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Perinatal outcome of twin pregnancies at a teaching hospital in India

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Abstract

Objective: To find out perinatal outcome of twin pregnancies admitted in a tertiary teaching hospital of Kolkata, India.

Method: In a prospective observational study seventy women with twin pregnancies were included during May 2011 to April 2012 according to the inclusion criteria. Data were collected accordingly and analysis was done by simple proportion and chi-square tests as applicable. P of < 0.05 was taken as statistically significant value.

Results: Preterm labour developed in 60% of twin pregnancies. PPROM developed in 17.14% of patients. Perinatal mortality of first twin was 21.42% and of second twin was 37.14%. 26.66% of first twins and 30.77% of second twins died due to prematurity. 51.42% of second twin with less than 2000 gm birth weight died due to different causes whereas only 14.29% of second twin died with birth weight more than 2500 gm which was statistically significant.

Conclusion: Perinatal outcome of second twin was worse according to birth weight and mode of delivery. Perinatal mortality was significantly less for those who were delivered by Caesarean sections.

Keywords: Twin pregnancy, gestational age, mode of delivery, perinatal mortality

Introduction

Twins are one of the nature's wonder. While multiple pregnancy account for only a small percentage of all births (about 3%), the multiple birth rate is rising and account for 14% of infant deaths^[1]. Perinatal outcome in twin pregnancy differs significantly from that of singleton pregnancy. Perinatal mortality and morbidity in twin pregnancy is 5-7 times higher compared to singleton pregnancy. Prematurity is presently responsible for three-quarters of neonatal mortality and one-half of long-term neurological impairments in children. Women with twin pregnancies are nearly six times more likely to be hospitalized with complications such as preeclampsia, preterm labour, PPROM, placental abruption, pyelonephritis and PPH with substantially increased health care costs^[3].

Objective: To find out perinatal outcome of twin deliveries in respect to gestational age, presentation, mode of delivery and birth weight.

Materials and Methods: it is a prospective observational study conducted in the department of Obstetrics and Gynaecology in Nilratan Sarkar Medical College & Hospital, Kolkata which is a tertiary care teaching hospital. The study was conducted with approximately 80 married women of age between 19- 35 years attending either antenatal OPD or Obstetrics Emergency with confirmed twin pregnancy during May 2011- April 2012.

Inclusion criteria: Women with twin pregnancy with gestational age \geq 28 weeks confirmed by < 20 weeks Ultrasonography were included.

Exclusion criteria: Women with history of previous Caesarean section, twin pregnancy with known congenital anomaly or intrauterine death of one foetus and women with known pre-existing medical complications like essential hypertension, diabetes mellitus, thyroid disorder, epilepsy etc.

Women with twin pregnancy were divided into four groups according to gestational ages i.e. 28- <34 weeks, 34 - <37 weeks, 37 - < 40 weeks and > 40 weeks. Presentations were taken as vertex

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and non-vertex groups. Women were examined at antenatal OPD at regular interval of 2-3 weeks from 28-32 weeks and then 1-2 weeks interval till 36 weeks. Booked cases were admitted thereafter for follow up and delivery. Early admissions were done according to need of individual patients. Data from the patients attending emergency with labour for the first time or referred from lower tier centres, were collected from their recorded antenatal check up documents.

Data were analysed by graphical presentation and statistical analysis were done with Microsoft excel and Epi-info 7.1.5 version. Statistical significance level was considered at $p < 0.05$.

Result & Analysis: This prospective study was done with 70 pregnant women with twin pregnancies who fulfilled the inclusion criteria. Among the 70 women, 22 (31.43%) women were primigravida, 30 (42.86) were primipara and 18 (25.71%) were multipara.

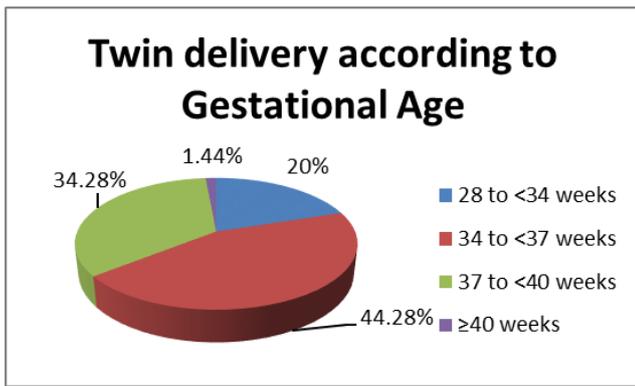


Fig 1: Twin deliveries according to the gestational ages

Figure – 1 show out of 70 twin deliveries 14 (20%) women delivered at 28- 33 weeks of gestation. At gestational age of 34-36 weeks, number of twin deliveries were 31 (44.28%). 24 (34.28%) women delivered at 37- 39 weeks of gestation and only 1 woman (1.44%) delivered at 40 weeks.

Table 1: Frequency distribution of twins according to Birth Weight

Weight in gms	No of 1 st Twin (%)	No of 2 nd Twin (%)
1000 - <1500	11 (15.72%)	12 (17.14%)
1500 - <2000	15 (21.42%)	23 (32.86%)
2000 - <2500	25 (35.72%)	21 (30%)
2500 - < 3000	19 (27.14%)	14 (20%)
>3000	Nil	Nil

Table 1 show 15.72 % of first twin and 17.14% of second twins were Very Low Birth Weight. 57.14% of first twin and 62.86% of second twins were Low Birth Weight. 27.14% of first twins and 20% of second twins were delivered with birth weight of >2500 gm.

Table 2: Frequency distribution of Twins according to Presentation

Presentation	No of twins (%)
Vertex-vertex	40 (57.14%)
Vertex-nonvertex	18 (25.72%)
Nonvertex-others	12 (17.14%)

Table- 2 shows the distribution of twin according to the presentation. Vertex-vertex presentations were 40 (57.14%). Vertex- nonvertex combination were 18 (25.72%) and nonvertex- others combination were 12 (17.14%).

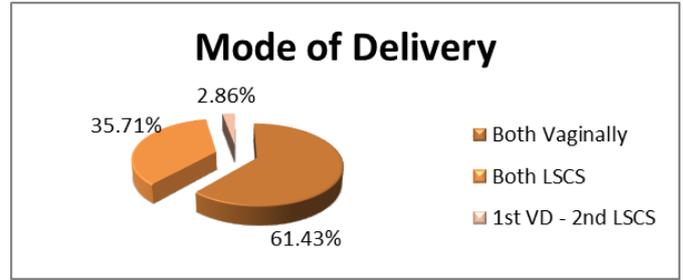


Fig 2: Different modes of delivery of twin pregnancy

Figure-2 shows the different modes of delivery. Both twins delivered vaginally in 43 cases (61.43%). 25 twins (35.71%) were delivered by Caesarean sections. Only in 2 cases (2.86%) first twin were delivered vaginally followed by second twin needed Caesarean sections.

Table 3: Maternal complications of twin pregnancies

Type of complications	Number (%)
Preterm labour	45 (60%)
Preterm premature rupture of membrane	12 (17.14%)
Preeclampsia	6 (8.57%)
Antepartum haemorrhage	4 (5.71%)
Intrauterine growth restriction	9 (12.86%)
Growth discordance	5 (7.14%)
Cord prolapse	1 (1.43%)

Table- 3 shows different types of complications during management of twin pregnancies. Preeclampsia was noted in 8.57% patients. Preterm labour developed in 60% of twin pregnancies. PPRM developed in 17.14% of patients.

Table 4: Neonatal complications

Types of complications	1 st twin	2 nd twin
Birth asphyxia	10 (14.28%)	16 (22.85%)
Septicaemia	6 (8.57%)	10 (14.28%)
Neonatal jaundice	8 (11.42%)	12 (17.14%)
Seizure	3 (4.28%)	6 (8.57%)
Birth trauma	1 (1.42%)	2 (2.85%)
Mechanical ventilation	5 (7.14%)	8 (11.42%)
Total	33	54

Table 4 shows 14.28% of first twin and 22.85% of second twin suffered from birth asphyxia. Septicaemia occurred in 8.57% of first twin and 14.28% of the second one. Neonatal jaundice developed in 11.42% of first twin and in 17.14% of second twin. 7.14% of first twin needed mechanical ventilation whereas 11.42% of second twin needed the same.

Table 5: Perinatal mortality of twins in relation to different causes

Causes of perinatal mortality	First twin (%) n=15	Second twin (%) n=26
Prematurity	4 (26.66%)	8 (30.77%)
Birth asphyxia	4 (26.66%)	6 (23.07%)
Neonatal septicaemia	3 (20.00%)	5 (19.23%)
Neonatal jaundice	2 (13.34%)	3 (11.54%)
Very Low Birth Weight	2 (13.34%)	3 (11.54%)
Unexplained stillbirth	0	1 (3.85%)

In our study perinatal mortality of first twin was 21.42% and of second twin was 37.14%. 26.66% of first twins and 30.77% of second twins died due to prematurity. Birth asphyxia was the cause of death in 26.66% of first twin and 23.07% of second

twin. Perinatal death of 13.34% of first twin and 11.54% of second twin were due to VLBW.

Table- 6: Relationship of birth weight and perinatal mortality of second twin

Birth weight of 2 nd twin	Total no.	Perinatal mortality	Statistical value
< 2000 gm	35	18 (51.42%)	p = 0.009 significant
2000 - < 2500 gm	21	4 (19.04%)	
≥ 2500 gm	14	2 (14.29%)	

Table- 6 shows correlation between birth weight and perinatal mortality of second twin. 51.42% of second twin with less than 2000 gm birth weight died due to different causes whereas only 14.29% of second twin died with birth weight more than 2500 gm which was statistically significant.

Table 7: Association of mode of delivery with perinatal mortality of second twin

Mode of delivery	Total no.	Perinatal mortality	
Both vaginal	43	22 (51.17%)	p= 0.005 significant
Both Caesarean section	25	3 (12%)	
Ist vaginal 2 nd LSCS	2	1 (50%)	

Table- 7 shows perinatal death of second twin who were delivered by LSCS was much less (12%) compared with that of vaginal delivery of both babies (51.17%) which was statistically significant.

Discussion: Twin pregnancy is associated with excess morbidity and mortality for both mother and the babies. Moreover perinatal mortality is higher for second twin (64 per 1000 births) compared with first twin (49 per 1000 births)^[4]. In our study the incidence of preterm delivery was 60%. From a similar, but retrospective large scale review in the United States, incidence of preterm delivery was 45.6%^[5].

The twin birth weight percentile chart for our country is not available and average twin birth weights of Western population^[6] are much higher than that of us. We considered the same from Japanese population as a representative of the Asian population^[7]. We found 12.86% incidence of foetal growth restriction whereas in Japanese twins, incidence of the same for spontaneous pregnancy group was 14.9%^[8]. In our study prematurity was the commonest cause of perinatal mortality (17.14 per 1000 birth).

We found 22.86% of neonatal sepsis in our study whereas Rice *et al*, from their retrospective analysis of consecutive series of twin deliveries at New York Hospital-Cornell Medical Centre, found 4.6% of twins suffered from sepsis^[9]. This was probably due to increased referral of complicated patients from periphery to our tertiary care centre.

In our study we found statistically significant difference in perinatal mortality of second twin according to the mode of delivery. But Adam *et al* reviewed the data 1980 to 1987 at Grace Maternity Hospital, Halifax, Nova Scotia, Canada, to ascertain the perinatal mortality and morbidity in the second twin as related to its presentation and method of delivery and reported that no statistically significant difference in perinatal mortality or morbidity was found in comparing the nonvertex second twin delivered vaginally or by caesarean section.¹⁰ Barrett *et al* also reported that in twins who weighed 1,500 to 1,999 gm, a significant increase in neonatal complications in vaginally delivered second twins was not found, although the

majority of neonatal complications did occur in vaginally delivered second twins. Caesarean section was proposed as the optimal route of delivery for all twins expected to have a birth weight less than 1,500 gm.¹¹

Conclusion: In our prospective observational study at a tertiary care teaching hospital, we found perinatal outcome of second twin was worse according to the birth weight and mode of delivery. Perinatal mortality was significantly less for those who were delivered by Caesarean sections.

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