Scholars Journal of Applied Medical Sciences
Abbreviated Key Title: Sch J App Med Sci
ISSN 2347-954X (Print) | ISSN 2320-6691 (Online)
Journal homepage: https://saspublishers.com

OPEN ACCESS

Obstetrics and Gynaecology

Feto-Meternal Outcome of Twin Pregnancy: A Retrospective Study at the Centre for Woman and Child Health, Dhaka, Bangladesh

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DOI: 10.36347/sjams.2021.v09i06.014 | **Received:** 06.03.2021 | **Accepted:** 02.04.2021 | **Published:** 12.06.2021

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Abstract **Original Research Article**

Background: Multiple pregnancies constitute an important portion of high-risk pregnancies and are a matter of grave concern to obstetricians and pediatricians owing to maternal and perinatal morbidity and mortality associated with it. We have very little research-based information regarding the maternal and perinatal outcomes of twin pregnancy. ***Aim of the study:*** The aim of this present study was to evaluate the maternal and perinatal outcomes of twin pregnancy. ***Methods:*** This cross-sectional observational study was conducted under the Department of Obstetrics & Gynaecology at The Center for Woman and Child Health (CWCH), Dhaka, Bangladesh during the period from January 2018 to December 2020. Fifty-two (52) women of twin pregnancy were selected as study participants purposively. Independent variables of interest were gestational age, preterm delivery, and mode of delivery. Dependent variables of interest were preeclampsia, premature rupture of membranes, postpartum hemorrhage, birth weight, perinatal morbidity, and mortality. Statistical analysis of the results was obtained by using window-based computer Statistical Packages for Social Sciences (SPSS-22). ***Results:*** In this study, the total number of vaginal delivery was 50 (1st Twin-26 & 2nd Twin- 24: 48%) and the total number of LSCS was 54 (1st Twin-26 & 2nd Twin 28: 52%). Among total participants, antepartum complication anemia, H gravidarum, HTN (PIH/PE/Eclampsia), polyhydramnios, PROM, gestational DM and APH were found in 48.07%, 7.69%, 28.84%, 5.76%, 9.62%, 3.84%, and 1.92% patients respectively. Among 52 twin pregnancies, the most common *intrapartum* complication was preterm delivery 59.61% (n=31). Preterm LSCS was 46.15% and preterm vaginal delivery was 13.46%. We found term and preterm deliveries were 40.39% and 59.61% respectively. The most common neonatal complication was the low birth weight which was found in 84.6%. No maternal mortality in the study. Some patients had more than one complication. The mean (±SD) birth weight of 1st and 2nd twin babies were 1.6±0.8 and 1.8±0.7 Kg respectively. **Conclusion:** Despite of advancement in obstetric and neonatology, till now the perinatal mortality in twin pregnancy is alarmingly high. Gestational age, presentation, mode of delivery, and birth weight are the significant determinants of perinatal outcome in twin pregnancy.

Keywords: Feto-meternal outcome, Caesarean section, Foetal risk, maternal complications, Twin gestation.

INTRODUCTION

Twin pregnancy is considered as a high-risk pregnancy. It occurs due to multiple factors mainly genetic and environmental. Twin pregnancy has been associated with many maternal complications like anemia, hyperemesis, gestational hypertension, antepartum hemorrhage, preterm labor, polyhydramnios and gestational diabetes. In such cases, fetuses remain at an increased risk of prematurity, discordant growth, fetal malformation, cord complication and stillbirth. Babies born from multiple birth pregnancies are more likely to result in premature birth than those from single pregnancies. In total 51% of twins and 91% of triplets are born preterm, compared to 9.4% in singleton. On the other hand, 14% of twins and 41% of triplets are born very preterm, compared to 1.7% in singletons. About half of twins are born with a birth weight of less than 2500 grams. The incidence of twin pregnancy has increased largely over the past 30 years [1]. The reasons for this trend include the proliferation of assisted

reproductive technologies, an increase in the use of ovulation-inducing drugs, and the rise in maternal age [2, 3]. The incidence of twin pregnancy in Bangladesh is estimated to be 9-16 per 1000 births [4]. Twin gestations comprise approximately 1% of all pregnancies but account for nearly 10% of perinatal mortality [3]. Compared with singletons, twins experience perinatal mortality rates 4 to 10 times higher. The incidence of twin births varies considerably i.e. 2-20 per 1000 births throughout the world [5]. More than 3% of all pregnancies were multiple & twins accounted for 94% of all multiple births. The majority of the increase is seen in primiparous women [3]. Several studies have shown that, compared with first-born twins, those delivered second carry increased risks of perinatal mortality. Pre-eclampsia is two to three times more common in multiple pregnancy than a singleton pregnancy and it is likely to be more severe [6]. Multiple pregnancies put a mother at risk of miscarriage, preeclampsia, antepartum hemorrhage, postpartum hemorrhage, iron and folic acid deficiency anemia, polyhydramnios, preterm labour, premature rupture of membranes, and increased rate of cesarean section. The overall risk of transfer of the mother to an adult Intensive Care Unit shifts from 0.3% with a singleton pregnancy to 3.1% after a twin delivery and it is now accounting for 3% of the live births. Prevention of preterm labour is the major challenge in the management of multiple pregnancies. Within the last decade, a substantial reduction in perinatal mortality has been achieved through advances in neonatal care. Intervention to decrease the neonatal mortality rates in multiple gestations should be directed towards reducing the incidence of low-birth-weight infants. However, there is still scope for further improvement of perinatal mortality and both maternal & perinatal morbidity.

OBJECTIVE

The aim of this study was to evaluate obstetric and perinatal outcome of twin pregnancy in terms of maternal and fetal morbidity and mortality.

METHODOLOGY

This cross-sectional observational study was conducted under the Department of Obstetrics & Gynaecology at The Center for Woman and Child Health (CWCH), Dhaka, Bangladesh during the period from January 2018 to December 2020. In this study, the independent variables of interest were gestational age, preterm delivery and mode of delivery. On the other hand, the dependent variables of interest were preeclampsia, premature rupture of membranes, postpartum hemorrhage, birth weight, perinatal morbidity and mortality. Inclusion criteria were all the twin pregnancy fulfilling the criteria reported during study period and all women including primi and multigravida who are ultrasonographically diagnosed twin pregnancy admitted after 28 weeks and delivered at CWCH. Exclusion criteria were twin pregnancy before 28 weeks of gestation and patient of twin pregnancy with signal fetal demise. Statistical analysis of the results was obtained by using window-based computer software devised with Statistical Packages for Social Sciences (SPSS-22).

RESULT

In this study, the mean (±SD) age of the participants was 24.33±15.23 years. Out of 52 women, maximum number of women were from the age group of 20-29 years (71.16%). The mean (±SD) gestational age of the patients was 33.33±7.55 weeks. According to the parity distribution of patients, 69.23% were multipara and 30.77% were primipara. In analyzing the mode of delivery of the patients, we observed, in first twin delivery LSCS, SVD and VBAC were found among 26, 24 and 2 cases respectively whereas in second twin delivery LSCS, SVD, ABD, ECV, IPV and VBAC were found among 28, 18, 2, 1, another 1 and another 2 cases respectively. In our study, in analyzing the chorionicity among participants we observed, monochorionic-diamniotic, diamniotic-dichorionic and monochorionic-monoamniotic cases were found 62%, 19% and 6% respectively. The rest 3% were undefined or unknown. In this study, 'Vertex-vertex' presentation was found as the most common fetal presentation among the cases which was 50%. In this study, total number of vaginal deliveries was 50 (1st Twin-26 & 2nd Twin 24: 48%) whereas total number of LSCS was 54 (1st Twin-26 & 2nd Twin 28: 52%). Among total participants, as antepartum complication anemia, H gravidarum, HTN (PIH/PE/Eclampsia), polyhydramnios, PROM, gestational DM and APH were found in 48.07%, 7.69%, 28.84%, 5.76%, 9.62%, 3.84% and 1.92% patients respectively. Among 52 twin pregnancies, the most common maternal complications were preterm delivery which was 59.61% (n=31). Preterm LSCS was 46.15% and preterm vaginal delivery was 13.46%. In analyzing the neonatal outcome, term and preterm deliveries were 40.39% and 59.61% respectively. Most common neonatal complication was low birth weight which was found in 84.60%. There was no maternal mortality in the study. Some patients had more than one complications. The mean (±SD) birth weight of 1st and 2nd twin babies were 1.6±0.8 and 1.8±0.7 Kg respectively. Among 1st twins normal, sick and dead babies were 76.92%, 17.30% and 5.76% respectively whereas among 2nd twins normal, sick and dead babies were 67%, 26.92% and 5.76% respectively.

Table-I: Demonstration and distribution of the study patients according to age. (n=52)

Age	n=52	%
< 20 Years	1	1.92
20 to 29 Years	37	71.16
30 to 39 Years	14	26.92
Total	52	100

Mean ±SD of age was 24.33±15.23.

Table-II: Demonstration and distribution of the study patients according to parity. (n=52)

Parity	n=52	%
Primipara	16	30.77
Multipara	36	69.23
Total	52	100

Table-III: Demonstration and distribution of the study patients according to gestational age. (n=52)

Gestational age at delivery	n=52	%
28 weeks to < 32 weeks	7	13.46
32 weeks to < 37 weeks	27	51.92
37 weeks to 42 weeks	18	34.62
Total	52	100

Mean ±SD gestational age of the patients was 33.33±7.55.

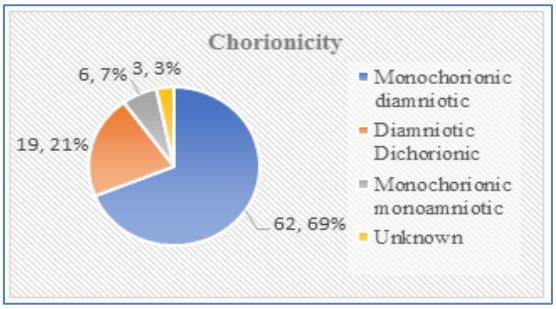

Fig-I: Demonstration and distribution of the study patients according to chronicity. (n=52)

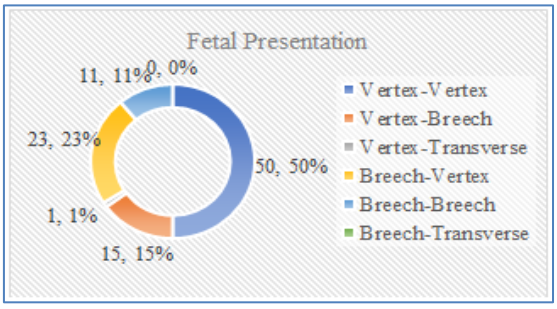

Fig-II: Demonstration and distribution of the study patients according to Fetal Presentation. (n=52)

Table-IV: Demonstration and distribution of the study patients according to the mode of Delivery. (n=52)

Mode of Delivery	1st Twin	2nd Twin
	n=52	n=52
A) LSCS	26	28
B) SVD	24	18
C) ABD, ECV & IPV	0	ABD=2
		ECV=1
		IPV=1
D) VBAC	2	2
E) Instrumental delivery	0	0

SVD: Spontaneous vaginal delivery,
ABD: Assisted breech delivery,
ECV: External cephalic version,
IPV: Internal podalic version
VBAC: Vaginal birth after cesarean section

Table-V: Distribution of total number of delivery

Mode		n	%
A	Total number of vaginal delivery	50	48
	1st Twin+2nd Twin		
	(26+24)		
B	Total number of LSCS	54	52
	1st Twin+2nd Twin		
	(26+28)		

Table-VI: Demonstration and distribution of the study patients according to antepartum complications. (n=52)

Complication	n=52	%
Anemia	25	48.07
H gravidarum	4	7.69
HTN (PIH/PE/Eclampsia)	15	28.84
Polyhydramnios	3	5.76
PROM	5	9.62
Gestational DM	2	3.84
APH	1	1.92

Table-VII: Distribution of intrapartum complications associated with twin pregnancies (n=52)

Complication	n=52	%
Preterm delivery (PTLSCS+PTVD)	31 (24+7)	59.61
PPH	8	15.38
Cord Prolapse	1	1.92
Difficulty in 2nd twin delivery	4	7.69

Table-VIII: Demonstration and distribution of the study patients according to neonatal outcome

Neonatal Outcome		n=52	%
Term Baby		21	40.39
Preterm Baby		31	59.61
Birth Weight			
Low birth Weight	<1 Kg	2	3.84
	1 Kg -1.5 Kg	12	23.07
	1.6 Kg < 2.5 Kg	30	57.69
Normal	≥ 2.5 Kg	8	15.38

Table-IX: Mean (±SD) birth weight

Birth weight	1st Twin	2nd Twin
Mean (±SD) in Kg	1.6±0.8	1.8±0.7

Table-X: Demonstration and distribution of the study patients according to neonatal condition

Neonatal Condition	n (%)	
	First	Second
Normal baby	40 (76.92)	35 (67.30)
Sick baby	9 (17.30)	14 (26.92)
Dead baby	3 (5.76)	3 (5.76)
Total Dead Baby	11.52%	

DISCUSSION

The aim of the present study was to evaluate the maternal and perinatal outcomes of twin pregnancy. Twin pregnancies are high risk pregnancies requiring special care and multidisciplinary approach toward their management. Majority of the women in present study (71.16%) were aged between 20-29 years. In some other studies, age range 20-29 years were in 55% [7] and 60% [8]. Age range at 21-25 years were 58% in another one study [9]. Parity distribution of our study multipara were 69.23% patients which were contrast with the study done by others which were 49% [9] and 82% [7]. Gestational age range in our study was 51.92% in 32-36 weeks. As compared to other studies the gestational age range 54% within 31-34 weeks [8]. In this study, placentation was determined by antenatal ultrasonography and inspection of placenta and membranes after birth. In this study, 'Vertex-vertex' presentation was found as the most common fetal presentation among the cases which was 50%. In analyzing the chorionicity among participants we observed, monochorionic diamniotic, diamniotic dichorionic and monochorionic monoamniotic cases were found 62%, 19% and 6% respectively. The rest 3% were undefined or unknown. Preterm labor was found to be most common intrapartum complication in our study, seen in 59.61% cases which is almost similar with another study [9] 68% and 67% [8]. This finding contrasts with previous study [7] where preterm delivery rates were 50.7%, 41.5% and 44% respectively. Anaemia was the first most common antepartum complication in our study (48.07%) which was comparable to other study findings [9]. Low birth weight (LBW) in our study was defined as birth weight of <2.5Kg and 84.60% of the newborns were LBW which is consistent with another study (88%) [9]. In our study, the 'normal baby' was defined as the baby acquired Apgar score ≥ 7/10 at 1 minute test and the 'sick baby' was defined as the baby acquired Apgar score < 7/10 at 1 minute test. With the development of ultrasonic techniques for the evaluation of pregnancy, it has become apparent that the incidence of multiple gestations in humans may be more common than previously indicated. In the past two decades physicians and researchers have emphasized the importance of twin and higher order multiple births to infant morbidity and mortality. Several workers have tried their best to evaluate the various causes of perinatal loss in twin gestation despite advances in obstetric and neonatology perinatal mortality in twin pregnancy is alarmingly high. Mean gestational age of women at delivery in our study was 33.33 weeks. The positive effects of increasing parity on the incidence of twinning have been demonstrated by Patterson et al. [7]. Corroborating with their findings our study shows that incidence of twin gestation is higher in multigravida. Traditionally multiple pregnancies are regarded to be unfavorable, probably due to the poor perinatal outcome, increased maternal mortality and morbidity, long term developmental issues and the expensive treatment involved. According to various studies conducted since the 1970s, the maternal twinning rate in India on an average is 9-16/1000 births [7]. Hypertension (Pregnancy Induced Hypertension, Pre-eclampsia was seen in 28.84% which was high compared to another study [10] where seen in 12.9%. There was no maternal mortality in our study. More than half of the babies were delivered preterm, which was higher than Hashimoto et al and other series (29%- 54%) [11]. The study conducted by others showed that caesarean section was the commonest mode of delivery [11, 12]. In the present study perinatal mortality in the form of neonatal deaths and intrauterine deaths was 11.52%. Another study [12] reported a perinatal mortality of 11% and Perinatal morbidity which required admission in neonatal unit was 26.5%. Parity distribution of our study showed 69.23% patients as multipara which is contrary to the report by another study [10] where 84.2% patients were multipara.

Limitation of the study

The limitations of this study were small sample size and restriction to certain selected variables for study analysis. However, even with these limitations, this study contributes to the existing knowledge by establishing this hospital data on twin gestation.

CONCLUSION

Multiple pregnancies bear additional hazards both for the mother and the baby. Though these hazards are partly preventable, difficulty in timely recognition of multiple pregnancies at an early date is the main obstacle. Once diagnosed, proper antenatal care, nutritional supplement together with thorough intranatal and postnatal vigilance have much to their credit in lowering both maternal and fetal complications. Preterm labor and intrauterine growth retardation were the two single most important factors responsible for neonatal deaths. The perinatal mortality could be reduced considerably if we can achieve a birth weight of more than 1.5 kgs in twins. Thus, proper antenatal care planned delivery with a shorter interval between deliveries of two babies, and better facilities for the care of premature babies can bring about a reduction in perinatal mortality of twin pregnancies.

RECOMMENDATION

In this study, results of "Feto-Maternal Outcome of Twin Pregnancy-A retrospective Study at Centre for Woman and Child Health, Dhaka, Bangladesh" were not statistically significant to establish feto-maternal outcome of twin pregnancy. But the value of it has to be considered and needs further evaluation with a larger sample and multi-center basis study along with evaluation of the predictive values of all the feto-maternal outcome of twin pregnancy individually.

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