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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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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
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CONTENTS

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Editorial

Dialysis of Liver - A Lifesaving Drive in Acute Liver Failure: Transplantation or Regeneration

We are very much oriented about the kidney dialysis that removes the west products from the body. Liver dialysis similar to kidney dialysis allows blood to be purified after liver failure.Hepatic dialysis is an artificial extracorporeal liver support device designed to filter out toxins accumulated in patients with acute liver failure (ALF). First developed in the 1950s, however scarcely employed, hepatic dialysis gained its reputation as an efficacious modality of liver bridging therapy[1]. Liver dialysis has shown promise for patients with hepatorenal syndrome. It is similar to hemodialysis and based on the same principles, but hemodialysis does not remove toxins bound to albumin that accumulate in liver failure. Like a bioartificial liver device, it is a form of artificial extracorporeal liver support.

Acute liver failure (ALF) in children is rare but associated with high mortality rates[2]. Orthotopic liver transplantation (OLT) is considered to be the only curative treatment in ALF. However, the liver is the only organ with a regenerative potential, able to fully recover from an acute insult. Hence, spontaneous recovery and preservation of the native liver is the desirable outcome in ALF, avoiding complications and side effects especially in an era of donor organ shortage. The rate of spontaneous regeneration or the need for transplant and overall survival is etiology-dependent. In ALF induced by paracetamol overdose and Hepatitis A, the rate of spontaneous regeneration is much higher than compared with indeterminate causes, drug-induced ALF other than paracetamol or Hepatitis B, where most of the patients require liver transplantation[3].

As liver is the only organ which can regenerate and, thus, potentially negate the need for transplantation in acute liver failure (ALF). Cerebral edema and sepsis are leading causes of mortality in ALF. Both water-soluble and protein-bound toxins have been implicated in pathogenesis of various ALF complications. Ammonia is a surrogate marker of water-soluble toxin accumulation in ALF and high levels are associated with higher grades of hepatic encephalopathy, raised intracranial pressure, and mortality. Therefore, extracorporeal therapies aim to lower ammonia and maintain fluid balance and cytokine homeostasis. Ideally, extracorporeal liver-assist devices (ECLAD) should perform both synthetic and detoxification functions of the liver. ECLAD may temporarily replace lost liver function and serve as a bridge, either to spontaneous recovery or liver transplantation. Various bioartificial and biologic liver-assist devices are described in specialty literature.[4,5]

Various bioartificial and biologic liver-assist devices are molecular adsorbent recirculating system (MARS), single pass albumin dialysis (SPAD), and total plasma exchange (TPE), Prometheus and dialive. The foundation of ALF management is supportive treatment and extracorporeal liver support plays an important role in determining the prognosis of critically sick patients. The various modalities used depend on the indications for each patient, local resources and protocols, and costs.

In developed country, still liver dialysis is considered only to be a bridge to transplantation or liver regeneration (in the case of acute liver failure)6,7 and like kidney dialysis it cannot support a patient for an extended period of time (months to years). Never the less hope in near future it will be more useful in expensive and available to everyone who need it.

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Original Article

Maternal and Perinatal Outcome of High Maternal BMI in Pregnancy among Admitted Cases in Ad-din Women's Medical College and Hospital

Kazi Morjina Begum[1], Md. Abu Sufian[2], Nahid Yasmin[3], Husne Ara Khatun[4], Mahmuda Hassan[5], Bonika Biswas[6], Fatema Binta Islam[7]

Abstract

Background: Body mass index (BMI) is an important predictor of dietary status, genetics, diseases e;g pre-eclampsia, hypothyroidism, polycystic ovarian syndrome (PCOS),and also physical inactivity. High maternal body mass index is associated with various adverse maternal and perinatal outcomes.

Obesity with high BMI among fertile women is getting epidemic proportions throughout the world. Mothers who are overweight or obese during pregnancy and childbirth are known to be at risk of significant antenatal, intrapartum, postpartum and neonatal complications. So, the aim of the current study was to evaluate the effect of obesity on the maternal and perinatal outcomes in pregnancies complicated by obesity

Objective: To determine the maternal & perinatal outcome in relation with high maternal BMI.

Methodology: A cross sectional study was carried among 150 pregnant women admitted in the Department of Obstetrics and Gynaecology, at Ad-din Women's Medical College and Hospital. Data were collected pre-designed data collection sheet. Data were analysis using statistical package for social science (SPSS) for windows version 20.

Results: In this study total number of cases were 150. Among them 67 mothers were between 26-30 years of age. The mean age was 28.32±4.43 years in obese women and 27.50±4.51 in normal BMI women. Among these obese 75 pregnant women, 46 cases (61.3%) had BMI < 35 to 40 and 29 cases (38.7%) had a BMI > 40. Majority with high BMI 71 (94.7%) were caesarean section and only 4(5.3%) were vaginal delivery in obese women. On the other hand in normal BMI 42 (56%) were caesarean section and 33(44%) were vaginal delivery. Pre-eclampsia was seen in morbid obese52 (68.9%) and GDM more in 28 (37.9%). In fetal complication macrosomia was in morbid obese mother 5(6.9%). Asphyxiated baby was delivered in morbid obese 5 (6.9%). Need NICU admission was 10(13.3%).

Conclusion: This study shows high BMI has emerged as maternal complications as well as influencing the birth weight of the baby. Maternal weight should continue to be given importance in monitoring the health of pregnancies.

Keywords: Maternal, Perinatal, Obesity, High BMI, Pre-eclampsia, GDM, DM, Hypothyroidism, Asphyxia, IUGR, Fetal macrosomia.

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Introduction

Body mass index (BMI) is defined as weight in kilograms divided by height in square meters.[1] Both lean and obese women carry a risk for adverse pregnancy outcomes.[1] An increasing BMI is associated with an increased incidence of gestational hypertension, pre-eclampsia, eclampsia, GDM, macrosomia, induction of labour, shoulder dystocia, caesarean deliveries, wound infection, post-partum hemorrhage.[2] The perinatal problems that have been Identified with maternal obesity and pregnancy include an increased risk of neural tube

defects, fetal macrosomia, fetal growth restriction, birth asphyxia, birth trauma and neonatal hypoglycemia.[3,4]

Worldwide there has been a dramatic increase in the prevalence of overweight and obesity in women of child bearing age. In the United States, 34% of women aged 20 to 39 years are obese and 59.5% are classified as overweight or obese.[5] Obesity is a known risk factor for many health problems, including type 2 diabetes mellitus, hypertension, coronary heart disease, and stroke.[6] In addition to these problems, Maternal obesity is associated with increased risk of adverse pregnancy outcome including gestational diabetes melitus, pre-eclampsia, gestational hypertension, macrosomic baby, post-partum haemorrhage, and also increased rate of C-section delivery and the risk of its complications such as wound infection. Furthermore, their obesity may have adversely affected the health of their offspring.[7]In developing Asian countries, such as Iran, women generally have a lower BMI than in developed countries. In the USA, for example, 2% of pregnant women have a BMI < 18.5 and more than 50% have a BMI > 25.[8] Hence, BMI seems to differ across populations. On the other hand pregnancy outcome is worst in babies from mothers with low body mass index as compared to healthy weight mothers with respect to increased incidence of preterm birth, low birth weight and increased neonatal morbidity and mortality on the neonatal ward.[9]So, ideal BMI of a mother during pregnancy is a crucial prerequisite for good maternal and neonatal and as well as future outcome of a child.

Obese women are at greater risk of maternal-fetal complications than women with a normal body mass index (BMI) during pregnancy and childbirth. Obese women are known to be at risk of antenatal, intra-partum, postpartum and neonatal complications as mentioned along with venous thromboembolism and stillbirths.[10]So this study was done to determine the fetomaternal outcome in relation with high maternal BMI.

Materials and methods

It was a cross sectional study carried out at the Department of Obstetrics and Gynaecology, Ad-din Women's Medical College and Hospital, Dhaka, Bangladesh January 2018to December 2018. Pregnant women who were admitted in the Department of Obstetrics and Gynaecology. Total 150 sample were included in this study. 75 mothers with normal BMI and 75 mothers with high BMI with BMI > 35. 75 Mother with high BMI were divided into 2 groups, BMI 35 to <40 were 46 and BMI > 40 were 29. Mothers with high BMI were included in the study. Mothers with chronic liver disease, chronic kidney disease, heart diseases or any other chronic diseases were excluded from the study. Neonate with any congenital malformations were also excluded. Data were collected by using a preformed questionnaire. The purpose of the study was explained to all study population. Relevant history was taken, gestational age was determined by last menstrual period, previous antenatal records were collected, clinical examination was done in all the cases. All this collected information was recorded in a pre-designed data collection sheet. Data were processed and analyzed by using chi-square test and computer software SPSS (Statistical Package for Social Sciences) version 20.

Results

Table I: Age distribution of the patients (n=150)

Age in years	Obese (n=75)		Normal (n=75)		P value
	No	%	No	%	
20-25	22	29.3	24	32.0	
26-30	34	45.3	35	46.7	
31-35	13	17.3	12	16.0	0.597
36-40	6	8.0	4	5.3	
Mean±SD	28.32±4.43		27.50±4.51		

Table II: Gestation age of the patients (n=150)

Gestation age	Obese (n=75)		Normal (n=75)		P value
	No	%	No	%	
34-37 weeks	39	52.0	41	54.7	
38-40 weeks	34	45.3	31	41.3	0.571
>40 weeks	2	2.7	3	4.0	

Table III: Mode of delivery (n=150)

Mode of delivery	Obese (n=75)		Normal (n=75)		P value
	No	%	No	%	
Normal vaginal	4	5.3	33	44.0	0.001
delivery					
LUCS	71	94.7	42	56.0	

Here we can see highly significant number of obese mother went on caesarian section and here p value is highly significant.

Table IV: Maternal complication of the patients (n=150)

Complication	Obese (n=75)		Normal (n=75)		P value
	No.	%	No.	%	
Normal	24	32.0	61	81.3	0.001
Pre-eclampsia	52	69.9	11	14.7	
GDM	28	37.9	3	4.0	
Polyhydramnios	2	2.7	0	00	
Wound infection	2	2.7	00	00	

Significant number of obese mother had different types of complications and here p value is highly significant

Table V: Fetal complication of the patients (n=150)

Complication	Obese (n=75)		Normal (n=75)		P value
	No	%	No	%	
Macrosomia	2	2.7	0	00	
IUGR	8	10.7	2	2.7	
RDS	4	5.3	1	1.3	0.021
PNA	6	8.0	2	2.7	
Asphyxia	2	2.7	0	00	

Significant number of obese mothers had fetal complications and here p value is highly significant

Table VI: Neonatal outcome of the study subjects (n=150)

Neonatal outcome	Obese (n=75)		Normal (n=75)		P value
	No.	%	No	%	
Birth weight					
≤2.5 kg	14	18.7	18	24.0	
>2.5-4 kg	49	65.3	56	74.7	0.036
>4 kg	12	16.0	1	1.3	
Mean±SD	2.95±0.95		2.75±0.42		
Admission in NICU					
Yes	10	13.3	2	2.7	0.031
No	65	86.7	73	97.3	

Significant number of neonates with obese mother needed NICU admission and here p value is highly significant

Table VI: Association of fetal complication and BMI (n=75)

Complication	BMI (≤40) (n=46)		BMI (>40) (n=29)		P value
	No.	%	No.	%	
Macrosomia	3	7.1	8	27.6	0.943
IUGR	5	10.9	3	10.3	0.552
RDS	3	6.5	3	10.3	0.051
PNA	4	8.7	2	6.9	0.780
Asphyxia	0	00	2	6.9	0.071

Significant difference was observed here among the mothers with and BMI (>40) with macrosomia

Discussion

This study found maximum 34(45.3%) were age group 26-30 years followed by 22(29.3%) were 20-25 years, 13(17.3%) were 31-35 years and only 6(8%) were 36-40 years. The mean age was SD 28.32±4.43 years. This finding consisted with another study they found 25.2 years. [11]

Among these 75 pregnant women, 46 cases (61.3%) had BMI < 30 and 29 cases (38.7%) had a BMI > 30. In another study showed among the 205 pregnant women; 121 cases (59%) had normal BMI, 61 cases (29.7%) had overweight, 21 cases (10.2%) had obese 30-34.9 and 3 cases (1.5%) had morbid obese. [12]

This study shows that majority 71(94.7%) were caesarean section and only 4(5.3%) were vaginal delivery in obese women. On the other hand in normal women 42 (56%) were caesarean section and 33(44%) were vaginal delivery, here we can see highly significant number of obese mother went on caesarian section and here p value is highly significant. This finding consistent with Bhushan et al.[13] they reported the risk of cesarean sections and instrumental deliveries increased significantly with increase in high BMI (p=0.002). Sahuet al.[14] and Hincz et al.[15] also reported a significantly higher risk for cesarean delivery in these women (p=0.01). Similarly, Srivastava et al. found a significant risk of cesarean and instrumental deliveries in obese women.[16]

In this study shows pre-eclampsia was seen in morbid obese 39(68.9%) and GDM more in morbid obese 28 (37.9.%). Similar study Sing et al.[12]found pre-eclampsia, as maternal outcome was majorly seen in obese (19.04%) and morbidly obese (66.67%) with p value of 0.001. In another study carried out by Bhattacharya et al.[2] it was found to be 28.2% with p value <0.05. In obese the percentage in another study was 17.07 % compare with 14.7 % and 12.2 % respectively.[2,17]

This study shows macrosomia was in morbid obese mother 8(27.6%) and it is significant statistically. Asphyxiated baby was delivered in morbid obese 5(6.9%). NICU admission mostly seen in morbid obese, 10(13.3%) in this study with significant p value. A large body of data links a high BMI with a number of fetal and maternal complication, including fetal death, preeclampsia, gestational diabetes, macrosomia,[4,5] asphyxia, seizure, hypoglycemia, meconium aspiration syndrome and complicated deliveries. [6, 7, 8]

In this study shows the mean birth weight of babies increased significantly with increase in BMI. Hincz et al and Mazumder et al also found that the mean birth weight of babies increased with the increase in BMI ($p<0.05$).[15,18] Moreover, in the present study the incidence of low birth babies decreased significantly with increase in BMI ($p<0.008$). Sahu et al found the incidence of LBW babies (<2 kgs) to be 19.11% in obese, 14.10% in overweight and 6.82% in the normal BMI group ($p<0.05$).[14]The risk of macrosomia increased significantly with the increase in BMI ($p=0.04$) in the present study. Sahu et al, Hincz et al also found that the risk of macrosomia increased with increase in BMI ($p<0.05$, $p<0.001$ respectively).[14,15]

Conclusion

In the present study, we found that there was a direct relationship between maternal weight and fetal outcome. Increasing BMI is associated with increased incidence of pre-eclampsia, GDM and caesarean delivery. Macrosomia, IUGR, RDS, PNA and asphyxia was higher in morbidly obese mother. Pre-pregnancy weight and BMI is important to consider when determining how much weight need to gain during pregnancy.

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Original Article

Variations of Body Physique in Adult Santhals of North Bengal, Bangladesh

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Abstract

Somatotype gives information on individual physical constitution in an easily comprehensible form. The somatotype is expressed in a three-numerical rating representing three components: endomorphy, mesomorphy and ectomorphy and influenced by age, sex, race, diet, environmental factors, occupation or physical activity. In order to assess variations of body physique in Santhals, a cross sectional sample of 200 Santhals (100 male and 100 female) age ranging from 30 to 49 years was collected from North Bengal, Bangladesh. Both group of population are agricultural labourer. In the present study, Anthropometric Somatotyping, the method forwarded by Heath and Carter is followed. Personal information and anthropometric measurements were recorded on questionnaire and datasheet following interview and examinations of the participants respectively. Data was analysed with the help of SPSS version 19.0 for windows and statistical analysis were done by unpaired student's 't' test. This type of research is rare in tribal communities, especially in Bangladesh. Somatotype category observed in Santhals male was mesomorph-endomorph (3.13-3.31-2.53) and in female was mesomorphic endomorph (3.91-3.35-2.27). Among the three components of somatotype, femalesare more endomorphic than male whereas malesare more ectomophic than female but no significant difference was observed in mesomorphy component.

Key words: Body physique, anthropometric somatotype, gender differences, Santhals.

Introduction

A somatotype is a convenient short hand descriptor of overall physique in terms of body shape and composition independent of body size.[1]In 1967, Heath and Carter devised somatotype method and recognized three basic components of physique. Endomorphy refers to relative fatness, meosomorphy refers to relative musculoskeletal-development and ectomorphy refers to relative linearity of individual physiques.[2]

Somatotype is expressed in a three-numerical rating, for example, a 3-5-2 rating is recorded in this manner where 3 indicates endomorphy, 5 indicates mesomorphy and 2 indicates ectomorphy. In 1990, Heath and Carter classified somatotype into thirteen categories: central, balanced endomorph, mesomorphic endomorph, mesomorph-endomorph, endomorphic mesomorph, balanced mesomorph, ectomorphic mesomorph, mesomorph-ectomorph, mesomorphic ectomorph, balanced ectomorph, endomorphic ectomorph, endomorph-ectomorph, ectomorphic endomorph.[3]

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It is ideal to conduct anthropological research on a homogenous population where hereditary aspects of a trait can be examined with less error and contamination. Like any tribal population, Santhal of North Bengal are close knit homogenous populations. The Santhal belong to the Proto-Australoid race. Primary occupation of the Santhal is agriculture and both men and women take part in agricultural activities.[4]

In a developing country like Bangladesh where mechanization is at minimum, human labour provides most of the power for work outputs. The requirements of strenuous laborious physical activity to sustain daily livelihood affects body composition and physique of these tribal people.[5]

In human populations, sex differences in body physique is a common phenomenon. Almost all the study examining the gender differences in body size shows that males are significantly heavier and taller than the

females, they possess broader shoulders and have bigger bone widths and circumferences than the female.[6]

A good number of researches were carried out with Santhal of West Bengal, India showing different aspects of anthropological variations. Considering the importance of understanding variation in body physique, the present study aims to study gender differences in anthropometric somatotype among Santhals of North Bengal. Particularly on mesomorphic component where each group requires high level of physical activity for their livelihood.

Materials and Methods

This cross-sectional type of analytical study was carried out in the department of anatomy of Dhaka medical college, Dhaka from July 2013 to June 2014. The sample size was 200 adult Santhals (100 male & 100 female) age ranging from 30 to 49 years. The study subjects were selected from three Santhals villages: Sundarpur and Joykrishnapur of Rajshahi districts and Bhabicha of Naogaon districts. Prior permission and informed written consent were taken from the headmanof the respective village Panchayet. Personal information and anthropometric measurements were recorded on questionnaire and datasheet following interview and examinations of the participants respectively.

With the help of stadiometer, weighing scale, vernier slide calliper, a standardized flexible ribbon tape and a skinfold calliper following ten body measurements were taken: 1. Height, 2. Body weight, 3. Skinfold at triceps, 4. Skinfold at sub-scapula, 5. Skinfold at supraspinale, 6. Skinfold at medial calf, 7. Bi-epicondylar breadth of femur, 8. Bi-epicondylar breadth of humerus, 9. Upper arm circumference & 10. Calf circumference.

Anthropometric Somatotyping was done incorporating the above ten anthropometric measurements using Heath and Carter's formula:

i. Endomorphy = - 0.7182 + 0.145(X) - 0.00068 (X)2 + 0.0000014 (X)3. Here, X = (Sum of triceps, subscapular and supraspinale skinfolds) x 170.18 / Body height in cm,

ii. Mesomorphy = (0.858 x humerus breadth) + (0.601 x femur breadth) + (0.188 x corrected arm girth) + (0.161 x corrected calf girth) - (body height x 0.131) + 4.5,

iii. Ectomorphy = 0.732 x HWR -28.58 (If HWR ≥40.75), Ectomorphy = 0.463 x HWR -17.63 (If HWR <40.75 but >38.25) &Ectomorphy = 0.1or recorded as 1/2 (If HWR ≤ 38.25).

Here, Data were analysed with the help of SPSS version 19.0 for windows and statistical analysis were done by unpaired student's 't' test.

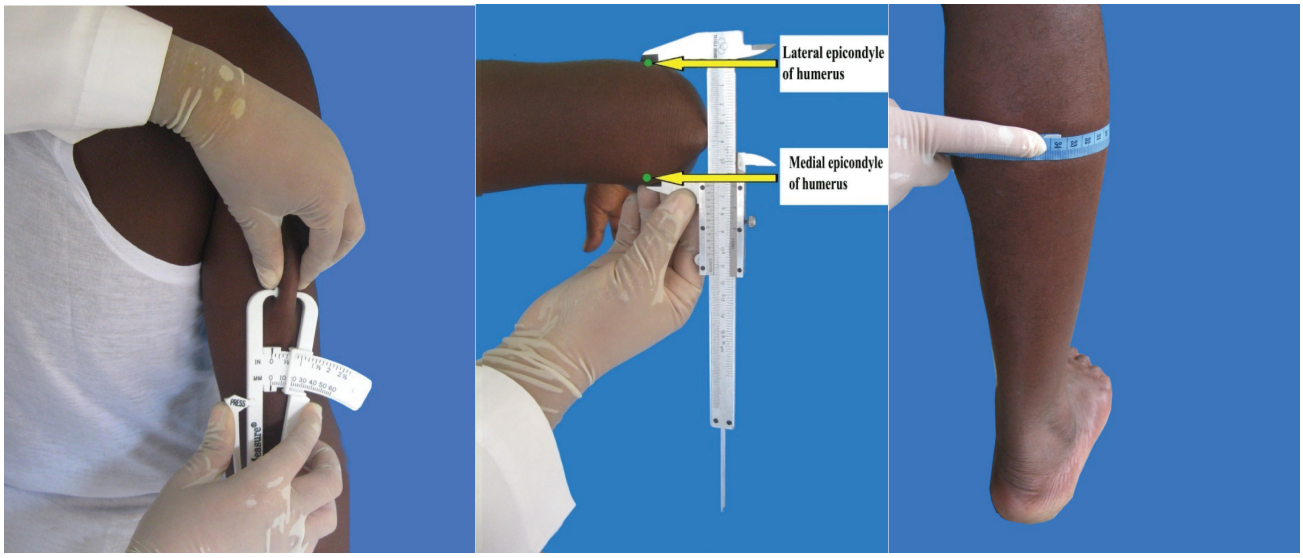

Fig: 1. a **Fig:1. b** **Fig:1.c**

Fig.-1: *Anthropometric measurements of different variables. 1.a Skinfold at triceps, 1.b Biepicondylar breadth of humerus, 1.c Calf circumference.*

Results

Results and observations of this study are described below with suitable tables & graphs. In table-1 significant difference in height & weight was observed between male and female (P< 0.001), where height & weight of male was higher than female. Mean height & weight of male was 160.69±3.91cm & 148.22±6.53 kg; whereas in female 148.22±6.53 cm & 44.82±5.30 kg respectively.

Female had higher value in all skinfold's measurements than male. In female, skinfold measurements at triceps was 11.07±1.86mm, at subscapula was 11.36±2.07mm, at supraspinale was 12.94±2.33mm & at medial calf was 10.10±2.04mm whereas in male all skinfolds measurements show lower value. Santhal male had higher value in all bone breadths and limb girths measurements than female (P< 0.001). Biepicondylar breadths of humerus & femur was 6.25±0.33 cm & 7.31±0.60cm in male & 5.94±0.36cm & 7.02±0.44 cm in female respectively. Limb girths measurements of upper arm & calf of leg was 25.03±1.11 cm & 31.26±1.49 cm in male and 23.18±1.74 cm & 28.96±1.96 cm in female respectively (Table-1).

Table 1. Gender differences in different anthropometric measurements between male and female adult Santhals of North Bengal

Anthropometric measurements	Santhal Male (100)	Santhal Female (100)	P-value
Height(cm)	160.69±3.91 (144.00176.00)	148.22±6.53 (140.00170.00)	0.0001***
Body Weight(kg)	54.54±4.06	44.82±5.30	0.0001***
Skinfold at triceps(mm)	9.60± 1.89	11.07±1.86	0.0001***
Skinfold at subscapula (mm)	10.06±1.92	11.36±2.07	0.0001***
Skinfold at supraspinale (mm)	11.10±1.91	12.94±2.33	0.0001***
Skinfold at medial calf (mm)	8.80±2.33	10.10±2.04	0.0001***
Biepicondylar breadth of humerus (cm)	6.25±0.33	5.94±0.36	0.0001***
Biepicondylar breadth of femur (cm)	7.31±0.60	7.02±0.44	0.0001***
Upper arm circumference (cm)	25.03±1.11	23.18±1.74	0.0001***
Calf circumference (cm)	31.26±1.49	28.96±1.96	0.0001****

significant at P<0.05, *** significant at P<0.001.

Table 2. Gender differences in different anthropometric somatotypes between male and female adult Santhals of North Bengal.

Sex	Endomorphy Mean±SD	Mesomorphy Mean±SD	Ectomorphy Mean±SD
Male (n=100)	3.13±0.57 (2.104.30)	3.31±0.65 (2.205.30)	2.53±0.63 (1.205.40)
Female (n=100)	3.91±0.67 (2.305.10)	3.35±0.73 (1.906.20)	2.27±0.93 (1.104.90)
P value	0.0001***	0.691ns	0.019*not

significant at P>0.05, * significant at P<0.05, *** significant at P<0.001.

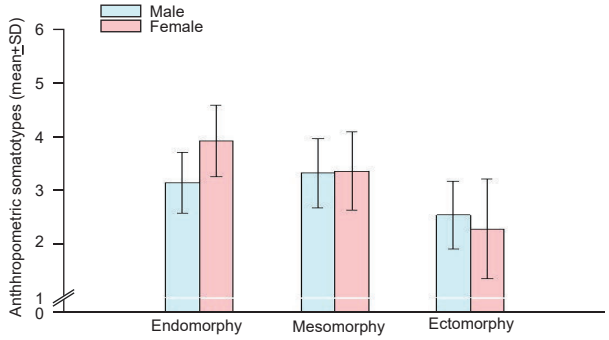

Fig. 2 Gender differences in somatotype component of adult Santhals in North Bengal, Bangladesh

Among the three components of anthropometric somatotype; endomorphy component was more in female than male (P<0.001) but ectomorphy component of somatotype was higher in male (P<0.019*). No

significant difference was observed in mesomorphy component (Table-2). Somatotype category observed in male was mesomorph-endomorph (3.13-3.31-2.53) and in female was mesomorphic endomorph (3.91-3.35-2.27).

Table 3 : Distribution of somatotype categories of Santhal male and femaleof North Bengal according to HeathCarterclassification.

Somatotype categories	Male (100) No. (%)	Female (100) No. (%)
Central	7	3
Balanced endomorph	14	17
Mesomorphic endomorph	5	27
Mesomorphendomorph	18	17
Endomorphic mesomorph	15	16
Balanced mesomorph	25	5
Ectomorphic mesomorph	0	0
Mesomorphectomorph	3	2
Mesomorphic ectomorph	1	0
Balanced ectomorph	4	0
Endomorphic ectomorph	1	2
Endomorphectomorph	4	6
Ectomorphic endomorph	3	5

Somatotype category observed in Santhal male was mesomorph-endomorph (3.13-3.31-2.53). Distribution of somatotype in categories among 30-49 years Santhal male showed that most of them was Balanced mesomorph (25%). Ectomorphic mesomorph category was absent (0%) in male adult Santhal. According to distribution of somatotype categories in Santhal male were Central (7%), Balanced endomorph (14%), Mesomorphic endomorph (5%), Mesomorph-endomorph (18%), Endomorphic-mesomorph (15%), Balanced mesomorph (25%), Mesomorph-Ectomorph (3%), Mesomorphic ectomorph (1%), Balanced ectomorph (4%), Endomorphic ectomorph (1%), Endomorph- ectomorph (4%) and Ectomorphic endomorph (3%). Somatotype category observed in Santhal female was mesomorphic endomorph (3.91-3.35-2.27). Mesomorphic endomorph (27%) somatotype category was recorded in most of Santhal female. Ectomorphic mesomorph (0%), Mesomorphic ectomorph (0%) and Balanced ectomorph (0%) category were absent in Santhal female. According to distribution of somatotype categories in Santhal female were Central (3%), Balanced endomorph (17%), Mesomorphic endomorph (27%), Mesomorph-endomorph (17%), Endomorphic mesomorph (16%), Balanced mesomorph (5%), Mesomorph-ectomorph (2%), Endomorphic ectomorph(2%), Endomorph-ectomorph(6%) and Ectomorphic endomorph (5%).

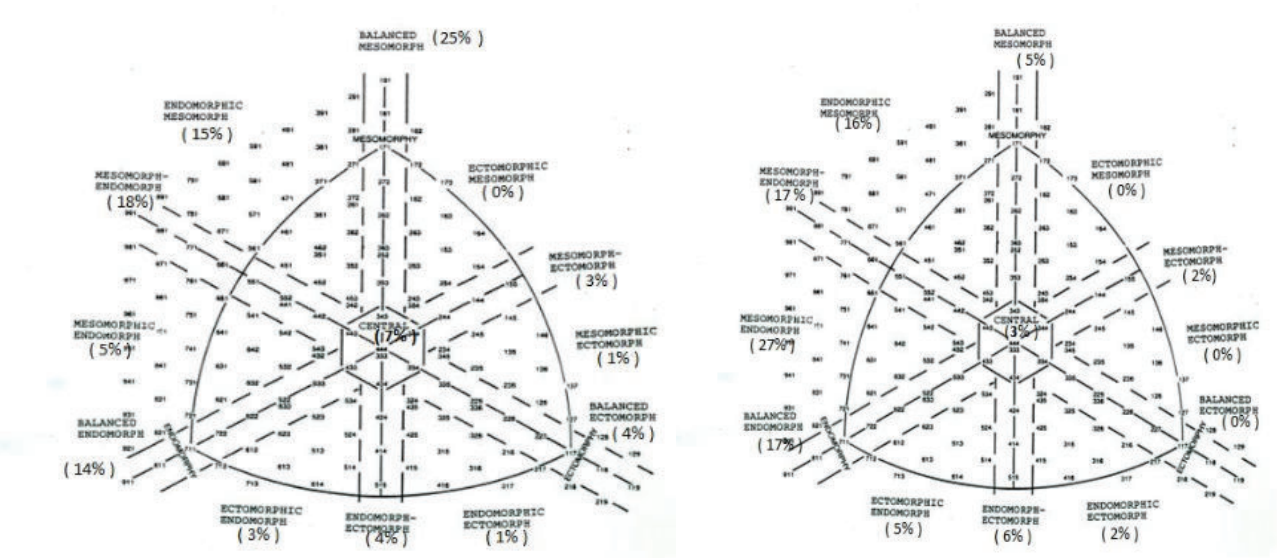

Fig:3 *Distribution of somatotype categories of male and female adult Santhals according to Heath-Carter classification*

Discussion:

The present study was carried out on middle-aged (30-49 years) Santhals and observed result shows females are more endomorphic and males are more ectomorphic than their counterpart. But no significant difference was observed in mesomorphy component. As endomorphy refers to relative fatness based on selected skinfolds measurements and females showed higher value in all skinfold thickness, so female found more endomorphic than male. Ectomorphy component related to Hight-weight ratio and as Santhal male was taller and heavier than female so male was found more ectomorphic than female. But no significant difference was observed in mesomorphy component as both requires high level of physical activity for their livelihoods. Results of different variables in this study showed some similarities with the findings of Ghosh and Malik 6 among the Santhals of West Bengal, India. Ghosh and Malik observed females are endomorphic and males were ectomorphic than their counterpart. Both male and female were found mesomorphic. Both Bangladeshi Santhals and Santhals of West Bengal, India belong to Proto-Astraloid race. Most of the Santhals both Bangladeshi and Indian were farmer. So, similarities observed between two groups may be due to same race, same dietary habit, same occupation and physical activity. Gender differences also found in similar type of study conducted by Chandel& Malik (2012) among 1008 adult (18-40 years) Kshatriya and kurmi of Uttar Pradesh, India. They found Kshatria and Kurmi male were ectomorphic-mesomorph while Kshatria and Kurmi female were balanced mesomorph[7]. So, both Kushatriya and Kurmi males have linear and muscular body physique whereas females are muscular in their body physique. The overall high mesomorphic ratings in both the populations can be attributed to the occupation of agriculture and factory works involving high physical activity. Kshatriya and Kurmi were agricultural and factory labourer and Santhals were farmer so similarities may be due to same physical activity. According to Chandel and Malik[7]Kshatryia is one of the four castes of Hinduism and Kurmi is a subcaste of Kshatryia caste and their staple food is wheat or wheat product. So, dissimilarities may be due to the racial variation, environmental factor, food habit and selection of different age group. So, Ghosh & Malik[6] and Chandel& Malik[7] revealed sexual dimorphism in anthropometric somatotype of Santhals of West Bengal and Kshatriya &Kurmi of Uttar Pradesh, India, which is consistent with this study.

Conclusion: The anthropometric somatotype, used as a descriptive method of body shape in the present study, revealed remarkable variations of body physique in Santhals of North Bengal, Bangladesh. Among the three components of somatotype, endomorphy component was higher in female than male and ectomorphy component was higher in male. But no significant difference was observed in mesomorphy component as their existence requires high level of physical activity for both male and female.

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Original Article

A Study of the Correlation between Hand Length and Foot Length among Bangladeshi Adults

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Abstract:

Human beings are considered to be bilaterally symmetrical. However, there is an asymmetry in the length of the feet irrespective of sex or handedness. The hand length could predict bodyweight and body surface area indepen- dent of the sex of the individual. But there was no data available in the literature showing the relationship between hand length and foot length. The present study was therefore undertaken to determine the correlation between the hand length and foot length. One hundred normal subjects (50 males and 50 females) between the ages of 19 and 25 years with no obvious deformities or previous history of trauma to the hands or feet were selected for the study. Their hand length and foot length were measured using the standard points mentioned by the previous authors and data was analysed statistically for correlation. The results showed a significant correlation between hand length and foot length. It is therefore concluded that if the hand length is known, the foot length can be predicted and vice versa. This could be of help in medico-legal cases for the identification of body parts as well as in cosmetic surgery.

Key Words: hand length, foot length, hand length versus foot length.

Introduction:

There are many studies undertaken to emphasize the importance of the measuring the hand length as well as foot length. Levy et al.[1] has shown that there is asymmetry in the length of the feet irrespective of sex or handedness. Ashizawa et al.[2] studied the correlation between foot lengt hand general body size. Similarly, peker et al.[3] studied the relationship between foot length and the circumference of the ankle and the calf. Chong et al.[4] found correlation between body weight and foot size. Amir sheybani et al.[5] found that hand length can be a good predictor of the body surface area independent of the sex of the individual. Although the relationships of hand length and foot length with various body part measurements have been studied, there is no information in the available literature regarding the correlation between hand lengt hand foot length.

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Materials and Methods:

One hundred normal subjects (50 males and 50 females) without any physical deformities or previous history of trauma to the hand or foot were selected for the study from the first and second year MBBS students of Dhaka Medical College. Dhaka. After taking informed and written consent, the following measurements were taken from the subjects:

Hand Length:

Each subject was asked to place his/ her hand on a white paper with the palm facing upwards keeping the fingers close together with the thumb lying comfortably but not tightly against the radial aspect of the hand and index finger. A tracing of the hand was made with a lead pencil. The tracing proceeded from the radial styloid process to the ulnar styloid process. A line was drawn joining the two styloid tips. This line is designated as the interstyloid line (Fig.1). The distance between the midpoint of the interstyloid line and the tip of the middle finger in extension was measured as the length of the hand as described by Amir Sheybani et al.[6]

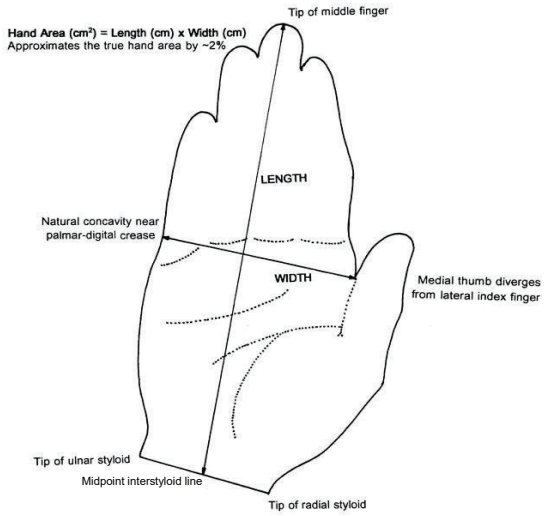

Fig-1: Land marks for measuring Hand length.

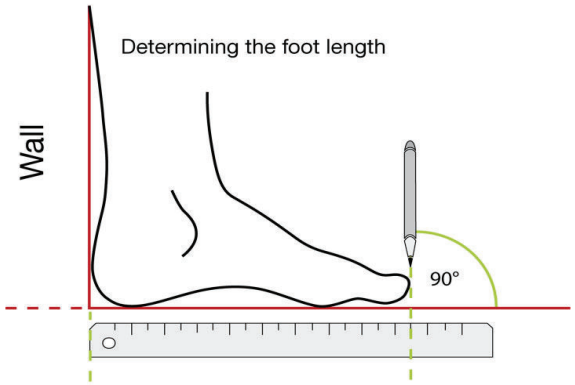

Fig-2: Determination of foot length.

Foot Length: Each subject was made to stand on a calibrated foot board with his/her back against the wall in such a manner that the posterior most point of the heel will gently touch the wall. A vertical stop was placed against the anterior most point of the foot. The distance between the posterior most point of the heel and the anterior most point of the foot was measured as the foot length as described by Peters et al.[7]. All the measurements were taken on both sides in each subject. The measurements were taken in centimeters. The results were analysed statistically.

Result:

The correlation between hand length and foot length were studied on both sides in males as well as in females. The correlation co-efficient was determined using the Carl Pearson's formula (Table-1).There sults showed a highly significant correlation ($p<0.0001$) between hand length and foot length on both sides and in both sexes.The data was also used to make a standard table showing the predicted values of hand length versus foot length. (Table II). The range, mean and standard deviation of foot length and hand length in males (Table III) and females (table IV) were also determined. When the values of the hand length and foot length were compared between the right and left sides, there was no significant difference in the males, while the females showed a significant difference ($t<0.05$).

Table - I: Correlation between hand length and foot length

	Male		Female	
	Right Hand	**Left Hand**	**Right Hand**	**Left Hand**
Right Foot	0.859	0.875	0.758	0.760
Left Foot	0.618	0.617	0.770	0.768

$p = < 0.0001$.

Table-II: Hand length versus foot length (Predicted Values in cm)

Foot Length	**Male (Hand Length)**		**Female (Hand Length)**	
	Right	**Left**	**Right**	**Left**
21-22	16.47-16.97	17.70-17.98	15.61-16.23	15.59-16.20
22-23	16.97-17.47	17.98-18.25	16.23-16.85	16.20-16.80
23-24	17.47-17.97	18.25-18.53	16.85-17.47	16.80-17.40
24-25	17.97-18.47	18.53-18.81	17.47-18.09	17.40-18.00
25-26	18.47-18.97	18.81-19.09	18.09-18.71	18.00-18.60
26-27	18.97-19.47	19.09-19.30	18.71-19.33	18.60-19.20
27-28	19.47-19.97	19.37-19.65	-	-
28-29	19.97-20.47	19.65-19.92	-	-
29-30	20.47-20.97	19.92-20.20	-	-

Table-III: Analysis of foot length and hand length in males

	Minimum	Maximum	Range	Mean	Std. Deviation
F.L.R.-Foot length right	23.10	29.80	6.70	26.2180	1.27914
F.L.L.-Foot length left	19.70	29.60	9.90	26.0000	1.56192
H.L.R.-Hand length right	17.30	21.80	4.50	19.0600	.73734
H.L.L.-Hand length left	17.20	21.80	4.60	19.0620	.71995

Table- IV : Analysis of foot length and hand length in females

	Minimum	Maximum	Range	Mean	Std. Deviation
F.L.R.-Foot length (right)	21.40	26.40	5.00	23.7560	1.12688
F.L.L.-Foot length (left)	21.40	26.40	5.00	23.6880	1.14172
H.L.R.-Hand length (right)	15.40	19.50	4.10	17.3280	0.89967
H.L.L.-Hand length (left)	15.40	19.30	3.90	17.2460	0.87929

Discussion:

Hand has been used as a tool for estimating the area of burn injury. The area of palmar surface of one's hand has been estimated to be 1% of the body surface area Amir sheybani et al.[6]**.** When the growth of the hand is studied between the ages of 2 and 17 years, the length of the hand increases more proportionately than the width of the hand. When hand length was compared with the body weight for both males and females there was a curvilinear relationship which was not far from being linear Amir sheybani et al.[5]. The hand length has therefore been considered as an excellent predictor of body surface area and body mass. Change of foot length and width with age has been reported in a few anthropometric studies in literature Chong et al.[4]. The foot lengt handwidth were found to be increasing significantly on weight bearing between 3 and 18 years of age and in both genders Chang et al[4] and Peker et al.[7] in their study found a significant relationship between foot length, toe length, ankle circumference and calf circumference in students aged between 17 and 25 years. In another study conducted by the same authors Anil et al.[8], they found a significant correlation between foot length and height of the person. Even though the hand length and foot length has been studied in relation to various body parameters, the correlation between the hand length and foot length has not been studied. The present study has shown that there is a significant correlation between hand length and foot length ($p<0.0001$).The results, therefore, indicate that if the hand length is known, foot length can be predicted and if the foot length is known, hand length can be predicted and viceversa. From the data obtained, we have tried to establish a normal range for the hand length as well as foot length when one parameter is known. This can beof tremendous use in medico-legal cases especially in the identification of severed body parts. The data can also be of help in plasticandre-constructive surgery.

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Original Article

Monitoring of Blood Methotrexate Level after High Dose of Methotrexate in Childhood Hematological Malignancy

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Abstract

Background: In childhood cancer chemotherapy, regular monitoring of drug concentration has been practical only for methotrexate. The primary settings for pharmacokinetics monitoring of MTX is its use in high dose for adjuvant therapy of Non-Hodgkin lymphoma and acute lymphoblastic leukemia. Monitoring of blood level of MTX after high dose is not only aimed to monitoring effectiveness but also safety aspects of the administration high dose because the use of high doseMTX is one of the problems associated with severe toxicity in various organs.

Methods: A prospective observational study was conducted in the Department of Pharmacology, BSMMU in collaboration with the Departments of Pediatric Hematology & Oncology of and DMCH from March 2017 to July 2018. 18 patients through purposive sampling suffering from hematological malignancy (ALL and NHL) were enrolled. All of them received 3-gram MTX over 3 hours with leucovorin (LV) rescue. Plasma MTX levels were measured at 0, 24, 48 and 96 hours and serum creatinine concentrations were measured at 0, 24 and 48 hours. Correlation between plasma MTX concentrations with serum creatinine concentrations at 0, 24 and 48 hours were determined.

Result: The levels of methotrexate in plasma before high dose were 53.84 ± 72.98 pmol/L (mean ± SD). After 24 hours of high dose this was 718.41 ± 1756.23pmol/L (mean ± SD). The change was not statistically significant (p=0.308). At 48 and 96 hours after high dose the same parameters were 117.33 ± 225.72 pmol/L (p=0.470) and 64.88± 139.24 pmol/L (p=0.424) respectively. The mean± SD of serum creatinine concentrations before HDMTX was 39.15 ± 13.72 µmol/L. At 24 and 48 hours the same were 38.70 ± 21.63 µmol/L (p=0.962) and 39.88 ± 23.07 µmol/L (p=0.653) respectively which were not statistically significant.

Conclusion: At the dose (3 gram/m^2) of methotrexate used in the present study, the plasma methotrexate levels were not elevated to toxic concentrations. MTX associated toxicity could be prevented. Evaluation of renal functions is an important tool for monitoring of high dose MTX.

Key words: hematological malignancy, methotrexate

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Introduction

ALL is the most common malignancy in children and accounts for one-fourth of all childhood cancers and 72% of all cases of childhood leukemia [1]

Overall cure rates for pediatric ALL have improved from virtually zero in the 1950s to the current Event Free Survival (EFS) rates of 75% to 85% for this disease. The advances in this regard been due to the development of active chemotherapeutic agents, to improvement in our understanding of how to dose and combine these agents more effectively and to significant advances in supportive care.[1]

While Non-Hodgkin lymphoma result from malignant proliferation of cells of lymphocytic lineage and represent 8-10% of all malignancies in children between

5-19 years of age. It accounts for approximately 60% of all lymphoma in children and adolescents.[2]

In Bangladesh, cancer in children is emerging as a significant threat to life while at the same times morbidity and mortality from infections and malnutrition have begun to decrease due to concerted maternal and child health care and initiatives taken by physicians and this represents a blessing of advancement in our scientific knowledge. There is no national population based cancer registry but using worldwide incidence rates an estimated rate of 6000-9000 new cases per year in Bangladesh are being assumed.[3] The relative incidence of malignancies seen at BSMMU in 2012 was acute lymphoblastic leukemia (ALL) 58%, non-Hodgkin lymphoma (NHL) 11% of the total cancer patients admitted in that year.

Methotrexate (amethopterin) is an antifolate agent used in the treatment of autoimmune diseases and various types of cancers. Methotrexate first demonstrated efficacy as a chemotherapeutic agent in acute lymphoblastic leukemia (ALL) in 1947. [4]. Since that time, it became one of the most widely studied anticancer agents. In many such deadly instances methotrexate has been the drug of choice because in addition to its efficacy, it can be administered safely in a multitude of dosing strategies, its toxicity can be antagonized by administering leucovorin (LV) and alkalization of urine can ameliorate its toxic actions to a considerable extent.

Diversified uses of MTX is worth mentioning because this drug is indicated for use in pediatric neoplastic disorders such as ALL, meningeal leukemia, osteosarcoma, some brain tumors and non-Hodgkin lymphoma[5,6]. These neoplastic indications are well established and researched almost always required combination therapy. [7]

Prior to routine monitoring of plasma methotrexate concentrations and pharmacokinetically guided adjustment of folinic acid rescue were advocated, mortality associated with HDMTX recorded as 4.6% - 6.0%. [8,9]. Since then serious cases of the disease for which MTX was indicated, the HDMTX regime has been a protocol to be followed in selected well-guided management of severely affected patients.

The HDMTX usually delivered over 4 to 36 hours infusion and require 2-3 days period where leucovorin (LV) is being administered to terminate the toxic effects of MTX (the leucovorin rescue). Successful rescue by leucovorin depends on rapid elimination of MTX by kidneys which requires aggressive pretreatment as well as post treatment hydration and urinary alkalization[6]

Methotrexate is eliminated primarily by renal excretion undergoing glomerular filtration and renal tubular reabsorption and secretion. Approximately 70% to 90% of a dose is excreted unchanged in the urine, most within the first 6 hours.[1]In patients with significant renal dysfunction MTX clearance is delayed resulting in prolonged drug exposure and a greater risk of severe toxicities especially to the kidneys. Any patient who is suspected of having renal dysfunction and who receives MTX should have the plasma MTX concentrations closely monitored and must receive LV if clearance of MTX is delayed.[10,11]

Successful and quality management of HDMTX demands that each course of HDMTX should be closely monitored by following renal function and plasma MTX concentrations to determine the dose and duration of LV rescue.[1,12] However, in the absence of plasma MTX level monitoring, many centers carry on HDMTX programs by monitoring of renal and hepatic functions and GIT toxicities e.g. mucositis and LV doses are corrected accordingly. It may be worth mentioning at this instance that CNS toxicities of MTX and HDMTX appear later and can be well prevented by successful LV rescue therapy.

The primary toxic effects of MTX following IV therapy are myelo-suppression and gastrointestinal mucositis which usually occur 5 to 14 days after administration of the drug. The development of toxic reactions is related to the concentration of drug and the duration of exposure. [13] In patients receiving a 6-hour infusion of methotrexate, a 48-hour methotrexate concentration above 1μM was observed to be associated with the development of significant toxicity[13]. These toxicities can be prevented by administration of LV. With the use of therapeutic drug monitoring and continuation of leucovorin rescue until plasma methotrexate concentration has fallen below 0.05 to 0.1μM, the toxicity of HDMTX can be avoided in most patients. LV dosing should be started after 1-2 days of HDMTX therapy as otherwise the efficacy of the drug may be impaired. Despite these precautionary measures, nephrotoxicity still may occur in almost 2% of patients receiving HDMTX infusions. The development of renal

dysfunction during HDMTX is a medical emergency. Therefore, such patients must be closely monitored and the dose of LV increased in proportion to the plasma methotrexate concentrations.[12]

In situations where there are well established conditions for plasma MTX measurements that are in a rescue rich setting, measurement of a minimum of three MTX levels are recommended. These measurements of MTX are performed at 24, 42 and 48 hours from the start of MTX infusion. [14,15] Based on the plasma MTX levels, the volume and duration of hydration, as well as the dose and frequency of leucovorin are titrated. Along with plasma MTX levels, serum creatinine, urine output and urine p^H should to be estimated.

However, there is limited discussion in the literature on the administration of HDMTX without monitoring TX levels. [12,16,17] The reported alternative measures include monitoring renal function (e.g. by creatinine clearance, serum creatinine or change in creatinine from baseline to assess MTX or HDMTX administration as possible indirect indicator of MTX level or restricting the dose of MTX.[12]

Methods:

A prospective observational study was conducted in the Department of Pharmacology, BSMMU in collaboration with the Departments of Pediatric Hematology & Oncology of BSMMU and DMCH from March 2017 to July 2018. Clearance from institutional review board of BSMMU was taken earlier. Children aged between 5 to17 years diagnosed cases of ALL and NHL parents or guardians permitted for administration of protocol-based chemotherapy. Children with impaired renal function, having any serious systemic infection and malignancies other than ALL and NHL had been excluded from the study. Demographic data (age, sex) were collected and documented. All patients received standard routine medical care throughout the study. With all aseptic precaution 5 ml blood was collected from patient before giving chemotherapy by venipuncture from the antecubital vein and kept it in 1 X 5 ml EDTA (anticoagulant) containing test tube. EDTA tube was centrifuged at 3500 rpm for 10 minutes. Plasma was collected in labeled eppendorf by micropipette and stored at -20^0 C in refrigerator at the department until analysis. Estimation of plasma methotrexate (Modification of Moghbel.)

In this study, HPLC methodology was used for detection of methotrexate in plasma. Estimation of serum creatinine concentration by automated Analyzer (Architect Plus ci4100) in the department of Biochemistry, BSMMU.

Data were processed and analyzed using computer software SPSS (Statistical Package for Social Science) version 22. Wilcoxon Signed Rank test was excellent alternative to paired t- test in case of non-parametric data and when data shows asymmetric distribution. Wilcoxon Signed Ranked test was used to compare the continuous data within groups. Correlation was done using Pearson correlation statistics to observe relationship between parameters. $p< 0.05$ was considered statistically significant.

Results:

18 children with hematological malignancy were enrolled for the present study following inclusion and exclusion criteria. The mean age of the male patients were 7.08 ± 2.06 years and female patients were 10.50 ± 4.13 years. The mean height of male patients were 116.5 ± 17.0 cm and female were 122.0 ± 23.1 cm. The mean weight of male and female were 23.6 ± 13.3 kg and 28.4 ± 14.3 kg respectively. The mean BSA of male and female were 0.88 ± 0.32 m^2 and 1.12 ± 0.32 m^2 respectively.

Demographic profile of the patients (n=18)

	n	Age (years)	Height (cm)	Weight (kg)	BSA (m^2)
Male	12	7.08 ± 2.06	116.5±17.0	23.6 ±13.3	0.88 ± 0.32
Female	6	10.50 ± 4.13	122.0±23.1	28.4 ± 14.3	1.12 ± 0.32
Total	18	8.22 ± 3.25	118.3 ± 18.7	25.2 ± 13.4	0.97 ± 0.33

Plasma methotrexate levels before and after HDMTX administration

The levels of methotrexate in plasma before high dose were 53.84 ± 72.98pmol/L (mean ± SD). After 24 hours of high dose (3 g/m^2) this was 718.41 ± 1756.23pmol/L (mean ± SD) . The change was not statistically significant (p =0.308). At 48 and 96 hours after high dose the same parameterswere 117.33 ± 225.72pmol/L (p = 0.470) and 64.88 ± 139.24pmol/L (p =0.424) respectively.

Plasma methotrexate concentrations before and after administration of HDMTX (n=18)

Plasma methotrexate concentrations (μmol/L)	mean ±SD	p-value
Before HDMTX administration (a)	53.84±72.98	
After 24 hours of HDMTX administration(b)	718.41±1756.23	0.308 (a vs. b)
After 48 hours of HDMTX administration(c)	117.33± 225.72	0.470 (a vs. c)
96 hours after HDMTX administration (d)	64.88±139.24	0.424 (a vs. d)

Wilcoxon Signed Ranks test was done to measure the level of significance

Serum creatinine concentrations before and after administration of HDMTX

The mean ± SD of serum creatinine concentrations before HDMTX was 39.15 ± 13.72 μmol/L. At 24 and 48 hours the 0same were 38.70 ± 21.63 μmol/L (p = 0.962) and 39.88 ± 23.07 μmol/L (p = 0.653) respectively.

Serum creatinine concentrations before and after administration of HDMTX (n=18)

Serum creatinine concentrations (μmol/L)	mean ±SD	p-value
Before HDMTX administration (a)	39.15 ± 13.72	
After 24 hours of HDMTX administration (b)	38.70 ± 21.63	0.962 (a vs. b)
After 48 hours of HDMTX administration (c)	39.88 ± 23.07	0.653 (a vs. c)

Wilcoxon Signed Ranks test was done to measure the level of significance

Discussion:

Methotrexate (MTX) is one of the folate antagonists used in different childhood malignancies like ALL, NHL, in some other malignant conditions as well as in some autoimmune diseases and has been a mainstay of treatment ever since. The drug (commonly known as antimetabolite anticancer drug) exerts its cytotoxic effects by competitively inhibiting dihydrofolate reductase (DHFR), the enzyme responsible for converting dihydrofolates into tetrahydrofolate (the reduced folate carriers which function in the transfer of carbon units). The primary setting for pharmacokinetic monitoring of MTX done only if uses in high doses as adjuvant therapy for osteosarcoma, for single agent treatment of intracranial lymphomas and in combination therapy of childhood leukemia as well as adult and pediatric non-Hodgkin lymphomas.[18,19] Although plasma MTX concentrations are monitored in most large medical centers in developed countries, empirical administration of HDMTX is mostly lacking in most of the developing countries, including Bangladesh. Serum concentrations and pharmacokinetics parameters MTX are not related with outcome of the diseases. Prognoses based on single drug pharmacokinetic estimates within a complex multiple agent protocol appeared to be unreliable [20]However therapeutic drug monitoring of HDMTX remains a useful tool for early detection of impaired or delayed elimination of MTX. [20] and avoiding systemic toxicities. High levels of MTX persisting after administration might lead to systemic toxicities including nephrotoxicity, hepatotoxicity, neurotoxicity and mucosities.[21] Moreover, in some situations such as pre-existing impaired renal functions, elimination of MTX may be prolonged (i.e. delayed elimination of MTX) and enhancing nephrotoxicity. Observations from the present study state that creatinine clearance rates at 24 hours was positively correlated with plasma methotrexate concentrations and at 48 hours it was also positively correlated with plasma MTX concentrations. The p values were (p=0.486) and (p=0.243) respectively which were not statistically significant. Correlation of plasma methotrexate concentrations with serum creatinine concentrations at 24 hours was negative and at 48 hours it was also negative. P values were 0.827 and 0.444 respectively at those time which were not statistically significant. Assessment of renal function may be useful means of monitoring plasma MTX concentrations during HDMTX of ALL and NHL[12] The present study had assessed serum creatinine as a method of renal function. No significant deterioration of

renal functions were observed in both ALL and NHL patients (Table 3.3, 3.4 and Fig. 3.2, 3.3) and the observation bears resembled to those observed. [22] Majority of MTX is cleared by the kidneys (more than 90%) using hyper hydration of fluids to induce high urinary flow rates to protect the kidney from injury during treatment with HDMTX.

Proper monitoring and supportive care along with tailoring treatment is vital in improving cure rates and minimizes toxicities in childhood ALL. In our study, plasma MTX monitoring, serum creatinine monitoring, creatinine monitoring along with clinical monitoring, hydration, urine alkalization and leucovorin rescue remain essential to HDMTX administration. To achieve optimal efficacy and low toxicity in the clinical treatment of ALL and NHL, the plasma MTX concentration should be sufficiently high after 24 hours and relatively low, indicating timely excretion after 48 hours. Therefore, we examined factors associated with plasma MTX concentrations before and at 24, 48 and 96 hours after the start of HDMTX. Nephrotoxicity is one of the most frequently reported side effects of HDMTX. [22] There are however only few previous reports about MTX induced renal adverse effects in pediatric populations. In the largest reported survey by the relationship between MTX elimination time and renal functions was studied retrospectively in 264 consecutive children with ALL.[23] Serum creatinine was found to increase after 0.02% (28/1, 164) of the MTX courses, which is in accordance with the present results.[24]

A study is whether serial monitoring creatinine can predict HDMTX related toxicities. The evidence is variable.[23]conducted a study in 1164 HDMTX courses in 264 Swedish children with ALL and concluded that elevation of serum creatinine by more than 50% was a better predictor of delayed elimination than the level of serum MTX at the end of MTX infusion[23]. From China conducted a study in 105 children with ALL/NHL to assess the correlation of markers of renal function with plasma MTX level[12] They found serum creatinine and creatinine clearance rate to correlate with plasma MTX concentrations after HDMTX. The author suggested that it may be possible to indirectly monitor plasma MTX concentrations by assessing renal function. Such indirect monitoring would be of utilities in centers where monitoring of plasma MTX is not available. [12]

Conclusion:

At the dose (3 gram/m^2) of methotrexate used in the present study, the plasma methotrexate levels were not elevated to toxic concentrations. Serum creatinine concentrations did not increase significantly which suggest that the filtration rate of the glomeruli of the kidneys had maintained. Coincidently, the MTX levels at 48 and 96 hours were lowered down and this would suggest that the HDMTX administered to the pediatric ALL and NHL patients of the present study were not toxic. This supports that the supportive measures (hydration, alkalization of urine, LV rescue) had been maintained properly. Ideally plasma methotrexate levels should measure after administration of HDMTX. Thus, MTX associated toxicity could be prevented. Evaluation of renal functions is an important tool for monitoring of high dose MTX.

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Original Article

A Study on Maternal and Neonatal Outcomes in Placenta Previa in a Tertiary Care Hospital, Dhaka

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Abstract

Background: Placenta previa is one of the important causes of third trimester bleeding and maternal death. Placenta previa should be suspected in any women beyond 20 weeks of gestation who presents with painless vaginal bleeding. The objective of this study is to analyse the risk factors associated with placenta previa and its effect on maternal and neonatal outcome.

Material and Methods: We enrolled patients presenting to our emergency ward or out patient department with diagnosis of Placenta previa from April 2016 to March 2017. A total of 98 cases of placenta previa diagnosed on ultrasound were included in this study. Details regarding demographic factors like age, parity and socioeconomic status, need for blood transfusion, additional procedures required for controlling placenta bleeding, maternal complications, NICU admissions and perinatal deaths were recorded.

Results: The highest number of Cases was in the age group 20 – 29 with 60 cases (61.2%). The incidence was highest among multiparous Women (75 cases) with 76.5%. The number of cases of placenta previa in BPL group (Below Poverty Line) was 58 cases (59.1%). The commonest mode of delivery was by LSCS seen in 83 cases (84.6%). Hysterectomy was required in cases of adherent placenta in 25 cases (25.5%). APGAR Scores at birth was seen in 71 cases (72.4%). NICU admissions was required in 30 cases (30.6%).

Conclusions: Placenta previa poses danger to both the mother and the baby with high maternal morbidity and adverse perinatal outcome.

Key words: placenta previa, maternal and neonatal outcomes, risk factors, obstetric hysterectomy, adherent placenta previa.

Introduction:

Obstetric haemorrhage is one of the most common causes of maternal morbidity and mortality worldwide. Abnormal placentation is currently the most common indication for peripartum hysterectomy. Placenta previa acconts for one third of all cases of APH[1]. Placenta previa is a major risk factor for Obstetric haemorrhage especially in women with a previous scar[2]. Placenta previa defind as implantation of placenta in lower uterine segment, overlying or approaching internal cervical os[3]. Placenta previa will be diagnosed by transabdominal USG according to Jaunax and Campbell classification.

Type I : The placenta just encroaching on lower uterine segment.

Type II : Placenta reaches the margin of the internal cervical os.

Type III : Placenta partially covering the internal cervical os.

Type IV : Placenta completely covering the internal cervical os.

It occurs in 2.8/1000 and 3.9/1000 in singleton and twin pregnancies respectively[4]. Risk factor include high parity, advancing maternal age, previous cesarian section and uterine surgery[5]. As there is an increase in primary caesarian rate, and increase incidence of placenta previa the purpose of this study is to assess the value of

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demographic profile and early identification of placenta previa in the maternal and perinatal outcome.

Material and Method:

It is a prospective, observational study for a period of one year from April 2016 to March 2017 at Ad-din women Medical College and Hospital, Dhaka. A total of 98 cases of placenta previa after 28 weeks of gestation diagnosed on ultrasound were included in the study. They were followed until delivery. The total number of deliveries at Ad-din women Medical College and Hospital during this period was 14,678. The incidence of placenta previa was 0.6%. Detailed obstetric history, clinical presentation, need for blood transfusion, mode of delivery was taken. Additional procedures required like uterine packing, balloon tamponade, B-Lynch Sutures, hysterectomy when needed to control bleeding was documented. Maternal outcome details like development of hypovolemic shock, DIC, renal failure and maternal deaths were recorded. The need for more than 1 unit of transfusion was also noted. Fetal outcome was documented. APGAR scores at birth, birth weight, NICU admissions and perinatal deaths were noted. Data was tabulated and analysed using SPSS version 24.

Result:

A Study Of Maternal and Perinatal Outcome in Placenta Previa at a Tertiary care center

Table I: Demographic Factor

Age	No of Cases (n-98)	Percentage %
20-29 years	60	61.2%
30-35 years	25	25.5%
36 -40 years	13	13.2%
Parity		
Primi	23	23.4%
Multipara	75	76.5%
Socio-economic status		
Below poverty line(BPL)	58	59.1%
Above poverty line(APL)	40	40.8%
Booked	33	33.6%
Non Booked	65	66.3%

The highest number of cases was in the age group 20 – 29 years with 60 cases (61.2%). The incidence was highest among multiparous women 75cases (76.5%). Also the number of cases of Placenta Previa in BPL group (Below Poverty Line) was 58 cases (59.1%). Out of 98 cases 65cases(66.3%) were non booked.

Table -2: Types of Placenta Previa

Type	No of Cases (n-98)	Percentage %
Type-I	46	46.9%
Type-II	15	15.3%
Type-III	12	12.2%
Type-IV	25	25.5%

Out of 98 cases 37 cases were diagnosed as major degree placenta previa which was confirmed by MRI.

Table -3: Previous Obstetrical History

Obstetrical history	No of cases (n-98)	Percentage %
Spontaneous abortion	12	12.3%
MR	15	15.3%
Normal vaginal delivery	10	10.2%
Caesarian section	55	56.1

Risk factors for placenta previa -previous history of MR in 15 cases (15.3%), Spontaneous abortion in 12cases (12.3%) and previous history of Caesarian section in 55cases (56.1%).

Table-4: Previous History of Caesarian Section

Number	No of Cases (n-98)	Percentage %
History of C/S-1	30	30.6%
History of C/S -2	17	17.3%
History of C/S -3 or more	8	8.1%

Among 98 cases 30cases (30.6%) have previous history of 1 Caesarian section and 25 cases (25.4%) have previous history of more than 1 Caesarian section.

Table-5: Obstetric Evaluation

Pain	No of Cases (n-98)	Percentage%
Present	28	28.5%
Absent	70	71.4%
Antepartum haemorrhage (APH)		
1st trimester	4	4%
2nd trimester	8	8.1%
3rd trimester	26	26.5%
Presentation of fetus		
Cephalic	58	59.1%
Breech	22	22.4%
Transverse	18	18.3%

In this study shows that only 28 cases (28.5%) were present with abdominal pain in her antenatal period, APH was present 38 cases and highest number of cases 26(26.5%) present APH at her 3rd trimester of pregnancy. Highest number of cases 58(59.1%) present with cephalic presentation which was diagnosed by ultrasound.

Table-6: Duration of Termination of Pregnancy

Gestational age	No of cases(n-98)	Percentage%
28-32 weeks	12	12.2%
33-36weeks	40	40.8%
37-40weeks	46	46.9%

Highest number of cases 46(46.9%) delivered at her 37–40 weeks of pregnancy. Only 12 cases delivered at her 28–32 weeks of pregnancy.

Table -7 : Mode of Delivery

Mode of delivery	No of cases (n-98)	Percentage%
Vaginal delivery	15	15.3%
LUCS	83	84.6%

The comonest mode of delivery was by LSCS seen in 83 cases (84.6%).

Table –8: Additional Procedures Required for Controlling Bleeding

Type of procedure	No of cases(n-98)	Percentage%
Uterine packing	5	5.1%
Balloon tamponade	10	10.2%
B-Lynch with uterine artery ligation	15	15.3%
Emergency hysterectomy	25	25.5%

Hysterectomy was required in cases of Adherent placenta in 25 cases (25.5%). Minor Degree Placenta Previa required uterine packing in 5 cases (5.1%), balloon tamponade in 10 case(10.2%) and B-Lynch with uterine artery ligation in 15 cases (15.3%).

Table –9: Maternal Complication

Type of complication	No of cases(n-98)	Percentage%
Hypovolemic shock	8	8.1%
Multiple blood transfusion(1 unit)	40	40.8%
Renal failure	2	2.04%
DIC	2	2.04%
Ventilatory support	4	4.08%
Maternal death	3	3.06%

Hypovolemic shock was seen in 8 cases (8.1%). Multiple blood transfusions were seen in 40 cases (40.8%). DIC developed 2 cases and renal failure developed 2 cases. Maternal deaths were found 3case (3.06%), two cases with DIC and one with renal failure were seen.

Table -10: Neonatal Outcome

APGAR at Birth	No of cases(n-98)	Percentage%
<7	27	27.5%
>7	71	72.4%
Birth Weight (KG)		
<2	12	12.2%
>2-2.5	40	40.8%
>2.5 - 3.5	46	46.9%
NICU admission	30	30.6%
Neonatal mortality	8	8.1%
Prematurity	14	14.2%

APGAR Scores at birth was seen in 71 cases (72.4%). NICU admissions were seen in cases (30.6%). Neonatal deaths occurred in 8 cases (8.1%) and premature baby was found 14 cases (14.2%).

Discussion:

The pathogenesis of placenta previa is unknown. One hypothesis is that the presence of areas of suboptimal endometrium in the upper uterine cavity due to previous surgery or pregnancies promotes implantation of trophoblast in, or unidirectional growth of, trophoblast toward the lower uterine cavity[6]. Another hypothesis is that a particularly large placental surface area, as in multiple gestation or in response to reduced uteroplacental perfusion, increases the likelihood that the placenta will cover or encroach upon the cervical os. Placental bleeding is thought to occur when gradual changes in the cervix and lower uterine segment apply shearing forces to the inelastic placental attachment site, resulting in partial detachment. Vaginal examination or coitus can also disrupt the intervillous space and cause bleeding. Bleeding is Primarily maternal, but fetal bleeding can occur if a fetal vessel is disrupted.

One to 6 percent of pregnant women display sonographic evidence of a placenta previa between 10 and 20 weeks of gestation when they undergo obstetrical ultrasound examination for assessment of gestational age, fetal anatomic survey, or prenatal diagnosis. The later in gestation the previa persists, the more likely it will be present at delivery. If the previa persists with advancing gestational age, it is less likely to resolve.

The distance the placenta extends over the internal cervical os is the best predictor of placenta previa at delivery. However, available data correlating gestational age, millimeters of extension over the cervical os, and outcome are insufficient to make precise predictions. Based on available data, at 18 to 23 weeks of gestation, a distance of at least 14 to 15 mm appears to be associated with a 20 percent risk of placenta previa at delivery, and when the distance is at least 25 mm, 40 to 100 percent of previas will be present at delivery[7]. In the third trimester, a distance over 20 mm is highly predictive of persistence[8]. An anterior placenta previa appears to resolve more often and more quickly than posterior placenta previa[9]. In the second half of pregnancy, the characteristic clinical presentation is painless vaginal bleeding, which occurs in 70 to 80 percent of cases[10]. An additional 10 to 20 percent of women present with both uterine contractions and bleeding which is similar to the presentation of abruptio placenta.

The diagnosis of placenta previa is based on identification of placental tissue covering the internal cervical os on an imaging study, typically ultrasound. Transabdominal ultrasound examination is performed as the initial examination; if it shows placenta previa or the findings are uncertain, transvaginal sonography should be performed to better define placental position. If the placental edge covers the internal os, the placenta is labeled a previa. If the placental edge is <2 cm from, but not covering, the internal os, the placenta is labeled as low-lying. Placenta previa should be described by the distance (millimeters) that the placenta covers the internal cervical os. A low lying placenta should be described by the distance (millimeters) between the internal cervical os and the inferior edge of the placenta. The overall false positive rate of transabdominal ultrasound for diagnosis of placenta previa is high (up to 25 percent), so the diagnosis should be confirmed by transvaginal ultrasound unless the previa is clearly central. Randomized trials and prospective comparative studies have established the superior performance of transvaginal sonography (TVS) over transabdominal sonography for diagnosis of placenta previa. TVS generally provides a clearer image of the relationship of the edge of the placenta to the internal cervical os than transabdominal ultrasound. In one study of 100 suspected cases, sensitivity, specificity, and positive and negative predictive values of TVS for diagnosis of placenta previa were 87.5, 98.8, 93.3, 97.6 percent, respectively. Magnetic resonance imaging (MRI) is well-suited to the assessment of placental-cervical relationships because of the differing magnetic resonance characteristics of the two tissues. However, it is not used for diagnosis of placenta previa because of its high cost, limited availability, and the well-established safety and accuracy of transvaginal sonography[11].

Neonatal morbidity and mortality rates in pregnancies complicated by placenta previa have fallen over the past few decades because of improvements in obstetrical management (eg, antenatal corticosteroids, delayed delivery when possible), the liberal use of cesarean delivery, and improved neonatal care. The principal causes of neonatal morbidity and mortality are related to preterm delivery, rather than anemia, hypoxia, or growth restriction[12]. Preterm birth is common: in a population-based study of women with previa, 28 percent delivered between 34 and 37 weeks of gestation and 17 percent delivered before 34 weeks of gestation.

In the present study, there were 98 cases presented with Placenta Previa and the incidence amounting to 0.6%. It was most commonly seen in the age group 20 – 29 years (61.2%). APH complicates 2-5% of pregnancies of which

approximately one third are due to Placenta Previa[13]. Increasing age and number of pregnancies have been shown to be an important risk factor for Placenta Previa. This study showed that 38 cases above 30 years age group and almost two third (76.5%) of the women were multipara. Multiple studies have shown increasing parity to be an important risk factor for Placenta Previa[14-16]. Most of the women (59.1%) were below poverty line (BPL). Major type of placenta previa was seen in (37.7%) cases. In 25 cases adherent placenta was seen on ultrasound which was confirmed by MRI. 65cases (66.3%) were nonbooked. Regarding previous obstetric history, Previous Caesarian section was seen in 56.1% cases, history of abortion in 12.3% and history of MR 15.3% cases. Previous history of abortions (both spontaneous and induced) have been significantly associated with up to three times risk of Placenta Previa[17-20]. Only 28 cases (28.5%) were present with abdominal pain in her antenatal period, APH was present 38 cases, and highest number of cases 26 (26.5%) present APH at her 3rd trimester of pregnancy. Highest number of cases 58 (59.1%) present with cephalic presentation which was diagnosed by ultrasound. Regarding mode of delivery, cesarean section has been the recommended mode of delivery for major Placenta Previa. In our study, 10 cases had normal successful vaginal delivery. Caesarian Section was done in 84.6% cases. Highest number of cases 46 (46.9%) delivered at her 37-40 weeks of pregnancy. The additional procedures adopted to control bleeding was B-lynch with uterine artery ligation in 15.3% case, Balloon tamponade in 10.2% cases, emergency hysterectomy was required in 25.5% cases. Multiple blood transfusions were needed in 40.8% of cases. DIC was seen in 2% cases. NICU admissions were seen in 30.6% cases. 46.9% had birth weight more than 2.5 kg and72.4% of babies had Apgar score . Perinatal deaths occurred in 8 cases (8.1%). Premature baby was found 14 cases (14.2%).

Conclusion

Our study has demonstrated some of the major maternal and neonatal complications associated with placenta previa. It is one of the life-threatening complications of pregnancy and its incidence is rising probably parallel to the rise in abortions and caesarian sections. Proper family planning practices with an aim to reduce unwanted pregnancies and abortions and performing caesarian sections for appropriate indications will help to reduce placenta previa.

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Original Article

Pattern of Blood Pressure among the Adult Rural Women Aged 20 Years and above in a Selected Community of Bangladesh

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Abstract:

Background: Hypertension is an increasingly important medical and public health problem in Bangladesh due to high incidence of metabolic syndrome and lifestyle-related factors like obesity and less physical activity.

Objectives: To determine the pattern of blood pressure among the adult rural women aged 20 years and above of a selected community.

Materials and Methods: The study was cross sectional descriptive in nature, conducted among the adult (20years and above of age) rural women of Keraniganj, Dhaka. The study was conducted from January 2015 to June 2015. Some selected villages of Keraniganj Upazila, Dhaka, Bangladesh. All the adult women aged 20years and above of the selected villages. Total 267 women were included in the study. Purposive sample technique was followed to select the sample.

Results: The main objective of this study was to assess the pattern of blood pressure among the women aged over 20 years. In this study, mean (± SD) age of the respondents was 42.02 11.87 years with the range from 20 to 86 years. Majority of the respondents (49.4%) were between 31 and 40 years aged and more than one third (20.6%) of the respondents were between 41 to 60 years of age. Only 2.2% were 71 years and above.

Conclusion: On the other hand, non-adherence to antihypertensive treatment is quite high. At the advent of the new millennium, we are really unaware of our real situation. Large-scale, preferably, nation-wide survey and clinical research are needed to explore the different aspects of HTN in Bangladesh.

Keyword: Blood pressure, Adult Rural Women and Selected Community.

Introduction

Hypertension is becoming a public health emergency worldwide especially in developing countries where it is projected that by year 2025, there will be an 80% increase in the number of hypertensive individuals[1]. It is a worldwide risk factor for cardiovascular disease burden and mortality[2]. Primary prevention of heart disease and health promotion has been in focus for decades. Health care in the primary and secondary care sector has evolved to strengthen the citizen's opportunities to engage in prevention and health promotion. The prevalence of hypertension is significantly high in the whole world. Half of patients with hypertension are unaware of their condition. The situation is far worse in less-developed countries like Bangladesh. For patients with coronary heart disease or stroke, the use of blood pressure–lowering drugs decreases from 69% in high-income countries to 16% in low-income countries. There is a genetic predisposition for hypertension, and men develop hypertension earlier than women. Obesity, high salt intake, physical inactivity, and excess alcohol consumption increase the risk of hypertension. Proven

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interventions to prevent the development of hypertension include reduction of weight and alcohol intake; increase in leisure time exercise; healthy diet, with low saturated fat; and reduced salt intake. In this context, it is surprising that there is little information about elderly people's knowledge and awareness of their blood pressure[3]. It is a disease related to risky health behaviors, including smoking, poor diet, overweight and obesity, excess alcohol consumption, physical inactivity and occupational lifestyle. The perception of hypertension by the individual also plays an important role in changing lifestyle and risky health behaviors. Some risk factors for hypertension are modifiable, such as smoking, diet, and overweight, whereas some are not modifiable, such as old age and genetic predisposition. Changing modifiable risk factors may result in a reduced burden of hypertension and people have to know that they are at risk of hypertension to be able to make voluntary lifestyle changes. However, there are many barriers to such awareness in rural and minority populations, including lack of formal school education, communication gaps, and inaccessibility to routine health education programs[4]. Studies show that the prevalence of hypertension might be associated with job related factors. Jobs with high mental stress and low physical activity are a significant risk factor for hypertension. Hypertension is a controllable disease and a small decline of 2 mmHg in blood pressure population-wide can prevent many stroke cases. Higher socioeconomic status, level of schooling and age group are important factors affecting the knowledge of risk factors for hypertension[5]. Failed hypertension control is significantly associated with chronic disease history. Limiting salt intake, receiving regular health education, and visiting community health centers for hypertension care may help control hypertension[6]. Hypertension in youth is increasing but there is a dearth of data about the knowledge of risk factors in this age group. To assess the knowledge of risk factors of hypertension among university students and associate it with the blood pressure, physical activity, family history of cardiovascular disease (CVD) and socio demographic variables. The study identified some gaps in knowledge regarding both modifiable and non-modifiable risk factors of hypertension among students. A larger study would enable health promotion activities tailored to the needs of this age group[7]. Hypertension (HTN) is one of the most common health problems in developed and underdeveloped countries. Fakhri Sabouhi Pointed out it can be a significant factor in death which is resulted from coronary artery disease, brain stroke, and renal failure. It is the most common suddenly diagnosed chronic disease. In a recent study, its prevalence is reported nearly 18% in Tehran and Isfahan. Considering its prevalence, life-threatening and disabling complications, it seems that several factors and barriers are associated with controlling this disease. Among potential reasons for lack of diagnosis and control, the most important barrier is the lack of knowledge and awareness about various aspects of hypertension. In addition, there are several reasons for uncontrolled hypertension including unawareness of hypertension, taking inappropriate medication, taking insufficient drugs, and wrong combination of drugs. Oliveria et al. study (2004) showed that hypertensive patients had adequate general knowledge and awareness of hypertension but they did not have comprehensive understanding of their condition. For example, they did not recognize the importance of systolic blood pressure (SBP) control and did not care about regular blood pressure (BP) measurement. This study aimed to assess hypertension awareness, knowledge, attitude, and practice in hypertensive patients referring to public health care centers in Khoor & Biabanak (2009) and determining the relationship between some demographic data and their awareness, knowledge, attitude, and practice[8]. Poor BP control occurred mainly in rural residents (10.7%) and in people with higher education (39.3%). Untreated patients with hypertension did not know the symptoms of hypertension (29.2%), rarely measured BP (37.5%), but were more likely to engage in regular physical activity (70.8%). Efforts should be made to improve knowledge of hypertension, especially among the rural population, the elderly patients, those with a low-education level, and in young males who had the highest BP[10]. This may reduce hypertension and adiposity with a possible control of cardiovascular disease risk[11]. This may reduce hypertension and adiposity with a possible control of cardiovascular disease risk[12]. These collective findings indicate that diabetes should be included among the clinical conditions for which ABPM is recommended for proper CVD risk assessment[13].

Materials and methods

The study was cross sectional descriptive in nature, conducted among the adult (20years and above of age) rural women of Keraniganj, Dhaka. The study was conducted from January 2015 to June 2015. Some selected villages of Keraniganj Upazila, Dhaka,

Bangladesh. All the adult women aged 20 years and above of the selected villages. Adult women aged 20 years and above. Total 267 women were included in the study. Purposive sample technique was followed to select the sample. All the adult women aged 20 years and above of the selected villages. A semi-structured questionnaire based on socio-demographic characteristics and risk factors of high blood pressure was developed for data collection. After taking verbal consent from the patients following introducing and informing the study purpose and objectives, data were collected by face to face interview ensuring privacy and confidentiality by using the questionnaire. After collection, the data were checked & cleaned; followed by editing, coding and categorizing to detect errors or omissions and to maintain consistency and validity. Then these were entered into MS Excel® and SPSS® software for windows® in personal computers for analysis. Analysis was performed using the 17th version of SPSS® software (Statistical Package for Social Sciences).

Results

This cross-sectional study was conducted at Keraniganj Upazilla, Dhaka, from January 2015 to June 2015. The main objective of this study was to assess the pattern of blood pressure among the women aged over 30 years. In this study, mean (± SD) age of the respondents was 42.02 ± 11.87 years with the range from 20 to 86 years. Majority of the respondents (49.4%) were between 31 and 40 years aged and more than one third (20.6%) of the respondents were between 41 to 60 years of age. Only 2.2% were 71 years and above. This is shown in the Table-1 below.

Table-1: Distribution of respondents by age

Age	Frequency	Percent/ %	Mean ± SD
20-30	30	11.2	42.02 ± 11.87
31-40	132	49.4	
41-50	55	20.6	
51-60	31	11.6	
61-70	13	4.9	
71-86	6	2.2	
Total	267	100.0	

Marital Status

In this study, 2(0.7%) respondents were single, 234(87.6%) respondents were married, 1(0.4%) respondents were divorced, 28((10.5%) respondents were widow and 2(0.7%) respondents were separated; this is shown in the figure-1 below.

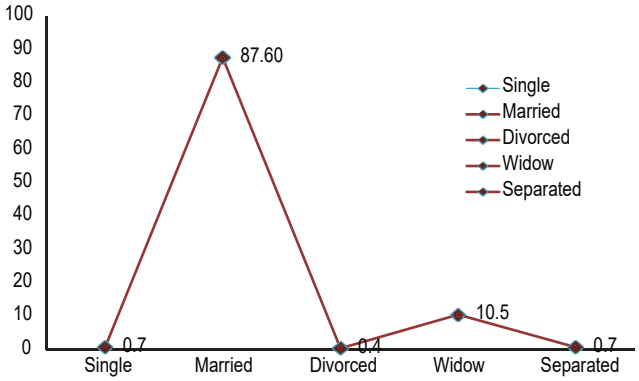

Fig.-1: Distribution of the respondents by marital status

Educational Qualification

From the study it was found that, level of education were 102 (38.2%) illiterate, 115 (43.1%) primary, 39 (14.6 %) secondary, 6(2.2 %) higher secondary, 1 (0.4%) masters and 4 (1.5%) others. The following figure-2 is showing the finding:

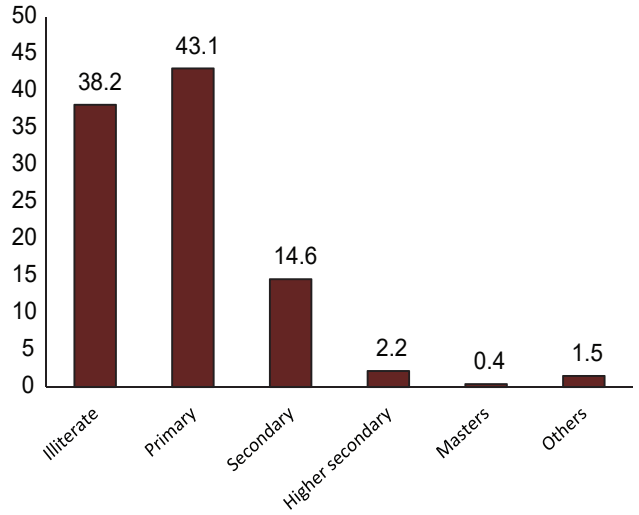

Fig.-2: Distribution of respondents by educational qualification

Occupation of the respondents

In this study, most of the 12(4.5%) respondents were Unemployed, 229(85.8%) were housewives, 6(2.2%) were service holders, 3(1.1%) were business persons, 5(1.9%) were day laborer& 12(4.5 %) were others; which is shown in the Table-2 below.

Table-2: Distribution of respondents by occupation

Occupation of the respondents	Frequency	Percent/ %
Unemployed	12	4.5
Housewife	229	85.8
Service holder	6	2.2
Business	3	1.1
Day laborer	5	1.9
Others	12	4.5
Total	267	100.0

Income group

Regarding the distribution of the respondents by their income condition, the study revealed, 54(20.2%) respondents came from low class family, 128(47.9%) respondents came from lower middle class family,68(25.5%)respondents came from middle class family, 10(3.7%)respondents came from higher middle class family, 7(2.6%)respondents came from high class family. This is shown in the Table-3 below.

Table-3: Distribution of respondents by Income

Income group	Frequency	Percent/ %	Mean (± SD)
Low (500-4000)	54	20.2	
Lower middle (5000-10000)	128	47.9	10878.28
Middle (11000-20000)	68	25.5	(±10149
Higher middle (21000-30000)	10	3.7	.509)
High (31000-90000)	7	2.6	
Total	267	100.0	

Abnormality in Blood Pressure in this study, regarding the distribution of the respondents by having any abnormalities in blood pressure, there were 141(52.7%) respondents know that they have abnormality in blood pressure and 126 (47.3%) respondents don't know that they have abnormalities in blood pressure or not. This is shown in the Table-4 below.

Table-4: Distribution of respondents by blood pressure abnormality

Abnormal blood Pressure	Frequency	Percent / %
Known blood pressure	141	52.7
Unknown blood pressure	126	47.3
Total	267	100

Types of Abnormalities in Blood Pressure

In this study, regarding the distribution of the respondents by abnormal blood pressure classify by their type. There were 85(31.8%) have high blood pressure, 55(20.6%) have low blood pressure, 116(43.4%) have unknown and 11(4.1%) have others. This is shown in the figure-3 below.

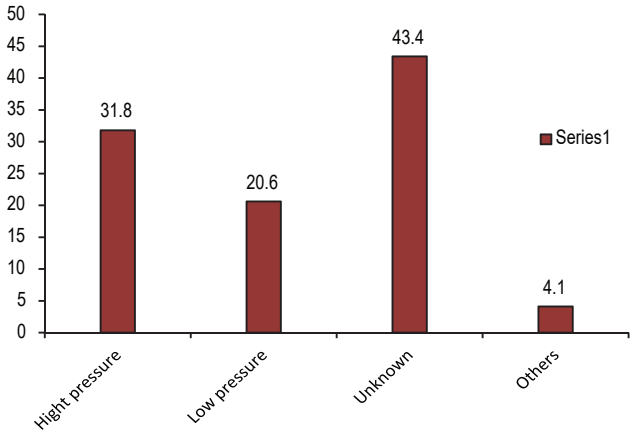

Figure 3: Distribution of respondents by blood pressure abnormality

Drug Intake

In this study, regarding the distribution of the respondents by taking drug for blood pressure, there were 57(21.3%) respondents regularly take drug, 36(13.5%) respondents sometime take drug&174(65.2%) respondents do not take drug at all. This is shown in the figure-4 below.

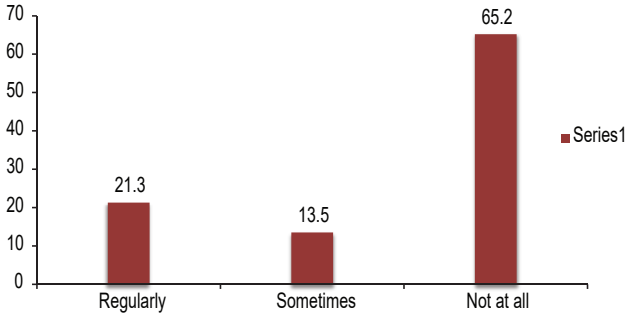

Figure-4: Distribution of respondents by taking drug

Family History of High Blood Pressure

In this study, regarding the distribution of the respondents by hypertensive relatives, there were, 137(51.3%) have hypertension & 130(48.7%) have no hypertension. This is shown in the Table-5 below.

Table-5: Distribution of respondents by having relatives with high blood pressure

High Blood Pressure	Frequency	Percent / %
Hypertension	137	51.3
No hypertension	130	48.7
Total	267	100

High Salt Intake

In this study, regarding the distribution of the respondents by high salt intake, there were 151(56.6%) respondents regularly take high salt, 54(20.2%) respondents sometime take salt &62(23.2 %) respondents do not take drug at all. This is shown in the figure-5 below.

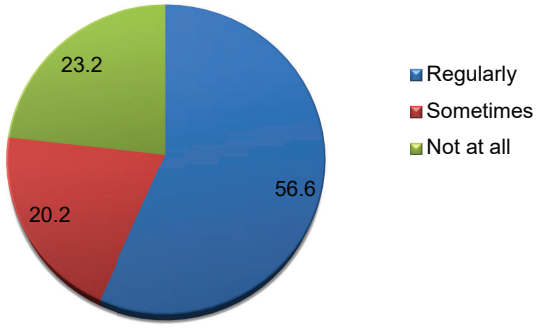

Figure-5: Distribution of respondents by high salt intake

Fatty Food Intake

In this study, regarding the distribution of the respondents by fatty food intake, there were 30(11.2%) respondents regularly take fatty food, 200(74.9%) respondents sometime take fatty food &37(13.9%) respondents do not take fatty food at all. This is shown in the figure-6 below.

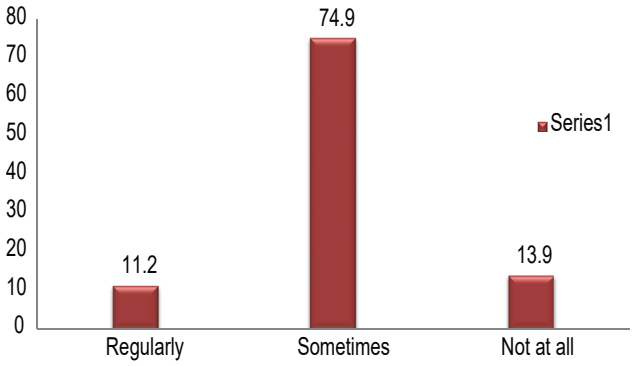

Figure-6: Distribution of respondents by fatty food intake

In this study, regarding the distribution of the respondents by smoking, there were 2(0.7%) respondents regularly smoke, 1(0.4%) respondent sometime smoke &264(98.9%) respondents do not take smoke at all. This is shown in the figure-7 below.

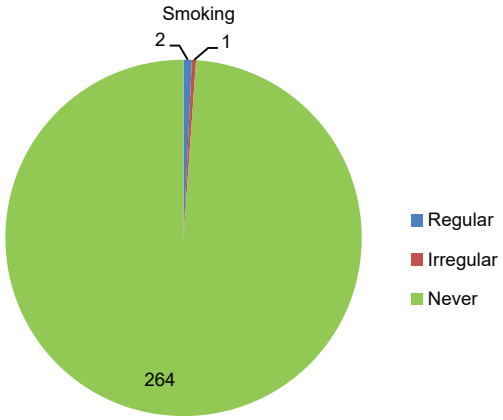

Figure-7: Distribution of respondents by smoking

Chewing Tobacco

Regarding the distribution of the respondents by the habit of chewing tobacco, there were 41(15.4%) respondents regularly chew tobacco, 30(11.2%) respondents sometime smoke &196(73.4%) respondents do not chew tobacco at all. This is shown in the figure-8 below.

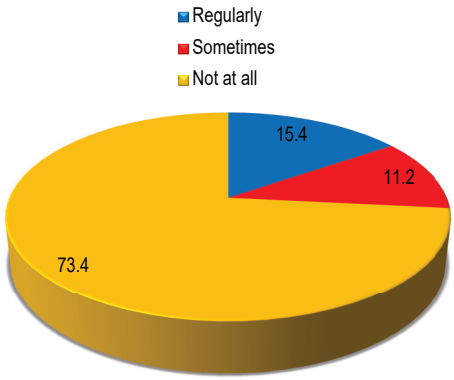

Figure-8: Distribution of respondents by chewing tobacco

Alcohol

Regarding the distribution of the respondents by drinking alcohol, there were 5 (1.9%) respondents sometime drink alcohol& 262(98.1%) respondents do not drink alcohol at all. This is shown in the Table-6 below.

Table-6: Distribution of respondents by drinking alcohol

Alcohol	Frequency	Percent / %
Sometime drink alcohol	05	1.9
Not drink alcohol	262	98.1
Total	267	100

Physical Activity

Regarding the distribution of the respondents by physical activity, there were 22(8.2%) respondents have high physical activity, 212(79.4%) respondents have moderate physical activity &33(12.4%) respondents do not have any physical activity. This is shown in the figure-9 below.

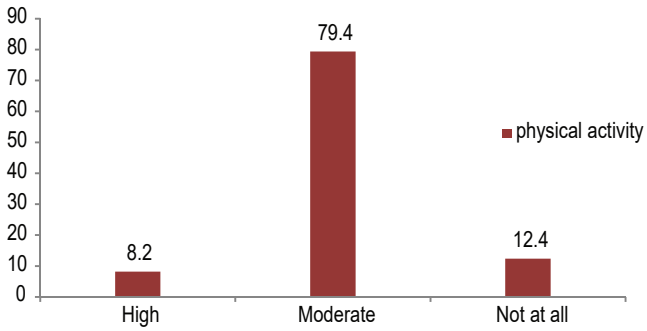

Figure-9: Distribution of respondents by physical activity

Mental Stress

In this study, regarding the distribution of the respondents by mental pressure, there were 59(22.1%) respondents always have mental pressure, 144(53.9%) respondents have sometime mental pressure&64(24%) respondents do not have mental pressure at all. This is shown in the figure-10 below.

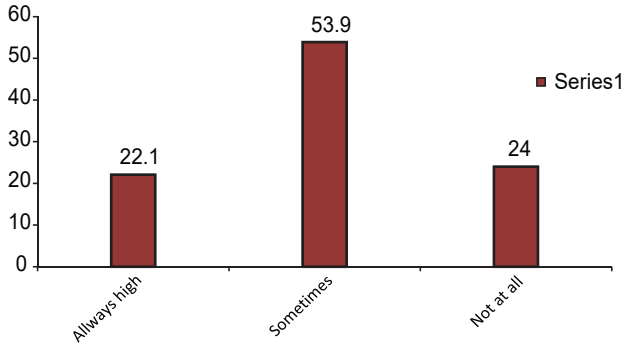

Figure-10: Distribution of respondents by mental pressure

Hypertension During Pregnancy

In this study, regarding the distribution of the respondents by hypertension during pregnancy, there were, 31(11.6%) have blood pressure during pregnancy, 156(58.4%) have no blood pressure during pregnancy &80(30%) respondents do not know that they have blood pressure during pregnancy or not. This is shown in the figure-11 below.

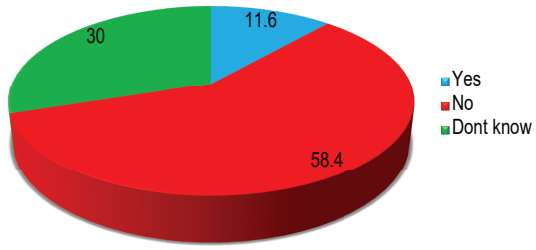

Figure-11: Distribution of respondents by hypertension during pregnancy

Complication During Pregnancy

In this study, regarding the distribution of the respondents by pregnancy related complication, there were 66(24.7%) respondents have pregnancy related complication & 201(75.3%) respondents do not have pregnancy related complication. This is shown in the Table-7 below.

Table-7: Distribution of respondents by pregnancy related complication

Complication During Pregnancy	Frequency	Percent / %
Complication	66	24.7
Non complication	201	75.3
Total	267	100

Systolic Blood Pressure

Regarding the distribution of the respondents by their systolic blood pressure, the study revealed, most of the respondents 249(93.3%) have normal blood pressure, 17(6.4%) patients have high BP and 1(0.4%) respondents have low BP. This is shown in the Table-8 below.

Table-8: Distribution of respondents by Systolic Blood Pressure

Systolic BP	Frequency	Percent	Mean ± SD
Low (80-89)	1	0.4	122.17±17.496
Normal (90-140)	249	93.3	
High (141-200)	17	6.4	
Total	267	100.0	

Diastolic Blood Pressure

Regarding the distribution of the respondents by their diastolic blood pressure, the study revealed, most of the respondents 237(88.8%) have normal blood pressure, 25(9.4%) respondents have high BP and 5(1.9%) respondents have low BP. This is shown in the Table-9 below.

Table-9: Distribution of respondents by Diastolic Blood Pressure

Diastolic BP	Frequency	Percent	Mean (± SD)
Low (40-59)	5	1.9	80.24 (±11.249)
Normal (60-90)	237	88.8	
High (91-110)	25	9.4	
Total	267	100.0	

Discussion

In this study, mean (± SD) age of the patients was 42.02 ± 11.87 years with the range from 20 to 86 years. Majority of the respondents (49.4%) were between 31 and 40 years aged and more than one third (20.6%) of the respondents were between 41 to 60 years of age. Only 2.2% were 71 years and above (table-1). According to statistical reports from medical education and healthcare ministry, hypertension prevalence in Iran is about 27% (for people aged 45 to 69 years) and 42% (over 70 years of age). Total hypertension prevalence in Isfahan is 17.5% (18.6% for women, 16.4% for men). Among them 46.2% patients are aware of their condition, 33.9% were under treatment and 12% had controlled hypertension. A study was conducted in Maastricht, Netherlands by Ina Qvist, Marie D Thomsen, Jes S Lindholt, Jeroen ML Hendriks, Hans Ibsen on 'Self-reported knowledge and awareness about blood pressure and hypertension: a cross sectional study of a random sample of men and women aged 60-74 years' found prevalence spans from 1% in those aged 20–29 years to 69% among those aged 80–89 years. Among Danish patients with known hypertension, only 40%–50% are treated to the guideline recommended blood pressure of less than 140/90 mm Hg.[1] In this study, 0.7% respondents were single, 88 (87.6%) respondents were married, 0.4% respondents were divorced, 11(10.5%) respondents were widow and 0.7% respondents were separated (figure-1). From the study it was found that, level of education was 38.2% illiterate, 43.1% primary, 14.6 % secondary, 2.2 % higher secondary, 0.4% masters and 1.5% others (figure-2). In Bangladesh our literature rate is not more than 40%. For our study we visited a very rural area. That is why as a result of our study we found only 0.4% masters. But here we have to point out one thing that the primary level was in a top position; so, we can say that the rate of education will be increasing soon. From the study it was found that, level of education were 28.1% illiterate, 8.6% primary,17.6% secondary,7.5% higher secondary, 1.9% higher batchelor,0.4% masters, 0.7% others and 5.2% not applicable (figure-2). In this study, most of the participants were day laborer. So here (4.5%) were day laborer, 85.8% were housewives, 2.2% were service holders, 1.1% was business persons & 4.5 % were others table-2). A study was conducted in Ilorin, Nigeria by AG Salaudeen, OI Babatunde, OA Atoyebi, KA Durowade, LO Omokanye on "Knowledge and prevalence of risk factors for arterial hypertension and blood pressure pattern among bankers and traffic wardens' found 34.4% were bankers and 22.2% were traffic wardens.[11] In this study, most of the 4.9% were unemployed, 5.6% were farmer,15.4% were service holders, 11.6% were day laborer, 36.0 % were business persons & 13.9% others and12.7% not applicable (table-2). From this study revealed, 54(20.2%) respondents came from low class family, 128(47.9%) respondents came from lower middle-class family, 68(25.5%) respondents came from middle class family, 10(3.7%) respondents came from higher middle-class family and 7(2.6%) respondents came from higher class family (table-3). Bangladesh is a developing country. Now a day most of our populations are getting business oriented. As a result, from our study we found 36.0% businessmen. Bangladesh is a cultural country. In this study, regarding the distribution of the respondents by having any abnormalities in blood pressure, there were 52.8% respondents know that they have abnormality in blood pressure and 47.3% respondents don't know that they have abnormalities in blood pressure or not (Table-4). In this study, regarding the distribution of the respondents by abnormality in blood pressure and if the respondents have any abnormalities in blood pressure than that are classify by their types. There were 31.8% have high blood pressure, 20.6% have low blood pressure, 43.4% have unknown and 4.1% have others (figure-3). In this study, regarding the distribution of the respondents by taking drug for blood pressure, there were 21.3% respondents regularly take drug, 13.5% respondents sometime take drug & 65.2% respondents do not take drug at all (figure-4). In this study, regarding the distribution of the respondents

by hypertensive relatives, there were, 51.3% have hypertension & 48.7% have no hypertension (table-5). In this study, regarding the distribution of the respondents by low blood pressure relatives, there were, 51.3% have low blood pressure & 48.7% have no low blood pressure (table-5). In this study, regarding the distribution of the respondents by high salt intake, there were 23% respondents regularly take high salt, 20% respondents sometime take salt &57% respondents do not take salt at all (figure-5). From our traditional view we know that the people of our country not so much used to take salt with three daily meals. In this study, regarding the distribution of the respondents by fatty food intake, there were 11.2% respondents regularly take fatty food, 74.9% respondents sometime take fatty food & 13.9% respondents do not take fatty food at all (figure-6). Most of the Bangladeshi people are not habituated to take fatty food. Some of them are habituated to take fatty food. In this study, regarding the distribution of the respondents by smoking, there were 0.7% respondents regularly smoke, 0.4% respondent sometime smoke & 98.9% respondents do not take smoke at all (figure-7). Smoking is very harmful for human body. Our study shows that the most of the villagers were nonsmoker. In this study, regarding the distribution of the respondents by the habit of chewing tobacco, there were 15.4% respondents regularly chew tobacco, 11.2% respondents sometime smoke & 73.4% respondents do not chew tobacco at all (figure-8). In this study, regarding the distribution of the respondents by drinking alcohol, there were 1.9% respondents sometime drink alcohol & 98.1% respondents do not drink alcohol at all (table-6). In this study, regarding the distribution of the respondents by physical activity, there were 15.4% respondents have high physical activity, 11.2% respondent's moderate physical activity &73.4% respondents do not have any physical activity (figure-9). In this study, regarding the distribution of the respondents by mental pressure, there were 22.1% respondents always have mental pressure, 11.2% respondents have sometime mental pressure & 73.4% respondents do not have mental pressure at all (figure-10). In this study, regarding the distribution of the respondents by hypertension during pregnancy, there were, 12% have blood pressure during pregnancy, 58% have no blood pressure during pregnancy & 30% respondents do not know that they have blood pressure during pregnancy or not (figure-11). In this study, regarding the distribution of the respondents by pregnancy related comlication, there were 24.7% respondents have pregnancy related comlication & 75.3% respondents do not have pregnancy related comlication (table-7). Regarding the distribution of the respondents by their systolic blood pressure, the study revealed, most of the respondents (93.3%) have normal blood pressure, 6.4% patients have high BP and 0.4% respondents have low BP. (table-8). A study was conducted in Thasongyang, Thailand by MyoNyeinAung, ThawornLogra, JanthilaSrikrajang, NonglukPromtingkran, Suchartkreuangchai, Wilawan Tonpanya on 'Assessing awareness and knowledge of hypertension in an at-risk population in the Karen ethnic rural community, Yhasongyang, Thailand' found 25% patients have high BP and 12% respondents have low BP.[2]Regarding the distribution of the respondents by their diastolic blood pressure, the study revealed, most of the respondents (88.8%) have normal blood pressure, 9.4% respondents have high BP and 1.9% respondents have low BP (table-9).

Conclusion

Hypertension has high prevalence in both urban and rural residents of the region and hence is a public health concern. However, the people's awareness and control of hypertension was found to be very poor. Nearly half of the study population without self-reported hypertension was unaware of their blood pressure and most of the respondents did not know that hypertension can occur without symptoms. Smoking is least important but chewing tobacco prevalent risk factor for hypertension in the defined community. Despite the limitations, this study provides an insight to the epidemiological patterns of risk factors, risk behaviors and risk awareness regarding hypertension and cardiovascular diseases in the rural area. This showed a lack of correlation between their level of knowledge and its effect on their blood pressure pattern. This is probably due to the sedentary nature of their job which has a strong impact on the increasing blood pressure. Food habit also affects invariably in increasing blood pressure such as red meat and excessive salt intake.

Acknowledgement

Hypertension is one of the chronic non-communicable diseases that have been recognized as a public health problem in both developed and developing countries. This is high time to design appropriate control strategies and prevention guidelines for the people by involving all stakeholders from government to community levels. The recommendations based on the study are given.

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Original Article

Chikungunya – A Review Article

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Introduction:

Chikungunya (also known as chikungunya virus disease or chikungunya fever) is a debilitating, but non-fatal, viral illness. Chikungunya virus, which is classified in the family Togaviridae, genus *Alphavirus,* spread by the bite of infected mosquitoes. These are the same tropical and sub-tropical mosquitoes that carry the dengue virus. Clinical presentation also resembles dengue fever.

Chikungunya occurs mainly in Africa, India, and Southeast Asia. There have been a number of outbreaks in the Philippines and on islands throughout the Indian Ocean. Epidemics are sustained by the human-mosquito-human transmission cycle.

The *Aedes* mosquitoes that transmit chikungunya virus (CHIKV), breed in a wide variety of manmade containers which are common around human dwellings. These containers collect water, and include discarded tyres, flowerpots, old oil drums, animal water troughs, water storage vessels, and plastic food containers. Lack of public health infrastructure and lack of awareness promote uncontrolled mosquito breeding are conducive to outbreaks of chikungunya, or other mosquito borne diseases. During December 2008, an investigation team from the Institute of Epidemiology, Disease Control and Research (IEDCR) and ICDDR,B investigated the first outbreak of Chikungunya fever, a viral mosquito borne disease, in Rajshahi and Chapianawabganj districts of Bangladesh.[1]

In late October 2011, a local health official from Dohar Sub-district, Dhaka District, reported an outbreak of undiagnosed fever and joint pain. Investigation at the time of outbreak confirmed the aetiology, describe the clinical presentation, and identify associated vectors.[2]

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Literally, the word "Chikungunya" translates to "that which bends up" in reference to the stooped posture developed due to the rheumatological manifestations of the disease. In Congo, it has been called "buka-buka", meaning "broken-broken" once again reflecting the incapacitating arthralgias that are common acute manifestations of Chikungunya fever.[3.]

Geographical Distribution of Dengue and Chikungunya

Another important aspect of identifying Dengue and Chikungunya is to be aware of geographical distribution of these diseases. It is very important for doctors to get patient history including their travel history. The following maps show the geographical distribution of Chikungunya and Dengue as of 2015.

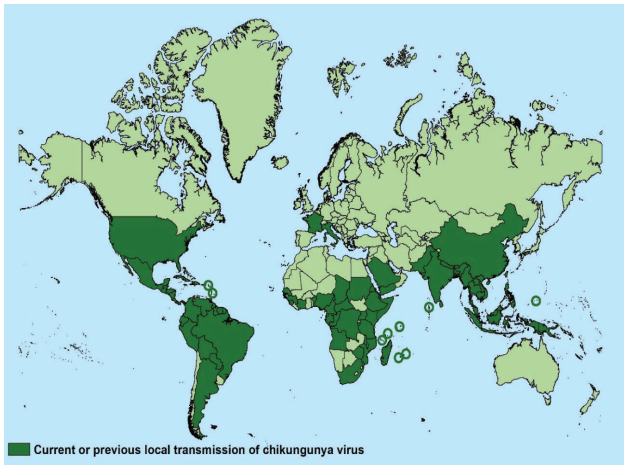

Fig.-1 Geographic Distribution of Chikungunya Fever (2015)

How does Chikungunya virus spread?

During infection, the virus replicates so aggressively, that up to 1 million viruses can be found in a single drop of blood[4]. When a mosquito bites an infected individual, the mosquito gets a stomach full of virus then replicates without killing the mosquito. Next time when the

infected mosquito bites a healthy human or animal, will then be infected with Chikungunya virus. Of the many species of mosquitoes across the globe, two species play critical but distinct roles in the spread of Chikungunya virus: *Aedes aegypti* and *Aedes albopictus* (Figure 2)[5]. One species spreads the virus among wild animals, and the other spread the virus in urban areas among humans.

The incubation period from 4to 8 days but may vary from 2 days to 12 days from the bite of the mosquito and the appearance of clinical features.

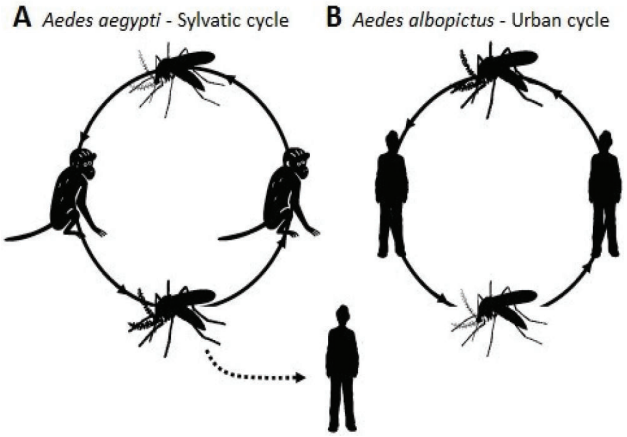

Figure 2 Two cycles of Chikungunya transmission from two species of

A) Sylvatic cycle: *Aedes aegypti* mosquitoes breed in the wild and prefer to feed on primates, rodents, and birds in the wild. Humans traveling in forested areas may be at risk for rare infections.

B) Urban cycle: *Aedes albopictus* mosquitoes that breed in man-made containers in urban areas prefer to feed on humans and carry Chikungunya virus between humans.

Pathophysiology

Following transmission, CHIKV replicates in the skin, and disseminates to the liver, muscle, joints, lymphoid tissue (lymph nodes and spleen) CHIKV spreads rapidly in the body after initial infection. Following inoculation with CHIKV through a mosquito bite, the virus directly enters the subcutaneous capillaries, with some viruses infecting susceptible cells in the skin, such as macrophages or fibroblasts and endothelial cells. Local viral replication seems to be minor and limited in time, with the locally produced virus probably being transported to secondary lymphoid organs close to the site of inoculation. Virus dissemination through the blood and pathological events associated. True arthritis remains a rare event (from 2% to 10%).The pathological events associated with tissue infection are mostly subclinical in the liver (hepatocyte apoptosis) and lymphoid organs (adenopathy), whereas in the muscles and joints are associated with very strong pain, with some of the patients presenting arthritis.[6,7]

Clinical features:

The incubation period of chikungunya disease is from 2-6 days with symptoms usually appearing 4–7 d post-infection.

Children

Chikungunya fever in children resembles that observed in adults with important differences.[8] Common clinical manifestations include abrupt onset of high-grade fever, skin rashes, minor hemorrhagic manifestations, arthralgia/arthritis, lymphadenopathy, conjunctival injection, swelling of eyelids, and pharyngitis. Rare clinical features include neurological manifestations including seizures, altered level of consciousness, blindness due to retrobulbar neuritis, and acute flaccid paralysis. Rheumatological manifestations are somewhat less frequent in children. Pediatric subjects may also experience febrile seizures, vomiting, abdominal pain, and constipation.[8,9]

Clinical features of Chikungunya fever, for better understanding can be divided in 2 phases

Acute Phase

Onset

Prodromal symptoms are rare. In the acute stage, the onset is usually abrupt and sudden with high-grade fever (usually 102-105 °F), severe arthralgias, myalgias, and skin rash. [10] Headache, throat discomfort, abdominal pain, and constipation may also be evident. Conjunctival suffusion, persistent conjunctivitis, cervical, or sometimes generalized lymphadenopathy may be present.

Mucocutaneous manifestations

Several mucocutaneous manifestations, such as morbilliform eruption, scaling, macular erythema, intertrigo, hypermelanosis, xerosis, excoriated papules, urticaria, and petechial spots have been described in patients with Chikungunya fever. [11,12] These are described in detail elsewhere in this issue of the journal.

The virus has been shown to infect epithelial and endothelial cells, fibroblast and monocyte derived macrophages explaining the involvement of muscle, joints and connective tissue.

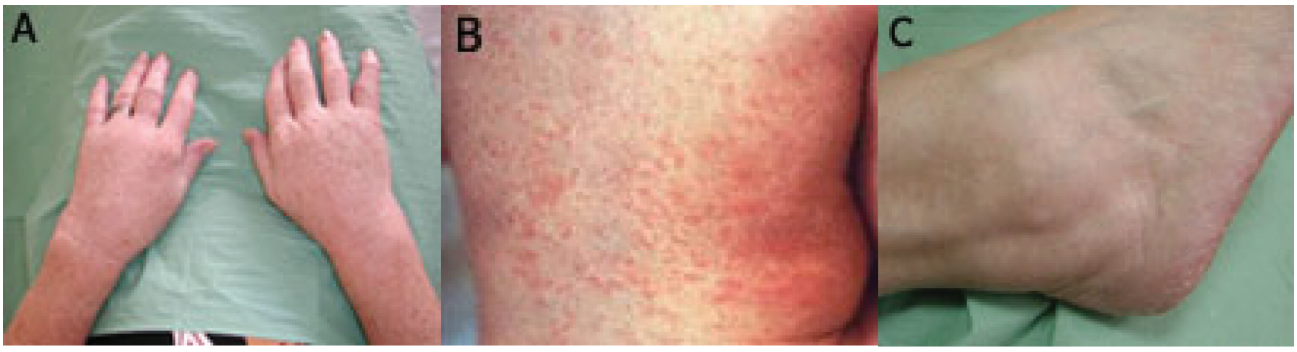

Figure 3 : Chikungunya fever symptoms. A and B: Rash characterized by raised, spotted lesions, C: Joint pain with the presence of swelling (Internet)

Neurological manifestations

Although described in other alphavirus infections, neurovirulence and neuro-invasiveness are not common manifestations of Chikungunya fever.[10] During the present epidemic, several neurological manifestations were documented. Wadia [13] described the following neurological manifestations reported at 5 centres: encephalitis neuropathy myelitis ; entrapment neuropathy and muscle injury . In another Indian report from Kota (Rajasthan) from August to October 2006, [14] altered mental functions, seizures, focal neurological deficit with abnormal computed tomography of head and altered cerebrospinal fluid (CSF) biochemistry, and permanent neurological sequelae have been described. In a study from Nagpur[15] of the 300 patients with Chikungunya fever seen during the June-December 2006, 49 (16.3%; 42 males) had neurological complications. These included encephalitis, predominantly demyelinating type), myelopathy , peripheral neuropathy myeloneuropathy and myopathy In another publication,[16]_neurologic syndromes in 99 cases from Ahmedabad and Pune seen during 2006 included encephalitis encephalopathy and myelopathy or). The report from Andaman Nicobar Islands[17] documented acute flaccid paralysis in four patients with Chikungunya fever.

Ocular manifestations

Nodular episcleritis, acute iridocyclitis, uveitis, and neuroretinitis have been documented as unusual ocular manifestations of Chikungunya fever.[18,19]

Hemorrhagic manifestations

Unlike dengue fever, hemorhhagic manifestations are uncommon in Chikungunya fever. When present, they are mild and more frequently encountered in Asian compared with African patients[10] .

Chronic stage

In a majority of the patients, the joint pains resolve in 1 to 3 weeks. However, the arthritis can persist in about 33% of patients for 4 months, 15% for 20 months, and in 12% for 3-5 years. [20,21] ,

The chronic stage is characterized by unpredictable relapses that include sensation of fever, asthenia, and exacerbation of arthralgias and stiffness. Affected patients may manifest inflammatory polyarthritis, severe subacute tenosynovitis/bursitis (consequently nerve tunnel syndromes) in hands, wrists, and exacerbation of pain on movement in previously injured joints. [22]

Chronic Phase

Most patients recover fully but the chronic stage of chikungunya fever is characterized by polyathritis that can last from weeks to years beyond the acute phase. The word "chikungunya" means "to walk bent"

Occasional cases of eyes like uveitis and retinitis, neurological complication like meningoencephalitis and myocarditis have been reported.

Effect on pregnancy

Chikungunya fever appears to have a direct impact on pregnancy with a higher risk of abortion in the first trimester and mother-to-child transmission in the last trimester.[23,24] In a study from the Reunion Islands outbreak, three out of nine miscarriages before 22 weeks of gestation were attributed to the Chikungunya virus infection documented by positive reverse transcription polymerase chain reaction (RT-PCR) in amniotic fluid. [25]

Clinical and laboratory features of chikungunya virus infections compared with Dengue virus infections

	Chikungunya	Dengue
Fever (>39°C)	+++	++
Arthralgia	+++	+/-
Arthritis	+	-
Headache	++	++
Rash	++	+
Myalgia	+	++
Hemorrhage	+/-	++
Shock	-	++
Lymphopenia	+++	++
Neutropenia	+	+++
Thrombocytopenia	+	+++
Hemoconcentration	-	++

Neonates

Mothers afflicted with Chikungunya fever in the perinatal period (–4 days to +1 days) can transmit Chikungunya fever to neonates by vertical transmission.[26] Intrapartum transmission also contributes; caesarean section does not appear to prevent the transmission.[26,27] Neonatal Chikungunya fever is associated with fever, poor feeding, pain, distal edema, various skin manifestations, seizures, meningo-encephalitis, and echocardiographic abnormalities in the newborn.[26]

How is chikungunya diagnosed?

The confirmation of Chikungunya fever is through any of the followings:

Four fold HI (Haemagglutination Inhibition) antibody difference in paired serum samples. This turns positive within 5 to 8 days of infection.

1 Isolation of virus

2. Detection of virus nucleic acid in serum by RT-PCR. This needs to be conducted within 5 days of infection.

3. Detection of IgM antibody. These antibodies persist upto 6 months of infection

4 . Demonstration of rising titre of IgG antibody

IgM antibodies demonstrable by ELISA may appear within two weeks. In some persons it may take six to twelve weeks for the IgM antibodies to appear in sufficient concentration to be picked up in ELISA

No significant pathognomonic hematological finding is seen. Leucopenia

with lymphocyte predominance is the usual observation. Thrombocytopenia is

rare. Erythrocyte sedimentation rate is usually elevated. C-Reactive Protein is

increased during the acute phase and may remain elevated for a few weeks. A

small proportion of patients have tested positive for rheumatoid factor during and after clinical episode.

WHO Criteria for Chikungunya Diagnosis

1. Clinical criteria: acute onset of fever >38.5°C and severe arthralgia/arthritis not explained by other medical conditions.

2. Epidemiological criteria: residing or having visited epidemic areas, having reported transmission within 15 days prior to the onset of symptoms.

3. Laboratory criteria: at least one of the tests mentioned above.

Treatment of Dengue and Chikungunya

There is no antiviral drug or medicine specific for Chikungunya yet available. But chikungunya is cured by immune system in almost all cases . Treatment usually is for the symptoms and includes sufficient rest, maintain hydration, nutrition and medicines to relieve pain (paracetamol). Rehydration is important in all cases of fever, particularly in hot climates like Bangladesh, where patients should be treated with oral rehydration therapy as required. Patients specially in children when associated with severe anorexia and or with repeated vomiting should be treated with parenteral rehydration. Platelet transfusion never required in chikungunya. Currently there are no vaccines available for Chikungunya. Numbers of vaccines are in clinical trials and we can expect vaccines for Chikungunya will be available in near future.

Usually the disease starts to decrease in intensity after 3 days and it may take up to 2 weeks for recovery. But in elderly the recovery is very slow and may take up to 3 months. In some cases the joint pain can last even up to a year specially in adult.

How can chikungunya be prevented?

There is neither chikungunya virus vaccine nor drugs are available to cure the infection. Avoiding mosquito bites

and to eliminating the mosquito breeding sites is another key prevention measure. To prevent mosquito bites, do the following:

- Use mosquito repellents on skin and clothing
- When indoors, stay in well-screened areas. Use bed nets if sleeping in areas that are not screened or air-conditioned.
- When working outdoors.

Conclusion:

Through the recent epidemics, CHIKV has demonstrated its ability to spread and infect large proportions of the population. There is a very good chance that CHIKV will continue to spread unless measures are taken to improve the recognition of the disease, to control the vectors responsible for the transmission, and to rapidly communicate epidemiological information to vector control experts and other public health officials. Hopefully, timely sharing of accurate information will help control the spread and magnitude of future outbreaks.

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Original Article

Caesarean Myomectomy - A Case Study

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Abstract

Leiomyoma is the commonly encountered benign tumor in women of reproductive age group. Caesarean myomectomy has traditionally been discouraged due to fear of intractable hemorrhage and increased postoperative morbidity . However, a number of authors have recently shown that myomectomy during the caesarean section did not increase the risk of hemorrhage and post - operative morbidity.

A 34 years old lady of 3rd. gravida and para- one with history of one abortion, was admitted in the obstetrics and gynecology department of Ad-din Women's medical College & hospital (AWMCH) with the complaint of amenorrhea of 38 weeks.

Her trans- abdominal solography (TAS) showed a large fibroid at the lower segment of the uterus mainly in the anterior wall of the uterus, measuring about 12× 10× 11 cm.

Caesarean myomectomy was done under spinal anesthesia after delivery of a healthy baby weighing - 2.5kg without any complications.Though caesarean myomectomy is difficult and associated with increased morbidity due to risk of associated hemorrhage, thus, we do not always recommended this but it could be performed in unavoidable conditions.

Keywords: Caesarean, Fibroid, Haemorrhage, Myomectomy, Pregnancy.

Introduction

Incidence of uterine fibroid in pregnancy varies from 0.3 to 7.2%[1]. The overall incidence of fibroid uterus is about 40 to 60% by the age of 35 years[2,3].

Fibroids are asymptomatic in 70% cases, but during pregnancy size of the fibroid often increases and may produce effects on pregnancy such as abortion, preterm labor, mal-presentation, torsion of the uterus and hydronephrosis. Most pregnancy associated with fibroid remain uneventful, but about 10 to 30% of women with fibroid uterus may develop complications during pregnancy [4].

Myomectomy with caesarean section has been traditionally discouraged mainly due to the risk of hemorrhage associated with surgery as result of increased vascularity of the pregnant uterus and uterine atonicity[5,6]. This procedure also causes post-operative morbidity. But few studies suggested that myomectomy may be carried out during the caesarean section in selected cases[6,7]. If this procedure performed safely and

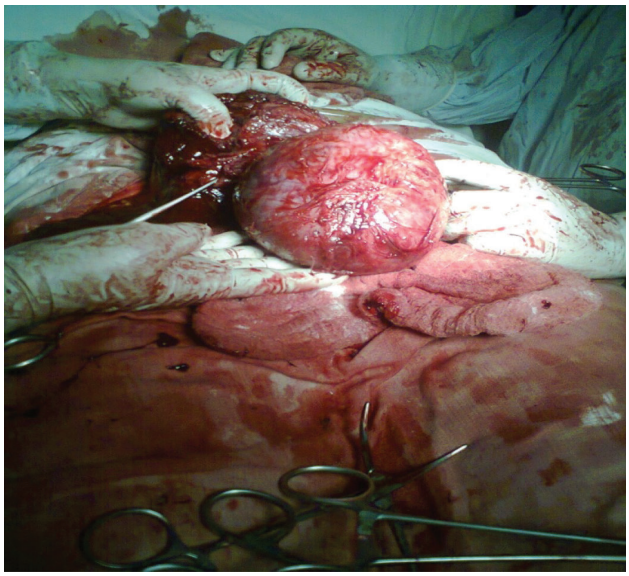

Fig-1: During myomectomy after delivery of the baby

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simultaneously, the risk of anesthetic hazard, repeat surgery, adhesion, operative cost, and hospital stay could be reduced. Myomectomy is usually done after the delivery of the baby.

Case Report

A 34 years lady of 3rd. Gravida was admitted in AWMCH in the Department of obstetrics & gynecology (OBGYN) with the complaints of amenorrhea for 38 weeks with a known case of fibroid uterus. She had previous one normal vaginal delivery and one abortion and had a history of prolong secondary subfertility. Age of her last child was 12 years. She has been married for 14 years. Her menstrual cycle was regular but for the last few years she noticed excessive blood loss during her menstruation and which was gradually increasing in amount and duration. She was on regular Antenatal care(ANC) and expected date of delivery (EDD) was confirmed by early USG and fibroid was also diagnosed at that time.

On examination, she was normotensive, pulse rate was 80beats/minute, mildly anemic.

Per abdominal examination: symphysio- fundal height (SFH) was 36cm.

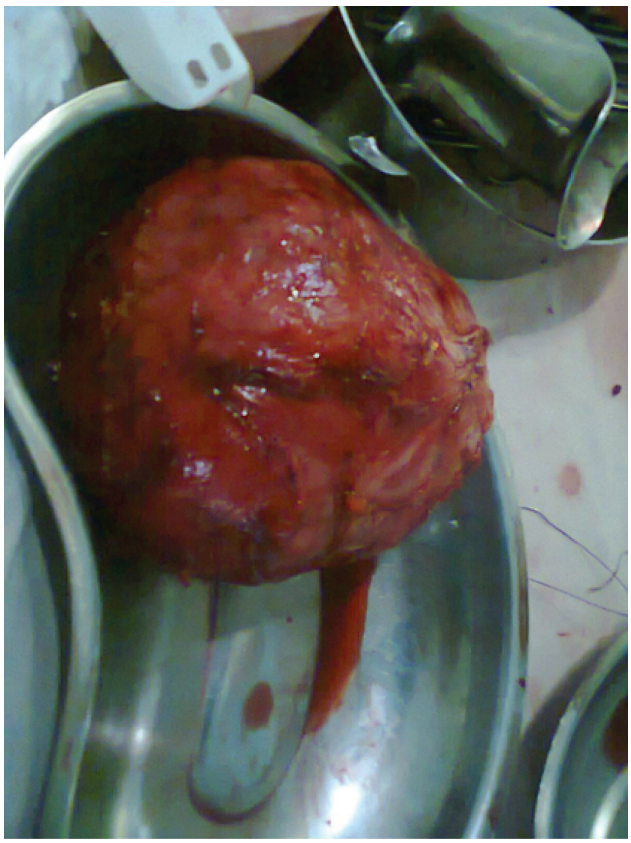

Fig-2: *Myoma after removal*

Single longitudinal lie with breech presentation and a palpable mass in the lower abdomen at the midline which was non-tender and moved with the movement of uterus.

On Auscultation: Fetal heart sound (FHS) was 140beats/ minutes and regular.

Investigations:

Revealed hemoglobin (Hb%) was - 9.8gm%, HBsAg was negative, USG report showed a 37weeks single live intrauterine pregnancy with breech presentation, liquor was adequate and Placenta was in fundal position. Estimated fetal weight was 2503 gm. A large mass about (12×10×11) cm was found in the lower uterine segment, predominantly on the anterior wall of the uterus.

Patient also complaint about less fetal movement and CTG was Non-reactive. She underwent emergency C - section.

Before C - section informed written consent was taken for myomectomy and need of hysterectomy if there was excessive per-operative or post-operative bleeding. 2 units of blood were ready in hands and 1 unit was given during the operation. Baby was delivered by breech extraction then myomectomy was done by extending the incision of the caesarean section in 'J' shaped.

Most of the myoma was intramural and submucous variety occupying the uterine cavity and partly subserous. Myoma capsule was separated with the help of electrocautery to reduce per-operative blood loss.

After complete dissection, myoma pedicle was ligated to reduce the blood loss and myoma was enucleated.

After proper hemostasis uterus was closed in two layers by suturing of only one incision site with Vicryl (1 - 0).

To avoid postpartum hemorrhage 24 hours oxytocin drip was given.

Patient was discharged on the 4th post - operative day without any complications.

Discussion:

Caesarean myomectomy was discouraged in past due to high risk of hemorrhage and increased need of blood transfusion[5 6].

Recently some authors have advocated myomectomy during caesarean section to remove anterior wall fibroid [6,8,9].

Another retrospective study investigated the feasibility and out come by using the tourniquet method with

enucleation of single and multiple myomas and this was performed after delivery of the baby and in two cases where small uterine fibroids were present along the incision line, incision was made over the fibroids to enucleate them before. The mean duration of cesarean myomectomy was 54.75±4.57 minutes. There was no significant difference in the mean duration of operation and mean blood loss between the two groups, (Caesarean section & Caesarean myomectomy)[10].

This study concluded that cesarean myomectomy seems to be feasible and safe in selected cases where a tourniquet is applied.

In our case, though the fibroid was large but blood loss was less than expected (about 400ml) because of the use of electrocautery to enucleate the fibroid and very rapid surgery.

In another study, myomectomy was done prior to delivery of the baby because fibroid was present directly under the incision line.

Mean surgical time was 54.14 ± 3.84 minutes and mean blood loss was 472ml.

This study also concluded that caesarean myomectomy is safe in experienced hands[11].

In our case, fibroid was present just above the incision line in the lower uterine segment, for that reason myomectomy was done after the delivery of the baby.

Maximum part of myoma was intramural and submucous and partly subserous, blood loss was less than expected amount as no separate incision was given for myomectomy[12].???

Other similar case of unavoidable myomectomy during cesarean section was reported, without any need of blood transfusion and without any postoperative complication was reported[13].

In our case, the patient had no episode of postpartum hemorrhage with minimal intraoperative and postoperative blood loss.

Other study had reported that future fertility and pregnancy outcome was not affected in women who had cesarean myomectomy at last delivery[14].

Another study showed removal of myoma during Cesarean Section is safe and this procedure can be done simultaneously[15].

Other similar study concluded that myomectomy can be performed without any significant complications by an experienced surgeon[16].

Conclusion

In conclusion patient selection is crucial in cesarean myomectomy, large fundal intramural fibroids should be intuitively avoided. Fibroids obstructing the lower uterine segment or accessible subserosal pedunculated fibroids in symptomatic patients can be safely removed by experienced surgeons.

Myomectomy along with Cesarean Section was not recommended mainly due to associated risk of life threatening hemorrhage, with the advent of better anaesthesia and availability of blood transfusion caesarean myomectomy is now considered cost effective and safe procedure in low resource setting but require expertise and experience.

The message is that what was once considered taboo should now be reconsidered.

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