoglobin concentration above 10 g/dL during pregnancies.[10] At least one study showed acute splenic infarct in β-thalassemia minor.[11] This mechanism may cause placental infarction but this theory needs further study to be approved which could not be possible to prove in our study. In our study oligohydramnios was found in 5(10%) of case which was associated with IUGR and might be part of the relative hypoxemic state.[9] In our study, 35(70%) mothers underwent caesarean delivery which is a quite large figure out of 50 (100%) mothers. All studies investigating pregnancy outcome of patients with β-thalassemiafound higher rates of cesarean delivery.[7,9,10] So, the statistics were consistent with the previous studies.

As reported in other studies, the increase in blood transfusions, due to the physiological changes and increased demands of pregnancy as well as the cessation of chelation therapy, resulted in an increased iron overload and aggravates haemosiderosis; this caused further iron deposits in major organs such as the heart, leading to cardiac dysfunction and complications.[11-13] In our study, 4(8%) patients of Thalassemia major and 13(26%) patients of Thalassemia Minor experienced blood transfusion according to the requirements. Among them, 4(8%) patients with thalassemia major received 2 units of blood each whereas according to the record the minor patients received one unit of blood transfusion each. In our study only 8(16%) mothers were thalassemia major group who were under constant supervision and treatment of hematologists since their first diagnosis.Moreover, 3(6%) of them underwent splenectomy in their pre-pregnancy state due to splenomegaly and obviously hypersplenism.But interestingly, here the all chronically anemic mothers were due to thalassemia minor who remained undiagnosed before their current pregnancy and this pregnancy was the 1st pregnancy for 30(60%) mothers out of 50 (100%).We found no handsome statistics in the pregnancy outcome, preterm delivery,birth weight, growth restriction, pregnancy induced hypertension and gestationaldiabetes thalassemia mothers. Due to lack of control we could not prove the statistical significance.[14]

Conclusion

Thalassemia syndrome, including β-thalassemia minor during pregnancy can present unique management challenges and requires close maternal and fetal surveillance. The pregnancy outcome in patients with

beta-thalassemia minor, like prenatal outcomes, is not different from normal group. In spite of an attempt to keep hemoglobin levels above 7.0 g/dl, the incidence of fetal growth restriction and preterm birth has been relatively high, though maternal complications are rather not different from general. Care for such pregnancies should be multidisciplinary, incorporating a maternal–fetal medicine specialist, a genetic counselor, and a hematologist. However, since fetal growth restriction complicates more pregnancies with thalassemia syndrome, the need for close antenatal follow-up and frequent sonographic assessment of fetal growth can be overemphasized. Further prospective studies among high-risk populations for β-thalassemia with larger sampling should investigate the efficacy of such study.

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Original Article

Knowledge about Gestational Diabetes Mellitus among Antenatal mother in a Tertiary Care Hospital, Dhaka

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Abstract:

Objective: The aim of this study is to evaluate the knowledge of gestational diabetes mellitus (GDM), including risk factors, screening and consequences, amongst pregnant women attending antenatal care in a tertiary care hospital, Dhaka, Bangladesh.

Methods: The study participants were recruited from Ad-din Medical College Hospital, who attended antenatal care and volunteered in this study. A self-administered questionnaire was used to obtain basic data regarding general awareness and knowledge about GDM and other issues related to screening, risk factors, monitoring, long-term consequences. The average score of mothers on knowledge of GDM and its risk factors, screening and treatment and consequences of GDM was calculated.

Results: A total of 1196 antenatal mothers were enrolled and all completed the questionnaire. Response rate was 100%.Regarding knowledge about GDM and risk factors, many of them had good knowledge about GDM and many of the risk factors. But many of the study population were unaware regarding gaining too much weight is a risk factor for GDM, also unaware about previously giving birth to an overweight baby or had a birth defect and previously having an unexplained still birth as a risk factor for GDM.Regarding screening and treatment about GDM, most of them (92.39%) were aware about necessity to test for diabetes in pregnancy, but a significant population (more than 33%) were unaware about treatment of GDM. Some of the study populationwere aware about the consequence of GDM to baby and mother herself.

Conclusion: Knowledge about GDM is good amongst pregnant women, with few exceptions regarding risk factors of GDM and their consequences. Awareness programme may be conducted to overcome this.

Keywords: Gestational diabetes mellitus, antenatal mother

Introduction:

Gestational diabetes mellitus (GDM) is diabetes that is first diagnosed in the second or third trimester of pregnancy that is not clearly either preexisting type 1 or type 2 diabetes[1]. Some population-based studies conducted in Bangladesh at different time points revealed an increasing trend of GDM prevalence ranging from 6% to 14% based on using different diagnostic criteria[2,3]. Higher prevalence was observed in the higher age group, higher gravidity, higher body mass index (BMI), and those with hypertension and family history of diabetes. The history of abortion, neonatal death and stillbirth were found higher among GDM mothers than non-GDM mothers[4]. In general, specific risks of uncontrolled diabetes in pregnancy include spontaneous abortion, fetal anomalies, preeclampsia, fetal demise, macrosomia, neonatal hypoglycemia, and neonatal hyperbilirubinaemiaamong others[5]. After delivery, though the glucose levels return to normalcy, the mother is at a higher risk for type 2 diabetes mellitus (T2 DM), and the child of a woman with GDM is at a higher risk for metabolic syndrome[6]. Observational studies show an increased risk of diabetic embryopathy, especially anencephaly, microcephaly, congenital heart disease, and caudal regressiondirectly proportional to elevations in glycated haemoglobin (HbA1C) during the

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first 10 weeks of pregnancy[7]. It is now recommended to carry out universal screening for GDM in contrast to selective screening due to high prevalence of GDM. Universal screening has increased detection rate of GDM and has also improved maternal and neonatal prognosis[8]. Knowledge and awareness of GDM among antenatal woman may help in early diagnosis of the disease. This study was done to evaluate the knowledge and awareness of GDM among all the antenatal women who attended a tertiary care hospital.

Methods:

This cross-sectional study was conducted in the Department of Obstetrics and Gynaecology at Ad-din Medical College Hospital, to see knowledge about GDM among antenatal mothers. From all antenatal mothers who volunteered for the study, informed consent was obtained and then enrolled into the study. A self-administered pretested close-ended questionnaire was used to collect information on patients' knowledge about GDM. The questionnaire comprised of 15 questions[9] questions on knowledge about GDM and its risk factors, 3 questions about GDM screening and treatment and 3 questions about the consequences of GDM). All participants who answered 'Yes' were given score of '1' and those who answered 'No' were given a score of '0'. The average score of mothers on knowledge of GDM and its risk factors, screening and treatment and consequences of GDM was calculated. Score 9-15 was labeled as good, 5-8 was average and 0-4 was poor. The data was analyzed and results were entered using simple means and percentage. Statistical analysis was done by using Statistical Package for the Social Science (SPSS) software version-20.

Results:

Total 1196 antenatal mothers were enrolled and all completed the questionnaire. Response rate was 100%. The mothers were in the age range of 18-38 years and mean age was 25.29± 4.61 years. Majority of the study population had undergone formal education (93.73%) and were house wives (90.72%). More than half (59.20%) were multiparous and only 6.52% of mothers had history of GDM either in present or previous pregnancy. The socio-demographic characteristics of participants are shown in Table I. The percentage of responses for the knowledge of antenatal mothers on GDM and its risk factors, screening and treatment and consequences of GDM are shown in Table II, Table III and Table IV respectively. Table V shows the percentage of women who had good, average and poor knowledge on GDM.

Table I : Socio-demographic profile of participants

Variable	Participants		Mean knowledge score
	n	%	
Education			
Formal education	1121	93.73	10.52
No formal education	75	6.27	9.63
Occupation			
House wife	1085	90.72	10.42
Employed	111	9.28	10.88
Parity			
Primi	488	40.80	10.54
Multi	708	59.20	10.42
GDM Status			
History of GDM in present or previous pregnancy	78	6.52	11.32
No history of GDM	1118	93.48	10.41

Table II : Knowledge about GDM and risk factors

Questions		Participants who answered "yes"		Participants who answered "no"	
		n	%	n	%
1	Have you heard about diabetes mellitus ?	1130	94.48	66	5.52
2	Can dibetes occur for the first time in pregnancy ?	757	63.29	439	36.71
3	Are elderly mother's a risk factor for GDM ?	816	68.23	380	31.77
4	Is family history (father/mother/brother/sister) of diabetes is a risk factor for GDM?	988	82.61	208	17.39
5	Is obesity before pregnancy is a risk factor for GDM ?	780	65.22	416	34.78
6	Is diabetes in previous pregnancy is a risk factor for GDM in subsequent pregnancy?	942	78.76	254	21.24
7	Is gaining too much weight rapidly during pregnancy is a risk for GDM?	598	50.00	598	50.00
8	Is previously giving birth to an overweight baby or had a birth defect is a risk for GDM?	544	45.48	652	54.52
9	Is previously having an unexplained still birth is a risk factor for GDM?	453	37.88	743	62.12

Table III: Knowledge about screening and treatment for GDM

Questions	Participants who answered "yes"		Participants who answered "no"	
	n	%	n	%
10 Is it necessary to test for diabetes in pregnancy?	1105	92.39	91	7.61
11 Can GDM be treated with diet and exercise only?	784	65.55	412	34.45
12 Is insulin required to treat GDM?	794	66.39	402	33.61

Table IV : Knowledge about consequence of GDM

Questions	Participants who answered "yes"		Participants who answered "no"	
	n	%	n	%
13 Will baby at risk, if GDM is not treated?	1087	90.89	109	9.11
14 Does GDM disappear after delivery of baby?	796	66.56	400	33.44
15 Are mothers with GDM at risk to develop overt diabetes?	945	79.01	251	20.99

Table V : Knowledge score of antenatal mothers on GDM

Score	Percentage
Good (Score 9-15)	77.59 %
Average (Score 5-8)	18.14 %
Poor (Score 0-4)	4.26 %

Discussion:

This study showed that 77.59% had good knowledge about GDM. Study population, who had formal education and who had history of GDM in present or previous pregnancy had slightly more mean knowledge score. Parity and employment did not show any influence on knowledge score.

Regarding knowledge about GDM and risk factors, many of them had good knowledge about GDM and many of the risk factors. But many of the study population were unaware regarding gaining too much weight is a risk factor for GDM, also unaware about previously giving birth to an overweight baby or had a birth defect and previously having an unexplained still birth as a risk factor for GDM.

In a study by Poth and Carolan reported that most women were unable to understand how lifestyle and diet can reduce the risk of GDM[9]. Results from a study by Rhoads-Baeza and Reis showed that majority of women did not understand the relationship between GDM, T2DM or familial risk factors[10].

Regarding screening and treatment about GDM, most of them (92.39%) were aware about necessity to test for diabetes in pregnancy. but a significant population (more than 33%) were unaware about treatment of GDM. Some of the study population were aware about the consequence of GDM to baby and mother herself.

Study done by Sujindra Elamurugan *et al*.[11]on antenatal mothers had good knowledge about GDM and its risk factors. But awareness on screening, treatment and consequences of GDM was poor. Many did not know about the consequences of GDM after pregnancy and the increased risk for development of Type 2 diabetes in future.

In a study by Vanishree[12], done on antenatal women in a rural setting the mean knowledge score was 7, 17.5% women had good knowledge, 56.7% had fair knowledge, and 25.8% women had poor knowledge about GDM.

Most of the participants were aware regarding consequence of GDM to the baby but more than twenty percent of participants were unaware about the consequence of GDM on the mother. A study done by Kaptein *et al*. showed that many of the women considered GDM as a signal to adapt a healthy lifestyle, and a majority of them had a high perception of diabetes risk in future[13].The rate of progression of GDM to T2DM is increasing. Earlier studies reported that women with GDM developed T2DM within 9 years post partum[14].Data from our recent study showed that as many as 20% convert to T2DM within a year after

delivery[15]. Therefore, it is necessary that healthcare providers counselled antenatal women about the long-term diabetes prevention strategies.

Conclusion:

In conclusion, we can say that most of our antenatal women had good knowledge about GDM, but still they are unaware about some of the risk factors and consequences of GDM. Awareness programme may be conducted more in community level to overcome this. In that way we can contribute to reduce burden of GDM, as well as diabetes in our community.

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Original Article

The Index to Ring Digit Ratio (2D:4D) and Neck Circumference: An implication for risk factors in coronary heart disease among Bangladeshi adults

Karim Rezwan Hasan[1], Rubaba Tajreen[2], Shamim Ara[3]

Abstract

Objective: Ratio between the index and ring fingers (2D:4D) is an indirect evidence of prenatal androgen exposure. Neck circumference (NC), is a simple screening measure reported to be positively correlated with the risk of coronary heart disease (CHD). The current study aims to analyses whether there is a correlation between NC and intra uterine testosterone exposure by using digit ratio as proxy marker.

Method: The study population consisted of 150 healthy volunteers in the age group of 18 – 35 years. After eliciting a detailed socio-demographic history from all the subjects, their digit ratio, neck circumference, height and weight were recorded. Pearson's correlation was used to determine the relationship between 2D:4D and NC. Confounding effects of body weight were removed by calculating partial correlations.

Results: There was a positive correlation between digit ratio and neck circumference which was significant in males ($p<0.05$) but not in females ($p>0.05$).

Conclusion: There exists a possibility that prenatal testosterone exposure is protective against CHD and digit ratio can be considered as an earlier, simple and cost-effective method to predict the risk of CHD.

Key words: Digit ratio (DR), Neck circumference (NC), Coronary heart disease (CHD), Basal metabolic index (BMI)

Introduction

Digit ratio is the ratio of the lengths of different digits or fingers typically measured from the midpoint of bottom crease where the finger joins the hand to the tip of the finger1. Among the digit ratios 2D:4D (index: ring) digit ratio has been the most extensively studied. 2D:4D is sexually dimorphic. The second digit is typically shorter in both females and males, but the difference between the lengths of the two digits is greater in males than females. In other words, males have a lower ratio compared to females[1].

A number of studies have shown a correlation between the 2D:4D and various physical and behavioral traits and pathological conditions like, hand preference, autism, sperm counts, coronary heart diseases, sports performance and substance abuse[2,3,4,5]. Digit ratio is established very early in life, around 14thweek of gestation, and gender differences in digit ratio becomes apparent by two years of age. Moreover, even though there is continuous growth of the digits during development, the ratio seems to be unchanged throughout the life of theindividual[6].

According to a previous study, the amount of testosterone produced by the fetus between the 12th and 24th week, as measured by amniocentesis, negatively correlates with 2D:4D7. Other methods that have been employed to establish the link between in utero testosterone and digit ratios include, study of 2D:4D in females with congenital adrenal hyperplasia8, in dizygotic twins of the same and opposite sex[9], in women with polycystic ovary syndrome[10], and in men with Klinefelters syndrome. Breedlove, in his review has concluded that 2D:4D reflects the concentration of and sensitivity to prenatal androgens[11]. Thus, considering all these works, the 2D:4D is considered to be a 'window' to prenatal testosterone exposure and has been used as a proxy marker for thesame.

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One may wonder that if 2D:4D is associated with testosterone levels it may correlate with risk of coronary artery disease (CAD). Testosterone is one of the protective factors in preventing CAD[12]. Studies have shown that low testosterone is associated with coronary artery disease[13]. In addition, Wu et al have found a positive correlation between 2D:4D and CAD in Chinese males[4]. They observed that a high 2D:4D was predictive of CAD

One of the most important factors contributing to CAD is obesity[14]. There are many methods of assessing obesity. The most commonly used is the Body Mass Index (BMI). Another indicator for obesity, which is gradually replacing BMI, is the neck circumference (NC). It is an indicator of upper body subcutaneous adipose tissue distribution[15]. Although obesity results in metabolic abnormalities, upper-body obesity is more strongly associated with cardiovascular risk[15]. Thus, NC as a measure of body fat distribution has been reported to have a high predictive value for cardiovascular risk factors[16].

There has been a study by Fink, Manning and Neave, that showed positive correlation between 2D:4D and NC[17], but no studies so far has been done in Indian population. Bearing these facts in mind, the current study aims to analyze whether there is a correlation between NC and intra uterine testosterone exposure by using digit ratio as proxy marker.

Materials and Methods

The study population consisted of 150 healthy individuals (79 males, 71 females, aged between 18 to 35 years). Volunteers were chosen from those who accompanied the patients visiting medicine OPD of Dhaka Medical College hospital. Subjects with neck swellings, thyroid diseases and malignancies and those on medication for high blood pressure, diabetes and dyslipidemia were excluded from the study. Additionally, those with hand injuries and deformities were also excluded.

Institutional ethical committee approval was obtained. Informed consent was obtained from all participants. A detailed socio-demographic history was taken and a thorough general examination was done.

Anthropometric measurements

Weight was measured using standard weighing scale and height using stadiometer. The BMI was then calculated by using Quetlet index, that is by dividing the weight in kilograms by the square of height in meters (kg/m^2).

Measurement of Neck Circumference

NC was measured in the midway of the neck, between mid-cervical spine and mid-anterior neck, to within 1 mm, with a plastic tape. In men with a laryngeal prominence (Adam's apple), it was measured just below the prominence. All circumferences were taken with the subjects sitting upright, with the face directed forwards and shouldersrelaxed.

Measurement of Digit Ratio

The method described by Neyse&Brañas- Garza18, was followed. Digital photographs of both hands were taken with palms on flat surface, facing upwards. Precaution was taken to remove any ornaments like ring which may interfere with the clarity of the photograph and measurement of the 2D:4D. Using Adobe Photoshop® the distance between proximal crease to tip of index finger was measured (2D) in pixels. The same was repeated for the ring finger (4D) as shown in Figure 1. The value of 2D is divided by that of 4D to arrive at the ratio.

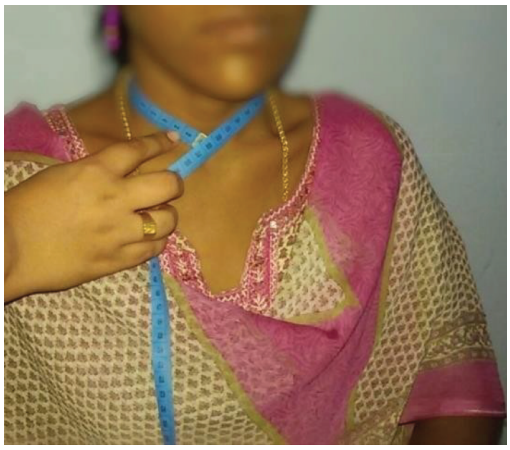

Figure 1(a): *Measurement of Neck Circumference*

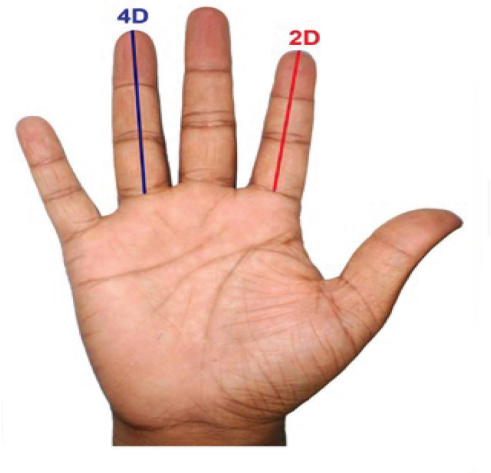

Figure 1(b): *Measurement of Digit Ratio*

Statistics

Gender differences in digit ratio were assessed using student t test. Relationships between the 2D:4D and NC were analyzed using Pearson's linear correlation. To rule out the confounding effects of BMI, partial correlation was computed. All analyses were performed using Statistical Package for Social Sciences (SPSS, version 20).

Results

Characteristics of the Population

The study sample consisted of 150 subjects, 79 males, with mean age of 22 ± 5 years and 71 females, with mean age of 26 ± 6 years. The other characteristics are shown in Table I.

Table I: Population Characteristics

Variable	Males (n=79)	Females (n=71)
Age (years)	22 ± 5	26 ± 6
Digit ratio	0.97 ± 0.02	0.99 ± 0.02
Neck circumference (cm)	34.3 ± 2.7	31.8 ± 3.3
Height (cm)	166 ± 6.6	148 ± 8.0
Weight (kg)	72 ± 13.5	61 ± 12.8
BMI (kg/m2)	27.3 ± 4.7	26.6 ± 5.2

Gender Differences

The mean digit ratio among males was 0.97± 0.02 which was significantly lesser compared to that of females, which was 0.99 ± 0.02 ($p<0.05$). The neck circumference was significantly lower in women, (mean 31.8 ± 3.3cm) when compared to men (mean 34.3 ± 2.7, $p<0.05$).

Correlation of Digit Ratio and Neck Circumference

Mean Digit ratio for men was found to be lower than that of women, whereas mean neck circumference of men was found to be higher than women. Within both the groups, ie, men and women, there was a positive correlation between 2D:4D and NC. As the values of the ratio increased, the neck circumference also increased. This is shown in Figures 2 and 3. For males, the Pearsons coefficient was 0.69 ($p<0.05$) and for females it was 0.56, ($p>0.05$). In order to rule out the confounding effects of BMI, a partial correlation was calculated as seen in Figure4. The Pearson's first order partial coefficient (controlling for BMI) was 0.521, $p<0.05$. This also pointed towards a positive correlation.

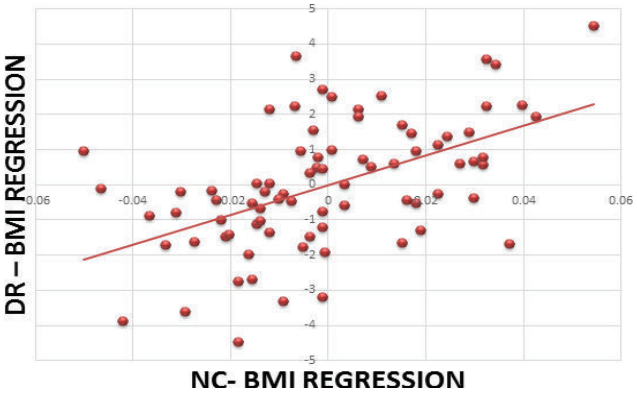

Fig.-1: Comparison of 2D; 4D and NC in males (Pearsons coefficient = 0.69, $p<0.05$)

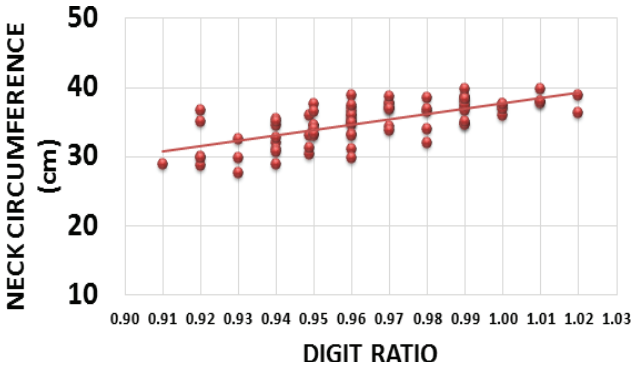

Fig.-2: Comparison of 2D; 4D and NC in females (Pearsons coefficient = 0.56, $p<0.05$)

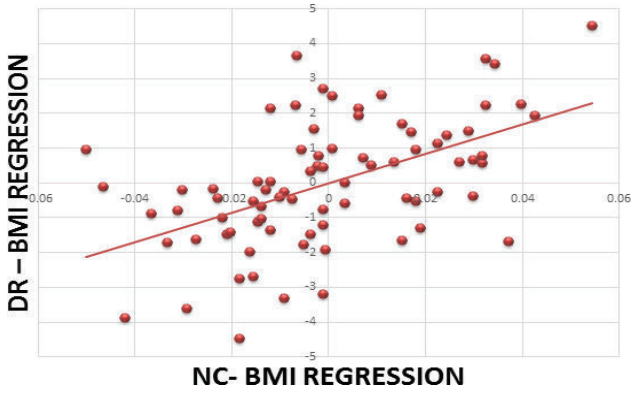

Fig.-3: Partial Correlation between 2D:4D and NC by controlling for BMI

Discussion

This study is one of the first attempts in India to address the relationship between Digit ratio and NC. In this study, the digit ratio was found to be lower in males than in females. This finding is in accordance with previous

studies by Gillam et all and Lutchmaya el al but contradicts the findings of Park et al[1,7,19]. The probable reason for lower digit ratio in males is a higher level of testosterone exposure prenatally. On the other hand, the neck circumference of males was found to be significantly greater than females. This difference however was found to be negligible when normalised to their height. So the difference between the NC between the genders was negligible($p>0.05$).

The findings of this study point towards a positive correlation between 2D:4D and NC, when BMI was controlled for. Moreover, the data also suggests that there is a stronger and a significant correlation between digit ratio and neck circumference for males. This relationship however is not significant among females.

Role of prenatal testosterone in establishing Digit Ratio

The underlying hypothesis for digit ratio being indicative of prenatal testosterone exposure is that, a set of genes called Homeobox genes (HoxA and HoxD) form a common factor responsible for the urogenital system differentiation, prenatal androgen synthesis and digit development. In utero testosterone also upregulates another gene called SMOC 1 gene which is responsible for regulation of limb growth[1].

Role of prenatal testosterone in adiposity

Prenatal testosterone exposure increases the sensitivity of β adrenergic receptors to catecho- lamines which mediate the action of hormone sensitive lipase and induce lipolysis and hence decrease adiposity[20]. On the contrary, there have also been evidences in animal models, where prenatal androgen exposure has resulted in increased adiposity, insulin resistance and changes in adipose tissue lipolysis inadulthood[21].

Conclusion

The positive correlation in our study suggests low androgen exposure in intra uterine life predisposes to adiposity in adult life and hence increased risk for CAD. This is reflected by an increased NC. The protective role of intrauterine testosterone exposure cannot be asserted as this exposure has been associated with unwanted consequences such as autism, substance abuse, low sperm count, etc as pointed out by previous studies2,3,5.

Digit ratio is a parameter that can be measured with ease and acts as a proxy marker of intrauterine testosterone exposure, which is constant from birth, and it also correlates well with NC which is a surrogate marker for CAD.

As evidenced by the findings, 2D:4D can be used to provide a quick and inexpensive information about the genetic predisposition for CAD and warrant regular screening from an early age.

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Original Article

A Comparative Study between Closure and Non-Closure of Peritoneum after Vaginal Hysterectomy

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Abstract

Objectives: The practice of closing or non-closing the peritoneum is still debatable. The purpose of the study was to evaluate the clinical outcome of a patient who undergoes vaginal hysterectomy with or without peritoneal closure.

Materials and Methods: The prospective study was conducted in the department of obstetrics and gynaecology, Shaheed Ziaur Rahman Medical college & Hospital, Bogra during the period of January 2008 to December2009.A total of 100 cases,50 closure and 50 non closure of peritoneum.

Result: In this study, 50 closure & 50 non-closure of peritoneum in vaginal hysterectomy were taken. There was no significant difference between two groups patients undergone operation. Mean operation time in closure group was 78.76; and non closure groups was 72.10 min. Patient with non closure group resumed their bowl function earlier than closure group and it is due to reduced operation time, less handling during operation and shorter duration of exposure to anaesthesia. Hospital stay was significantly reduced in non closure group due to early return of bowl function.

Conclusion: The data of the study supports the conclusions regarding non closure of the peritoneum after vaginal hysterectomy.

Key wards: Vaginal hysterectomy, closure and non closure of peritoneum.

Introduction

There are various approaches to the surgical removal of the uterus; abdominal hysterectomy laparoscopically assisted vaginal hysterectomy and vaginal hysterectomy. Vaginal hysterectomy is the second most common gynaecological operation. In developing countries genitourinary prolapsed are more common than others.

Vaginal hysterectomy results in better quality of life outcomes compared with abdominal hysterectomy; i.e. lower morbidity and quicker recovery[1]. In our speciality, the practice of closing or not closing the peritoneum is still being debatable. Our purpose is to evaluate the clinical outcome of the patient who undergoes vaginal hysterectomy with or without peritoneal closure. Of the procedure and to provide clinical opinion, closure of peritoneum associated with a slightly longer operating time and most post operative pain and there are some suggestions that's it might cause more adhesion formation. There are more advantages than disadvantages to not closing the peritoneum. We encourage clinicians not to close both parietal and visceral peritoneum[2]. Closure of peritoneum at vaginal hysterectomy is traditionally considered a necessary and important procedure[3,6,9,10,11]. The surgical step is further thought to prevent later enterocele and prolapsed of the vaginal vault[3,6,9]. Finally, the peritoneal closure and extra-peritoneal sitting of the pedicals is believed to be crucial to avoid infection and intra-peritoneal haemorrhage[10]. Clinical studies demonstrating these benefits, however, are still missing. Experimental data on peritoneal healing indicate that suturing the peritoneum does not promote wound strength- it may, in fact, induce short term effects of the non-closure of the peritoneum at vaginal hysterectomy. The commonest complication associated with vaginal hysterectomy is secondary haemorrhage[12], which has been seen in 34-59% cases postoperatively[12,13].This has been shown to increase febrile morbidity need for blood transfusions, longer hospital stay and higher readmission[13].

We therefore designed a randomized controlled to determine whether non-closure of the vaginal vault

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reduced the risk of febrile morbidity. Like others it was found that non-closure of the peritoneum was related neither to a higher short-term morbidity nor to an increased rate of postoperative complications[3,16]. Hirsch et.al (1995) showed that non-closure of the peritoneum is safe. According to a literature, non-closure of peritoneum reduces operating time[14]. In their series, Cheong et. al. (2001) opined that, this was not the case. They mentioned that, it was probably because of their high proportion of teaching cases. As for long-term morbidity, data from experimental studies have shown rapid healing of un-sutured peritoneum with minimal adhesion formation[6,15,17,18]. The presence of sutures on the other hand, may favours adhesion formation and related problems. Better bowl function and the absence of ileus in our study suggest that is the case.

Cheong et.al (2001) concluded that non-closure of the peritoneum is safe in vaginal hysterectomy with an apparently beneficial effect on bowl function and further clinical trials are needed to investigate the long-term effects or benefits of non-closure of the peritoneum at vaginal hysterectomy[14].

Material and Method

This randomized control study was conducted in the Department of the Obstetrics & Gynaecology, Shaheed Ziaur Rahman Medical College & Hospital, Bogra during the period of January 2008 to December 2009. In this study 100 cases, 50 peritoneum closure and 50 peritoneum non-closure of patients was taken.

Selection Criteria

All women with utero vaginal prolapsed with cystocele and rectocele or urinary incontinence. Were included women with genitourinary prolapse or any pelvic tumour were excluded.

Data collection

Data was collected from the women who are undergoing vaginal hysterectomy admitted into the department of gynaecology by taking history, physical examination, routine investigation, follow up after operation and also complication if any. Collected data were analysed using computer based software SPSS-12 for windows.

Methodology

The study itself involves recording information by taking history, physical examination and relevant investigation. However, a written informed consent would be obtained from all patients or attendant. For data collection a protocol was made by a prepared questionnaire. Detailed history of the patients with particular attention to the operative details, post operative course, hospital stay and follow up after operation were included in protocol. Women admitted for vaginal hysterectomy were randomly allocated. After proper history taking, clinical examination was performed. The technique of operation used for each patient was selected randomly. Among them 50% of the patients were peritoneum closed after vaginal hysterectomy. Remaining 50% of the patients were non-closure of the peritoneum after vaginal hysterectomy. A vaginal incision was employed in all cases which was inverted "T" shaped. After removal of uterus all clumps were sutured by vicryl 1. Peritoneum of the 50% patients were closed by 1/0 catgut, rest of the patients remained open. Cut margin of the vagina were sutured by vicryl 1/0. Parameter were recorded during operation-total time of operation, number of suture material used, any complication like excessive bleeding and parameters during post operative period- resumal of bowl sound ,severity of pain in the wound, demand for post operative analgesics. Statistical analysis was done with the statistical package for social sciences (SPSS). Analytic comparisons used the unpaired students t-test and X2 test and ANOVA test. $P<0.05$ considered as significant.

Observation and Results

Statistically analysis compared the characteristics and variable of the patients in whom vaginal hysterectomy with non peritonization technique and peritonization technique was performed.

Table-I: Demography of women who underwent vaginal hysterectomy

Demography of women		Closure	Non-closure
No. of patients		50	50
Age (years)*		56.14±7.83	57.76±5.83
Parity	(1-3)	18	15
	(>3)	32	35
Presence of medical Disorder		DM	7 8
	HTN	17	15

* No. corresponds to median value± Standered DeviationThe characteristics of women undergoing two groups of operation, namely Closure and non closure group are shown in table-I. There were found no significant differences between two groups patients undergone operation. Mean operation time in closure group was 78.76 minutes and SD was 6.15; on the otherhand the mean time of non closure group was 72.10minutes the SD was 6.09.

Table-II: Preoperative course of two groups of patients

	Closure	Non-closure	P Value
No. of patients	50	50	
Operation time (minutes)* Estimated blood loss	78.76 ± 6.15	72.10 ± 6.09	P<0.001s
(Hb% difference in gm/dl)**	1.20 / 0-2	1.15 / 0-2	
Return to bowel movements (day)***	2.48 ± 0.67	2.04 ± 0.66	P=0.0012s
Hospitalisation period (days)***	7.04 ± 1.18	6.48 ± 0.67	P<0.011s

* Time corresponds to median value
** Median / range
*** Median value and standard deviation

Table-II shows blood loss which measured by hb%. Patient with non closure group resumed their bowel function earlier than that of the closure group. In closure group M=2. 48±0.67 and non closure groups M=2.04±0.66, P=0.0012, which is highly significant and it is due to reduced operation time, less handling during operation and shorter duration of exposure to anaesthesia. Hospital stay was significantly reduced in non closure group due to early return of bowl function. Table-III shows postoperative complications were present in 12 patients of closure group and 8 patients of non closure group. Fibrile illness was less in non closure group 2(4%) compared with closure group 4(8%). But it is not statistically significant. Urinary tract infection are equally common in both groups, micturation disorder and readmission were absent in both groups, postoperative haemorrhage and transfusions were same in both groups.

Table-III : Post operative complication

	Closure (n= 50)	Non-closure (n= 50)
Fever	4 (8%)	2 (4%)
Urinary tract infection	2 (4%)	2 (4%)
Micturation disorder	0 (0%)	0 (0%)
Haemorrhage	3 (6%)	2 (4%)
Transfusion	3 (6%)	2 (4%)
Readmission	0 (0%)	0 (0%)

Table-IV: Demand for post operative analgesics

Analgesic doses of Injection	Non-peritonization technique group (n=50)	Peritonization technique group (n=50)	Significance (P value)
Pethidine (mg)	77.78 ± 11.56	75.45 ± 14.69	NS
Range	50-100	50-100	0.358
Diclofenac Na (mg)	1.37 ± 145	4.46 ± 1.29	0.000***
Range	0-4	2-6	

Analytic comparison used the paired student "t" test. Values are shown as mean ±SD. P<0.05 considered significant. *** Highly significant, NS- Not significant

Table V: Requirement of suture materials

Suture materials	Closure group (n=50)	Non-closure group (n=50)	Significance (P value)
Vicryl 1	2.90 ± 0.51	2.90 ± 0.51	-
Vicryl 1/0	1.18 ± 0.39	1.18 ± 0.39	-
Catgut 1/0	1.00 ± 0.00	0.00	0.000

In non-closure technique, the less suture materials were required than closure technique.

Table-VI: Cost of operation

Cost Involved	Closure group (n=50)	Non-closure group (n=50)	Significance (P value)
Expenditure in Taka	1720 ± 153.18	1550 ± 151.52	0.000

In non-closure technique, the expenditure of operation was less than closure technique as less suture materials was used in this technique and it is highly significant.

Discussion

Major gynaecological surgeries are now widely performed in many referral hospitals in our country. This study was carried out the patients in gynae and obs. Department of Shaheed Ziaur Rahman Medical College and hospital, Bogra, during January 2008 to December 2009. It is a prospective type of study. Aim of this study was to critically analysis the advantages of vaginal hysterectomy with or without closure of peritoneum.

Non-peritonization technique during vaginal hysterectomy is the result of a very careful critical assessment of each surgical step, aiming at eliminating everything that superfluous senseless and even detrimental and at improving the safety simplicity efficiency of operation.

The most important aspects reviewed are operation time estimated blood loss, requirement of suture materials, resume of bowl function and demand for post operative analgesics, fibrile illness and other post operative complications.

We found that non-closure of the peritoneum was related neither to higher short term morbidity nor to an increased rate of post operative complications. .Studies done by Hirsch et. al. showed that non closure of peritoneum is safe[3,16].

Cheong et. al., Irion et al. found that significantly faster resumption of bowl function occurred in sample vaginal hysterectomies when the peritoneum was left open[14]. Whilst Hull and Varner found no difference between two groups[15].

In this study, the mean operation time was significantly shorter in non peritonization technique group than in peritonization group (78.10 ±6.15) (p<0.001). This comparison of operation time also correlates with studies of Cheong et. al [14].

The decrease in operation time was associated with non closure of peritoneum than closure of the peritoneum. It was associated with less anaesthesia time and less time that the wound was exposed environmental contamination, its potential economic benefit include decreased anesthesia suture costs, personal time and expense. Nagele et al. found no difference between two groups[17].

In present study, patients of vaginal hysterectomy by non peritonization technique (2.04 ±0.66) resume their bowl function earlier than the peritonization technique group (2.48 ±0.67) p=0.001 and it is statistically significant. Patient in non-peritonization group resume their bowl sound earlier probably due to shorter operation time, less handling during operation and shorter duration exposure to anesthesia.

In this study, women in non-peritonization group (Mean-77.78 ±SD-11.56) had experienced significant less pain than in peritonization group, (Mean-75.45 ±SD-14.69). This is because no tension is place on the peritoneal wound edges as they were not sutured in non-peritonization group. There were also significant differences in the analgesic doses (Inj. Diclofenac Na) between two groups The number of injection used in non peritonization technique group was reduced to1.37 ±1.43 compared with peritonization technique group 4.46 ± 1.29 doses (P=0.000).

In this study, postoperative fever in non-peritonization group 2 (4%) and peritonization group 4(8%) did not differ significantly between the two groups. In peritonization technique group post operative fever was higher than in the non peritonization group but it is not significant. This result correspond with the studies of Nagele et al. and Grundsell et al[17].

In this study, the mean length of hospital stay in peritoneum open group was 6.68 ± 0.67 days and in peritoneum close group it was 7.04 ± 1.18 days p<0.001. So there was no significant difference as regard to hospital stay. Some patients in peritoneum open group wanted to leave the hospital earlier as experienced less post operative pain and other morbidity but they are not discharged earlier as they were under study. During follow up after two and six weeks, there was no significant difference as regards their present complain.

Recently Misky and Magos A found that Closure of peritoneum at vaginal hysterectomy is traditionally considered a necessary and important procedure. With this technique the peritoneum and vault are closed simultaneously .This favours the obliteration of the space between vagina and peritoneum. The surgical step is further thought to prevent haemorrhage, lower risk of vault haematoma and post operative cuff infections[18].

Conclusion

The data of the study supports the following conclusion regarding non-closure of the peritoneum of the peritoneum after vaginal hysterectomy,

- It provides a simplified surgical technique requiring less operation time and less exposure to anesthesia recovery period.
- It appears to have no detrimental effect in the immediate post operative recovery period.
- It decreases the number of suture material during operation and also post operative analgesic requirement there by reduces the cost of surgery.
- It does not affect the post operative morbidity.
- It is associated with early return of bowl function.

A continuous effort must be made to research and evaluate the procedure in order to make it simpler, more efficient and to minimize short and long-term complications. This study shows that high lights that non-peritonization technique is efficient, safe, simple, and less traumatic. It provides rapid recovery with early ambulation and resumption of oral feeding and return to home. Further clinical trials are needed to investigate the long term effects or benefit of non-closure of the peritoneum at vaginal hysterectomy. As it was a selective hospital based to it might not reflect the actual situation of the problem throughout the country. So study on a wider scale can give further inputs of the issue.

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Original Article

Immunization: Concept, Maternal Knowledge, Attitude and Practice

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Abstract

Objective: Immunization programme laid down by WHO has revolutionized the health status of human population. Bangladesh is no exception in it. The study will be able to provide and compare the concept and practice of immunization among Gazipur district and other places both at home and other developing countries

Method: This cross-sectional observational study was conducted in the district of Gazipur to evaluate maternal knowledge, attitude and practice of immunization. Simplified cluster sampling method was used . A total number of 212 mothers were selected for individual focus group discussions mostly from similar socio-economical background, permanent residents of the community and having at least one child of age between 13 to 23 months. The data was collected using a questionnaire at focal group discussions. The results of cluster sampling surveys were compared with computer simulated surveys. It was found that the result was satisfactory with 95% confidence limits within plus and minus 10%.

Result: About 87% of mothers were able to name two or more EPI diseases and 13% were unable to name at least two EPI diseases. About 81% of the children were fully immunized and 19% were incompletely immunized. 77% of them had immunization cards, 4% had no card and 19% had lost their cards. The dropout rate from the immunization was higher among those who had lost their cards than those who had retained them.

Conclusion: This comparison may focus on the strength and weakness at Gazipur district and may be able to give us the directions to improve upon the situation of immunization at Gazipur as such whole Bangladesh.

Key words: Immunization, EPI, Fully immunized (FI), Immunization card (IC)

Introduction

Immunization is the most effective way of reducing childhood morbidity and mortality from the six target disease of the world health organization's expanded programme on immunization (EPI): diphtheria, poliomyelitis, tuberculosis, whooping cough and tetanus.

During the last decade a public health revolution has taken place throughout the world. Immunization services which were virtually non-existent in developing countries in 1974 (only 10% coverage) now administer doses against preventable diseases to more than 70% of the world's children. Thus EPI now claims to prevent 1.9 million childhood deaths.[1]

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The world health assembly in May 1974 decided that all children of the developing countries will be immunized by the year 1990.

Immunization levels must be raised to at least 80% for all children of the world by 1990 and at least 90% in the context of comprehensive maternal and child health services by the year 2000. Enormous work has already been done in the developing world in collaborations with international organization in the past 15 years to reach the goals[2]. This has been achieved by immunization programmers which now reach approximately 80% of all children.

The main task is now to sustain this achievement and to extend it to the remaining 20%. Generally the poorer are harder to reach among whom disease has been more found and commonly fatal[3].

In the past, it has been observed that in Bangladesh a large number of children die every year due to EPI target diseases before the age of one year. As a result, the need

for alternative protection for the child was realized. Consequently immunization was introduced into Bangladesh. EPI was first started in Bangladesh on 7th April 1979. Immunization coverage at this time as a whole was very marginal (only 2% completely immunized). A new plan of action was taken in July 1985 to reach the WHO EPI target by June 1990[4]. Target population (1986-90): Children under one year of age were the principal target but children up to two year ages of age were the also provided with immunization services. The target population for TT was women of child bearing age with special emphasis on pregnant woman. The key elements of the plan included intensive mobilization techniques to generate support and demand, involvement of health complexes in immunization services, extending rural outreach services in a progressive manner and intensifying immunization activities.

The Gazipur district is well covered under the extended programme on immunization (EPI), there is almost always a smooth supply of immunization materials. District headquarters are the main source of vaccine supply in the upazilla, union and wards where outreach centers are operated.

This is the first referral centre for the primary health care network.

Immunization status in different countries

Studies conducted in Mozambique, Burma, Nepal, India, Iran and other countries of the world showed that certain factors were associated with the vaccine uptake in a community. These factors differ from country to country. Even in the same country there may be differences within different communities. Considering all these factors into account, a questionnaire was prepared to conduct a survey in Bangladesh using the cluster sampling method. This technique allows a small number of target populations to be sampled while providing date which are statistically valid. However, in spite of the popularity of the simplified cluster sampling method, its routine use by the national and international organizations and the wealth of information thus gained, reports on the reasons for partial immunization in developing countries are seldom published and so are limited and the presence of obstacle. Occasionally, the results of such surveys are published in greater detail.

A recent survey in Mozambique showed that vaccine coverage based on documented in record was 53% in urban and 60% in rural areas. Factors related to individual mother and child and factors related to the clusters were investigated for their association with vaccine uptake. Those who showed a strong negative offering days per week, cancellation of outreach sessions, knowing a child with post vaccination abscess, child born in home, large family and a mother's inability to speak the local language (Portuguese)[5].

On the other hand, another study in Nepal showed that only 4% (10/228) of the Nepalese children and full coverage with recommended doses of vaccine against target diseased. It also showed that male children were twice as likely to have received vaccines as females (76/122, 62%VS48/106, 45%. Odds ratio = 2.00). Children born at a hospital were more likely than those born at home to have been vaccinated (23/24, 68% VS 101/194, 52% p=0.05). Most mothers obtained health information from neighbors (38%), radio (22%) and health workers (18%). More than 70% of the women felt that vaccinations were good preventive measures.

On 1986, a survey was conducted in Iran, the result of that survey differed from that of Nepal survey. In this survey it was found that 55% of Iranian children had complete immunization. Apart from mother's knowledge and motivations, residence in the rural areas and utilization of antenatal care showed a positive association with vaccine uptake. On the immunization of the children. The association between maternal tetanus immunization and child's immunization was negative[6].

In 1987, it was observed that children in a rural region of Burma were not receiving their vaccine until much later in life. Coverage for DPT declined from 78% for the first dose to 41% for the third dose. BCG immunization coverage was nearly the same for the first dose of DPT[7].

Cluster sampling survey showed that the percentage of non-immunized children in Delhi, India was significantly higher in rural (8.0%) as compared to urban areas (2.3%)[8].

Another study in U.P., in India discovered that except for measles, a significantly higher vaccination coverage was observed for male children as compared to female children for every vaccine, this being 65.2% and 60.9%, respectively for DPT 3rd dose and OPV 3rd dose for boys as compared to 51.9% and 49.5% for girls.

In India, another survey showed that the main factors associated with low vaccine uptake were, unawareness of immunization (20.44%), inconvenient immunization time (9-29%), sick child (16) and lack of knowledge about dose schedule (9%)[9].

In the Republic of Cameroon it has been observed that cont, waiting time, distance of the health complex and

language barriers were the most important factors associated with vaccine uptake in the community.[10]

One Ghanian study correlated the relationship between immunization status and serial distance: if they lived at the site, 89.2% were vaccinated, away from the site but less than three miles away, 69.8% were vaccinated: none who lived three or more miles away, were vaccinated.[11]

In Burma, another study showed that immunization coverage of a country varies from state to state due to geographical situation. In 1983, proportion of fully immunized children varied from one state to another and ranged from 40-60%.[12]

Materials and Methods

The Gazipur district was sub-divided into Upazillas, unions and wards on a map. Wards were numbered for the whole district and using a random number table 30 wards were selected randomly for the cluster sample. Each cluster contained seven children in between 12 to 23 month of age. This date would reflect the coverage period of about one year period to this survey. Total sample size was 212. The study was mainly based on qualitative methods such as focus group discussion,The strength of qualitative methods includes allowing the respondents to express in their own words, the reasons for their own beliefs and behaviors.Mothers were selected for individual focus group discussions mostly from similar socio-economical background, permanent residents of the community and possession of at least one child of age between 13 to 23 months. To estimate the 'Immunization coverage' a simplified cluster sampling method was used which involves random selection of 210 children in 30 clusters of seven children in each group. This is based on a survey technique originally used in the United States of America.WHO experts found that this technique can quickly and effectively monitor and evaluate the immunization programmes at the community levels. The data was collected using a questionnaire (Appendix 1) at focal group discussions. The results of cluster sampling surveys were compared with computer simulated surveys.

Results

The average age of the mother was 25.61 years – 62% were under 25 years of age and 38% were above 26 years of age. Of them 74% were illiterate and 26% were literate.

Most of the mothers (87%) were able to name two or more EPI diseases and 13% were unable to name at least two EPI diseases (Table-III). 76% of the mothers were living within three miles of the health complex and 24% were living at distance more than three miles away from the health complex.In the study children 51% were male and 49% were female. Eighty one percent of the children were fully immunized and 19% incompletely immunized. Of them77% had immunization cards, 4% had no card and 19% had lost their cards.98% had home delivery.

Table I: Characteristics of the mothers

Age of Mothers:	**No**	**%**
25 Years or less	132	62
26 Years or over	80	38
Occupation of mothers		
Housewife	209	98
Others	3	2
Income per month		
Less than 2000 taka	190	89
Over 3000 taka	9	5
Place of delivery		
Home	202	98
Hospital	10	2
Member of social organization		
Member	52	25
Nonmember	159	75
Number of children		
3 or less	164	77
4 or more	48	23
Distance of Health complex		
3 miles or less	161	76
Over 3 miles	51	24
Belief in vaccination		
Confident	83	39
Doubtful	129	61
Drinking water supply		
Safe Water	212	100
Possession of latrine		
Yes	129	61
No	83	39

Table II: Educational status of the mothers

	Mother's Education	**Number**	**Percent**
1.	No schooling can't read & write	130	61.3
2.	No schooling but can read & write	27	12.7
3.	Primary education (5 years)	49	23.1
4.	Secondary education (10 years)	6	2.8
Total		212	100

1+2= Illiterate (74%) 3+4= Literate (26%)

Table III shows that 87.3% of the mothers were able to name at least two EPI diseases and 12.7% were able to name one EPI disease or none at all. It has been observed that 80.7% children were fully immunized and 19.3% children were incompletely immunized (Table III). Regarding immunization against tetanus, 67.5% were fully immunized, 17.5% were partly immunized and 15% were not immunized at all (Table IV). 74% of the mothers were illiterate and 26% of the mothers were literate (Table V).

Table-III: Maternal knowledge about EPI diseases

Number of diseases mother can name	Number	%
4 to 6	53	25.0
2 to 3	132	62.3
1 only	7	3.3
Nil	20	9.4

Table IV: Characteristics of the study children

Ages of children between 12 to 23 months.		
Sex of the children	N	%
Male	107	51
Female	105	49
Immunization		
Complete	171	81
Incomplete	41	19
Possession of card		
Yes	164	77
No	9	4
Lost	39	19

Table V: Immunization status of the children

Immunization status	Number	%
Fully immunized	171	80.7
Incompletely immunized	41	19.3
Total	212	100

Children of those who were able to name two or more target diseases were more likely to be vaccinated than those who could not name the target diseases (p=<0.05) (TableXI).

Table VI: Immunization status of the mothers against tetanus.

Immunization status	Number	%
Fully immunized	143	67.5
Partly immunized	37	17.5
Not immunized	32	15.0
Total	212	100

Table VII: Maternal education and immunization status of their children

Mother's Education	Immunized	%	Incompletely Immunized	%
1. No schooling	126	73	31	76
2. With schooling	45	27	10	24

P=ns odds ratio=1.11

Table VIII: Maternal education and immunization against tetanus P = NS

Maternal education	Fully Immunized N=143 %	Partly Immunized N=37 %	Not Immunized N=32 %
1. No schooling	101 (71%)	29 (78%)	27 (84%)
2. With schooling	42 (29%)	8 (22%)	5 (16%)

Table IX: Age of the mother and immunization status of their children

Maternal age	Fully immunized child (N=171)		Non-immunized child (N=41)	
25 years or less	92	54%	20	48%
26 years or more	79	46%	21	51%

P=ns odds ratio = 1.22.

Table X: Maternal age and immunization against tetanus.

Maternal age	Fully Immunized	Partly Immunized	Not Immunized
25 years or less	94 (45%)	15(41%)	3(9%)
26 years or more	49(34%)	22 (59%)	29(91%)

p=<0.05.

Table XI Maternal knowledge about EPI diseases and immunization status of their children

Number of diseases can name	Fully immunized		Not immunized	
	N	%	N	%
2 or more	157	91	27	66
1 or nil	14	9	14	44

p <0.05.

Discussion

The dropout rate from the immunization was higher among those who had lost their cards than those who had retained them Mothers knowing the name of EPI diseases were more likely to be vaccinated than those who did not know the name of the diseases.Regarding immunization against tetanus more than 50% mothers above 25 years were fully immunized.

It is well established that education of mothers changes their attitude towards immunization. In this study it has been observed that 80.7% children were fully immunized and 19.3% children were incompletely immunized (Table III). Regarding immunization against tetanus, 67.5% were fully immunized, 17.5% were partly immunized and 15% were not immunized at all (Table IV). 74% of the mothers were illiterate and 26% of the mothers were literate (Table V).

About 73% of the children of illiterate mothers were fully immunized and 76% were incompletely immunized (Table VI). Of the children from literate mothers 27% were fully immunized and 24% were incompletely immunized. This showed that there was no significant relation between education of the mothers and vaccination of their children. Similar result was also found with regards to maternal education and immunization against tetanus (Table VII).

These results correlate with the finding of the study carried out in Nepal. The educational status of the Nepalese mothers was not found to be a significant predictor of child's vaccine coverage. On the other hand, the father's education was strongly associated with the likelihood of being vaccinated (Table-VIII).

Like most of the developing countries, in Bangladesh the father is the main decision maker in the family. So parental education both father and mother is more important that maternal education alone.

There was no significant difference of knowledge between mothers regarding immunization for their children. On the other hand, a significant difference was found in these two groups of mothers regarding maternal immunization against tetanus (Table 9).

This may be explained by the fact that younger mothers are more likely to be educated and therefore able to make decisions

regarding their own health. However when it comes to their children, the grandparents are still the decision makers. The role of the grandparent in the family and the extent of their influence,need to be investigated further.

These findings simulate the study findings of Mozambique. Mother's inability to name at least two EPI target diseases had strong negative association with vaccine uptake in Mozambique.

Conclusion

This small scale study on immunization-Global prospective and Gazipur prospective will be able to develop an idea about a short history of evolution of immunization, its global status, situation in Bangladesh and a small population study covering Gazipur district which describes maternal concept, their attitude and practice. This study will also help planning of expansion of immunization in the national and international level.

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Original Article

Comparative study of Rupatadine alone and Levocetirizine with Ranitidine combined therapy in chronic idiopathic urticaria

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Abstract

Objective: Treatment ofchronic idiopathic urticaria (CIU) with combined therapy comprising H_1 and H_2 antihistamine is effective however, associated with high relapse rate. Rupatadine alone is found to be equally effective with less relapse rate and convenient dosage schedule. It was aimed to compare levocetirizine and ranitidine with rupatadine for the management of CIU.

Materials and methods: This single blind randomized controlled trial was conducted at Department of Dermatology and Venereology, Bangabandhu Sheikh Mujib Medical University, from April toSeptember, 2013. A total of 40 patients of CIU were randomly enrolled into two equal groups (group A and B). Patients of group-A was treated with 5 mg of levocetirizine once daily plus 150 mg of ranitidine twice daily and group-B was treated with rupatadine 10 mg once daily for one month. The efficacy was assessed 1st and 4th week during treatment and 4 weeks after completion of treatment by observing reduction of itching, regression of the size and shape of lesions and appearance of new lesions. Adverse effects and patient satisfaction were also searched and noted.

Results: Among the respondents, 75% in group A and 80% in group B responded to treatment. About 80% in group A and 85% in group B showed improvement in itching in the first week.Appearance of new lesions in first week was 10% and 5% and at 4th week, 5% and 0% respectively. About 75% in group A and 80% in group B had regression in their lesions at the end of first week and at the end of 4th week, it was 85% and 90%.

Conclusion: The result of the present study showed that levocetirizine and ranitidine combination and newer agent rupatadine alone has similar efficacy in reducing clinical sign and symptoms of CIU, however rupatadine has significantly reduced the relapse rate.

Key words: Chronic idiopathic urticaria; Randomized controlled trial, Rupatadine, Levocetirizine with Ranitidine.

Introduction

Chronic idiopathic urticaria (CIU) is a relatively common skin condition which affects about 0.5% people across the globe;varying between 0.1% and 3% people in Europe and Asia[1]. Studies investigating the natural history of CIU in adults have indicated that about 30–55% of patients go into remission within 12 months, although the disease may persist in some patients for several years[2-4]. Besides being severely debilitating and disfiguring, CIU may also be potentially stigmatizing, worsening the quality of life, following a chronic course with spontaneous remission and relapses for several years[5-7]. The symptoms of CIU, including edema, erythema and pruritus, are primarily associated with histamine release from dermal mast cells, oral H_1-receptor antagonist (H_1 blockers) are the treatment of choice [6,7]. There is evidence that PAF and histamine have mutually complementary activities in vivo. Each mediator is able to promote the release of the other by different tissues and cells[8,9]. Dual blockades of these mediators is likely to be a more effective treatment strategy for CIU.In chronic urticaria there are clinical trials

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and isolated observations with multiple treatments either as monotherapy or in combination, involving first and second-generation antihistamines, H_2blockers, corticosteroids and many other drugs. Within this potential range of treatments, the non-sedating (2nd generation) H_1 antihistamines are the only drugs with class one evidence and grade one recommendation[10,11]. Rupatadine is a novel selective long-acting H_1-receptor inverse agonist, which is currently approved as once daily dose of 10 mg, for the treatment of allergic rhinitis[12]. It has shown both antihistamine and anti-PAF effects through its interaction with specific receptors and not due to physiological antagonism[12]. A previous dose-ranging study demonstrated that rupatadine 10 mg once daily for 4 weeks significantly decreased the severity of pruritus, the number of wheals and the total symptom score in patients with CIU, compared with placebo[13]. The aim of the present study was to compare levocetirizine and ranitidine with rupatadine for CIU.

Materials and methods

The study was conducted complying the declaration of Helsinki 1964. Before starting this study, the research protocol was approved by the Institutional Review Board (IRB) of Bangabandhu Sheikh Mujib Medical University (BSMMU), Dhaka. Informed written consent was obtained from the patients without any influences. Data were collected anonymously; confidentiality of data was ensured adequately and any unauthorized access to data was not possible.

This randomized controlled trial was conducted in the Department of Dermatology and Venereology, BSMMU, from April toSeptember, 2013. A total of 40 patients of CIU were randomly enrolled in a single blind fashion into two equal groups comprising of 20 patients (group A and B) from the patient attending at the out- patient department of Dermatology and Venereology, BSMMU. Patients whose age was between 18 to 60 with CIU (i.e. episodes of hives of characteristic wheal and flare appearance, occurring regularly, at least three times a week) for a period of at least 6 weeks during the last 3 months without an identifiable were included in the study. Patients with physical urticaria (e.g. solar, heat, cold, aquagenic, cholinergic, contact, pressure, etc.), drug-induced urticaria, urticarial vasculitis, senile pruritus or hereditary angioedema, with any dermatological or any other clinically significant disease, with pregnancy and breast feeding and who had received systemic and topical corticosteroids within 4 weeks, desloratadine, loratadine, levocetirizine or cetirizine within 10 days, astemizole within 12 weeks, ketotifen within 2 weeks and patients who had received CNS acting agents (including tranquilizers, antidepressants, sedatives, hypnotics or antiepileptic) at any time were excluded. Patients of group-A was treated with 5 mg of levocetirizine once daily plus 150 mg of ranitidine twice daily and group-B was treated with rupatadine 10 mg once daily for one month. The efficacy was assessed 1st and 4th week during treatment and 4 weeks after completion of treatment by observing reduction of itching, regression of the size and shape of lesions and appearance of new lesions. Reduction of pruritus, regression of the size and shape of lesions,appearance of new lesions were considered as outcome variables. Adverse effects (any skin rash, skin atrophy, anemia, jaundice and other) and patient satisfaction were also searched and noted. Data were recorded in a semi structured data sheet which was prepared keeping in minds the study objectives. After collecting and editing data, frequency distribution table of different variables such as age, sex, were prepared. The chi-square test was done to draw inferance about the efficacy of combined levocitirizine and ranitidine over rupatadine alone. The result was considered significant if p value was ≤ 0.05.

Results

A total of forty patients were included, twenty of them were given oral levocetirizine 5 mg once daily and oral ranitidine 150 mg twice daily. This group was designated as Group-A. Twenty of them was given oral rupatadine 10 mg once daily. This group was designated as Group-B. Both groups were treated for one month. Among the respondents, most of the patients (60%) in group A and (50%) in group B) were in the < 30 years age group, 35.5% patients were in the 30 – 39 years age group, (12.5%) patients were in the > 40 years age group (Table I). The mean age of the patients was 28.5 years and 30.85 years for group A and group B respectively. Lowest and highest ages were 18 and 55 years respectively. It appears from the study that 70% in group A and 60% in group B were male and 30% in group A and 40 % in group B were female (Table I). Current study revealed that 75% patients in group A and 80% patients in group B responded to treatment initially (Figure 1). In the first follow up visit, doctors examined each patient. The enrolled patient who had no itching, whales was considered cured. Patients whose itching was reduced and size and number of the lesions decreased, was considered responding to treatment. The patients who

had new or persistent lesions were considered not cured. At first week of intervention uncured patients were prescribed repeat interventions. There was no significant difference in response to treatment between the two groups.Current study showed 80% patients in group A and 85% patients in group B showed improvement in itching in the first week. At the end of 4 weeks 95% patients showed improvement and it was equal in each group (Table II). At 1st week, 2 patients in group A and 1 patient in group B had new lesions i.e. lesions at sites different from the primary lesions. After 4 week, 1 patient in group - A still had new lesion whereas, there was no new lesion appearing in the group - B patients (Table 3). Result was slightly better for group B, but not statistically significant.Current study revealed 75% of the patients in group A and 80% patients in group B had regression in their lesions in terms of disappearance, decrease in size, shape and distribution of the lesion at the end of first week. At the end of 4th week, 85% patients in group A and 90% patients in group B showed clinical improvement (Figure 2). The difference is again statistically insignificant. All the three drugs included in this study were safe and was associated with very few side effects. Only one patient among 40 complained of mild sedation with rupatidine 10 mg after 1 week of treatment. Two patients in group A (levocetirizine plus ranitidine) complained of headache which is known side effect of levocetirizine. Another patient complained of somnolence which was again in the group A and was due to livocetirizine. Other common side effects of drugs like anaemia, jaundice, skin rashes were not seen among any group of patients. Overall occurrence of side effects (3 compared to 1) was more in group A and although clinically mild, difference was statistically significant (Table IV). Post treatment follow up of patients was done 4 weeks after completion of treatment. It showed that 40% patients in group A and 25% patients in group B had relapse of itching in the previous site which was statistically significant. 20% patients in group A and 15% patients in group B had new lesions at sites different from the primary lesion. 35% patients in group A and 20% patients in group B had relapse of their previous lesions (Table V). The differences were statistically significant. Thus, rupatadine showed significant improvement in relapse rate of CIU lesion over conventional treatment which is the main concern of CIU treatment at present. It was quite evident that patient preferred single daily dosing (rupatadine) then taking 3 drugs daily at two different times. Patient's satisfaction about treatment regime was randomly categorized as A (excellent), B (moderate) and C (not satisfied). 95% of Group–B patients were highly satisfied regarding treatment regime and described dose schedule as easy and convenient. On the other hand, 65% of the patients in group–A were moderately satisfied (B), 5% not satisfied at all (C) complaining of cumbersome dosing schedule (Table VI). Difference was statistically significant.

Table I: Sociodemographic variables of the respondents (n=40)

	Group Group – A (levocetirizine plus ranitidine)	**p Group - B (rupatadine)**	**value**
Age in years			
<30	12 (60.0)	10 (50.0)	>0.05
30 - 39	7 (35.0)	6 (30.0)	
≥40	1 (5.0)	4 (20.0)	
Sex			
Male	(70.0)	12 (60.0)	>0.05
Female	6 (30.0)	8 (40.0)	
Total	**20 (100.0)**	**20 (100.0)**	

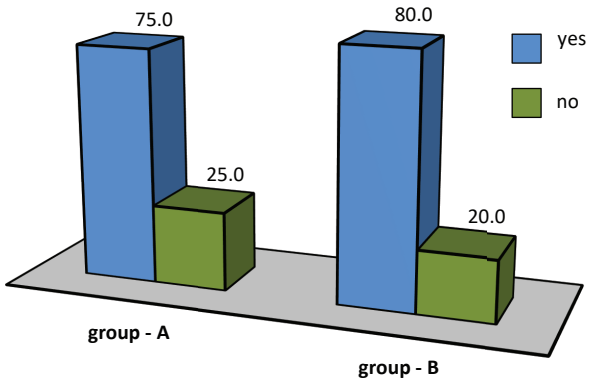

Figure 1: Treatment response (%)

Table II: Distribution of patient according to improvement of itching (n=40)

Improvement of itching	**Group**	
	Group – A (levocetirizine plus ranitidine)	**Group – B (rupatadine)**
1 week	16 (80.0)	17 (85.0)
4 week	19 (95.0)	19 (95.0)

Table III: Distribution of patient according to appearance of new lesion (n=40)

Appearance of new lesion	Group	
	Group – A (levocetirizine plus ranitidine)	Group – B (rupatadine)
1 week	2 (10.0)	1 (5.0)
4 week	1 (5.0)	0 (0.0)

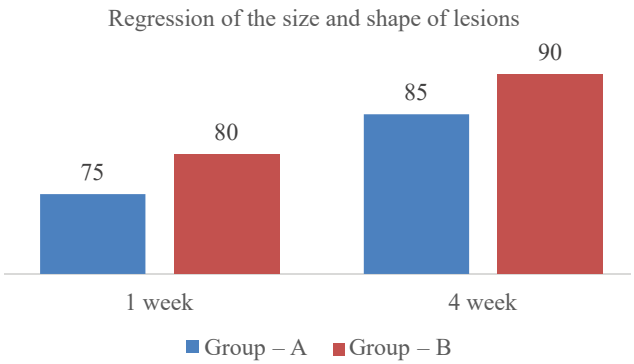

Figure 2: Regression of size and shape of the lesions (%)

Table IV: Distribution of patient according to side effects (n=40)

Clinical observation	Group		p value
	Group – A (levocetirizine plus ranitidine)	Group – B (rupatadine)	
Headache			<0.05
Present	2 (10.0)	20 (100.0)	
Absent	18 (90.0)	0 (0.0)	
Somnolence			
Present	1 (10.0)	20 (100.0)	
Absent	19 (95.0)	20 (100.0)	
Sedation			
Absent	20 (100.0)	1 (5.0)	
Present	0 (0.0)	19 (95.0)	

*Chi-square test was done to measure the level of significance.

Table V: Distribution of patients according to clinical observation after 4 weeks after completion of treatment (n=40)

Clinical observation	Group Group – A (levocetirizine plus ranitidine)	Group – B (rupatadine)	p value
Relapse of itching			
Yes	8 (40.0)	5 (25.0)	<0.05
No	12 (60.0)	15 (75.0)	
Appearance of new lesion			
Yes	4 (20.0)	3 (15.0)	>0.05
No	16 (80.0)	17 (85.0)	
Relapse of the lesions			
Yes	7 (35.0)	4 (20.0)	<0.05
No	13 (65.0)	16 (80.0)	

*Chi-square test was done to measure the level of significance.

Table VI: Distribution of patient according to patient satisfaction (n=40)

Patient satisfaction	Group		p value
	Group – A (levocetirizine plus ranitidine)	Group – B (rupatadine)	
A (excellent)	6 (30.0)	19 (95.0)	<0.05
B (moderate)	13 (65.0)	1 (10.0)	
C (not satisfied)	1 (5.0)	0 (0.0)	
Total	20 (100.0)	20 (100.0)	

*Chi-square test was done to measure the level of significance.

Discussion

CIU is a highly prevalent in the general population which affects the quality of life[7, 14,15]. It is defined as the presence of wheals on a recurrent basis, more than twice a week,and during over six consecutive weeks.[14,15] Clinical trials revealed multiple treatment options such as first- and/or second generation antihistamines, H_2 antihistamines, leukotriene antagonists, corticoids, cyclosporine and other immunosuppressors, calcineurin

inhibitors, sulfasalazine, intravenous immunoglobulins, plasmapheresis or phototherapy[14]. Consequently, non-sedating (or second-generation) H1 antihistamines are considered as the first line symptomatic treatment[14,15]. Rupatadine is a new potent nonsedative reverse H1 agonist and 10 mg of rupatadine is a fast, long-acting, efficacious and safe treatment option for the management of CIU.[15] There have been fewer studies with head to head comparison of individual antihismines and combination of multiple options with a single antihistamine[7,13-15].

The study was conducted in the department of Dermatology and Venereology, BSMMU, Dhaka. The study was intended to compare the safety and efficacy and adverse effect between oral levocetirizine plus ranitidine combination and oral rupatadine alone therapy in the management of CIU. A total of forty patients were included, twenty of them were given oral levocetirizine 5 mg once daily and oral ranitidine 150 mg twice daily. This group was designated as Group-A. Twenty of them was given oral rupatadine 10 mg once daily. This group was designated as Group-B. Both groups were treated for one month. In this study, 26 patients were male and 14 patients were female, male-female ratio was 1.86:1.

In this study, 75% patients in group A and 80% patients in group B responded to treatment, however, the difference was not statistically significant. The study revealed that, 80% patients in group A and 85% patients in group B showed improvement in itching in the first week. In this study, at 1st week, 2 patients in group A and 1 patient in group B had new lesions and after 4 week, 1 patient in group - A still had new lesion whereas, there was no new lesion appearing in the group - B patients. Again, the difference was not statistically significant.In this study, 75% of the patients in group A and 80% patients in group B had regression in their lesions in terms of disappearance, decrease in size, shape and distribution of the lesion at the end of first week and at the end of 4th week, 85% patients in group A and 90% patients in group B showed clinical improvement. Current study revealed 40% patients in group A and 25% patients in group B had relapse of itching in the previous site; 20% patients in group A and 15% patients in group B had new lesions at sites different from the primary lesion; 35% patients in group A and 20% patients in group B had relapse of their previous lesions. The differences were statistically significant. This finding is also supported by other studies[6,7,13-15]. Thus rupatadine showed significant improvement in relapse rate of CIU lesion over conventional treatment which is the main concern of CIU treatment at present which is supported by other placebo control studies[15]. Though, head to head studies is yet to compared. It was quite evident that patient preferred single daily dosing (rupatadine) then taking 3 drugs daily at two different times. Patient's satisfaction in found more in rupatadine group than the other group and the difference was statistically significant. This finding is supported by other repeated studies[6,7,12-15].

The present study had the following limitations. Factors should be kept in mind while deciding on the implications of the findings of the study such as the small sample size, lack of objective assessment tools, single center-based study. Additional rigorously conducted prospective randomized trials with large sample sizes, full reporting of outcomes and double blinding of assessors are required. Increase transparency is needed if the sample cohort of patients is reported on in different studies and avoidance of multiple publications is strongly recommended.

Conclusion

The result of the present study showed that both conventional treatment with levocetirizine and ranitidine combination and newer agent rupatadine alone has similar efficacy in reducing clinical sign and symptoms of CIU. However, rupatadine has significantly reduced the relapse rate and so it is a more efficacious and safer option with less adverse effects for the treatment of CIU in comparison to conventional treatment. Rupatadine is also more convenient option for patients in term of dosage schedule.

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Case Report

A case of fibro calculous pancreatic diabetes (FCPD)

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Abstract:

Background: Diabetes has now globally burst into an epidemic form. As the days passing we are learning more about this disease. Now diabetes mellitus is just about type 1 & type 2 diabetes, there are other entities of diabetes which need to be managed in distinguished ways. As in fibro calculous pancreatic diabetes (FCPD) which is a unique entity of diabetes often confused with type 1 diabetes as it is commonly associated early age onset, severe emaciation and negative family history of diabetes mellitus. FCPD is a non-alchoholicpancreatopathy where pancreatic calcification and chronic inflammation leads to exocrine and endocrine defects. It is a disease with male preponderance and mostly prevalent in the tropical region where malnutrition and poverty go hand in hand.

Case presentation: A 22 years old woman previously diagnosed a case of type 1 diabetes presented with the complaints of weakness, polyuria, polydipsia, weight loss, occasional abdominal pain and steatorrhoea. Surpringly despite not taking insulin for 7 months she didn't develop diabetic ketoacidosis. As theimaging of abdomen showed presence of pancreatic calculi, the diagnosis was changed to fibrocalculous pancreatic diabetes.

Conclusion: This is a classical case of FCPD. Diagnostic dilemma may arise at times. A good notion & discreetness are required for the early diagnosis & management to prevent the chronic complications, so that the patient can lead a better life.

Key words: Fibro calculous pancreatic diabetes (FCPD)

Introduction:

FCPD is a form of diabetes which results due to exocrine defect of pancreas. It is one of the varieties of "diabetes due to other specific causes". It is secondary to "tropical calcific pancreatitis". This entity was 1st described by Zuidema in 1959 in patients from Indonesia[1]. FCPD is more prevalent among young non – alcoholic persons in tropical countries who belong to poor society and often malnourished[1].The cardinal features of FCPD are frequentabdominal pain since childhood and pancreatic calculi resulting dilatation of pancreatic duct as well as fibrosis of the pancreas in adolescence[2]. The onset of diabetes usually occurs in early adulthood in more than 90% of cases which is severe and requires insulin for management[3]. Although ketosis is rare.Various terminologies have been proposed for this kind of diabetes including pancreatogenous diabetes, pancreatic diabetes, and tropical pancreatic diabetes. Later World Health Organization (WHO) Study Group Report On Diabetes introduced the term Fibrocalculous Pancreatic Diabetes (FCPD) for this variety of diabetes[2,4].

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In spite of its high prevalence in tropical regions FCPD is still a rare form of diabetes consisting of less than 1% of total cases of diabetes in those regions[5]. A recent study in urban southern India reported a prevalence of 0.36% among subjects with self reported diabetes & 0.019% among general population[6].

Case presentation:

A 22 years old lady, known case of type1 diabetes mellitus got admitted with the complaints of weakness, weight loss,polyuria & polydipsia for last 6 months. She has been a known case of type 1 DM for last 4 years and used totake insulin but for last 7 months she didn't any insulin and surprisingly DKA was not developed. She has also stated that she has been suffering from occasionalupper abdominal pain for last 10 years. She has been treated for PUD over last 10 years. Her abdominal pain was intermittent and burning in nature, radiated to back. She has also complained of steatorrhoea which aggravates after taking oily foods. She doesn't has any complaint of chronic cough,evening rise of temperature, dysuria or abnormal per vaginal discharge. She has no history of eating cassava, drinking alcohol, gall stone disease or hepatitis and no family history of diabetes mellitus or any pancreatic disease.

On examination she was emaciated, weight-44.24 kg,height-1.45 m, BMI-15.3 kg/m2, waist-70 cm, hip-84 cm, W/H ratio-.83, mildly pale, nonicteric, acanthosis nigricans absent, no lymphadenopathy, absence of any features of haemochromatosis or chronic liver disease.

On admission her random blood sugar was 27.3 mmol/l, bedside urinary albumin and acetone test revealed no abnormality.

X-ray abdomen showed dilated main pancreatic duct with pancreatic calculi. MRCP and ultrasonography also showed the same finding of x-ray abdomen.

Complete blood count revealed mcirocytic hypochromic anaemia with a Haemoglobin of 10.5 g/dl, MCH – 26.9 pg, MCHC – 31.2 g/dl. Serum Lipase was 85 U/L, Alanine aminotransferase was 45 U/L.

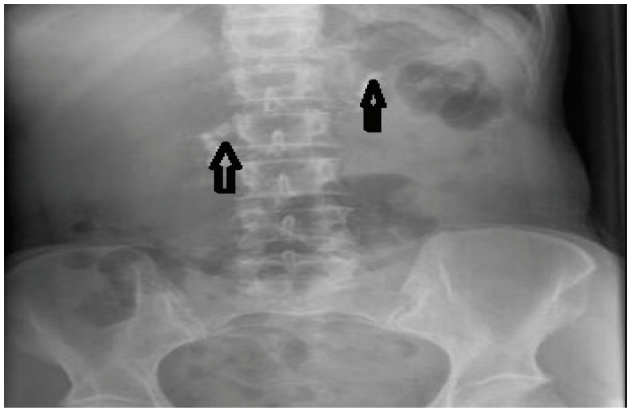

Fig.-1: X-ray abdomen showing presence of pancreatic calculi at the level of lumbar 1 (left Side)& 2 (right side) vertebrae

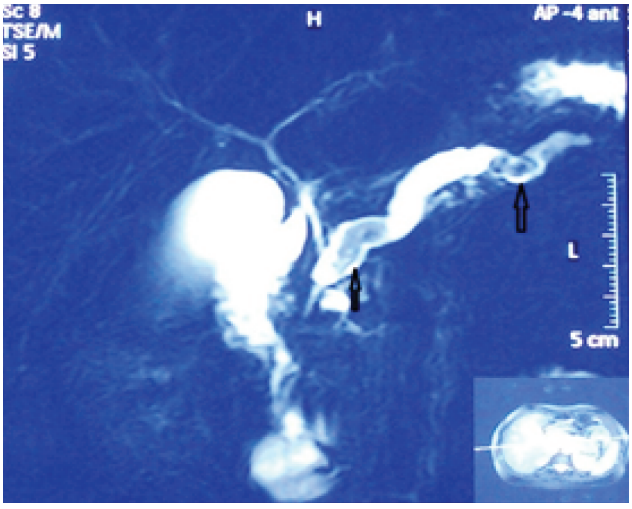

Fig.-2: MRCP showing dilated main pancreatic duct with calculi.

Based on her history & investigation findings the diagnosis of fibrocalculous pancreatic diabetes (FCPD) was made. Treatment was based on glycaemic control with insulin, management of pain and pancreatic function were done by endoscopic removal of pancreatic stone as well as supplementation of pancreatic enzyme.

On follow up visit, the patient showed significant improvement-her blood sugar was controlled, BMI was 18.6 and she was free of pain.

Discussion:

FCPD is a unique form of diabetes mellitus secondary to pancreatic calcification in non-alcoholic persons. Predominantly seen in young[1] – usually diagnosed between ages of 10 years to 40 years. There is a marked male predominance[7,4,8]. People are mostly diagnosed having previous histories of severe episodic epigastric pain. The pain usually abates by the time as the diabetes sets in. About one third of the patients complain of passing bulky or oily stool following taking oily foods. Patients also present with some other features, like: extreme emaciation (70%), a peculiar cyanotic hue of the lips, bilateral enlargement of parotid glands, distension of abdomen, etc[7, 4, 8, 9.] Previously it was believed that low socio-economic status has some contributions in developing FCPD as most the patients are from that background but nowadays patients are also seen from middle and upper strata of the society[9,10]. Although most of the cases are of juvenile onset but there are some classical cases too, where a patient has been reported to have presented with the features of FCPD at the age of 49 years with no previous histories[11].

Several aetiologicalfactors are thought to be responsible for pathogenesis of FCPD.Malnutrition - it is believed micronutrient deficiency contribute to tissue damage. Malnutrition in early life is associated with beta cell dysfunction and glucose intolerance in later life[26,27,28]. A follow up study done in Pune[29] showed a low BMI in 72% of insulin requiring diabetes patientsimplying that diabetes related malnutrition is a significant factor. Cassava consumption - cassava is a tuber which containcyanogenic glycosides linamarin and lotaustralinleds to transient hyperglycemia after ingestion. It is yet to be proved that cassava consumption lead to permanent diabetes but may explain the prevalence of FCPD where tuber is consumed[12]. Other dietary factors - low fat intake may be responsible for occurrence of TCP[13,14]. Familial and genetic factors - familial occurrence is not uncommon in

FCPD[15]. Recent studies have showed 10% of cases of FCPD have familial aggregation[14, 16, 17]. Another study has supported genetic predisposition of FCPD where it was found that FCPD shares susceptibility genes in common with type 1 and type 2 diabetes mellitus[18]. Oxidant stress - studies have suggested that low intake of antioxidants like beta carotene, vitamin C, vitamin E may predispose to topical pancreatitis through free radical injury [19, 20, 21]. Evidence confirms a link between the serine protease inhibitor, KAZAL type-1 (SPINK1) gene and tropical calcific pancreatitis[22,23]. It is a vital protease inhibitor that preventsinappropriate activation of the pancreatic enzyme cascade by inhibiting trypsin activity.

There are no definite criteria for diagnosis of FCPD in spite of having excellent descriptions of the disease by various authors. Mohan et al [24] have proposed the following criteria for the diagnosis of FCPD, based on their studies and extensive review of the literature.

Diagnostic criteria for fibro-calculous pancreatic diabetes [24] –

- Occurrence in a tropical country.
- Diabetes by WHO study group 4 criteria.
- Evidence of chronic pancreatitis : pancreatic calculi on X-ray or at least three of the followings:
  - Abnormal pancreatic morphology by ultrasonography.
  - Chronic abdominal pain since childhood.
  - Steatorrhoea.
  - Abnormal pancreatic function.
- Absence of other causes of chronic pancreatitis. i.e. alchoholism, hepatobiliary disease or primary hyperparathyroidism.

The classical traid of FCPD consists of abdominal pain, steatorrhoea& diabetes. Although features like young age onset, malnutrition and ketosis resistance are commonly found in FCPD paients's but these are not considered as diagnostic criteria [25].

Patients with FCPD usually require insulin for manangement of diabetes. But interestingly they rarely develop ketoacidosis despite not using insulin for prolong periods[3,30]. In this case we find the similar history. This feature helps to distinguish them from other entities of ketosis prone diabetes. Yajnik[31] has summarized the various hypotheses to explain the ketosis resistance in malnutrition related diabetes. They are as follows:

- Residual beta cell function adequate to prevent ketosis.
- Concomitant destruction of alpha cells & thus loss of glucagon, a major ketogenic hormone.
- Subcutaneous fat loss resulting decreased supply of Non Esterified Fatty Acids (NEFA) which is a fuel for ketogenesis.
- Resistance of subcutaneous adipose tissue lipolysis to adrenaline.
- Carnitine deficiency affecting transfer of NEFA across the mitochondrial membrane.

The classic radiological finding in FCPD is the presence of pancreatic calculi on a plain X-ray of abdomen[7,3.] The calculi are mostly found to the right of the first or second lumbar vertebrae, such as in this case but occasionally overlap the spine. In some cases the whole pancreas may be studded with calculi. It is extremely rare to find isolated calculi left to the vertebrae[16]. Calculi are usually large and rounded andinvariably intraductal in location. Ultrasonography also helps to localize calculi to the pancreas and document others feature of chronic pancreatitis, e.g. ductal dialation. CT scan studies done by Yajnik[31] showed that pancreatic mass was preserved in early stages with swelling of parenchyma followed by varying degrees of atrophy as the disease progresses and finally being replaced by the " bag of stones" appearance in extreme cases. Endoscopic retrograde cholangio-pancreatography (ERCP) shows marked ductal changes in presence of pancreatic calculi[32].

No microvascular and macrovascular complications were found in this case. But microvascular complications are commonly found in FCPD patients in long term cases, e.g.retinopathy,nephropathy,neuropathy[33,34,9].

In contrast marcovascular complications are less common, perhaps due to usual young age of onset, lennness and low cholesterol levels [35].

FCPD patients usually require low dose of insulin, possibly due to presence of residual beta cell function[36]. Pain is a major problem in FCPD. Surgical interventions are often needed if there is recurrent and severely intractable pain following annual ERCP & stenting. Surgical options include drainage procedures, shincterotoplasty, pancreatic necrostomy and celiac plexus ablation. Early surgery has been found to prevent the development of diabetes in early stage of disease[37]. The challenges in management are recurrent intractable pain, malnutrition, recurrent hypoglycemia, poor drug compliance, misdiagnosis & late diagnosis.

Conclusion:

FCPD is classically found in young. Early diagnosis and treatment can prevent the chronic complications which require a good knowledge on FCPD as it is not uncommon in this subcontinent. Adequate nutrition, good glycemic control, proper pain management, regular monitoring can ensure an improved quality of life for FCPD patient.

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Case Report

Amniotic Band Syndrome (ABS) - A Rare Congenital Disorder

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Abstract:

Amniotic band syndrome (ABS) is a rare congenital disorder that can lead to a wide range of physical abnormalities in the newborn infant.

In ABS set of congenital malformations attributed to amniotic bands that entangle fetal parts during intrauterine life, which results in a broad spectrum of anatomic disturbances –ranging from minor constriction rings and lymphedema of the digits alimbs to complex, bizarre multiple congenital anomalies incompatible with life. ABS is not seen very often, but should be considered in every newborn with congenital anomalies, especially defects of extremities and/or body walls. ABS can be diagnosed prenatally by ultrasound; otherwise, the defects are seen after birth. A team of specialists should be included in the treatment and follow-up of children with ABS, according to individual needs of every patient. Earlier surgical intervention is must for proper growth & development of child.

Keywords: Amniotic band syndrome, Limb reduction defects,

Introduction

Amniotic band syndrome (ABS) is a rare congenital disorder that is associated with a wide range of physical abnormalities[1] in the newborn infant, some of which are significantly disabling and disfiguring in nature. The commonest abnormalities usually involve the limbs and can range from simple construction rings to complete amputation(congenital amputation) occurring at various levels [2]. Abdominal wall defects and abnormalities of the cranio-facial region such as cleft lip and cleft palate are also associated with ABS [2] while in the more complex cases, visceral defects such as renal agenesis [3] and rarely septo-optic dysplasia [4] are also known to occur. Various studies estimate the incidence of ABS to be between 1 in 1300 to 1 in 15000 though, [4] 1: 70 instillborns[5]and amongabortuses as high as 178:10000[6]. Among total of 3% major congenitalmalformations in general population, [7] ABS isresponsible for 1-2%[8].

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Case Report:

A 35 weaker male neonate, weighing 2070gms, 1st issue of non-consanguineous parents was delivered by caesarean section as a result of non-progressive labour and breech presentation. The baby cried immediately after delivery. Age of the mother was 16 years. The pregnancy had been uneventful and there was no remarkable family history. Baby was delivered by lower uterine caesarian section. Physical examination at birth showed several constriction rings around right leg, 2 deep circumferential groove was present 1.5 cm and 3 cm above bothankle joint.(Figure 2) Also the left distal phalanges(4th and 5th) were lost . Amputation of the left thumb, also partial loss of the lefttoes with syndactyly of the 1st and 2nd, 4th and 5th toes. Therewere no signs of

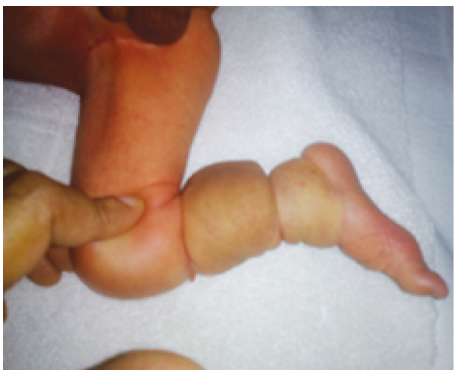

Fig.-1: Consitriction groove above bothankle joints

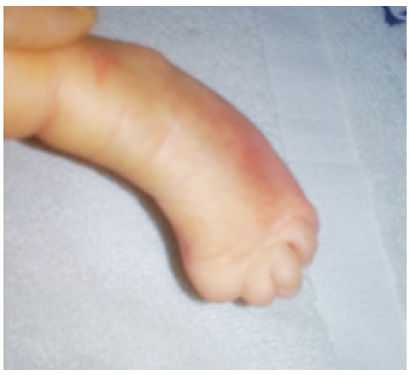

Fig.-2: Distal phalanges malformations

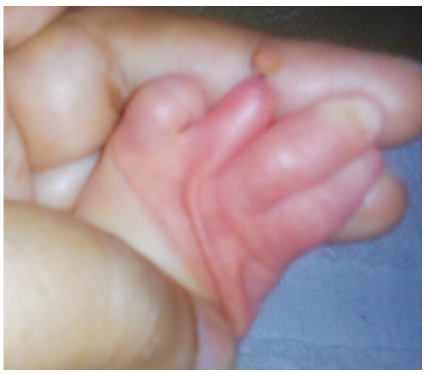

Fig.-3: Righthand-congenital amputation of ring andsmall finger with hyperemia

limb perfusion abnormalities andthere was no neurological deficit (motor). Also a small ball like remnants of distal 4th left digit attached with a peduncle. On clinical basis diagnosis of amniotic band syndrome was present. Ultrasounds, echocardiography, X-ray were normal.

Discussion:

Amniotic band syndrome is a rare disorder. It often results in congenital physical defects in the infant which are disabling and disfiguring.

ABS occurs when the inner membrane of the amniotic sac tears and wraps around the developing baby and causes problems in the limbs, clefts in the face and band marks in different areas of the body. [9] The etiology is unknown. There have been reports associating amniotic band syndrome with maternal trauma, oophorectomy during pregnancy[10]intrauterine contraceptive device and amniocentesis.[11]

There are case reports in families with connective tissue disorders like lerDanlos syndrome. [12,13]

Amniotic band syndrome has very polymorphic clinicalfindings. Early amniotic rupture, during first 45 days, leadsto most severe cranio-facial and visceralmalformations. [12] Every part of the fetal body can bedamaged, but usually the extremities, especially upperextremities are affected. Most often there are minordefects, such as constriction rings or digit amputations[14]. Abnormalities of the extremities can be expressedin several ways: constriction rings of the soft tissueaccompanied by distal edema, shortening of the limb orintrauterine limb amputation, amputation of the digits(most often II, III and IV finger) and toes, syndactyly,hypoplasia of the digits, foot deformities,pseudoarthrosis, peripheral nerve palsy[9]. Our case had constriction rings on left leg and amputation of all toes and amputation of right 4th and 5th finger,syndactyly of 3rd and 4th right fingers with complete amputation of the right thumb. If bandscompress the fetal head or face, different cranio-facialdisturbances appear – asymmetric face clefts, orbitaldefects (anophtalmos, microphtalmos, enophtalmos),corneal abnormalities, central nervous system

Malformations (anencephaly, encephalocoele, asymmetric meningocoele), calvaria defect[9]. Amnioticbands can also cause abdominal wall defect andabdominal organs extrophy[9], chest wall defect withheart extrophy[15], umbilical cord strangulation with oftenlethal outcome[9]. Our case did not have these types of malformations. Amniotic rupture and consecutive olygoamnion by mechanical pressure on the fetus can cause deformities such as metatarsovarus, scoliosis[12] or hip dislocation[9]. Because of such a wide spectrumof possible anomalies and many combinations of theirsimultaneous appearance, there are no two identical cases of ABS. Beside all previously mentionedmalformations caused by amniotic bands itself, a subset of cases manifest additional findings that are notconsistent with that mechanism, such as congenital heartdefects, renal anomalies, hemangiomas, imperforate anus,polydactyly, septo-optic dysplasia, typical cleft lip andpalate[16]. ABS can be diagnosed prenatally by ultrasound, whichcan sometimes show amniotic bands, but more oftenmalformations consistent with ABS, as well asolygoamnion and reduction of foetal movements[17]. The most important ultrasound diagnostic criteria revisable amniotic bands, constriction rings on extremitiesand irregular

amputations of fingers and/or toes withterminal syndactily. Latest ultrasound techniques–three-dimensional and four-dimensional ultrasoundcontribute to more sensitive prenatal diagnostics of ABS and in complicated cases foetal magnetic resonance canbe helpful[18]. Placenta and amnion examination afterthe delivery should be obligatory part of the newborns health evaluation because it can show presence ofamniotic bands, among other things[18]. Physicalexamination is the main stay of postnatal diagnosis of ABS. However use of additional investigations like Ultrasound, echocardiography, X-ray is important inorder to establish potential malformations of different organs and body parts. ABS must be considered indifferential diagnosis of all complex or asymmetricmalformations, especially those on extremities, face andbody walls. ABS should be differentiated from the wholespectra of symmetric fusion defects of middle body line[19]. Therapy of ABS is mostly surgical, with an individualapproach to every single case. Interdisciplinary consultingand work is very often needed (plastic surgeon,orthopedic surgeon, orthodontist, ophthalmologist, neurosurgeon.[9]. Lately, there have been someattempts of prenatal ABS treatment - foetoscopiclasercutting of amniotic bands, before their compression onthe fetus makes malformations[20]. In cases when foetalanomalies incompatible with life are prenatalyseen,pregnancy termination is advised. Surgery is not needed for shallow constriction bands that are not circumferentialand without distal swelling. Distal edema or impairment of neurovascular function requires staged constriction band excision, Z-plasty or W-plasty. Multiple plastic surgical procedures are required for corrections of the complex craniofacial abnormalities.

Conclusion:

ABS is not seen very often, but should be considered inevery newborn with congenital anomalies, especiallydefects of extremities and/or body walls.

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