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Acknowledgements
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Journal

1. Parkin DM, Clayton D, Blook RJ, Massyer E, Fried HP, Iranov E et al. Childhood leukaemia in Europe after Chernobyl: 5 years follow up. Br J Cancer 1996; 73: 1006-1012
2. Paganini HA, Chao A, Ross RK, Henderson BE. Aspirin use and chronic diseases: a cohort study of the elderly. BMJ 1989; 299: 1247-1250

Book

1. Gyton AC, Hall JE. The thyroid metabolic hormones. In: Textbook of medical physiology. 10th edn. New Tork: W B Saunders Company, 2000: 858-868

Internet

1. Harverd medical school. Available at: https://en.wikipedia.org/wiki/havard_medical_college. accessed October 2011

Thesis/Dissertation

1. Khan MAH. Lipid profile and renal function status of hypothyroid patients [MD Thesis]. Dhaka: Bangabandhu Skeikh Mujib Medical University; 2005.

Scientific or technical report

1. Akutsu T. Total heart replacement device. Bethesda MD: National Institutes of Health, National Heart and Lung Institute; 1974 Apr report No. NIH-NHLI-69-2185-4

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- concept of research work
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An official organ of Ad-din Women's Medical College

Editorial

Chikungunya– an emerging threat to Bangladesh

Chikungunya is an arthropod-borne virus endemic to Africa, Southeast Asia and India that causes acute febrile illness with polyarthralgia and arthritis.
The term "Chikungunya" often refers to both the virus (CHIKV) and the illness or fever (CHIKF) caused by this virus. The name chikungunya is derived from a local language of Tanzania meaning " to be bent over." In Congo, it is referred to as "buka-buka," which means "broken-broken." These terms refer to the "stooped-over posture" exhibited by individuals with the disease as a consequence of severe chronic incapacitating arthralgias. Locally it is also known as 'Langra jor'. Chikungunya virus is an alpha virus that belongs to the Toga viridae family & transmitted to humans through day-biting mosquitoes that belong to the Aedeitatic genus.

The roots of this viral illness date back to 1953, when it was first described during an outbreak in a Swahili village in the Newala district of Tanzania, Africa. Multiple outbreaks beyond West Africa have been described. The first Asian epidemic was reported in Bangkok, Thailand in 1958, continued until 1964 and reappeared in the mid-1970s and declined again in 1976. Major outbreaks were also reported from northwestern and southern parts of India, Sri Lanka, Myanmar and Thailand in the early 1960s.

The next major outbreak occurred in 2001 on islands in the Indian Ocean (Mauritius, Mayotte, Madagascar, Reunion Island). The most severe Chikungunya fever outbreak was reported in 2006 on Reunion Island, where one-third of the population was infected, resulting in 237 deaths. Around the same time, an historical outbreak on the Indian subcontinent involved 1.42 million people, with high morbidity rates.

Since 2004 chikungunya has spread widely, causing massive outbreaks with explosive onset in the Indian Ocean region, India and other parts of Asia.The recent re-emergence and travel-related spread of Chikungunya infection to Europe and the United States have drawn global attention. In fact, international travel stands out as one of the major risk factors for the rapid global spread of the disease.

It is evident that chikungunya is not that uncommon in Bangladesh. But the concomitant presence of other arthropod-borne infections with similar courses of illness makes most physicians less aware of this infection. The first outbreak in Bangladesh was observed in December 2008 when 32 cases were identified. Since then sporadic cases were reported from different parts of Bangladesh.

The exact pathophysiology of Chikungunya virus remains to be investigated. To date, most of the research in this field has been from the Indian subcontinent and other Asian countries.

Chikungunya virus infection has a clinical presentation that overlaps with that of Ross River virus infection (fever, rash and polyarthritis) and dengue fever virus transmitted by the same mosquitoes. Evaluation of the T-cell and B-cell mediated immunity has shed light on some possible mechanism.

In a press release from the department of epidemiology at John Hopkins, it was stated that mosquitoes appear to be very lazy. They bite someone in a household and get infected with a virus and then hang around to bite someone else in the same home of very nearby.

Symptoms usually begin 3–7 days after being bitten by an infected mosquito. The symptoms are quite similar to those caused by many other infectious agents in the endemic areas. One particular difficulty in identifying infection is its overlapping distribution with dengue virus. It has been postulated that many cases of dengue virus infection are misdiagnosed and in practice the incidence of chikungunya infection is much higher than reported.

The most significant manifestation of chikungunya fever is the severe joint pain. Other symptoms may include headache, muscle pain, joint swelling or rash. Diagnosis of

chikungunya is based on two cardinal signs in the acute phase; fever and arthralgia has a specificity of 99.6% and positive predictive value of 84.6%.

The arthralgia is most commonly symmetrical and peripheral, being noted in the small joints of the hands and other large joints. The joints exhibit extreme tenderness and swelling with patients frequently reporting incapacitating pain that lasts for weeks to months. Most infections completely resolve within weeks or months but there have been documented cases of chikungunya fever-induced arthralgia persisting for several years.

Although Chikungunya fever is a self-remitting illness, rare cases of complications have been reported during major outbreaks among patients with comorbidities (cardiovascular, respiratory, neurological), neonates, elderly patients, immunocompromised patients. In a report from the Reunion Island outbreak in 2005, 610 patients with comorbidities had atypical presentations, 65 of whom died. Some of the complications included hepatitis, meningoencephalitis, bullous dermatosis, and pneumonia. The overall mortality in this report was 10.6% and was higher among elderly individuals. The most common risk factors associated with a high mortality and severe infection were cardiovascular (226 patients), respiratory (150 patients), and neurological (147 patients) conditions.

Chikungunya virus is not known to be neurovirulent or neuroinvasive, unlike other alpha viruses. However, rare cases of encephalitis (predominantly demyelinating), myelitis, entrapment neuropathy, seizures, abnormal cerebrospinal fluid (CSF) chemistries, flaccid paralysis, neurological sequelae, and severe peripheral neuropathy and GuillainBarré–type presentations have been reported from several centers in India.

Unlike dengue fever, hemorrhagic manifestations are uncommon with Chikungunya fever and are generally mild (epistaxis, gingival bleeding, subconjunctival hemorrhage, petechial or purpuric rash) if present. Other rare complications include sudden sensorineural hearing loss, granulomatous and nongranulomatous anterior uveitis, optic neuritis, retrobulbar neuritis, dendritic lesions, hypokalemic periodic paralysis, and multiorgan failure.

Complications were more commonly seen in infants, adults with comorbidities, and elderly patients. Intrauterine infection in pregnant women with vertical transmission has also been reported.

IgM and IgG Ab and RT-PCR of viral RNA are the investigations of choice for Chikumgunya virus.

There is no vaccine to prevent or medicine to treat chikungunya virus. Only to treat the symptoms, prevent mosquito bites for the first week of illness. Because during the first week of infection, virus can be found in the blood and passed from an infected person to a mosquito through bites. Research on antiviral agents to treat Chikungunya infection is ongoing.

Thus prevention is better than cure. Proper measures to control mosquitoes and vector transmission can decrease the incidence of this disease.

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Original article

Evaluation of risk factors and perinatal outcome of pregnancy associated with oligohydramnios

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Abstract

Objectives : Obstetricians providing health care often face a situation in which pregnant woman is noted to have oligohydramnios both clinically and sonographically. This study was conducted to evaluate the risk factors and perinatal outcome of pregnancy associated with oligohydramnios.

Methods : This prospective study was conducted in the department of obstetrics and gynaecology, Dhaka Medical College Hospital, Dhaka during the period of January to August 2009. A total 50 patients admitted with oligohydramnios in pregnancy and patient suffering from other disease like (hypertension, heart disease, renal disease, DM, jaundice etc) were enrolled in the study by purposive sampling.

Result : Among 50 patients, 70% were multiparous and 60% were from low socio-economic condition. Foetal outcome was - 26% respiratory distress syndrome, 6% were congenital abnormality, 2% still birth, 4% intrauterine death and 2% neonatal death.

Conclusion : Oligohydramnios associated with pregnancy has shown a significant impact on perinatal morbidity and mortality.

Key words : Oligohydramnios; risk factors; perinatal outcome

Introduction

Oligohydramnios (too little amniotic fluid) is best defined as an amniotic fluid index (AFI) < 5th percentile, because normal amniotic fluid volume changes with gestational age[1]. Over the years it has been described as:

• Diminished amniotic fluid volume. Amniotic fluid volume of less than 500 ml at 32-36 weeks' gestation

• Maximum vertical pocket (MVP) of less than 2 cm

• Amniotic fluid index (AFI) of less than 5 cm, or less than the 5th percentile. This is an AFI of <6.8 cm at term.[1]

Clinically in oligohydramnios uterine size is much smaller than the period of amenorrhoea. The uterus is full of foetus because of scanty liquor. An accurate diagnosis of oligohydramnios becomes possible by ultrasonographic evaluation of amniotic fluid index from 20 weeks to 40 weeks of pregnancy[2]. Various maternal and foetal risk factors would contribute to oligohydramnios

• Fetal risk factors include chromosomal factors, congenital factors, intrauterine growth restriction, post-term pregnancy, premature rupture of membrane (PROM), and fetaldemise

• Placental factors include abruptio placenta and twin-to-twin transfusion syndrome (monochorionic twins)

• Maternal factors include maternal dehydration, uteroplacental insufficiency, hypertension, preeclampsia

• Several drugs would also cause oligohydramnios like indomethacin and ACE inhibitors.

• Idiopathic factors are also responsible[1].

The earlier in pregnancy that oligohydramnios occurs, the poorer is the prognosis. Fetal mortality rate as high as 80-90% has been reported with oligohydramnios diagnosed in the second trimester[1]. Most of this mortality is due to major congenital malformations and pulmonary hypoplasia secondary to premature rupture of membrane (PROM) before 22 weeks' gestation. Midtrimester PROM (premature rupture of membrane) often leads to pulmonary hypoplasia, fetal compression syndrome, and amniotic band syndrome[1].

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The assessment of amniotic fluid volume (AFV) is important in pregnancies complicated by abnormal foetal growth or IUGR (intrauterine growth retardation). AFV has been shown to be predictive in discriminating normal from decreased growth. Oligohydramnios is a frequent finding in pregnancies involving IUGR and is most likely secondary to decreased foetal blood volume, renal blood flow, and subsequently foetal urine output. Pregnancies complicated by severe oligohydramnios have been shown to be at increased risk for foetal morbidity[2].

Amniotic fluid volume (AFV) is a predictor of the fetal tolerance of labour, and it is associated with an increased risk of abnormal heart rate, meconium-stained amniotic fluid, and caesarean delivery. An increased incidence of cord compression is associated with oligohydramnios; this can lead to variable decelerations, with cord occlusion as the proximate cause of fetal distress[1].

If oligohydramnios is detected in the first half of pregnancy, the complications can be more serious and include:

• Compression of fetal organs resulting in birth defects.

• Increased chance of miscarriage or stillbirth.

If oligohydramnios is detected in the second half of pregnancy, complications can include:

• Intrauterine Growth Restriction (IUGR)

• Preterm birth.

• Labour complications such as cord compression, meconium stained fluid and caesarean delivery[4].

Oligohydramnios is associated with 4.5% of all pregnancies and severe oligohydramnios is a complication in 0.7% of pregnancies[3]. The incident of meconium aspiration syndrome in infant with oligohydramnios was significantly higher[6, 9].

Four to eight percent of pregnant women are diagnosed with oligohydramnios during their pregnancy, in postdated pregnancies, the number rises to 12 percent[4].

In Bangladesh, there is high prevalence rate of pre-eclampsia, intrauterine growth restriction, low birth weight and premature rupture of membrane [PROM] and all these condition are associated with oligohydramnios. There is limited facility to monitor mother and foetal condition by CTG and other; often go for operative procedures, with added risk to mother and her baby. Low birth weight and birth asphyxia are also common in oligohydramnios.

But the prevalence of oligohydramnios and its association with risk factors is not evaluated by any study in our country. So the purpose of this study is to the evaluation of the risk factors and perinatal outcome of pregnancy associated with oligohydramnios.

Methodology

This prospective observational study was conducted in the department of obstetrics and gynaecology, Dhaka Medical College Hospital during the period of January to August 2009.

A total 50 patients admitted with oligohydramnios in pregnancy and patient suffering from other diseases like (hypertension, heart disease, renal disease, DM, jaundice etc) enrolled in the study purposively and data were collected by a prepared questionnaire. General medical condition of the patient was diagnosed by history, physical examination and with the help of investigations.

Foetal outcome was evaluated through history, physical examination and relevant investigation The baby was observed up to 24 hours after delivery. In this study when oligohydramnios was suspected clinically it was confirmed sonographically by measuring AFI (amniotic fluid index). Collen Baraob et al[11] considered AFI 8.1-20 cm as normal amniotic fluid volume, AFI 5.1-8 cm as moderate oligohydraminos and AFI ≤5cm as severe oligohydraminos. Women with AFI less than 8 cm were included in this study.

On admission foetal surveillance was done by biophysical profile which included foetal Cardiotocography (CTG) and ultrasonography. Gestational age at the time of delivery either term or preterm was recorded.

Mode of delivery was recorded. Indication of caesarean section was also recorded. Apgar score of the baby was recorded at one minute and at five minute. Neonatal birth weight was measured. Neonatal complication such as respiratory distress syndrome, meconium aspiration syndrome, suspected sepsis and admission to neonatal ward was recorded. All the still births & neonatal deaths were recorded.

Data were analyzed help of using SPSS version 16. All statistical analysis of variables was analyzed by z test, and x^2 test. Statistical significance was set at 0.05 level and confidence interval at 95% level.

Result

Among 50 patients nulliparous were 30% and multiparous were 70%. Z=2.63 and P<0.01 which was highly significant. Oligohydramnios was found more prevalent in multiparous women. Among them 60% come from low income group family. Mean age of the patients was 25.2+4.38SD. Among them only 20% were regular for antenatal check up (p<0.05) (table-1-4).

Among 50 patients borderline oligohydramnios was 68% and severe oligohydramnios was 32% (Table 5). Foetal heart rate tracing was on admission by cardiotocography, normal CTG tracing was found in 44% and abnormal CTG tracing was found in 56% (Table 6). (Table-7) shows that, 60% patient were suffered from premature rupture of membrane in her antenatal period. Maximum gestational age was 34 to 36 weeks of pregnancy.

In most of the cases (32) caesarean section was done statistically significant (P<0.005) Among caesarean section 75% was due to fetal distress which was significantly high (Table-9). In severe oligohydramnios group caesarean section was highly significant(X2=32, P<0.05) than borderline oligohydramnios group (Table-9-11).

Among 50 babies low birth weight baby was 72% which was significantly higher (P<0.01) (Table-12).

Apgar score ≥ 7 at 1 minute was found in 11 babies and at 5 minutes was found in 19 babies. Majority of the babies' born with apgar score 5-6 and needed resuscitation. Apgar score <7 was statistically significant (X2 =14.62, P=0.002) in severe than borderline oligohydramnios group (Table-12-14). Twenty six of babies suffered from respiratory distress syndrome, meconium aspiration, syndrome, congenital abnormality admitted in neonatal ward were significantly higher (table-15, 16).

Table 1 : Distribution of the patients by age

Age group(yrs)	Frequency	Mean age
15-19	3	25.2±4.38 SD
20-24	20	
25-29	22	
>30	5	

Table 2 : Distribution of the patients by parity

Parity	Frequency	Percentage	P value
Nulliparous	15	30	P<0.01
Multiparous	35	70	

Table 3 : Socioeconomic status of the patients

Socioeconomic status	Frequency	Percentage	P Value
Lower Class Family(<3000TK/ month)	30	60	P<0.05
Middle Class Family (3000-6000 TK/month)	14	28	
Higher Class Family > 6000TK /month)	6	12	

Table 4 : Antenatal check-up of the patients (N=50)

Antenatal check-up		Frequency	Percentage	P Value
Unbooked		28	56	X2 = 33.64 P<0.05
Booked	Regular	10	20	
	Irregular	12	24	

Table 5 : Amniotic fluid index (N=50)

AFI	Frequency	Percentage
5.1-8 cm (Borderline oligohydramnios)	34	68
≤5 cm (severe oligohydramnios)	16	32

Table 6 : Foetal heart rate tracing on admission by cardiotocography

CTG tracing	Frequency	Percentage
Normal CTG	22	44
Abnormal CTG	28	56

Tabl 7 : Antenatal complication associated with oligohydramnios of the patients (N=50)

Antenatal complication	Frequency	Percentage
PROM (Prematuree) rupture of membran	30	60
IUGR (Intrauterine growth retardation)	6	12
Hypertension	4	8
Congenital malformation	3	6
Others (fever, urinary tract infection)	4	8

Table 8 : Gestational age at the time of delivery

Gestational age	Frequency	Percentage
28-30 weeks	06	12
31-33 weeks	10	20
34-36 weeks	18	36
37-39 weeks	12	24
> 39 weeks	04	08

Table 9 : Distribution of the patients by Mode of delivery

Mode of delivery	Frequency	Percentage	P Value
Normal vaginal delivery	12	24	X^2=6.76 P=0.005
Assisted vaginal delivery	8	16	
Caesarean section	30	60	

Table 10 : Comparison of caesarean section between borderline and severe oligohydramnios group

Oligohydramnios group	Caesarean section	NVD	P value
Borderline (N-34)	14	20	X^2=32 P<0.05
Severe (N-16)	16	0	

Table 11: Indications of caesarean section (N=32)

Indications	Frequency	Percentage	P Value
Foetal distress	24	75	X^2=14.06 P=0.00
Failed induction	5	15.6	
Malpresentation	3	9.3	

Table 12 : Birth weight of the baby (N=50)

Birth weight	Number of babies	Percentage (%)	P value
<2.5 kg	36	72	P<0.01
≥2.5 kg	14	28	

Table 13 : Apgar score of the baby (N=50) at 1 minute and 5 minutes

Apgar Score	At 1 minute	At 5 minutes		
	No of babies	Percentage (%)	No of babies	Percentage (%)
0-4	7	14	7	14
5-6	32	64	24	48
≥ 7	11	22	19	38

Table 14 : Comparison of Apgar score less than 7 in borderline and severe oligohydramnios group

Apgar Score	In borderline oligohydramnios group (N-16)	In severe oligohydramnios group (N-34)	P value
< 7	14	13	X^2 =14.62 P = 0.002
≥ 7	20	3	

Table 15 : Neonatal complications (N=30)

Neonatal Complications	Number of babies	Percentage (%)
Respiratory distress syndrome	13	26
Meconium aspiration syndrome	10	20
Congenital abnormality	3	6
Early neonatal death	1	2
Still birth	1	2
IUD (Intra Uterine Death)	2	4

Table 16 : Admission in neonatal ward

Number of babies admitted in neonatal ward	Percentage (%)	P value
26	52	X^2 = 29.40 P = 0.00

Discussion

Assessment of amniotic fluid volume in antenatal period is a helpful tool in determining who is at risk for potentially adverse perinatal outcome. The aim of this study was to evaluate the risk factors of oligohydramnios and assess the effect of antenatal oligohydramnios on perinatal outcome. It would help in identifying patients at

risk and of taking appropriate measures about the mode, date and time of delivery and about neonatal care. In this study oligohydramnios was significantly higher in multiparous women(P<0.01). Studies done by Magann et al[12]. Chauhan[13], Cosey et al[6] showed no significant relation of age and parity with oligohydramnios.

In this study higher incidence in multiparous women was probable due to small sample size and most of the patients were multiparous. Most of the patients were low socio-economic status (60%) which was highly significant. Chauhan et al[13]. found that AFI ≤ 5 cm was associated with and increase incidence of caesarean section delivery for fetal distress. Anna et al[14]. found (15.2%) caesarean section delivery among 341 oligohydramnios patients. Voxman[15] also found increase rate of caesarean section (14.7%) for foetal distress in oligohydramnios. In Anna et al[14] and Voxman[15] study caesarean section rate was high in oligohydramnios patient but not significantly higher as found in this study. It was due to fewer facilities (instrumental) for antepartum and intrapartum foetal monitoring in this institution.

So, for the avoidance of adverse perinatal outcome in most cases caesarean section was done. This study showed significantly higher rate of low birth weight baby (p<0.01). In a study done by Magann et al[12] among 79 oligohydramnios patients, low birth weight baby was 10%. Cosey's[6] observed that among 147 oligohydramnios patients, 41(35%) had low birth baby. Oligohydramnios may be a reflection of poor intrauterine nutrition to the fetus.

In present study neonatal complications occurred in 30 babies. Respiratory distress syndrome was 26% in this study, in Cosey's[6] study respiratory distress syndrome was 10% and meconium aspiration syndrome was 1.4% where as in this study meconium aspiration syndrome was 20%. In this study, 68% were preterm babies which was the cause of higher rate of neonatal complications. In, Chauhan study[13], among preterm babies, 9% developed respiratory distress syndrome. In this study Apgar score less than 7 at 5 minutes was found 62% babies. In a study done by Kazi Farhana[16] reported that Apgar score less than 7 at 5 minute was high in oligohydramnios (68%).

This showed that there was only one early neonatal death. The baby was born with birth asphyxia and the birth weight of the baby was 1.5 kg and gestational age at the time of delivery was 32 weeks. There was only one still born baby. Two intrauterine deaths were recorded. The causes of intrauterine death would be placental insufficiency and all these two babies were delivered by vaginal route. In this study 3 babies with congenital anomalies admitted in neonatal care unit was 52% which was significantly high. Neonatal admission in two other studies was 10%[6] and 7%[13].

Conclusion

Oligohydramnios had shown a significant impact on perinatal morbidity and mortality.

This was selective hospital based study, so it may not reflect the actual situation on the problem throughout the country. Various fetal parameters were monitored clinically due to absence of required sophisticated instruments.

References

1. Baxter JK, Sehdev HM. Oligohydramnios. e-Medicine article; Updated October 2003. http://www.american.pregnancy.org/pregnancy complication/low amniotic fluid. – September 26, 2009.
2. Chamberlain PF, Manning FA, Morrison. I. et,al. Ultrasound evaluation of amniotic fluid volume, I. The relatationship of marginal and decreased amniotic fluid volumes to perinataloutcome. Am J Obstet Gynecol, 1984; Oct 1;150 (3):245-9 [Abstract] http://www.patient.co.uk/showdoc/40024667/-38k– September 26, 2009.
3. Luton D, Alran S, FourchotteV, et al- Paris heat wave and oligohydramnios, Am J obstet Gynecol. 2004; December 191(6):2103-5.[abstract] http://www. patient. co. uk /showdoc/40024667/-38k– September 27, 2009.
4. APA discussion forum (Low amniotic fluid level: Oligohydramnios-American pregnancy) complication of low amniotic fluid level in oligohydramnios. William's obstetrics Twenty-second. Ed. cunninghham. F.Gray .et.el.ch. 21 March of Dimes, http://www.march of dimes.comhttp://www.american.pregnancy.org/pregnancy complication/low amniotic fluid. – September 27, 2009.
5. Vidyasagar D. Textbook of neonatology. New Delhi: Arsted, 4-10 (1, 2, 3 article are written by Dr. Hayley Willaey, last updated 03 April 2009)
6. Cosey BM, Metntire DD. Bloom S, Lucas MJ, Santos R and Twinkle DM: Pregnancy outcome after antepartumm diagnosis of oligohydramios at or beyond 34 wks of gestation. Am J Obstet and Gynecol, 2000; 182:909-12.

7. Chunan SP, HendrixNW, Magann EF and Devoe LD. perinatal outcome and amniotic fluid index in the antepartum and intrapartum periods. Am J obstet and Gynaecol 1999; 181:1473-8.
8. Queenan JT. Polyhydramnios and oligohydramnios in management of High Risk Pregnancy. 4th edition. 1999; 421 31.
9. Seed AE. Current concepts of amniotic fluid dynamics. Am J Obstet Gynecol 1980; 138:575.
10. Queenan JT. polyhydramnios and oligohydramnios in management of high risk pregnancy. 4thedition. 1991; 428-31.
11. Baron C, Morgan MA, GariteTJ. The impact of amniotic fluid volume assessed intrapartum of perinatal outcome. AM J Obstet Gynecol 1995; 173:167-74.
12. Magann EF, Kinsella JM, Chauhan SP, Mc Namanra MF, Gehring BW and Morison JC, Does an amniotic fluid index of ≤5 necessitate delivery in high risk pregnancies? A case control study. Am J Obstet Gynaecol 1999; 180:1354-9.
13. Chauhan PS, Saderson M and Magann FE.Perinatal outcome and amniotic fluid index in the antepartum and intrapartum periods. A meta analysis. Am J Obstet Gynaecol 1999; 181:1473-8.
14. Locatelli A, Vergani P, Pezzullo JC, Toso L and Verderio M. Perinatal outcome associated with oligohydramnios in uncomplicated pregnancies. Arch Gynecol Obstet 2004; 269:130-3.
15. Voxman EG, Tran S and Wing BA. Low amniotic fluid index as a predictor of adverse perinatal outcome. Journal of perinatology 2002; 22: 282-5.
16. Dr Kazi Farhana Begum: Perinatal outcome associated with oligohydramnios in pregnancy in BSMMU (Dissertation) Bangladesh college of physicians and Surgeons, 2006.

Original article

Study of Anthropometric Parameters to Predict Coronary Artery Disease Risk Factors in Adult Male Population of Bangladesh

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Abstract

Objectives : In Bangladesh both incidence and prevalence of coronary heart disease has been increasing gradually. Coronary artery disease has a number of well determined risk factors of different anthropometric parameters like weight, height, body mass index, hip circumference, waist to height ratio, triceps skin fold, subscapular skin fold. Objective of the study was to determine various anthropometric parameters which can predict coronary artery disease risk factors in adult male population of Bangladesh.

Methods : A cross sectional analytical type of study conducted in 100 male patients of whom 50 were included as case suffering from coronary artery disease and 50 were control without coronary heart disease between 35-64 years of age.

Results : Significant difference in risk factors like body mass index, waist to height ratio, subscapular skin fold was observed between case and control group.

Conclusion : Body mass index, waist-height ratio, subscapular skinfold can predict risk factor for coronary arterial disease.

Key wards : Coronary artery disease, coronary heart disease, anthropometric parameters.

Introduction

Coronary artery disease also known as coronary heart disease is the most common type of heart disease. Coronary artery disease is the most serious and immediate health problem of many countries in the worldwide. Disease of the coronary arteries is almost always due to atherosclerosis. Atherosclerosis is a disease of the large and medium sized arteries. The disease is characterized by gradual build up of fatty plaques within reduction of the vessel lumen impairing blood flow to the distal tissues of the heart. In the heart, atherosclerosis the arterial wall, which eventually results in significant cause stable and unstable angina, myocardial infarction, arrhythmias and sudden death. It is a common and life threatening disease in both developed and developing country. Coronary heart disease mortality in developing countries is expected to be much greater than among the developed countries[1].

In contrast to the developed countries, countries of the South East Asia region are experiencing an increasing trend in the prevalence of coronary artery disease[2]. It is the most common cause of death in the UK. It results over 117000 deaths a year in the UK. The UK incidence of coronary artery disease remains amongst the highest in the world[3]. Coronary heart disease caused about one of every five deaths in the United States in 2005. It is the largest single killer of American people[4]. Bangladesh is one of the developing countries whose both incidence and prevalence of coronary heart disease has been increasing gradually and unless national policy of prevention of risk factors are undertaken, it is feared that in next 10-15 years time the number of coronary artery disease patients will increase dramatically. This will

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obviously put a serious stress on the health services resources[5]. The prevalence of coronary heart disease in Bangladesh was estimated at 3.3/1000 in 1976 and 17.2/1000 in 1986 indicating five folds increase in the disease in ten years[6]. The death rate of coronary artery disease among Bangladeshi male is 483 deaths /lac where as the mortality rate among female is 330 deaths/lac in 2006. In contrast to male, mortality levels due to cardiovascular disease among females remain considerably lower throughout the period 1986-2006 in Bangladesh[7]. According to the latest WHO data published in April 2011 coronary heart disease death in Bangladesh reached 163,769 or 17.11% of total deaths. The death rate of coronary artery disease is 203.69/lac of population and the ranking is twenty fifth in the world. Among the top 20 causes of death in Bangladesh, coronary artery disease is the leading cause. Coronary artery disease has a number of well determined risk factors. People with a combination of risk factors are at greatest risk. Age is the most powerful risk factor for atherosclerosis. Atherosclerotic vascular disease often runs in families due to a combination of shared genetic, environmental and lifestyle factors. A positive family history is present when clinical problems in first- degree relative occur at relatively young age, such as <50 years for men. Obesity particularly if central or truncal is an independent risk factor, although it is often associated with other adverse factors such as hypertension, diabetes mellitus. A close relationship has been found between coronary artery disease risk factors and different anthropometric parameters like weight, height, body mass index, waist circumference, hip circumference, waist to hip ratio, waist to height ratio, triceps skinfold, biceps skinfold, subcsapular skinfold, supraspinale skinfold, abdominal volume index, and conicity index. Waist circumference is the best screening measure for coronary artery disease[8]. On the other hand skin folds as a reliable alternative for measurement of body fat mass[9]. Gupta R et al [10]evaluated coronary artery disease risk factors, anthropometrically in 600 subjects of Punjabi Bhatia community. Virendra C.P[11] observed that age, and body mass index were very strongly associated with hypertension. Waist to height ratio is a better predictor of coronary artery disease[12, 13]. In a general population study in Taiwan found that the four anthropometric indices such as body mass index, waist circumference, waist to hip ratio, and waist to height ratio are closely related to coronary artery disease risk factors[14]. Guerrero-Romeo F., Rodriquez-Moran M.[15], in their study stated that abdominal volume index is a reliable risk factor for coronary artery disease. In southern Andhra Pradesh, India, a study of randomly selected population suggested that body mass index and waist circumference are better indicators of coronary artery disease risk factors[16]. Hsieh et al[17] in a study found that, the waist to hip ratio and waist to height ratio increased with age. A study in five Canadian provinces with general population, found that waist circumference, a measure of abdominal obesity, was highly correlated with coronary artery disease risk factors[18]. With the above perspective this study was carried out to find out whether anthropometric parameters like height, weight, body mass index, hip circumference, waist to height ratio, triceps skinfold and subscapular skinfold can predict coronary artery disease risk factors in adult male Bangladeshis.

Materials and methods

This cross-sectional analytical type of study was done in the department of anatomy, Dhaka Medical College from January to December 2014. Purposive sampling technique was followed. 100 adult male patient ages ranging from 35-64 years of which fifty persons were suffering from coronary artery disease were selected as case and fifty persons were without coronary artery disease and considered as control. Patients suffering from coronary artery disease confirmed by cardiologist/cardiac surgeon, patients who had received coronary stents, patients who had undergone coronary artery bypass surgery included in the study. Patient had history heart disease other than coronary artery disease like congenital heart disease, valvular heart disease, heart failure, any chronic disease like chronic kidney disease, pulmonary tuberculosis, endocrine diseases such as acromegaly, thyroid disorders, cushing syndrome (these diseases) were excluded by history taking and clinical examinations. In case group (Group A) data were collected from post coronary care unit of Dhaka Medical College Hospital and post coronary care unit and cardiac surgery wards of NICVD. In control group (Group B)) data were collected from different surgery wards of Dhaka

Medical College Hospital who were admitted for elective operations like cholecystectomy, hernia repair, vagotomy and bypass etc and had fitness for anaesthesia and they had normal chest skiagram, normal ECG findings, normal blood sugar level and normal blood pressure Each group of participants was further divided into three subgroups according to body mass index (BMI) into normal weight group(BMI 18-22.99) (Group A, Group A1), overweight group(BMI 23-27.99)(Group B, Group B1)and obese group (BMI ≥28) (Group C, Group C1).

With Approval by ethical committee of Dhaka Medical College Hospital and NICVD, Dhaka, an informed written consent was signed from each of the participants. Anthropometric parameter such as skinfolds thickness measured by skinfold caliper, taken on both right and left sides, body weight measured by weighing scale and height measured by stadiometer, circumferences measured by standardized flexible ribbon tape and recorded. Data were analyzed with the help of SPSS version 20.0.

Results are expressed as Mean±SD. Figures in parentheses indicate range.

Comparison between values of same groups of case and control was done by Unpaired Student's't' test. Comparison between different groups of case and control was done by One way ANOVA (PostHoc)

n=Number of subjects, ns = Not significant,

*=Significant at P<0.05, **=Significant at P<0.01,***= Significant at P<0.001

Results

Body mass index of normal weight group of case and control ranged from 21.00-22.60 kg/m^2 and 18.60-22.10 kg/m^2 and the mean (±SD) 22.05 ± 0.56kg/m^2 and 20.78±1.02 kg/m^2 respectively. In overweight group, ranged from 23.30-27.98 kg/m^2 and 23.20-26.80 kg/m^2 for case and control and the mean (±S D) was 25.95±1.11 kg/m^2 and 24.58± 1.15 kg/m^2 respectively. In obese group, ranged from 29.10-34.60kg/m^2 and 28.40-35.40kg/m^2 mean (±SD) 32.79±1.65kg/m^2 and 30.92±1.89kg/m^2 respectively. Significant difference in body mass index was observed between normal weight (p<0.01), overweight (p<0.01) and obese (p<0.001) group (table-1).

Table-1: Body Mass Index (BMI) of case and control group

Group Case (n=50)	BMI (Kg/m^2) Mean±SD
A (n=16)	22.05±0.56 (21.00-22.60)
B (n=18)	25.95±1.11 (23.30-27.98)
C (n=16)	32.79±1.65 (29.10-34.60)
Control (n=50)	
A1 (n=17)	20.78±1.02 (18.60-22.10)
B1 (n=17)	24.58±1.15 (23.20-26.80)
C1 (n=16)	30.92±1.89 (28.40-35.40)
	P value
A vs A1	0.006**
B vs B1	0.002**
C vs C1	0.0001***
A vs B	0.001***
B vs C	0.001***
A vs C	0.001***
A1 vs B1	0.001***
B1 vs C1	0.001***
A1 vs C1	0.001***

Hip circumference of normal weight group of case and control ranged from 86-102 cm and 90-101 cm and the mean (±SD) was 93.9±4.4cm and 95.2±3.2 cm respectively. In overweight group, it ranged from 86-103 cm and 89-104 cm and the mean (±SD) was 94.4± 5.4 cm and 95.3±4.5 cm. respectively. On the other hand Obese group, ranged from 88-106 cm and 90-107 cm with a mean (±SD) 96.0±5.7 cm and 96.1±3.9 cm respectively. No significant difference in hip circumference was observed between normal weight, overweight and obese (p>0.05) group of case and control (table-2).

Table-2 : Hip circumference (cm) of case and control group

Group Case (n=50)	Hip circumference(cm) Mean±SD
A (n=16)	95.2±3.2 (90-101)
B (n=18)	95.3±4.5 (89-104)
C (n=16)	96.1±3.9 (90-107)
Control (n=50)	
A1 (n=17)	93.9±4.4 (86-102)
B1 (n=17)	94.4±5.4 (86-103)
C1 (n=16)	96.0±5.7 (88-106)
	P-value
A vs A1	0.373^{ns}
B vs B1	0.555^{ns}
C vs C1	0.939^{ns}
A vs B	0.769^{ns}
B vs C	0.308^{ns}
A vs C	0.191^{ns}
A1 vs B1	0.955^{ns}
B1 vs C1	0.594^{ns}
A1 vs C1	0.567^{ns}

Waist to height ratio of normal weight group of case and control ranged from 0.47-0.51 and 0.45-0.49 and the mean (±SD) was 0.48±0.01 and 0.47±0.01 respectively. In overweight group, the ratio ranged from 0.52-0.56 and 0.50-0.55 and the mean (±SD) was 0.54±0.01 and 0.52±0.01 respectively. On the other hand in obese group, the ratio ranged from 0.59-0.67 and 0.57-0.62, with a mean (±SD) of 0.62±0.02 and 0.59±0.02 respectively. Significant difference in waist to height ratio was observed between normal weight ($p<0.01$), overweight ($p<0.001$) and obese ($p<0.001$) group of case and control (table-3).

Table-3: Waist to height ratio (WHtR) of case and control group

Groups Case (n=50)	Waist to height ratio Mean±SD
A (n=16)	0.48±0.01 (0.47-0.51)
B (n=18)	0.54±0.01 (0.52-0.56)
C (n=16)	0.62±0.02 (0.59-0.67)
Control (n=50)	
A1 (n=17)	0.47±0.01 (0.45-0.49)
B1 (n=17)	0.52±0.01 (0.50-0.55)
C1 (n=16)	0.59±0.02(0.57-0.62)
	P-value
A vs A1	0.001**
B vs B1	0.0001***
C vs C1	0.0001***
A vs B	0.0001***
B vs C	0.0001***
A vs C	0.0001***
A1 vs B1	0.0001***
B1 vs C1	0.0001***
A1 vs C1	0.0001***

Triceps skinfold of normal weight group of case and control ranged from 8-11mm and 8-11mm and the mean (±SD) was 9.63±1.02mm and 9.53±1.01mm respectively. In overweight group, it ranged from 11-15mm and 9-15mm and the mean (±SD) was 12.22±1.22mm and 11.53±1.28mm respectively. Obese group, ranged from 14-26mm and 13-30mm and the mean (±SD) was 18.19±3.56mm and 17.25±4.48mm respectively. No significant difference in triceps skinfold was observed between normal weight, overweight and obese ($p>0.05$) group of case and control(table-4).

Table-4 : Triceps skinfold of control case and control group

Group Case (n=50)	Triceps skinfold(mm) Mean±SD
A (n=16)	9.63±1.02 (8-11)
B (n=18)	12.22±1.22 (11-15)
C (n=16)	18.19±3.56 (14-26)
Control (n=50)	
A1 (n=17)	9.53±1.01 (8-11)
B1 (n=17)	11.53±1.28 (9-15)
C1(n=16)	17.25±4.48 (13-30)
	Pvalue
A vs A1	0.789^{ns}
B vs B1	0.410^{ns}
C vs C1	0.393^{ns}
A vs B	0.020*
B vs C	0.0001***
A vs C	0.0001***
A1 vs B1	0.003**
B1 vs C1	0.0001***
A1 vs C1	0.0001***

Subscapular skinfold of normal weight group of case and control ranged from 10-14mm and 11-14mm, the mean (±SD) was 14.38±1.58mm and 12.53±0.80mm respectively. In overweight group, it ranged from 15-21mm and 13-23mm and the mean (±SD)was 17.67±1.75mm and 16.47±2.55mm respectively. On the other hand in obese group, it ranged from 23-39 mm and 24-42 mm and the mean (±SD) was 34.88±3.54mm and 29.69±5.51mm respectively. Significant difference in subscapular skinfold was observed between of normal weight ($p<0.001$), overweight ($p<0.05$) and obese ($p<0.01$) group of case and control (table-5).

Table-5 : Subscapular skinfold of case and control group

Group Case (n=50)	Subscapular skinfold mm) Mean±SD
A (n=16)	14.38±1.58 (10-14)
B (n=18)	17.67±1.75 (15-21)
C (n=16)	34.88±3.54 (23-39)
Control (n=50)	
A1 (n=17)	12.53±0.80(11-14)
B1 (n=17)	16.47±2.55(13-23)
C1 (n=16)	29.69±5.51(24-42)

	Pvalue
A vs A1	0.0001***
B vs B1	0.042*
C vs C1	0.004**
A vs B	0.0001***
B vs C	0.0001***
A vs C	0.0001***
A1 vs B1	0.002**
B1 vs C1	0.0001***
A1 vs C1	0.0001***

Discussion

The anthropometric parameters (body mass index, hip circumference, waist-height ratio, triceps skinfolds, sub-scapular skinfold) is an easy and remarkable predictor of coronary artery disease risk factors. In the adult male population of our country increasing burden of coronary artery disease has an enormous impact on population health, the health care system and the economy. The need for a better understanding of how to slow down the process of coronary artery disease generation and progression and how to improve preventive and therapeutic strategies is obvious in societies with a steadily rising life expectancy. In the present study, Heath-Carter method is used for a comprehensive evaluation of various parameters.

In the present study, highly significant difference was present between body mass index of case and control (P<0.05). Hip circumference of case was not significantly higher than control (P>0.05). Waist-height ratio of case and control were significantly different (P<0.05).

Similar result found in study of Shankarappa C.[19], in Vydehi Institute Of Medical Sciences and Research Centre, Bangalore India, Uma M.I.[20], in The Maharaja Sayajirao University of Baroda, Gujarat, India, RohitS.[21], and Islam M.T[5].

No significant difference was found between triceps skinfold of case and control, (P>0.05). Study done by Shankarappa C.[19], showed that triceps skinfold of the case was significantly higher than control. Significant difference was observed between subscapular skinfold of case and control (P<0.05). Virendra, C.P[11] found in his study that subscapular skinfold of the case was significantly higher than control.

Conclusion

There is significant difference in body mass index, waist-height ratio, subscapular skinfold between cases and control (p<0.05) and can predict coronary artery disease risk factors in adult male population of Bangladesh. Hip circumference, and triceps skinfold between cases and controls were not significant (p>0.05). So body mass index, waist-height ratio, subscapular skinfold can predict risk factor for coronary arterial disease.

References

1. Yousuf, S., et al. Global Burden of Cardiovascular Diseases. American Heart Association. 2001; 104: 2746-2753.
2. Krishnaswami, et al. Burden of noncommunicable disease in South Asia. BMJ. 2004; 328: 807-810.
3. Ramrakha P, Hill J,. Oxford Hand Book of Cardiology. 2006; 1st ed, New York; Oxford University.
4. Despres, JP. et al. Abdominal obesity and the metabolic syndrome: Contribution to global cardiometabolic risk. American Heart Association. 2008; 28: 1039-1049.
5. Islam. M. Coronary artery disease in Bangladesh: A review. Indian Heart Journal. 2013; 65(4): 424-435.
6. Malik, A., Nishtar, S. Preventing coronary heart disease in Southeast Asia. 2002; 1st ed, Islamabad; Heartfile.
7. Zunaid A. K., Nurul, A., and Peter, K. S. 2009. Epidemiological transition in rural Bangladesh. In: Global Health Action. 1986-2006; 2: 10-14.
8. Zhu, et al. Waist circumference and obesity associated risk factors among whites in the third National Health and Nutrition Examination Survey: clinical action threshold. American Society for Clinical Nutrition. 2002; 76: 699-700.
9. Seidell, J.C., et al. Superiority of skinfold measurements and waist over waist –hip ratio for determination of body fat distribution in a population based cohort of Dutch Adults. European Journal of Endocrinology. 2007; 156: 655-661.
10. Gupta, R., et al. Correlation of waist-hip ratio with coronary artery disease and risk factor prevalence in a rural male population. Indian Heart Journal. 2005; 46: 234-239.
11. Virendra, C.P. Relation of anthropometric variables to coronary artery disease risk factors. Indian Journal of Endocrinology and Metabolism. 2011; 15(1): 31-37.
12. Lin, et al. Optimal cut off values for obesity: using simple anthropometric indices to predict cardiovascular risk factors in Taiwan. International Journal of Obesity. 2002; 26(9): 1232-1238.

13. Khandaker MD., Sabah N. et al. Body mass index and waist/height ratio for prediction of severity of coronary artery disease. Biomedical Central Research Notes. 2014; 7: 246-252.
14. Huang, B., et al. Associations of adiposity with prevalent coronary heart disease among elderly men. International Journal of Obesity. 1997; 21: 340-348.
15. Guerrero-Romeo F., Rodriquez-Moran M. Abdominal volume index. An anthropometry- based index for estimation of obesity is strongly related to impaired glucose tolerance and type 2 diabetes mellitus. Arch Medical Research. 2003; 34(5): 428-32.
16. Venkatramana, et al. Association of overall and abdominal obesity with coronary heart disease risk factors: comparison between urban and rural Indian men. Asia Pacific Journal of Clinical Nutrition. 2002; 11: 66-71.
17. Hsieh, et al. Abdominal fat distribution and coronary heart disease risk factors in men-waist/height ratio as a simple and useful predictor. Indian Journal of Obesity. 1995; 19: 585-89.
18. Reeder, et al., 1997. The association of cardiovascular disease risk factors with abdominal obesity in Canada. Canadian Heart Health Surveys Research Group. 1997; 157: 39-45.
19. Shankarappa, C. Anthropometric variables predicting risk of coronary artery disease. British Journal of Medicine. 2013; 14(4): 9-13.
20. Uma, M. I. Risk factors analysis in coronary heart diseases. Asian Journal of Experimental Biological Science. 2011; 2(1): 21-26.
21. Rohit, S., et al. Body composition parameters as correlates of coronary artery disease. Indian Journal of Medical Research. 2013; 138(6): 1016-1019.

Original article

Maternal and perinatal outcome of teenage pregnancy among admitted cases in Ad-din women's medical college hospital - A case control study

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Abstract

Objective : To assess the socio demographic background of teenage pregnancy with control, and compare it to that of control group.

Materials & methods : It was a prospective case control study carried out in the Department of Obstetrics and Gynaecology, at Ad-din women's Medical college Hospital, Dhaka, from February 2014 to May 2015. A total of 110 pregnant mothers were studied. Of them 55 were cases (11 yrs to 19 yrs) while 55 patients >19 yrs & <30 yrs of age selected as control. Careful history and thorough clinical examination were performed with the aim of detecting any clinical symptoms and signs suggesting of warning complications of pregnancy and delivery.

Results : In this study teenage pregnancy was found 11.98%. Most of the teenage mothers (67.27%) came from low socioeconomic class. Complications like eclampsia, pre-eclampsia, preterm labour, prolonged labour, obstructed labour, PROM were significantly higher among adolescent group mothers than control group. It was showed that the normal mode of delivery was commoner in teenagers (89.5%) than the control group (72%). In this study perinatal mortality was found 9.09% in teenage group and in control group it was 5.45%.

Conclusion : The outcome of most of the teenage pregnancies was associated with some risks and complications. To reduce the number of such high risks, appropriate care during pregnancy and delivery and improved family planning services and health education can substantially reduce the consequences.

Key word : teenage pregnancy, maternal and perinatal outcome

Introduction

Teenage is the modern description of adolescents[1]. Adolescents as defined by world health organization are the period of life between 10 to 19 years[2]. It is the time of development involving changes in physical, mental, emotional, spiritual and social functioning.

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Adolescents constitute almost one fifth of the world's total population. In Bangladesh adolescents constitute more than 23% of the total population and out of total female population of 54.5 million almost 14 million are between 10-19 years[3].

Teenage pregnancy and its consequences pose a very severe problem for the individual, the family and the society. In Bangladesh about 69% of the girls get married before crossing their adolescence and of them 34% give birth to children exposing themselves to major health hazards4. Teenage pregnancy is fairly, common in Bangladesh due to early marriage, lower educational status and marrying before 20 years of age[4].

An estimated 70,000 adolescent mothers die each year in the developing countries because of having children before they are physically ready for motherhood[5,6].

Complication from pregnancy and childbirth are the leading cause of death in young women aged 15 to 19 years of age in developing countries6. About 75% of adolescent pregnancies are unplanned in our society[7,8]. The higher death rate among girls compared to that of boys aged 15 to 19 years (1.81 against 1.55 per, 10,000 population) is mainly due to the maternal causes and in true sense it is a gross violation of human rights[9].

Adolescent mothers are unable to take proper care of them and their children[10]. Adolescent pregnancy remains a significant social, economic and health issue[11].

In developed country modernization may contribute to unwanted pregnancy as a result of relaxation of traditional, cultural norms prohibiting premarital sexual activity. In Bangladesh early marriage, ignorance, illiteracy, lack of adequate healthcare facilities, failure to seek family planning advice due to social taboos and shyness are the cause of this problem[12]. Maternal mortality rate for 13 to 19 years group is 5.8/1000 compared to 1.8/1000 for 20 to 25years. Neonatal death rate was 80/1000 for younger group and 43/1000 for older group in Bangladesh[12].

Malnutrition in adolescence can cause poor growth or stunting, which can result in small pelvis that leads to difficult labour with the consequences of chronic morbidity and even mortality for both mother and the child. Pregnancy outcome showed live births, still birth miscarriage, abortion was higher among younger age adolescents[13].

Early marriages result in high proportion of first pregnancies before age of 19 years and consequent higher rate of complications like, anaemia, abortion, prematurity, toxaemia of pregnancy, eclampsia and obstructed labour with subsequent fistula formation and uterine prolapse. To attain the successful safe motherhood adolescent pregnancy needs proper attention and evaluation for the prevention of its devastating effect. This study is designed to identify the maternal and perinatal outcome of teenage pregnancy so that further studies can be made for improving maternal and child health care in Bangladesh.

Materials & methods

It was a prospective case control study carried out in the department of Obstetrics and Gynaecology at Ad-din Women's Medical college Hospital, Dhaka from February 2014 to May 2015. Of them 55 were taken as cases (11 yrs-19 yrs) while 55 patients were taken as control (>19yrs & <30 yrs). Careful history and thorough clinical examination were performed with the aim of detecting any clinical symptoms and signs suggesting of any warning complications of pregnancy and delivery. On the entry into the study, a detailed history including, socio demographic, past obstetric history, record of antenatal check up and any complications noted. On admission into the labour ward a data sheet was filled. Age of the patients was calculated in years.

Quality of life was assessed by questioning patients' status, education, activities at home and employment, number of children and family member. Their knowledge regarding contraceptives and use of contraceptives was assessed. Past obstetric history were taken in detail. Details about the antenatal check up were noted.

Their gestational age were recorded by the date of last menstrual period or by the month since the patient has amenorrhea or by USG report at early weeks of gestation if available. Patients' state of anaemia, oedema, jaundice were assessed clinically. Pulse, B.P. were measured, urine for albumin were tested. Antenatal complications like abortion, molar pregnancy, hyperemesis gravidarum, preterm labour, premature rupture of membrane, precclampsia, ecalmpsia, antepartum haemorrhage, malpresentation were recorded. Data were collected in a pre-design questionnaire and analyzed by SPSS version 16. Chi-square test were done at significant level ($P<0.05$)

Results

This study showed teenage pregnancy was 11.98%. Most (67.27%) of the teenage mothers come from low socioeconomic class. Complications like eclampsia, pre-eclampsia, preterm labour, prolonged labour, obstructed labour, PROM were significantly higher among adolescent group mothers than control group. It was showed that the normal mode of delivery was commoner in teenagers (89.5%) than the control group (72%) probably because of higher number of low birth

weight babies. This study showed that 52.73% teen age mothers had normal vaginal delivery, 34.55% had caesarean section, 1.82% had forceps delivery and 5.45% had ventouse delivery. On the other hand, caesarean section was 38.18%, normal vaginal delivery was 58.18%, ventouse delivery was 3.64% in the control group. Caesarean section was low and vaginal delivery was more in the teenage group. In this study perinatal mortality was found 9.09% in teenage group and in control group it was 5.45%.

Table-I : Age distribution of admitted adolescent pregnant patient and comparing it with nonadolescent pregnant mother

Age group	Case (n=55)		Age group In Years	Control (n=55)	
	No.	%		No.	%
<17 years	7	12.72	20-25	38	69.09
>17-19 years	48	87.27	>25-<30	17	30.90

Table-II : Demographic characteristics of the study subjects

Occupation	Case (n=55)		Control (n=55)	
	No.	%	No.	%
House wife	44	80.00	43	78.18
Day labourer	3	5.45	4	7.27
Housemaid	2	3.64	1	1.82
Work in garments factory	6	10.91	2	3.64
Student	0	0.00	2	3.64
Service in office	0	0.00	3	5.45
Education status				
Illiterate	21	38.18	14	25.45
Can sign only	12	21.82	10	18.18
Primary	17	30.91	13	23.64
Secondary	5	9.09	8	14.55
Higher secondary	0	00	6	10.91
Graduate	0	00	3	5.45
Master degree	0	00	1	1.82
Monthly Income				
<3000 Tk.	37	67.27	29	52.73
3000-5000 Tk.	10	18.18	11	20.00
> 5000 Tk.	8	14.55	15	27.27

Table-III : Complication arise during pregnancy and labour and comparison between two groups

Complications	Case (n=55)		Control (n=55)		P value
	No.	%	No.	%	
Hyperemesis gravidarum	2	3.64	1	1.82	
Pre-eclampsia	7	12.73	1	1.82	
Eclampsia	8	14.55	2	3.64	
IUD	1	1.82	1	1.82	
Preterm labour	6	10.91	3	5.45	
Malpresentation	4	7.27	1	1.82	0.029
PROM	5	9.09	1	1.82	
Prolonged labour	8	14.55	3	5.45	
Obstructed labour	3	5.45	2	3.64	
Oligohydramnias	2	3.64	2	3.64	
Scar tenderness	0	0.00	8	14.55	
APH	0	0.00	1	1.82	
No complication	9	16.36	29	52.73	

Table-IV : Mode of delivery

Mode of delivery	Case (n=55)		Control (n=55)		P value
	No.	%	No.	%	
Normal vaginal delivery	29	52.73	32	58.18	
Assisted breech delivery	3	5.45	0	0.00	
Forceps	1	1.82	0	0.00	0.001
Ventouse	3	5.45	2	3.64	
Caesarean section	19	34.55	21	38.18	

Table V: Indication of caesarean section

Indication of LSCS	Case (n=55)		Control (n=55)		P value
	No.	%	No	%	
Obstructed labour	3	5.45	2	3.64	
Prolonged labour	4	7.27	3	5.45	
Preeclampsia	2	3.64	1	1.82	
Eclampsia	4	7.27	2	3.64	
Previous LSCS	0	0.00	5	9.09	
Malpresntation	1	1.82	1	1.82	
CPD Foetal distress	2 2	3.64 3.64	1 2	1.82 3.64	0.247
Failed trial	1	1.82	1	1.82	
APH	0	0.00	2	3.64	
Oligohydramnios	0	0.00	1	1.82	
Total	19	34.54	21	38.18	

Table-VI : Maternal mortality

Cause of maternal death	Case (n=55)		Control (n=55)	
	No.	%	No.	%
Eclampsia	1	1.81	0	00
Sepsis	1	1.81	0	00

Table-VII : Perinatal outcome

Condition	Case (n=55)		Control (n=55)		P value
	No.	%	No.	%	
Healthy	33	60.00	41	74.55	0.266
Asphyxiated	19	34.55	12	21.82	
Still born	3	5.45	2	3.64	
APGAR Score					
At 1 minute					
>7	30	54.55	39	70.91	0.076
<7	25	45.45	16	29.09	
At 5 minutes					
>7	47	85.45	48	87.27	0.781
<7	8	14.55	7	12.73	
Birth weight (in kg)					
<2.5 kg	36	65.45	23	41.81	0.013
>2.5 kg	19	34.55	32	58.18	

Table VII1: Perinatal mortality

Death	Case (n=55)		Control (n=55)	
	No.	%	No.	%
Antepartum & intrapartum	4	7.27	2	3.64
Neonatal	1	1.82	1	1.82
Total	5	9.09	3	5.45

Discussion

Teenage pregnancy and its consequences pose a very severe problem for the individual, the family and the society.

In a study done by Halida et al[16] have found that marriage in Bangladesh is very common between age 15 to 19 years of age and 69% of the female population marry by this age. According Susan et al.[17], pregnancy of teenage mother is 32%. According to BBS 12.7% of adolescents were already married. In United states, about 11% of all births in 2002 were teenage pregnency (ages 15 to 19)[19]. According to Sundari TK[20], 13% of the pregnant women were adolescent, between of 15 to 19 years. In a study of Zeck W et. al[21]. 51% of adolescents were 17 years old at the time of delivery.

The increase risk of adverse pregnancy outcome associated with low maternal age has largely been attributed to poor socioeconomic conditions among teenagers[22]. Study of Yodev[23] and Yong showed most of the teenage mothers were from a lower socioeconomic background.

The present study found that, most of teenage group were housewives. Cooksey et al[24]. have shown that increase of maternal education leads to first intercourse at a later age and a higher likelihood of using contraceptives at first intercourse.

In this study, in the adolescent group eclampsia, pre-eclampsia, preterm labour, prolonged labour, obstructed labure, PROM are significantly higher among adolescent group than among control group. In a study, Chen KX et al[27]. showed that the rate of very preterm delivery, preterm delivery, very LBW, LBW, SGA, and neonatal mortality were higher in teenage pregnancies. They were consistently increased with decreasing maternal age and were always highest among infants born to mothers aged 15 years or younger. Study of Sarker CS et al[28]. showed that eclampsia and pre-eclampsia affected teenage mothers (10.6%) were much more frequent than mother of 20 years of age and above (5.2%). Incidence of 30% low birth weight baby, 21.1% prematurity and 16.4% perinatal mortality were recorded. Regarding mode of delivery this study findings are consistent with some other studies.

In a study, done by Smith CS et al.[29] showed that among first births, the only significant difference in adverse outcome by age group was for emergency caesarean section, which was less likely among younger mothers. Second births in women aged 15-19 were associated with an increased risk of moderate and extreme prematurity and stillbirth but a reduced. In another study it was showed that the normal mode of delivery was commoner in teenagers (89.5%) in comparison to control group (72%) probably because of higher number of low birth weight baby. There was lower incidence caesarean and instrumental delivery[31]. This study showed that more than fifty percent babies of teenage group were low birth weight.

Du Plessis HM et al.[13] in a study on adolescent pregnancy found, women of young maternal age are approximately 2.5 times more likely to have a low birth weight infant[30]. Only 53.8% of babies of these teenagers have 2.5 kg and above birth weight infant. This means more than 46.2% were low birth weight babies. The overall hospital incidence of low birth weight babies was 30%. Another study done by Mahavarkar et.al.[31] found 51.4% of low

birth weight babies and control group was 35% . In this study perinatal mortality was 9.09% in teenage group and in control group it is 5.45%. Sundari TK et.al.[20] found that perinatal mortality rate 82/1000.

In present study maternal mortality in teenage group is 3.64%. Bangladesh Bureau of Statistics Publication data on 1996 showed that adolescent maternal mortality rate is 3.9 per thousand[18].

Conclusion

This study showed that teenage pregnancy and pregnancy among primigravida group is more commonly complicated by anemia, eclampsia, obstructed labour, prolonged labour, CPD, preterm labour, low birth weight baby. The number of such high risk teenage, unwanted and unplanned pregnancies can easily reduce by improved family planning services. Appropriate care during pregnancy and delivery can substantially reduce newborn morbidity and mortality.

Reference

1. Jeffcoate N. Jeffcoate's of gynaecology. revised by VR Tindall, 5th ed. Butterworth and Co., 1987:5,80-1.
2. Population reports. Youth in 1980. series M. Nov- Dec. 1985.
3. Statistical year book of Bangladesh. Bangladesh Bureau of Statistics. 1989.
4. WHO guidelines on hand hygiene in health care (advanced draft):a summary. World Health Organization 2005.
5. Otterblad OP, Haglund B et al. premature death among teenage mothers. British J Obstet Gynaecol 2004; Aug 111(8):793-9.
6. Mayar S. Pregnancy and childbirth leading cause of death in teenage girls in developing countries. BMJ 2004; 328:1152-a.
7. Cambell S, Less C. Obstetrics by Ten Teachers, 17th edition, p 96.
8. UNICEF: Adolescent girls in Bangladesh, UNICEF Bangladesh country office, October 1999.
9. Bangladesh Bureau of Statistics sample vital registration system 1998.
10. Fatemeh Nairi A. Comparative study on outcome of pregnancy in adolescent and adult women, 25th International Congress of the Medical Women's International Association January 2001.
11. Grady MA, Bloom KC. Pregnancy outcome of adolescent enrolled in a centering pregnancy program. J Midwifery Womens Health Sept-Oct 2004; 49(5): 412-20.
12. Rahman S, Nessa F, Ali R, Ara H. Reproductive health of adolescent in Bangladesh. Int J Gynaecol Obstet 1998; 29:329-335.
13. Akhter HH, Rahrnan MH, Karim F. A study of identify the risk factors affecting nutritional status of adolescent girls in Bangladesh. BIRPERHT. Dhaka. December 1998.ix.
14. Rahman S, Nessa F, Ali R, Ara AH. Reproductive health of adolescents in Bangladesh. Int J Gynaccol Obstet 1989. 29:32935.
15. Census Primary Report 2001.
16. Akhter HM, Karim F, Chowdhuri MEK, Rahman MH. A study to identify the risk factors affecting nutritional status of adolsecent girls in Bangladesh 1998; 1:1.
17. Susan S. Risk factors for aboriginal low birth weight, intrauterine growth retardation and preterm birth in Diruwin Health Region. Australian and New Zealand J of Public Health 1997; 21(5):524.
18. Bangladesh Bureau of statistics 1996, PP.8.
19. The National campaign to prevent teen pregnancy. Teen pregnancy-so what? Updated 2/04, accessed 5/11/04(Internet).
20. Sundari TK. Can health education improve pregnancy outcome? J of Family Welfare 1993; 39(1): 1-12.
21. Zeck W. Impact of adolescent pregnancy on the future life of young mothers in terms of social, familial and educational changes. J of Adolescent Health 2007; 41:380-388.
22. Teenage pregnancy and risk of late foetal death and infant mortality. Br J Obstet and Gynaecol 1999; 106: 116.
23. Yodev BA, Young MK. Neonatal outcome of teenage pregnancy in a military population. Obstetrics and Gynaecology 1997; 90(4): 500-6.
24. Cooksey EC, Rindfuss PR, Guilkey DK. The initiation of adolescent sexual and contraceptive behavior during changing times. J Health Social Behavior 1996; 37: 59-74.
25. Mahavarkar SH, Madhu CK, Mule VD. A comparative study of teenage pregnancy. Journal of Obstetrics and Gynaecology, August 2008; 28(6):604-607
26. Centres for Disease Control and Prevention. Healthy Youth; Health Topics: Sexual behaviours. Updated 4/26/04, Accessed 5/10/04 (Internet).
27. Chen KX, Wen WS, Fleming N, Demissie K, Rhoads GG, Walker M. Teenage pregnancy and adverse birth outcomes: a large population based retrospective cohort study. Int. J of Epidemiology 2007; 36: 368-73.
28. Sarker CS, Giri AK, Sarker B. Outcome of teenage pregnancy and labour. Indian J Medical Association 1991; 89(7):197-9.
29. Smith CS, Pell PJ. Teenage pregnancy and risk of adverse perinatal outcome associated with first and second birth. Population based retrospective cohort study. BMJ 2001; 323:476.
30. Du Plessis HM. Adolescent pregnancy: understanding the impact of age and race on outcomes. J Adolescent Health 1997; 20:187-197.
31. Mahavarkar SH, Madhu CK, Mule VD. A comparative study of teenage pregnancy. Journal of Obstetrics and Gynaecology, August 2008; 28(6):604–607

Original article

Vitriolage: A Curse of Human being

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Abstract:

Objectives : Acid throwing or vitriolage is a form of violent assault. In Bangladesh, the growing numbers of acid assaults reflect an epidemic of gender violence and are a reaction to women's advancing economic and social status. The objective of this study was to identify the causes and consequences of the victims of vitriolage.

Methods : A retrospective cross sectional study was done in Dhaka Medical College under went to treatment at one stop crisis centre (OCC) and burn unit and also rehabilitation and treatment clinics of ASF. After obtaining necessary permission and maintaining all the ethical issues the victims were interviewed. The data received were later on analyzed by computer and organized in tables.

Results : A total of 100 victims were interviewed. Among the victims 92% were female and 25% belonged to 21-30 years of age group. Most of the victims were from low socioeconomic conditions & failure in marriage 22%, refusal of sweat proposal for sexual relationship 17%, failure in affairs 13% were the main background behind acid throwing. There was injuries in the hand fifty four percent (54%), injuries in the neck and throat fifty one (51%), injuries in the face & back of the body forty one (41%) were the commonest findings in cases of vitriolage.

Conclusion : The victims of vitriolage suffer in the form of physical, social, mental and economical ways. Rehabilitation centre for the victims, prevention of indiscriminate sale of acids, prompt trial of the accused, creation of acid crime tribunal in each district can improve the situation.

Keywords : Vitriolage, Injury

Introduction

Acid throwing, also called an acid attack, a vitriol attack or vitriolage, is a form of violent assault[1], defined as the act of throwing acid or a similarly corrosive substance on the body of another with the intention to disfigure, maim, torture or kill[2]. Perpetrators of these attacks throw acid at their victims, usually at their faces, burning them and damaging the skin tissue, often exposing and sometimes dissolving the bones. The most common types of acid used in these attacks are sulfuric and nitric acid. Hydrochloric acid is sometimes used, but is much less damaging[3]. The long term consequences of these attacks may include blindness, as well as permanent scarring of the face and body, along with far reaching social, psychological and economic difficulties[4].

Although acid attacks occur all over the world, including Europe and the United States, this type of violence is mainly concentrated in South Asia[5].

Information proved that a significant number of attacks by acid violence occur in South and Southeast Asian countries, like Bangladesh, India, Nepal, Pakistan, Uganda, Cambodia, where the cheap and easy availability of acid gives access to a dangerous weapon[6].

Since the 1990s, Bangladesh has been reporting the highest incidence rates for women[7], with 3,512 Bangladeshi people acid attacked between 1999 and 2013.

Acid is highly corrosive chemical has a catastrophic effect on human flesh. It causes the skin tissue to melt, often exposing the bones, sometimes even dissolving the bone. Scar tissue develops after healing hinders day to day activity of the victim. When acid attacks the eyes, it damages them permanently. Many acid attack survivors have lost the use of one or both eyes. This amounts to Grievous injury according to BPC section 320.

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Materials and methods:

This retrospective cross sectional study was carried out from July 2011 to June 2012 among the victims of vitriolage who underwent treatment at One stop Crisis Centre (OCC) and burn unit of Dhaka Medical College and also at the rehabilitation and treatment clinics of cid Survivors Foundation (ASF). After obtaining necessary permission and maintaining all the ethical issues the victims were interviewed. The data were analyzed using computer and organized in tables & figures.

Results

A total 100 victims were interviewed. The respondents were very cooperative. Among the subjects 92% were female and 8% were male (Table-I). Five percent belonged to age group 1- 10 years, 9% belonged to age group 11-20 years, 25% to 21-30 years, 21% to 31-40 years, 30% to 40-50 years and 10% in more than 50 years (Table-II). Among the victims 34% were married and 66% were unmarried (Table-III). Regarding occupation, most of the victims (51%) were students, followed by house wives (27%) and others (13%). Reasons behind vitriolage were failure in marriage 22%, refusal of indecent proposal for sexual relationship 17%, failure in love affairs 13%, followed by family problems 11%, dowry 8% and others. (Table- IV). Income of most of the victims or their family (67%) are taka 5,000/- per month (Table-VI). Most of the victims received their injuries in hand (54%) followed by 51% in neck and throat, 43% in back of body, 41% in face, 38% in chest area, and 31% had injury to eyes (table-VII).

Table-1 : Sex Distribution of vitriolage affected person

Percentage of Sex Distribution	Percentage
Female	92%
Male	8%
Total	100%

Table-II : Age distribution of affected persons

Age of the victims	Percentage
1-10 years	5%
11-20 years	9%
21-30 years	25%
31-40 years	21%
41-50 years	30%
> 50 years	10%

Table-III : Distribution of vitriolage cases as per marital status

Marital Status	Percentage
Married	34%
Unmarried	66%
Total	100%

Table-IV : Distribution of vitriolage cases as per occupation

Occupation	Percentage
Students	51%
Housewife	27%
Others	22%
Total	100%

Table-V : Distribution of vitriolage cases as per income of victim/victim's family

Amount of Taka	Number of Vitriolage cases
1000/- to 5000/-	67%
5001/- to 10000/-	14%
10001/- to 15000/-	13%
More then 15000/-	6%
Total	100%

Table-VI : Distribution of vitriolage cases as per cause

Causes	Percentages
Marriage	22%
Sexual relations	17%
Love affairs	13%
Family problems	11%
Dowry	8%
Disputes for property monetary matter	8%
Attack by husband	7%
Failure in kidnapping	6%
Multiple marriage by husband	5%
Other causes	3%
Total	100%

Table-VII : Distribution of vitriolage cases as per injuries in various areas of the body in case acid violence

Area of Injury	Percentage of Area of Injury
Injury to the face	54%
Injury to the neck & throat	31%
Injury to the back of the body	07%
Injury to the hand	04%
Injury to the chest area	03%
Damages to the eyes	01%
Total	100%

Table-VIII : Incidents of Acid violence since 1999 to 2013 (ASF Report 2013)

Month	Number of Incidents	Number of Survivors
1999	165	167
2000	240	240
2001	351	352
2002	494	496
2003	417	420
2004	326	333
2005	222	277
2006	183	224
2007	162	199
2008	142	184
2009	129	159
2010	122	160
2011	91	118
2012	71	98
2013	69	85

Discussion

Violence against women (VAW), is a form of discrimination and mistreatment which results in physical, psychological, and socioeconomic costs to women. WHO multi-country study (10 countries including Bangladesh) demonstrates that most of the women in the study areas experience physical and sexual spousal violence in their lifetime, ranged from 15% to 71%6 VAW is as much fatal as any serious diseases or accidents that causes deaths of women of reproductive ages. And is one of the most disgraceful expressions of human rights violation across the world[8].

In this study, regarding sex distribution majority of the subjects were female. Acid attack victims are primarily women in Bangladesh, and perpetrators' motives are often tied to gender inequality and discrimination[9]. Statistics demonstrate that, since its inception from 1999 to 2013, 3563 women, children and men were attacked with acid2. Majority of them (68.36 percent) were women and girls. Bangladesh has the second worst record in the world for violence committed against women by men[10]. Women and girls make up about fifty percent of the population of Bangladesh[8]. Considering age, children also affected because they remain in close contact with their mothers (the victim). Male victims and older persons are attacked due to family disputes overland or monetary matters[12, 13].

Regarding occupation, most of the victims were students and from low socio economic conditions. It becomes very difficult for them to bear the expenses of treatment and rehabilitation of the victim. These findings are in consistent with previous studies[10-11].

Regarding reasons behind vitriolage findings are consistent with Report by UN. Male victims and older persons are attacked due to family disputes over land or monetary matters[14, 15].

The victims of vitriolage suffer in the form of physical, social, mental and economical ways. They cannot go outside their house, because being neglected by others[16]. They truly suffer from post traumatic stress disorder[17]. The consequence of acid attacks on survivors brings dramatic change in their lifestyle. Most of them have to give up their education or work. Social isolation, fear of further attacks, and insecurity damage their self-esteem and confidence. Illiteracy, poverty, threats to further retribution, and ignorance about legal support increase their miseries[18].

Acid attack is not committed against women alone it is committed even on men and children. Acid attack has a gender dimension in India, with majority of the victims being women. Perpetrators throw acid into their victims' faces with effort to severely disfigure them, the reason for committing acid attack is vary for many reasons. The following are some of the reported reason for the acid attack. Revenge for any past incidence occurs between victim and offender, the refusal of an offer of marriage proposal, the refusing to have a sex or relationship, failure of a girl to bring a dowry to her husband, business disputes, domestic fights, disputes over property, for committing Robbery, hate or jealous, extra affair, political rivalries, rarely it is accidental, that is presence of victim at

the scene[10].

Conclusion

Over the last few years, acid throwing in Bangladesh was a regular phenomenon where most of the victims were female, sometimes adult males and children were also affected. Violence against women is an important topic of human rights violation in today's world, which is caused due to inequality and discrimination in political, economic, social and cultural contexts[20].

References

1. Cambodian Victim on her acid attack, BBC News, 2010-03-21 Archived from the original on 25 March, 2010.
2. Karmakar,R.N (2003). Forensic Medicine and Toxicology Academic Publishers. ISBN 81-87504-69-2.
3. http://latimesblogs, latimes.com/world now 2011/11/ Afgan-sisters-hurt -acid attack - rejected - proposal. html.
4. http://articles. latimes. com/1992-03-19/news/gl-5793-1-father-and-son.
5. abcdefghijlklmn Welsh, Jane 2009, "It was like a burning hell". A comparative exploration of Acid attack violence" (PDF). Center for Global initiatives. Retrived 31 March, 2013.
6. Breaking the silence: Addressing Acid Attacks in Cambodia.
7. Swanson, Jordan (2002), "Acid attacks: Bangladesh efforts to stop the violence.
8. abc Bandyopadhyay, Mridula and Mahmuda Rahman Khan. Loss of face: Violence against women in South Asia in Lenore Manderson.
9. Reddy KSN. The Essentials of Forensic Medicine & Toxicology. Medical Book Coy, Hyderabad, India. 31st Ed.2012; 494- 497
10. ASF (Acid Survivors Foundation) (2013). Annual Report - 2009. Dhaka, Bangladesh.
11. UN (United Nations). (2013). Special Rapporteur on Violence against women, its causes and consequences finalizes country mission to Bangladesh. UN Organized by: UN Division for the Advancement of Women.
12. Save the Children. (2003). Gender - Based Violence. Care & Protection of Children in Emergencies, AFI & d Guide, 2003.
13. UN (United Nations) (2005). Violence against women: A statistical overview, challenges, and gaps in data collection and methodology and approaches for overcoming them. Expert Group Meeting.
14. World Health Organization (2005) WHO Multi-country Study on Women's Health and Domestic Violence against Women. Geneva, Department of Gender and Women's Health. WHO
15. World Bank, World Development Report 1993: Investing in Health, Oxford University Press, New York.
16. BBS (Bangladesh Bureau of Statistics) (2001). Population and Housing Census. Government of Bangladesh.
17. AGCW (The Avon Global Center for Women) (2011). Combating acid Violence in Bangladesh, India and Cambodia - A report by the Avon Global Center for Women, UK.
18. Bari S, Chowdhury IM, Acid burn in Bangladesh. Mediterranean Burn Council 2001; 24:114-118.
19. Reddy KSN. The Essentials of Forensic Medicine & Toxicology. Medical Book Coy, Hyderabad, India. 31st Ed. 2012. 494-497.
20. UN (United Nations) (2013). Special Rapporteur on Violence against women, its causes and consequences finalizes country mission to Bangladesh. UN Organized by: UN Division for the Advancement of Women.

Original article

Aetio-pathological study of dynamic intestinal obstruction in adult patients in MMCH.

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Abstract

Objective : Dynamic intestinal obstruction is one of the most frequently encountered emergencies on surgical floor, presenting as acute abdomen. It is a potentially dangerous surgical emergency with high morbidity and mortality, if not managed appropriately. Objective of the study was to identify the aetio-pathology of various causes of dynamic intestinal obstruction in adults.

Methods : This cross-sectional analytic study was carried out in Surgery department of MMCH, Bangladesh during the period of May to April 2011. A total 120 case selected by convenient techniques; who underwent exploratory laparotomy. The diagnostic procedures were on the basis of detail history, thorough clinical examination and exploratory laparotomy in all cases whereas radiological examination and histological confirmation in selected cases.

Results : Of the 120 cases, mean age was 44.72 years with a standard deviation of 16.65 years. Males were 86 (71.67%) and females 34 (28.33%) with a male to female ratio of 2.5:1. A highest number of cases 73 (60.83%) were admitted into the hospital within 4 to 7 days of appearance of symptoms. Hundred percent patients were presented with cardinal features of intestinal obstruction. The most common diagnostic feature of dynamic intestinal obstruction was the presence of multiple air-fluid levels 62 (68.89%) in plain abdominal radiograph. Band and adhesions were the leading cause of dynamic intestinal obstruction followed by obstructed hernia, tuberculosis and volvulus. Previous operation was the most common cause of band and adhesion. Site of obstruction was more common in the small intestine than the large intestine.

Conclusion : Band and adhesions is the leading cause of dynamic intestinal obstruction in this study.

Key words : Aetio-pathology, dynamic intestinal obstruction, adult patients

Introduction

Intestinal obstruction is defined as any interference with forward progression of intestinal contents[1]. Intestinal obstruction may be dynamic or adynamic affecting either small bowel or large bowel, with 80% involving small bowel in Pakistan. It may be of acute or chronic onset[2]. In dynamic or mechanical obstruction, the peristalsis is working against an obstruction, while in adynamic obstruction, absence of peristaltic activity e.g. mesenteric vascular occlusion, electrolytes imbalance etc. The causes of mechanical or dynamic intestinal obstruction are usually adhesions, hernias, volvulus, malignancies, tuberculosis, crohn,s disease and intussusceptions. It has been reported that adhesive small bowel obstruction occurs in 3% of all laparotomies, 1% during the first postoperative year[3]. The causes of dynamic bowel obstruction vary from country to country and frequencies of various aetiological factors appear to alter from time to time. This makes it essential that studies are made periodically in every region to define the local causes with the idea to do work on their prevention[1].

The etiology of bowel obstruction varies with different geographical locations. In the developing world, external hernias account for more than half of all cases of small bowel obstruction, whereas in the UK and USA the most common cause of small bowel obstruction is adhesion resulting from previous surgery. Other causes of small bowel obstruction include neoplasm, inflammatory bowel disease, internal hernia, volvulus and a variety of small bowel stricture. Large bowel obstruction may be caused by cancer, diverticulitis, volvulus or faecal impaction[2]. Variations in the causes in different ages as well as changes in the disease pattern over the years are documented[4].

It is essential to distinguish between simple and

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strangulating obstruction. Failure to diagnose strangulation at an early stage increases the mortality. To diagnose the right type of obstruction is more important than to be certain of the cause. Consequently, when there is any doubt about the distinction, it is better to operate[5].

The major adverse factors in intestinal obstruction, i.e. extreme of age, associated disease, gangrenous bowel, large bowel obstruction and malignancy[12]. The pattern of mechanical bowel obstruction is changing in most developing countries with awareness among the patients and improved health facilities[5]. The aim of this study is to be determined the frequency of the various causes of dynamic or mechanical intestinal obstruction at the Surgery department of MMCH.

Materials and methods

This cross-sectional analytic study was carried out in the department of surgery, Mymensingh Medical College Hospital (MMCH) from May 2011 to April 2012. Study populations were clinically diagnosed cases of intestinal obstruction admitted in the department of surgery during study period. A total 120 patients were selected by non-probability convenient sampling technique. Selection of patients was carried out by inclusion and exclusion criteria.

Information about the patient was obtained by using structured questionnaire through interview, physical examination, necessary imaging and laboratory investigations, treatment given and histopathological reports after obtaining written consent of the patients/ guardians in the consent form.

Data analysis was done & presented in various tables and figures. Moreover, statistical analysis was made to evaluate the objectives of this study with the help of computer and SPSS, Version 12. Prior to commencement of this study, the thesis protocol was approved by the thesis and ethical Committee of Mymensingh Medical College.

Results

Regarding the age distribution, it was observed that age range was 16-70 years with a mean of 44.72 years and standard deviation (SD) of 16.65 years. This study found that maximum number of patients 32 (26.67%) were within the age category of 35-44 years(Table-1).

Histopathological examination of some resected specimens was performed and patients were thoroughly monitored in postoperative period.

Regarding the causes of dynamic intestinal obstruction, it was observed that band and adhesions 35(29.16%), obstructed hernia 24 (20.00%), abdominal tuberculosis 20(16.67%), volvulus14(11.67%), adenocarcinoma 7(5.83%), strangulated hernia 6(5.00%), worm infestation 4(3.33%), crohn's disease 3(2.50%), bolus obstruction 2(1.67%), intussusception 2(1.67%), tubulous adenoma 2(1.67%) and villous adenoma 1(0.83%) were detected (Table-2).

Table1 : Distribution of patients by age

Age in years	Frequency	Percentage
15-24	09	07.50
25-34	21	17.50
35-44	32	26.67
45-54	26	21.66
55-64	22	18.33
65-74	10	08.34
Total	120	100.00
Mean = 44.72 Years;	SD = 16.65 Years.	

Table 2 : Distribution of patients by underlying cause of dynamic intestinal obstruction and site of obstruction.

	Site of obstruction			
Underlying cause	Small intestine	Large intestine	Total	Percentage
Bands and adhesion	30	5	35	29.16
Obstructed hernia	20	4	24	20.00
Abdominal TB	20	0	20	16.67
Volvulus	6	8	14	11.67
Adenocarcinoma	1	6	7	5.83
Strangulated hernia	5	1	6	5.00
Worm infestation	4	0	4	3.33
Crohn's disease	2	1	3	2.50
Tubulous adenoma	1	1	2	1.67
Bolus obstruction	2	0	2	1.67
Intussusception	1	1	2	1.67
Villous adenoma	0	1	1	0.83
Total	92	28	120	100.00

$X^2 = 39.20$; df =11; $p > 0.05$

Discussion

This cross-sectional study was carried out in the surgery department to determine the aetio-pathological study of dynamic intestinal obstruction patients who attended for medical help in this hospital.

Study carried out by Rehman et al[7] in Pakistan where age range was 15-70 years with a mean age of 34 years and standard deviation (SD) of 16.70 years. These findings are almost consistent with the present study findings. Another study carried out by Malik et al[8] in Pakistan with age range from 13-74 years with a mean age of 43.08 years. These findings are also consistent with the present study findings. Doumi and Mohammed[9] in Sudan, observed in their study, the mean age was of 38.9 years while Hadi et al.[5] (2010) in their study estimated the mean age was 37.50 years that is also similar to these study findings.

Rehman et al[10] in their study carried out in Pakistan observed that adhesion (42.50%), tuberculosis (24.07%) and obstructed hernia (18.15%) were the common causes of dynamic intestinal obstruction. These findings are more or less consistent with the current study findings. In a highest majority 92(76.67%) cases, the obstruction was in small intestine whereas in 28 (23.33%) cases it was in large intestine. Bands and adhesions, obstructed/strangulated hernia were more common in small intestine, but intestinal tuberculosis, worm infestation and bolus obstruction absolutely in the small intestine, whereas volvulus and carcinoma were more common in the large intestine. Study conducted by Drozdz and Budzynski[10] in Poland found that approximately 75.00% obstruction was in small intestine and 25.00% was in large intestine. Adhesion and abdominal hernia were more common in the small intestine, whereas volvulus and cancer were more common in the large intestine which was consistent with this study findings. Hadi et al.[1] in Pakistan, their study found that 75.27% obstruction was in small intestine and 24.73% was in large intestine. These findings substantiate the present study findings.

Conclusion

From the study findings it can be concluded that dynamic intestinal obstruction is more common in males. Post-operative adhesions, obstructed hernia, intestinal tuberculosis with stricture were the common causes of dynamic intestinal obstruction. Most of the patients are presented with simple obstruction. However, mortality rate is high in strangulated type of obstruction. Types of obstruction, hospital admission with appearance of symptoms, viability of the bowel, and aetiology of obstruction are the factors that influences outcome. Intestinal obstruction remains still an important surgical emergency. Early operations are mandatory to avoid the development of peritonitis, septicemia and multi-organ dysfunction syndrome.

References

1. Hadi, A., Aman, Z., Batool, I., Khan, M., Khan, S.A., Ahmad, S., Khattak, J.A. Causes of mechanical intestinal obstruction in adults. 2010; 94(3): 212-216.
2. Ullah, S., Khan, M., Mumtaz, N., Naseer, A., Intestinal obstruction: A spectrum of causes. JPMI, 2009; 23(2): 188-192.
3. Duron, J.J., Silva, N.J.D., Montcel, S.T.D., Berger, A., Muscari, F., Hennet, H., Veyrieres, M., Hay, J.M., Adhesive postoperative small bowel obstruction: Incidence and risk factors of recurrence after surgical treatment. Annals of surgery, 2006; 244(5): 750-757.
4. Mahmud, D.K., Hameed, D.S., Ahmed, D.S., Ali, D.L. Intestinal obstruction: A review of 200 consecutive cases. Professional Med J, 2007; 14(2): 355-359.
5. Khanzada, T.W., Samad, A., Sushel, C., Etiological spectrum of dynamic intestinal obstruction. Gomal journal of medical science, 2007; 5(2): 59-61.
6. Yong, N.K., TK T. The pattern of intestinal obstruction in Malaysia. British Journal of Surgery, 2005; 63(12): 963-965.
7. Rehman, A.U., Khan, M., Aman, Z., Haq, M.Z.U., Ahmed, S., Ahmed, S., Pattern of small bowel obstruction in adults. J. Med. Sci, 2010; 18(2): 77-78.
8. Malik, A.M., Shah, M., Pathan, R., Sufi, K. Pattern of acute intestinal obstruction: Is there a change in the underlying etiology? Saudi J Gastroenterology, 2010;16(4): 272-274.
9. Doumi E.B.A., Mohammed M.I., Acute intestinal obstruction in El. Western Sudan, 2006; 198: 1-8
10. DrozdzW, Budzynski P., Change in mechanical bowel obstruction demographic and etiological pattern during the past century. Archives of surgery, 2012; 147(2) 1-2

Review article

Estrogen receptor, Progesterone receptor and Her-2/neu expression in breast cancer

Md. Shahadat Hossain[1], Ferdousy Begum[2], Ashim Ranjan Barua[3]

Abstract

Objectives : Now a day's estrogen receptors (ER), progesterone receptors (PR) and HER-2/neu are routinely evaluated in all breast cancer. Both hormone receptors are correlated with prolong disease-free survival and has increased response to endocrine therapy. Two different forms of estrogen receptor are α and ß, each encoded by a separate gene ESR1 (6q25.1) and ESR2 (14q23.2) respectively. ERα is found in endometrium, in breast cancer cells, in ovarian stromal cells and in the hypothalamus. Expression of ERß protein is found in kidney, brain, bone, heart, lungs, and intestinal mucosa, prostate and endothelial cells. Estrogen receptor bound to estradiol and to anticancer drug tamoxifen. Progesterone receptor (PR) is an intracellular steroid receptor which binds progesterone. PR is encoded by a single PGR gene on chromosome 11q22. Estrogen is necessary to induce activity to the progesterone receptors. HER-2/neu over expression is associated with increase disease recurrence, metastasis and shortens survival. HER-2/neu over expression has therapeutic implication in invasive breast cancer. Trastuzumab (Herceptin), a monoclonal antibody against the p185 protein has therapeutic efficacy in HER-2/neu over expressing tumours. HER-2/neu also known as Erb B2. HER-2 was named because it has a similar structure to human epidermal growth factor receptor or HER1. The oncogene neu is named because it was derived from a rodent glioblastoma cell line, which is a type of neural tumour. There is a wide variation of ER/PR and HER-2/neu expression in invasive breast carcinoma. In Sudan ER+, PR+ was 90% and 77.5% respectively on the other hand in Pakistan positive reactivity was ER(32.7%) and PR(25.3%). HER-2/neu over expression was found in India 46.3% and in Romania 37.3%. These immunohisto -chemical hormone receptor status and HER-2/neu reactivity should be routinely practiced in all laboratories, and this report should be supplied to the patient with the histopathological report of breast cancer which will reduce the patient's burden.

Key words : Estrogen receptors(ER), Progesterone receptors (PR), HER-2/neu, Immunohistochemistry (IHC).

Introduction

Analysis of estrogen receptor(ER) and progesterone receptor (PR) status has become the standard procedure for patient's care in breast cancer treatment. Particularly estrogen receptor(ER) content correlated more with prolonged disease-free survival rate and has increased response to endocrine therapy[1].

Biopsy specimen of breast cancer should be evaluated for hormone receptors status. If any of these two receptors are found, a response to hormonal therapy is expected. The more the estrogen or progesterone receptors present on those cells the more chance to result on effective hormonal therapy[2]. When a cancer shows few or no estrogen reactivity hormonal therapy is usually ineffective. But if there is progesterone receptor positive, hormonal therapy may sometimes be helpful. Women whose cancers are PR positive but ER negative has about a 10% chance of responding to hormonal therapy[2].

According to recently published guidelines, the estrogen receptor(ER) status and to lesser extent progesterone receptor status has been recommended as important prognostic and predictive markers for evaluation of breast cancer[3].

HER-2/neu over expression is associated with increase disease recurrence, metastasis and shortens survival. The over expression of HER-2/neu protein and amplification of the HER-2/neu gene is also associated with poor prognostic tumour characteristics such as high histological grade, high proliferative index, negative or lower ER expression and p53 mutation. HER-2/neu status along with ER/PR status are considered together to give any adjuvant systemic therapy[4].

HER-2/neu over expression has therapeutic implication in invasive breast cancer. Trastuzumab (Herceptin), a monoclonal antibody against the p185 protein has therapeutic efficacy in HER-2/neu over expressing tumours[5].

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Hormone receptors

A hormone receptor is a protein on the surface of a cell or in its interior that binds to a specific hormone. Estrogen receptor is activated by the hormone 17ß-estradiol (estrogen). Two different forms of estrogen receptor are α and ß, each encoded by a separate gene ESR1 (6q25.1) and ESR2 (14q23.2) respectively. ERα is found in endometrium, in breast cancer cells, in ovarian stromal cells and in the hypothalamus. Expression of ERß protein is found in kidney, brain, bone, heart, lungs, and intestinal mucosa, prostate and endothelial cells. Estrogen receptor bound to estradiol and to anticancer drug tamoxifen. Estrogen receptor over expression is found in about 70% of breast cancer cases, referred to as "ER positive". Two hypothesis are explained in the causation of tumorigenesis are, binding of estrogen to the ER stimulates proliferation of mammary cells, with resulting increase in cell division and DNA replication leading to mutation and estrogen metabolism produces genotoxic waste. Both of these processes cause disruption of cell cycle, apoptosis and DNA repair and therefore tumour formation6.Figure-1 shows intracellular localization of estrogen receptor, estrogen and helper protein. Figure 2 shows intracellular mechanism of action of tamoxifan[2].

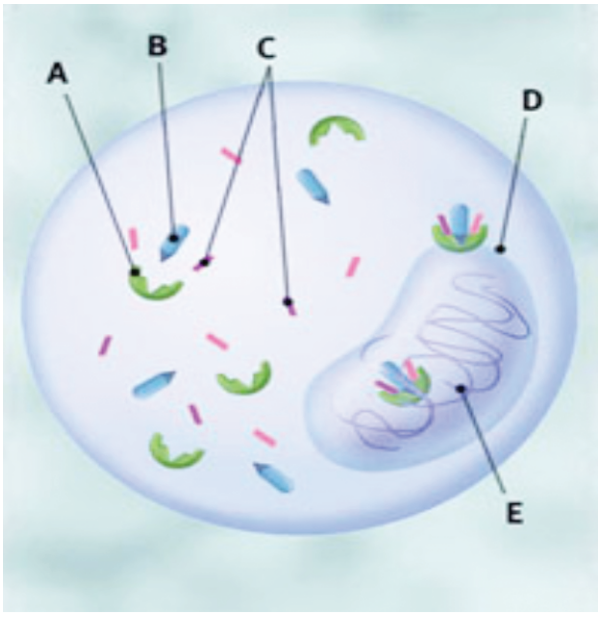

Figure-1 : Cell with estrogen receptors, estrogen, and helper proteins.

A : Estrogen receptor, B:Estrogen, C:Estrogen helper proteins, D:Nucleus E: DNA genetic material

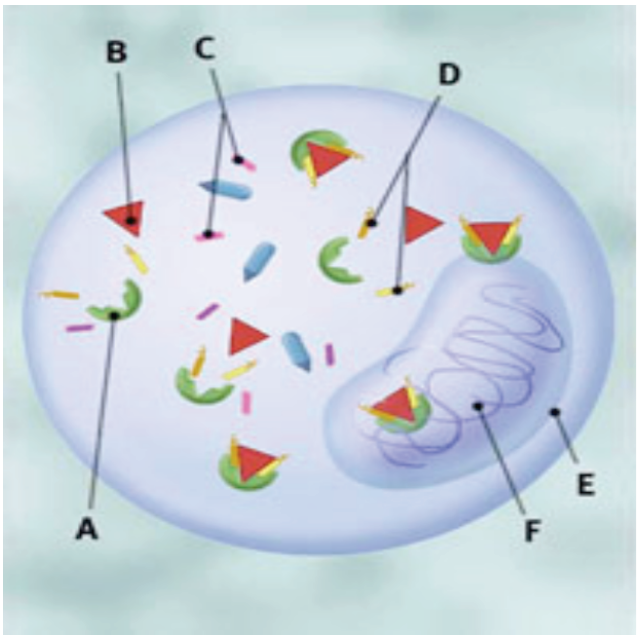

Figure-2 : Cell with estrogen receptors blocked by tamoxifen and helper proteins.

A : Estrogen receptor, B: Tamoxifen, C: Estrogen helper proteins, D: Tamoxifen helper proteins, E: Nucleus, F: DNA genetic material.

Progesterone receptor (PR) is an intracellular steroid receptor which binds progesterone. PR is encoded by a single PGR gene on chromosome 11q22. Estrogen is necessary to induce activity of the progesterone receptors. After progesterone binds to the receptor and restructure with dimerization, then this complex enters the nucleus and binds to DNA. These transcription resulting in formation of messenger RNA that is transmitted by ribosome to produce proteins[6].

HER-2/neu

HER-2/neu also known as ErbB2. HER-2 was named because it has a similar structure to human epidermal growth factor receptor or HER1. The oncogene neu is named because it was derived from a rodent glioblastoma cell line, which is a type of neural tumour. For this reason 'neu' is added to the name. ErbB2 was named for its similarity to ErbB (avian erythroblastosis oncogene B), the oncogene later code for EGFR. Gene cloning showed that neu, HER-2 and ErbB are the same. It is also designated as CD340 (cluster of differentiation 340) and p185. HER-2 is a

cell membrane surface-bound receptor tyrosine kinase and is normally involved in the signal transduction pathways leading to cell growth and differentiation. HER-2 gene is a proto-oncogene located at the long arm of chromosome 17(7q 21 -22)[7].

Approximately 15-20 % of breast cancers have amplification of the HER2/neu gene or over expression of its protein product. Over expression of this receptor in breast cancer is associated with increased disease recurrence and worse prognosis[7]. Figure 3(a) shows normal breast epithelium expressing HER-2/neu and figure 3 (b) shows HER-2/neu protein over expression and gene amplification in breast cancer[8].

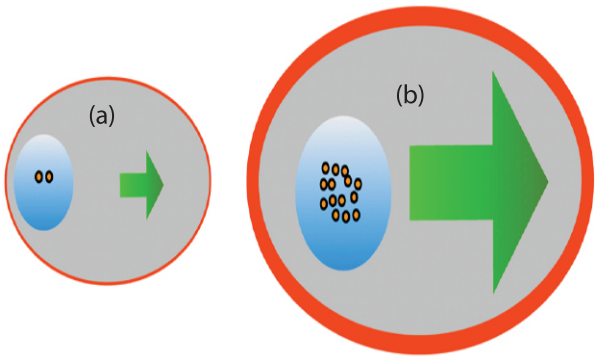

Figure-3 (a) and 3 (b): Relationship of HER2 DNA (orange dots), mRNA (green arrows), and protein levels (red peripheral band) in normal breast epithelium (left) compared with HER2-positive (over expression) breast cancer (right). Note that the vast majority of HER2-positive tumors show parallel marked increases of DNA, mRNA, and protein, but HER2 protein is present at low levels in normal breast epithelium.

Molecular classification of invasive ductal carcinoma (NOS)

Recently a new molecular classification of invasive ductal carcinoma (NOS) is given based on gene expression profiling, which measures the relative quantities of mRNA for every gene. These molecular classes correlate with prognosis and response to therapy, and thus have clinical importance. This molecular technique has identified five major patterns of gene expression: LuminalA, Luminal B, Normal breast-like, Basal-like, and HER2 positive[9].

Luminal A : This type constitutes 40% to 55% of NOS cancers. This largest group of cancers is estrogen receptor (ER) positive and HER2 /neu negative. These are generally slow growing and respond well to hormonal therapy and only a small number respond to standard chemotherapy.

Luminal B : This type constitutes 15% to 20% of NOS cancers. This group of cancers also expresses estrogen receptor (ER) but is generally higher grade, has a higher proliferative rate and often over expresses HER2/neu. They are sometimes referred to as triple-positive cancers, have lymph node metastases may respond to chemotherapy.

Normal breast-like : This type constitutes 6% to 10% of NOS cancers. This group is well-differentiated ER-positive and HER2 /neu negative cancers.

Basal-like : This type constitutes 13% to 25% of NOS cancers. These cancers are estrogen receptor (ER), progesterone receptor (PR) and HER2/neu negative. This is also known as triple-negative cancers. Many cancers arising in women with BRCA1 mutations are of this type. This cancer is generally high grade and have high proliferative rate. Theses cancers are associated with aggressive course, frequent metastasis to viscera and brain, and have a poor prognosis.

HER2/neu positive : This type constitutes 7% to 12% of NOS cancers. This group is ER-negative and HER2/neu positive cancers. These cancers are usually poorly differentiated, have a high proliferative rate and are associated with a high frequency of brain metastasis[9].

ER, PR & HER-2/neu status in invasive breast cancer in different country : Hormone receptor status and HER-2/neu reactivity are routinely practiced in breast cancer now a day in Western countries. Several works related to it have been performed by different investigators in different parts of the world. There is a wide variation of ER/PR and HER-2/neu expression in invasive breast carcinoma. In Sudan ER+, PR+ was 90% and 77.5% respectively on the other hand in Pakistan positive reactivity was ER (32.7%) and PR(25.3%). HER-2/neu over expression was found in India 46.3% and in Romania 37.3%. Both of these values are higher than the reference range. ER/PR and HER-2/neu expression variation in different countries are shown in table-I and table-II.

Table-I : ER/PR status in invasive breast cancer in different countries

Name of the institute	Investigator/year	Country	ER+	PR+	ER(+)/ PR(+)	ER(-)/ PR(-)
University of Miami/Jackson Memorial Hospital	Nadji et al 2005[1]	USA	75%	55%	55%	25%
Aga Khan University Hospital	Azizun-Nisa et al,2008[10]	Pakistan	32.7%	25.3%	-	-
University of Peradeniya Faculty of Medicine, Department of pathology	Ratnatunga & Liyanapathirana 2007[11]	Sri Lanka	53.2%	50%	44.5%	41.1%
Oncology Institute of Vojvodina, Sremska Kamenica	Ivkvic-Kapicl et al 2007[4]	Serbia	73%	66%	-	-
Khartoum teaching hospital	Ahmed et al 2007[12]	Sudan	90%	77.5%	-	-
Habib Bourguiba University Hospital, Sfax, Department of pathology.	Ayadi et al 2008[13]	Tunisia	59.4%	52.3%	-	-
Leuven University Hospital	Huang et al 2005[14]	Belgium	81.1%	64.2%	-	-
"Victor Babes" University of Medicine and Pharmacy, Timisoara.	Narita et al 2006[15]	Romania	82%	73.6%	-	-
Ninewells Hospital and Medical School, Dundee, Department of Surgery and Molecular oncology	Thompson et al 2010[16]	UK	79.6%	62.0%	-	-
ArminPathobiology Laboratory Tehran University	Farzami et al 2009[17]	Iran	62.4%	61.5%	-	-
National cancer institute surveillance, American cancer society	Grann et al 2005[18]	USA	-	-	63.53%	20.40%
Bangabandhu Sheikh Mujib MedicalUniversity (BSMMU)	Hossain et al 2014[19]	Bangladesh	74.71%	74.71%	57.47%	8.05 %

Table-II : HER-2/neu status in invasive breast cancer in different country.

Name of the institute	Investigator/year	Country	HER-2/neu over expression
Aga Khan University Hospital	Azizun-Nisa et al 2008[10]	Pakistan	24.7%
Memorial Sloon-Kettering Cancer Centre, New York	Lal et al 2005[20]	Newyork	Grade-II 10.7% Grade-III 27.84%
University of Peradeniya, Faculty of Medicine, Department of pathology	Ratnatunga & Liyanapathirana 2007[11]	Sri Lanka	14.6%
Armin Pathobiology Laboratory,Tehran University	Farzami et al 2009[17]	Iran	21.7%
Country hospital,Timisoara	Benohr et al 2005[21]	Germany	34.0%
Banaras Hindu University, Institute of Medical Sciences, Department of pathology and surgical oncology	Kumar et al 2007[22]	India	46.37%
Oncology Institute of Vojvodina, Sremska Kamenica	Ivkvic-Kapicl et al 2007[4]	Serbia	20 %
Habib Bourguiba University Hospital, Sfax, Department of pathology.	Ayadi et al 2008[13]	Tunisia	18.1%
Leuven University Hospital	Huang et al 2005[14]	Belgium	10.9%
"Victor Babes"University of Medicine and Pharmacy, Timisoara.	Narita et al 2006[15]	Romania	37.3%
Bangabandhu Sheikh Mujib Medical University (BSMMU)	Hossain et al 2014[19]	Bangladesh	32.18 %

Conclusion

Histopathological examinations of breast cancer are done in many laboratories in our country. But ER, PR and HER-2/neu are evaluated only in a limited number of laboratory. These immune-histochemical hormone receptor status and HER-2/neu reactivity should be routinely practiced in all laboratories, and this report should be supplied to the patient with the histopathological report of breast cancer which will reduce the patient's burden.

References

1. Nadji M, Fernandez CG, Azar PG and Morales AR. Immunohistochemistry of Estrogen and Progesterone receptors reconsidered: Experience with 5993 breast cancers. American Journal of Clinical Pathology 2005; 123: 21-27.
2. Breast cancer.org 2008, 'What role do hormones play in breast cancer treatment?' 7 East Lancaster Avenue, 3rd floor Ardmore, PA19003, Retrieved on April 4 2009 from http://www.breastcancer.org/.
3. Jasani B, Douglas-Jones A, Rhodes A, Wozniak S, Barrett-Lee PJ, Gee J & Nicholson R. Measurement of estrogen receptor status by immunocytochemistry in paraffin wax sections. Breast cancer research protocols 2005; 120: 127-146.
4. Ivkovic-Kapicl T, Knezevic-Usaj S, Panjkovic M, Dilas-Ivanovic D & Golubovic M. HER-2/neu overexpression in invasive ductal breast cancer-an association with other prognostic and predictive factors. Arch Oncol 2007; 15: 15-18.
5. Vang R, Cooley LD, Harrison WR, Reese T & Abrams J, 2000. Immunohistochemical determination of HER-2/neu expression in invasive breast carcinoma. American Journal of Clinical Pathology 2000;113: 669-674.
6. Wikipedia 2011,'Estrogen receptor'The free encyclopedia, Retrieved on March 31 2011 from http://en. wikipedia. org /wiki/estrogen_receptor.
7. Wikipedia2010, 'HER-2/neu'The free encyclopedia, Retrieved on August 24 2010 from http://en.Wikipedia org/wiki/HER2/neu.
8. Gown AM. Current issue in ER and HER2 testing by IHC in breast cancer. Modern Pathology 2008;21: 8-15.
9. Kumar V, Abbas AK, Fausto N and Aster JC. Robbins and Cotran Pathologic basis of disease: The breast. Eighth edition. Elsevier 2010; 1065-1094.
10. Azizun-Nisa, Bhurgri Y, Raza F, and Kayani N. Comparison of ER,PR and HER-2/neu(C-erb B 2) reactiveity pattern with histologic grade, tumour sizeand lymph node status in breast cancer. Asian Pacific Journal of Cancer Prevention 2008; 9, 4: 553-6.
11. Ratnatunga N and Liyanapathirana LVC. Hormone receptor expression and Her-2/neu amplification in breast carcinoma in a cohort of Sri Lankans. Ceylon Medical Journal 2007; 52, 4: 133-136.
12. Ahmed HG, Safi SH, Shumo AI & Abdulrazig M. Expression of estrogen and progesterone receptors among Sudanese women with breast cancer: Immunohistochemical study. Sudan Journal of Medical Studies 2007;2 (1): 5-6.
13. Ayadi L, Khabir A, Amouri H, Karray S, Dammak A, Guermazi M, and Boudawara T. Correlation of HER-2 over-expression with clinico-pathological parameters in Tunisian breast carcinoma. World Journal of Surgical Oncology 2008; 6:112 doi: 10.1186/1477-7819-6-112.
14. Huang HJ, Neven P, Drijkoningen M, Paridaens R, Wilders H, Limbergen EV, Berteloot P, Amant F, Vergote I & Christiaens MR. Association between tumour characteristics and HER-2/neu by immunohistochemistry in 1362 women with operable breast cancer. Journal of Clinical Pathology 2005; 58: 611-616.
15. Narita D, Racia M, Suciu C, Cimpean A & Anghel A. Immunohistochemical expression of androgen receptor and prostate-specific antigen in breast cancer. Folia Histochemica ET Cytobiologica 2006; 44, 3: 165-172.
16. Thompson AM, Jordon LB, Quinian P, Anderson E, Skene A, Dewar A & Purdie CA. Prospective comparison of switches in biomarker status between primary and recurrent breast cancer: the breast recurrence in tissue study (BRITS). Breast cancer research 2010; 12(6):R92, http://breast-cancer-research.com/content/12/6/R92
17. Farzami MR, Anjarani S, Safadel N, Amini R, Moghaddam MG, Roosta B, Nazari S & Sane S. Association between the expression of hormone receptor , HER-2/neu over expression and tumour characteristics in women with primary breast cancer : Internet scientific publications. The Internet Journal of Pathology 2009; 8(2),
18. Grann VR, Troxel AB, Zojwalla NJ, Jacobson JS, Hershman D & Neugut A.Hormone receptor status and survival in a population-based cohort of patients with breast carcinoma. Cancer 2005; 103,11: 2241-2251.
19. Hossain M S, Begum F & Barua A R. Study on estrogen receptor, Progesterone receptor and HER-2/neu in 87 cases of invasive breast cancer. KYAMC journal 2014; 5, 1: 436-443.
20. Lal P, Tan LK and Chen B. Correlation of HER-2 status with Estrogen and Progesterone Receptors and Hostologic Features in 3655 invasive breast carcinomas. American Journal of Clinical Pathology 2005; 123:541-546.
21. Benohr P, Henkel H, Speer R, Vogel U, Soltar K, Aydeniz B, Reiser A, Neubauer H, Tabiti K, Wallwiener D, Clare SE & Kurek R. HER-2/neu expression in breast cancer- A comparison of different diagnostic methods. Anticancer Research 2005; 25, 3B :1895-1900.
22. Kumar V, Tewari M, Singh S and Shukla HS. Significance of Her-2/neu protein over expression in Indian breast cancer patients. Indian Journal of Surgery 2007; 69,4: 122-128.

Case Report

Todani IA Choledochal cyst- Presentation of the disease with a case report

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Abstract

Choledochal cyst is a rare disease of the biliary tract. There are five main types of choledochal cysts with a few recognized sub-types. The etiology of choledochal cysts still is unclear. The incidence of biliary tract cancer in patients with choledochal cysts increases with age. In the past, choledochal cysts were often treated using drainage procedures; however, the optimal treatment used today is likely to involve the complete excision of the extrahepatic duct, cholecystectomy, and Roux-en-Y hepaticojejunostomy. In 1995 Farello et al. first reported laparoscopic choledochal cyst excision. We report a case of Todani type IA choledochal cyst with choledocholithiasis. Delay in the diagnosis increases the frequency of associated biliary pathology, malignant alternation and suboptimal surgical therapy. Often, intraoperative finding of choledochal cyst is the first contact with this rear entity, so awareness of possible presence of this uncommon disease is very important for surgeon.

Key words : common bile duct, choledochal cyst, cholangiography

Introduction

Choledochal cyst is a rare entity, a congenital dilatation at any portion of the biliary tree that appears more often in the main part of the common bile duct. Statistics shows one case per 100,000 to 150,000 live births. 75% are diagnosed in childhood and 20% of case in the adult. It is more common in women than men (3-4:1)[1]. Choledochal cysts were described for the first time by Vater in 1723. There are several theories that attempt to explain the etiology of choledochal cyst. It is believed that its origin may be related to abnormal coledoco-pancreatic-ductal union allowing chronic reflux of pancreatic enzymes into the bile duct, which re-consultation in weakening and dilation of the road, and the subsequent formation a quiste[2,3]. The widely accepted classification system for choledochal cysts, devised by Todani and collaborators, is based on the cholangiographic morphology, location and number of intrahepatic and extrahepatic biliary tree cysts (Fig-1). Type-I is the most common (80–90%). The treatment depends on the type of the cyst classified according to the Todani's classification, and has the excision of the cyst as a general principle. There are many options for the biliary tract reconstruction, and some studies have been conducted to compare them. The laparoscopic surgery is a feasible approach (such as the robotic surgery), with the advantage of being a minimally invasive procedure.

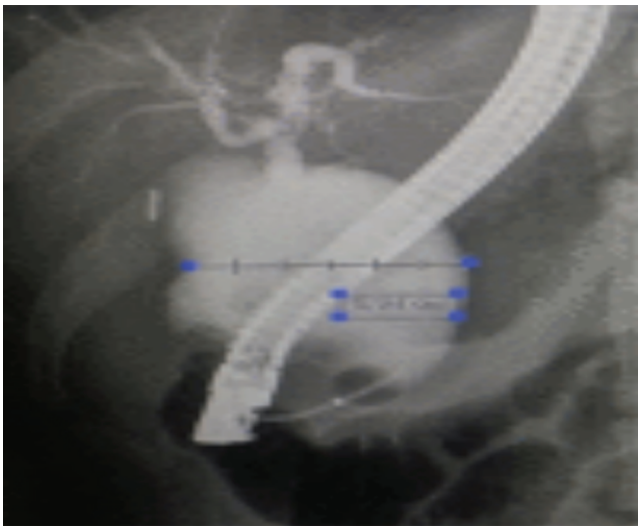

Fig-1 : Endoscopic retrograde cholangio pancreatography that shows the choledochal cyst of 5.94 cm

Case report

A 16-year-old female patient, who was a student without any associated disease, presented with epigastric pain since she was 6 years old and with post-alimentary vomits after fatty food ingestion in the last year. There was no history of jaundice. Investigation with abdominal

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ultrasound and Magnetic resonance Cholangio-pancreatography (MRCP) revealed a severe cystic dilation of 5 cm in diameter in the choledochal duct with choledocholithiasis classified as Type IA of Todani's [Figure-2]. On admission, the serum bilirubin level was 0.2 mg/dl, alkaline phosphatase was 239 U/l, and the activities of gamma glutamyltranspeptidase, aspartate transaminase and alanine transaminase were 40 U/l, 56 U/l, and 68 U/l, respectively. Surgical treatment was indicated and open cholecystectomy plus excision of the biliary cyst with Rouxen-Y hepaticojejunostomy reconstruction was performed. The surgical specimen is shown in Figure 4 and the histopathologic analysis did not reveal any signs of malignancy. The postoperative curse was uneventful.

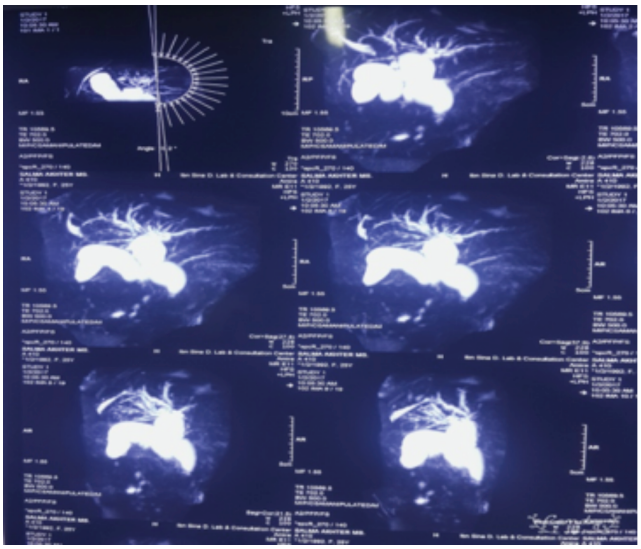

Fig-2 : MRCP showing Todani Type-1 A choledochal cyst

Discussion

Choledochal cyst is a disease almost exclusively affecting the pediatric population, but recent studies are showing increased diagnosis in adults in the West[1]. As reported in this case, Type I of Todani's classification is the most common presentation in 50%-80% of cases[3-5]. The classic triad of symptoms consisting of abdominal pain, jaundice, and a palpable abdominal mass occurs in less than 20% of the patients[6]. Mukhopadhyay et al reported abdominal pain as the most common presentation in a pediatric population[4]. It is possible to conclude that adults may have a different presentation from children and there are no specific symptoms for the choledochal cyst diagnosis. Thus, the suspicion of this pathology requires a valorization of these common symptoms and a special attention given to the imaging date and incidental findings. Association with other hepatobiliary pathologies occurs in 80% of the cases and includes benign diseases such as lithiasis in the cyst, intrahepaticlithiasis, acute cholecystitis and pancreatitis, and also malignant neoplasms, with cholangiocarcinoma being the most common. Patients with choledochal cysts have 20 times greater risk for the development of cholangiocarcinoma than the general population. Other malignant neoplasms have been reported, such as neuroendocrine tumors, but are much less common[7]. Technically, cyst excision is the main step to diminish the risk for cancer development, and must be performed when it is possible. Unfortunately, a cholangiocarcinoma may arise even after the cyst excision, as described by Nishiyamaet al[8]. The surgical strategy depends on the type of the cyst. For the Type I cyst, complete excision of the cyst is usually feasible and Roux-en-Y hepaticojejunostomy is the preferable reconstruction technique. This approach was associated with low morbidity and mortality rates and few long-term complications[9]. Reconstruction with a hepaticoduodenostomy has also been studied and found to have good outcomes. Mukhopadhyay et al., reported a review of 79 cases with hepaticoduodenostomy reconstruction and concluded that it is a quick procedure, with preservation of normal anatomy and physiology, and avoids multiple intestinal anastomoses. They suggested that this should be the preferred approach, as there were minimum complications[4]. Santore et al., compared hepaticoduodenostomy versus hepaticojejunostomy reconstructions in their series, stating that hepaticoduodenostomy required less operative time, allowed faster recovery of bowel function, and produced fewer complications requiring reoperation[10]. With this data, it is reasonable to conclude that both the reconstruction techniques can be accepted. Further studies should be conducted to better understand the advantages and disadvantages of such techniques.

The laparoscopic approach for the choledochal cyst excision is the technique of choice instead of open laparotomy[11]. It is a safe procedure and has the advantages of a minimally invasive surgery, such as lower pain, less wound complications, lower hospital stay, and faster surgical recovery. Robotic approach has also been described and seems to be as feasible as laparoscopy, although cost issues could be raised in this case[12]. It has to be emphasized that despite the advantages and feasibility of the laparoscopic approach for the treatment

of choledochal cysts, it must be reserved for experienced surgeons in complex biliary procedures and advanced laparoscopic surgery, in order to avoid lesions and complications on the biliary tract with a negative impact in the patient outcome.

Conclusion

There are some peculiarities in the clinical presentation of this disease in adults compared to the pediatric population. The aim of treatment is directed at the cyst excision, with reconstruction of biliary tract through hepaticoduodenostomy or hepaticojejunostomy. The laparoscopic approach is the preferable technique and must be performed only by experienced surgeons.

Reference

1. Lu B., Shen Z., Yu J., Yang J., Tang H., Ma H. Laparoscopic surgery for removal of choledochal cysts and Roux-en-Y anastomosis. Int. J. Clin. Exp. Med. 2015; 8 (8 (August)):13013–13016
2. de Meneses Salazar A.T., Riggen Martínez L., Orozco Chávez E.G., Quiste de colédocotipo I. Diagnísticoporimagen y anastomosis hepático-duodenal comomedidaterapéutica. Bol. Med. Hosp. Infant. Mex. 2013; 70 (6):482–487.
3. Koga H., Okawada M., Doi T., Miyano G., Lane G.J., Yamataka A. Refining the intraoperative measurement of the distal intrapancreatic part of a choledochal cyst during laparoscopic repair allows near total excision. Pediatr. Surg. Int. 2015;31(10 (October)):991-994
4. Mukhopadhyay B, Shukla RM, Mukhopadhyay M, Mandal KC, Mukherjee PP, Roy D, et al. Choledochal cyst: A review of 79 cases and the role of hepaticodochoduodenostomy. J Indian Assoc Pediatr Surg 2011; 16:54–7.
5. JanakieSingha, Eric M. Yoshida, Charles H. Scudamore. Choledochal cysts: Part 1 of 3: Classification and pathogenesis. Can J Surg 2009;52: 434–40.
6. Singham J, Yoshida EM, Scudamore CH. Choledochal cysts: Part 2 of 3: Diagnosis. Can J Surg 2009; 52:506-11.
7. Dahiya D, Raman K, Singh H. Neuroendocrine tumor in choledochal cyst - case report and review of literature. Pol PrzeglChir 2011; 83:627–9.
8. Nishiyama R, Shinoda M, Tanabe M, Masugi Y, Ueno A, Hibi T, et al. Intrahepatic cholangiocarcinoma arising 33 years after excision of a choledochal cyst: report of a case. IntSurg 2011; 96:320–5.
9. Congo K, Lopes MF, Oliveira PH, Matos H, Basso S, Reis A. Outcomes of choledochal cysts with or without intrahepatic involvement in children after extrahepatic cyst excision and Roux-en-Y hepaticojejunostomy. Ann Hepatol 2012; 11:536–43.
10. Santore MT, Behar BJ, Blinman TA, Doolin EJ, Hedrick HL, Mattei P, et al. Hepaticoduodenostomy vs hepaticojejunostomy for reconstruction after resection of choledochal cyst. J Pediatr Surg 2011; 46:209–13.
11. Ahn SM, Jun JY, Lee WJ, Oh JT, Han SJ, Choi SH, et al. Laparoscopic total intracorporeal correction of choledochal cyst in pediatric population. J Laparoendosc Adv Surg Tech A 2009; 19:683–6.
12. Akaraviputh T, Trakarnsanga A, Suksamanapun N. Robot-assisted complete excision of choledochal cyst type I, hepaticojejunostomy and extracorporeal Roux-en-y anastomosis: a case report and review literature. World J Surg Oncol 2010; 8:87.

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