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ORIGINAL ARTICLE

Maternal and Perinatal Outcome of Twin Pregnancy in a Tertiary Hospital

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ABSTRACT

Background & objectives: The incidence of multiple pregnancies has shown a significant increase over the last decades. Twin pregnancies are prone to be associated with preterm births and neonatal deaths which might be due to prematurity, fetal growth restriction and low birth weight. This study was undertaken to evaluate the outcome of twin pregnancy.

Methods: This descriptive observational study was conducted in BSMMU Hospital in between November, 2005 to July, 2006. A total of 50 twin pregnant women admitted for delivery were consecutively included in the study. Maternal and perinatal outcomes were investigated.

Result: The results showed that the women with twin pregnancies were relatively older, had a higher average height and a heavier body weight. Although there was no maternal mortality, pregnancy complications were remarkably higher. Pregnancies were complicated by preterm labour (38%), hypertensive disorders of pregnancy (28%), premature rupture of membrane (28%), anaemia (26%), antepartum haemorrhage (12%), hyperemesis gravidarum (6%), polyhydramnios (6%), preterm elective LUCS (8%), postpartum haemorrhage (16%), gestational diabetes (6%), UTI (8%), complications of operative delivery (8%). Most of the patients had more than one complication. Only 16% patients did not have any complications. Nearly two-thirds (64%) of the twin pregnancies were delivered preterm, having prematurity and small-for-date neonates, About 6% of the first twin and 11% of the second twin were asphyxiated (APGAR scores < 7) at 5 minutes of birth. Ten percent of the babies were born with congenital anomalies. The perinatal mortality rate was 11%. Very low birth weight babies (birth weight up to 1500 gm) were 32% and low birth weight (birth weight from 1500 - 2500 gm) babies 60%. Only 8% of the babies were of normal weight. Presentations during delivery of the twin babies were vertex-vertex (48%), vertex-nonvertex (16%) and non-vertex 1st twin (36% cases). Over two-thirds (68%) of the babies were delivered by caesarean section. Discordant growth between 1st and 2nd twin was observed in 28% of the cases.

Conclusion: Majority of the twin pregnancy is high risk one, and as such, all twin pregnancies should have a mandatory hospital delivery. Early diagnosis, adequate antenatal, intra-natal and post-partum cares are necessary to improve the outcome.

Key words: Twin pregnancy, maternal outcome, perinatal outcome.

Introduction

The incidence of multiple pregnancies has shown a significant increase over the last decades due to postponement of pregnancy on the part of women and the dissemination of assisted reproduction techniques. In the United States, incidence of these pregnancies has increased by 59% between 1980 and 1999, with twin pregnancies accounting for about 94% of all multiple pregnancies.[1] Although twins occur in approximately one in 80 pregnancies, they account for 12.2% of preterm births and 15.4% of neonatal deaths.[2,3] The main causes of adverse neonatal outcomes in multiple pregnancies are related to prematurity, fetal growth restriction and low birth weight.[4] In addition, these pregnancies are prone to complications inherent to twinning, such as acardiac fetus, conjoined twins and twin-twin transfusion syndrome. In addition, the risk of congenital anomalies is about 1.7 times higher than among singleton pregnancies and is more significant in monozygotic pregnancies.[4,5]

Preterm birth is observed in approximately 54% of all twin pregnancies; half of these births have an iatrogenic origin and are related to maternal or fetal complications while the other half consists of cases of spontaneous premature labor or premature membrane rupture.[3]

All of these factors explain the high perinatal mortality observed in multiple pregnancies which is five to six times higher when compared to singleton pregnancies.[1] When analyzed according to chorionicity, monochorionic pregnancies present a two to three times higher risk than dichorionic

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pregnancies.[8,9] The objective of this study was to describe the maternal and perinatal outcome of twin pregnancies delivered at a tertiary hospital.

Methods

This descriptive observational study was conducted in the Department of Obstetrics & Gynaecology, Bangabandhu Sheikh Mujib Medical University (BSMMU) Hospital, between November, 2005 to July, 2006 Dhaka after taking ethical permission from the Ethical Committee of the Institute. The total number of cases included was 50. Women with twin pregnancy completing 28 weeks of gestation with or without medical and obstetric complications were included in the study. However, twin pregnancy discharged after taking conservative management was excluded.

The patients fulfilling the eligibility criteria were followed from admission to discharge. Twins delivered in the hospital if admitted in the neonatal unit were also followed up to their discharge or for 7 days, which was shorter. Patients requiring transfer to other departments of the hospital were also followed in the same way. Necessary information was collected in a pre-designed data sheet and finally the findings were compiled and analyzed using SPSS (Statistical Package for Social Sciences) version 11.5.

Results

Sixty percent of the women with twin pregnancy were 20-29 years old, 36% 30 or > 30 years and only 4% below 20 years old. Parity distribution of the patients shows that 66% of the patients were multipara and 34% primipara. The average height and weight of the patients were 152.3 cm and 64.3 kg respectively, while the average symphysio-fundal height was 38 cm (Table I). Nearly two-thirds (64%) of the patients had pre-term delivery and 36% had term delivery (data not shown). History of probable etiological factors revealed that family history of twin was present in 36% and history of taking ovulation inducing drugs was present in 8% of the cases. Two percent of the patients conceived after stoppage of oral contraceptive pills (OCP). Over half (54%) of the patients had no known aetiological factors (Table II). Table III demonstrates the foetal presentation at delivery. Vertex-Vertex presentation was found in 48% cases and Vertex-Nonvertex in 16% (14% Vertex-Breech and 2% Vertex-Transverse) and Nonvertex presentation (Breech-vertex, Breech-breech and Breech-transverse) in 36% cases. Thirty percent of the patients had normal vaginal delivery and 68% were delivered by caesarean section (Table IV). In one patient first twin was delivered by vaginal route and second twin was delivered by lower uterine caesarean section.

Table I. Demographic and obstetric characteristics of the study subjects (n=50).

Demographic & Obstetric features	Number	Percentage	Mean	SD
Age (years)				
< 20	2	4.0	-	-
20-29	30	60.0	-	-
30	18	36.0	-	-
Parity				
Primipara	17	34.0	-	-
Multipara	33	66.0	-	-
Weeks of gestation				
28-37	6	64.0	-	-
37-40	18	36.0	-	-
Height (cm)	-	-	152.3	6.2
Weight (kg)	-	-	64.3	9.8
Symphysiofundal height (cm)	-	-	38.0	2.8

Table II. Distribution of patients by probable etiological factors (n=50).

Parameters	Number	Percentage
Family history of twining	18	36.0
Patient's family	12	24.0
Husband's family	06	12.0
Twin pregnancy after taking ovulation inducing drugs	04	8.0
Pregnancy within 3 months of stoppage of OCP	01	2.0
None	27	54.0

*OCP = Oral contraceptive pills

Table III. Distribution by patients by foetal presentation.

Presentation	Number	Percentage
Vertex-Vertex	24	48.0
Vertex-Breech	07	14.0
Vertex-Transverse	01	2.0
Breech-Vertex	09	18.0
Breech-Breech	06	12.0
Breech-Transvers	03	6.0

Preterm labor was the common maternal complications (38%) followed by premature rupture of membrane (PROM) and hypertension (each 28%),

Table IV. Distribution of patients by their mode of delivery.

Mode of delivery	No. of patients	Percentage
Vaginal delivery	15	30.0
LUSC	35	70.0

Table V. Complications encountered by the mothers (n=50).

Complication	Number	Percentage
Anaemia	13	26.0
Hyperemesis gravidarum	03	6.0
Hypertension (PIH & pre-eclampsia)	14	28.0
Polyhydramnios	03	6.0
Postpartum haemorrhage (PPH)	08	16.0
Antepartum haemorrhage (APH)	06	12.0
Pre-term labor (spontaneous/induced)	19	38.0
Pre-term elective LUCS	04	8.0
PROM	14	28.0
UTI	04	8.0
Gestational diabetes	03	6.0
Complications of operative delivery (e.g. wound infection, anaesthetic complications)	04	8.0
No complication	08	16.0

Table VI. Distribution of twins by perinatal and neonatal complications (n=100).

Complications	Number	Percentage
Macerated still-birth	07	7.0
Fresh still-birth	02	2.0
Early neonatal death	02	2.0
Admission in intensive care unit	28	28.0

Table VII: Causes of perinatal morbidity (n=100).

Causes	Number	Percentage
LBW due to pre-maturity		
<1,000 gm (required admission)	5	5.0
1,000-1,500 gm (required admission)	27	0.27
1,500-2,500 gm	60	60.0
IUGR	08	8.0
Birth asphyxia	17	17.0
Septicaemia	05	5.0

Note: All the babies requiring admission in neonatal unit had LBW due to prematurity. Some babies had other problems as well like IUGR, birth asphyxia and septicaemia. As such, the total will not correspond to 100%.

anemia (26%) and postpartum haemorrhage (16%) (Table V). The incidence of perinatal morbidity requiring admission in the Neonatal Unit was 32%. Some babies had other problems along with prematurity (Table VII).

Besides the data shown in the tables, some twins had specific problems as follows:

1. One baby had talipes equino-varus of both legs the baby was otherwise normal. The other baby of the twin-pair was normal.
2. In another pair one fetus was born with Hydrops foetalis and it was dead and macerated during delivery, while the other exhibited multiple congenital anomalies. It was also dead & macerated.
3. In the third case, minimum hydrocephalic change was noted in one baby and the other was apparently normal.
4. In the fourth case, both foeti had Hydrops foetalis with one being macerated stillbirth and the other having fresh stillbirth.

In this study, birth weight discrepancy of 20% or > 20% between twins was considered as significant discordant growth. Number of such pairs was 14(28%).

Discussion

In the present study, 60% of the twins were observed among women in 20-29 years of age which is consistent with the findings of Spellacy et al.[10] who found over 55% cases of twin pregnancy in this age group. The average height of the mothers in our study was 152.3 cm, pre-delivery weight was 64.3 kg and symphysiofundal height 38 cm. Studies by Chowdhury[11] and Sultana[12] showed average heights of mothers 153.3 cm and 152.1 cm, pre-delivery weights 59.6 kg and 60.3 kg; symphysiofundal heights 38.5 cm and 38 cm respectively which go in favour of the findings of the present study. The present study showed that about two-thirds (66%) of the women were multigravida. Chowdhury[11] reported a similar figure of multigravida (64.2%) in his study of twin pregnancy. An even higher frequency (84.2%) of twining in multigraviada was reported by Spellacy et al.[10]

In this study, most (64%) of the pregnancies was terminated pre-term, 36% at term and no pregnancy crossed the expected date of delivery (EDD). However, Papiernik et al.[13] Chowdhury[11] and Sultana[12] showed lower rates of pre-term delivery in their studies (50.7%, 41.5% and 44% respectively). The reason of higher rates of preterm delivery in the present study might be that all the patients were of complicated twin pregnancy which compelled us to terminate the pregnancy earlier. In the present study, 36% of mothers showed family history of twin compared to 19% and 30% in studies by Chowdhury[11] and Sultana[12] respectively. Twin after ovulation inducing drugs was 8% in our study compared to 17% and 14% in the studies by Chowdhury[11] and Sultana[12] respectively. These two studies showed no other known aetiological factors but in our study we found one case (2%) to conceive within three months of stoppage of OCP and one case (2%) had a history of taking indigenous medicine for conception. One additional finding was presented in our study that a significant number (24%) of the patients' close relations had history of twinning, though we do not know the implication of this finding. Further study might help us to test the association between twin pregnancy and history of twining in the women's close relations.

There was no maternal mortality in this study. Consistent with this study, Chowdhury[11] and Sultana[12] also did not report any maternal mortality. However, one study done in Nigeria described a maternal mortality rate of 2% for twin pregnancy.[14] But maternal morbidities were significantly high in all these studies. In the present study, anaemia was present in over one-quarter (26%) of the cases. Chowdhury[11] found anaemia in 35.8% cases, but Spellacy et al.[10] showed anaemia in 9.4%. As the study by Spellacy et al.[10] was done in a developed country, it is quite usual that their population would have a much higher haemoglobin level than that in our population. However, recently due to improvement in antenatal care in our country, anaemia is much less frequent than it was in the past, as evident by the difference of anaemia cases between the present study and that conducted by Chowdhury.[11] Hypertension (including PIH and pre-eclampsia) was also observed to be higher (28%) in the present study compared to that of Spellacy et al (12.9%).[10] Postpartum haemorrhage (PPH) occurred in 8(16%) cases which bears consistency with the finding of Chowdhury (18.9%).[11] Studies in developed countries have estimated relative risk of postpartum haemorrhage associated with multiple pregnancies to range from 3.0% to 4.5%.[14] So incidence of PPH in our country is still in a deplorable condition.

Nearly half of the babies were delivered preterm (38% following preterm labour and 8% by lower uterine caesarean section) which is consistent with Chowdhury (43.4%).[11] A study by Hashimoto et al.[15] showed that 59% women with twin pregnancy developed preterm labour and of them nearly three-quarter (44%) ended with preterm delivery. In this study 28% cases were admitted with premature rupture of membranes (PROM). However, Chowdhury.[11] and Sultana.[12] showed PROM occurred in 3.8% and 10% of patients respectively which were unusually low for twin pregnancy. When fetal presentation was broadly categorized into three, this study showed 48% was vertex-vertex, 16% was vertex-nonvertex and 36% was nonvertex (first twin). Chervenak et al[16] and Chowdhury[11] in their studies found majority of the foetal presentation as vertex-vertex (42.5% and 47.5% respectively) followed by vertex-nonvertex (38.4% and 26.5% respectively) and first twin nonvertex (19.1% and 26.1% respectively). The present study demonstrated that a large number of twin pregnancies were delivered by LUCS (68%) which in Chowdhury[11] and Sultana's[12] study were lower (49.1% and 56% respectively).

We observed a perinatal mortality of 11%. Several studies[11,12,17] also reported similar perinatal mortality rate. Perinatal morbidity required admission in the Neonatal Unit was 32%. All of these babies were premature having very low birth weight. Other complications associated with LBW were IUGR (8%), birth asphyxia (17%) and septicaemia (5%).

The mean birth weight of twin babies was 1.8 kg. In Chowdhury's study it was 2.1 kg.[11] In another study conducted in United States (1991-1995) mean birth weight of twin was 2.4 kg.[13] The difference in birth weight between local and US studies could be justified by genetic and nutritional factors. As premature delivery was higher in the present study, low birth weight was

also higher. Five minute APGAR score showed that 6% of the first twin and 11% of the second twins were asphyxiated (APGAR score < 7). Previous studies[11,12] showed APGAR score < 7 in 7.5% and 8% and 13.2% and 14% in first and second twins respectively. In our study same sex twin was 68% and different sex was 32%. More or less similar reports were given by other studies (73.6% same sex and 26.4% different sex).[11] The incidence of significant discordant growth in the present study was 28% which in other studies were found between 15 and 29%.

As the sample size of the present study was small and data were collected from one centre only, the findings could not be generalized to the reference population. Traditional USG reports in our country usually do not give information that is required to determine chorionicity and zygosity. Had the information been made available the correlation of these with outcome could be established. However, the tertiary hospital-based data that we have analysed demonstrated that maternal and perinatal morbidities resulting from twin pregnancy are no less which might be different if the morbidity data of population-based studies could be included in the sample. More studies to include the rural areas are necessary to know the actual situation existing in Bangladesh.

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