

The Perinatal Outcome of First and Second Twin

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ABSTRACT

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Background: Despite advances in obstetrics and gynaecology, the perinatal mortality among twins still remains high. This study compares the perinatal outcome of first and second twin.

Materials & Methods: A prospective study was conducted at Institute of maternal and Child Health, Calicut over a period of one year; 2005 to 2006. 200 (antenatal women with) twin pregnancies were followed up from antenatal period, upon their admission to ward and labour room.

Results: 45% had preterm deliveries, 48% had vertex-vertex as the commonest presentation. 37.5% of 2nd twin required caesarian section compared to 35.5% of 1st twin. The mean birth weight of first twin was 2.09 kg and 2nd twin was 2.03 kg. NICU admission was required in 28.5% of 2nd twin compared to 23% of 1st twin. Perinatal mortality of 2nd twin was 130/1000 births compared to 90/1000 for 1st twin.

Conclusion: Perinatal outcome in terms of macerated births, neonatal deaths and NICU admissions were more in second twin.

Keywords: Perinatal, Twin Pregnancy, Twin Birth, Twin Delivery, Birth Outcomes

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BACKGROUND

Twin pregnancies are a unique but common obstetrical occurrence that has attracted the attention of both the obstetrician and the common man since time immemorial. Multiple gestation is the simultaneous development of more than one foetus in the uterus. Twins contribute to the majority of multifoetal pregnancies. The frequent use of technology to enhance fertility has led to an increased incidence of multiple pregnancy. Incidence of twinning varies greatly in different parts of the world largely due to variations in dizygotic twinning; 4–50/1000 maternities. The incidence of monozygotic twinning appears to be constant worldwide at 3–4 per 1000 births (give reference). Multiple pregnancy poses definite risks not only to the mother but also to the foetuses. Despite advances in obstetrics and neonatology the perinatal mortality rate among twins still remains high, estimated as accounting for approximately 10% of all perinatal mortality.

The higher preterm birth in twins; either from spontaneous or induced labour, with its associated

problems of prematurity remains the major cause of morbidity and mortality. Other factors which contribute to the higher perinatal mortality include foetal growth retardation, intratwin birth weight discordancy, foetal anomalies and problems specific to monochorionic twin gestations like twin to twin transfusion syndrome. In addition to the traditional indicators of perinatal morbidity and mortality, twin pregnancies are associated with a number of financial, personal and social costs for their families and twins themselves. Because of the increase in preterm birth, there is also an increase in the incidence of cerebral palsy in twins compared to singletons. Mal-presentations are common in multiple pregnancies. Twins are more likely to experience birth asphyxia than singleton because of the increased prematurity rate, abnormal presentation and operative deliveries. They are also associated with increased rates of perinatal death and a depressed Apgar score, primarily because of intrapartum asphyxia of the second twin.¹ The incidence of hyaline membrane disease in twins is 8.5%. Ghai and VidyaSagar reported a high incidence of hyaline membrane disease in twins compared to singletons, but not between 1st and 2nd twin. Cerebral palsy is more common in twins and it is

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particularly pronounced in second foetus.² Psychological problems, low IQ and language and verbal reasoning difficulties are more common in twins than singletons. Twins account for between 5% and 10% of all cases of cerebral palsy in the United States (Scheller and Nelson, 1992). This increased risk for cerebral palsy is attributed to their lower birth weight or earlier delivery.

This study endeavors to analyse the perinatal outcome of first and second twin and hopes to suggest remedial measures to improve the perinatal outcome.

MATERIAL & METHODS

A descriptive study was conducted during the period from September 2005 to August 2006 at the Department of Obstetrics and Gynaecology, Institute of Maternal and Child Health, Calicut. 200 twin pregnancies beyond 28 weeks of gestation admitted during this period were included in the study. Pregnancies with more than 2 fetuses were excluded from the study. Twins were followed up from the antenatal period upon their admission to the antenatal ward and the labour room. Detailed history was taken. The mode of onset of labour whether spontaneous or induced and mode of delivery whether abdominal or vaginal; were evaluated. Presentations of foetuses were noted at the time of delivery.

Antenatal corticosteroids were given routinely in all cases presenting with preterm labour and in complicated cases needing early termination. Induction was required in some cases for various obstetrical indications. Detailed clinical examination, local examination and per vaginal examination was done. In labour, twins were watched for progress. Once the first twin is delivered, per-abdominal examination and a per-vaginal examination were repeated and delivery of the second twin was facilitated. Blood was arranged in almost all cases and active management of third stage of labour was practiced. Time interval between the deliveries of the twins was noted. Apgar scores of babies were noted at 1' and 5'. The patients were discharged on the 3rd day after vaginal delivery. Only those who had undergone caesarean section or whose babies were in the NICU (neonatal intensive care unit) stayed back (for a longer duration of time in the hospital). The perinatal outcome of the babies was analysed based on the gestational age, birth weight, Apgar scores at birth, NICU admission factors like number of macerated births, still births, neonatal deaths). Outcome of 1st and 2nd twin were compared. Perinatal Mortality rate of first and second twin were calculated by using the

formula; Perinatal mortality = (Total number of late foetal death and early neonatal death having birth weight <1000gm divided by Total number of births) x 1000.

Written ethical clearance was obtained from institutional Ethical Committee. The data entry and statistical analysis were done by using the software, statistical software for social science (SPSS-16).

RESULTS

The clinical study to evaluate the perinatal outcome in twin pregnancies was conducted in the Institute of Maternal and Child Health between September 2005 and August 2006. Total number of deliveries during the study period was 21,718. Twins constitute 347 deliveries [1.6%]. 90 twins had preterm births (45%). Fifty five percent had gestational age between 35-37 weeks at the onset of labour. 28% had onset between 38 and 40 weeks (**Table 1**).

Table 1. Gestational age of twin delivery

Gestational age	Number	Percentage
28 – 31 wks	8	4
32-34 wks	26	13
35- 37 wks	110	55
38-40 wks	56	28
Total	200	100

Out of the 200 twin (400 babies) deliveries; 62.5% twin were vaginal, 35.5% were abdominal, and 2% were combined (one baby delivered through vaginal route and one through abdominal) delivery (**Table 2**).

Table 2. Mode of twin delivery

Mode of delivery	Twin delivery (Number of Babies)	Percentage
vaginal	125 (250)	62.5
abdominal	71 (142)	35.5
Combined abdomino-vaginal	4 (8)	2
Total	200 (400)	100

In four combined; abdomino-vaginal deliveries, all required caesarian section for the delivery of second twin. Indication for the caesarian section was, one for foetal distress and other three for transverse lie of second twin. 38.7% of the first twin and 39.7% of the second twin had birth weight of 2 to 2.4 Kg, 28.14% of the first and second twins had birth weight of 1.5 to 1.9 Kg respectively and 3.02% of the first and second twins had birth weight of <1Kg. There is a significant association (P value <0.05) between first and second

Table 3. Foetal outcome and order of twin delivery

Outcome	First twin		Second twin	
	No	%	No	%
Macerated birth	10	5	11	5.5
Fresh still birth	2	1	2	1
Neonatal death	12	6	19	9.5
Admission to NICU	46	23	57	28.5
Normal	130	65	111	55.5
Total	200	100	200	100

Statistics = χ^2 , P < 0.05 significant

twin delivery and the foetal outcome in terms of normal baby, macerated baby, fresh still birth, neonatal death and admission to NICU (**Table 3**).

Perinatal mortality rate of first twin was 90/1000 and that of second twin was 130/1000.

DISCUSSION

Preterm birth is the main reason for the poor perinatal outcome in multiple pregnancies. The preterm birth in twins varies among populations from 30 to 50%. Incidence of preterm birth in the present study was 45%. 84.5% had spontaneous onset of labour, but in 15.5% (31 twins) labour was induced for obstetrical indications. The incidence of preterm birth in twins in studies conducted by Anahita et al 2003³ and Houlton M 1981⁴ were 61.2 & 50 respectively. 55% had delivery between 35 and 37 weeks of gestation and 28% delivered between 38 and 40 weeks. 13% delivered between 32- 34 weeks. A retrospective study of 188 twin pregnancies conducted by Anahita et al³ reported that the period of gestation at onset of labour varied between 24 – 41 weeks, average being 33 weeks and only 38.29% continued beyond 37 weeks of gestation.

There is a high incidence of mal-presentation at the time of delivery in twin gestation. The most common presentation in the present study was vertex- vertex (48%). Next common is vertex-breech in 44cases (22%). In the study of Anahita et al frequency of presentation was, Vx-Vx in 57.55%, Vx-Br in 34 cases (18.08%) and breech–vertex in 10.6%. Divon and colleagues also reported Vx-Vx in 42% and Vx-Br in 27% cases.⁵ In our study, 24.5% had breech as presentation for the first baby, and 57% of them were delivered by caesarean section. This substantiates that mal-presentations are more in twin pregnancy.

In this study 62.5% delivered vaginally, 35.5% delivered by caesarean section and 2% had abdomino-vaginal delivery. In the absence of other obstetric indications

for caesarean delivery, vaginal delivery should be planned in all cases of vertex-vertex presentation, irrespective of gestational age.⁶ 27.5% had required emergency caesarean section and 8% delivered by elective caesarean section and this was comparable to study conducted by Samra JS et al.⁷ The study by Fisherman A et al, the emergency caesarean section 36% and elective caesarean section was 48%. In our study in 4 cases caesarean section was done for the delivery of the second twin, three of them in which the lie of the second baby was transverse. After delivery of first twin, internal-podalic version was tried in these cases, but failed and they ended in caesarean section. In 40 cases, 2nd twin was delivered by assisted breech delivery. So, the common indication for emergency CS was noncephalic first twin, in which caesarean delivery is often preferred and advised, although no studies suggests that vaginal birth is inappropriate. In a study of the delivery courses of 84 cephalic and non-cephalic twins, found that vaginal delivery of twin A and breech extraction of twin B resulted in significantly shorter maternal and neonatal hospital stays.⁸ Laurie et al in a retrospective Cohort study proposed that women with twins should be counselled about the risk to the second twin and the theoretical possibility of a protective effect of planned caesarean section when considering mode of delivery at term. Rebecca et al also demonstrated that twin B had more fetal distress and lower 5 minute Apgar scores than twin A, except at short delivery intervals. Our study also shows that second twin had low Apgar scores when compared to first twin at one minute, but at 5 minutes no such difference was observed. This is in accordance with the study of Bernado, which suggested that almost half of the early neonatal deaths had 5 minutes Apgar scores varying from 7 to 10.² This also favours the hypothesis that Apgar scores >7 obtained 5 minutes after birth cannot be considered as an adequate indicator of good clinical condition of the newborn. In this study, NICU admissions were more for second of twin, 28.5% compared to 23% for first of twin. The most common cause of admission to NICU was prematurity followed by low birth weight, IUGR and birth asphyxia.

In our study, there were 56 perinatal deaths in 400 fetuses. This was comparable to the study by Anahita et al who reported 64 perinatal deaths in 376 fetuses.³ Perinatal mortality of second twin was 130/1000 compared to 90/1000 for 1st twin. Anahita reported the perinatal mortality of first twin as 117/1000 and second twin 223/1000.³ In another study by Nova Scotia et al, also suggests that the second twin was at higher risk of composite adverse outcome than first

twin.¹⁰ This excess risk was evident independent of presentation, chorionicity or infant sex but was associated with planned vaginal delivery, birth weight discordance and prolonged inter delivery interval. In a 9 year retrospective cohort study by Smith et al concluded that being a second twin confers an increased risk of suffering from fatal complications during birth due to intrapartum asphyxia.¹¹ The recent twin-birth study states that planned CS delivery did not significantly increase or decrease the risk of foetal or neonatal death or morbidity as compared with planned vaginal delivery in twin pregnancies with first baby vertex.¹² For twins born preterm, there was no difference in overall death rates between 1st and second, because the rate of death is already high for both due to the effects of prematurity.

CONCLUSION

The perinatal outcome of the second twin was poor when compared to the first twin. Poor perinatal outcome in terms of macerated births, neonatal deaths and NICU admissions were more in second twin. This may be due to increased prematurity, low birth weight, birth asphyxia and mal-presentations in twins. Complications are expected more for the second twin compared to the first. Strict intrapartum monitoring, availability of expert obstetrician to conduct delivery along with good neonatal intensive care facilities are crucial in improving the perinatal outcome.

END NOTE

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