TWIN DELIVERY: PERINATAL OUTCOME OF THE SECOND BORN TWIN

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ABSTRACT

Objective: The objective of this study was to compare the perinatal outcome of first and second twin in terms of perinatal morbidity and mortality in vaginal delivery.

Methodology: This comparative study was conducted at Department of Obstetrics and Gynaecology, Lady Reading Hospital Peshawar from April 2006 to February 2007. Fifty patients with twin gestations admitted to labour ward for delivery at and above 36weeks´ gestation were selected according to the inclusion/exclusion criteria. Information including maternal age, parity, birth weight, Apgar score, perinatal morbidity and mortality of both twins were recorded on a semi structured proforma and analysed by chi square test using SPSS v 12.

Results: The differences of the Apgar scores at one minute and five minute were significantly increased in the second twin compared to that of the first twin (p =0.040, and 0.038 respectively). The admission to nursery was also found to be significantly increased in second twins as compared to first twins (p = 0.43). The perinatal morbidity was also found to be significantly increased in second twins than the first twins (p= 0.05), while neonatal mortality was not statistical significant.

Conclusion: The perinatal outcome of vaginally delivered twins at or after 36weeks' of gestation showed that second twins are at greater risks of perinatal morbidity than the first born twins. But the early neonatal mortality was not significantly different between the two groups.

Key Words: Twin delivery, Apgar score, Perinatal outcome, Neonatal morbidity, Neonatal mortality.

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INTRODUCTION

Twin gestations comprise 1- 3% of all pregnancies[1, 2]. The conduct of a twin delivery remains one of the most challenging events in the daily practice of obstetrics. The mode of delivering is often influenced by the presentation of the twins[3,4].

Twins are at higher risk of death, morbidity, and neuro developmental disability than singletons[5]. The perinatal death rate in twins has been reported to be 4 – 10 times higher than that in singletons and constitutes 10% of the total perinatal mortality[2,6,7]. Several studies have shown that second twins are at increased risk of perinatal morbidity and mortality than first born twins. There are several hypotheses to explain the increased mortality in the second born twins. Second twin is at risk because of premature separation of placenta after delivery of the 1st twin and this risk increases with increase in the inter twin delivery interval. Also manipulation for the non vertex presentation of the second twin can also lead to poor perinatal outcome[8,9]

Although some epidemiological studies have reported that there was no difference in the risk of perinatal complications according to the birth order, recent studies have shown that the risk of perinatal mortality and neonatal morbidity was high in the second twin than the first twin, and the inter twin delivery interval have been suggested as an important risk factor associated with incidence of delivery – related complications in second twins[7-9].

The current study was performed to investigate the effect of vaginal delivery on the perinatal outcome of second twin as compared to that of the first twin.

METHODOLOGY

This comparative study was carried out at Department of Obstetrics and Gynaecology, Lady Reading Hospital Peshawar from April 2006 to February 2007. A total of 50 patients with twin gestation of 36 or more completed weeks were included in the study group. The cases in which either twin died before the onset of labour or had lethal malformation, gestational age less than 36weeks, and twins delivered by elective caesarean section were excluded.

Maternal demographics and obstetric history of the patients enrolled for the study were recorded, including maternal age, parity, and gestational age.

Gestational age was established by menstrual date and an ultrasound scan done before 20weeks gestation. The scan date was preferred if the menstrual date was uncertain or there was a discrepancy of more than 14 days between the estimates.

The perinatal outcome measures were 1- and 5 minute Apgar scores < 7 , admission to nursery , early neonatal mortality (neonatal death within 7days of delivery), neonatal morbidity (birth asphyxia, birth trauma, respiratory distress syndrome, infection) and were recorded on a semi structured performa.

The perinatal outcome measures of the twin siblings were compared using Chi square test where applicable. The statistical package for social science software (version 12) was used and statistical significance was considered if the p value was < 0.05.

RESULTS

Fifty patients with twin births were included in the study. The maternal age ranged from 18 to 40 years with mean age of 31.22years±5.64. Parity ranged from 0 – 9. The gestational age of twins at delivery ranged from 36+0 weeks to 40+0 weeks with mean gestational age of 37week + 2days ± 1.7 SD. The mean inter twin

Table 1: Demographic and Obstetric details (n=50)

	Mean ± SD	Numbers (%)	
Inter twin delivery interval (min)	16.18 ± 7.06		
<15min		33 (66%)	
16 – 30 min		16 (32%)	
31 – 45 min		1 (2%)	
Presentation		First twin	Second twin
Cephalic		33 (66%)	32 (64%)
Breech		17 (34%)	15 (30%)
Transverse		0 (0%)	3 (6%)
Mode of delivery			
Spontaneous vaginal delivery		25 (50%)	29 (58%)
Vacuum delivery		8 (16%)	3 (6%)
Spontaneous breech delivery		3 (6%)	5 (10%)
Assisted breech delivery		14 (28%)	7 (14%)
Breech extraction		0 (0%)	3 (6%)
IPV + BE		0 (0%)	3 (6%)
Birth weight (kg)			
First twin	2.8 ± 0.53		
Second twin	2.7 ± 0.44		
<2.0 kg		0 (0%)	1 (2%)
2.0 – 2.4 kg		10 (20%)	9 (18%)
2.5 – 2.9 kg		15 (30%)	21 (42%)
3.0 – 3.4 kg		23 (46%)	16 (32%)
≥ 3.5 kg		2 (4%)	3 (6%)

Table 2: Perinatal Outcome measures of first and second twin(n=50)

	First twin(n=50)	Second twin(n=50)	P VALUE
Apgar score			
1 min < 7	4(8%)	11(22%)	0.040
5 min <7	1(2%)	4 (8%)	0.038
Admission to nursery	1(2%)	7(14%)	0.043
Neonatal mortality	1(2%)	2(4%)	0.50
Neonatal morbidity	4(8%)	8(16%)	0.05
Birth asphyxia	1(2%)	3(6%)	
RDS	0(0%)	1(2%)	
Birth trauma	1(2%)	1(2%)	
Infection	1(2%)	2(4%)	
Neonatal seizures	1(2%)	1(2%)	

delivery interval was 16.18±7.06 minutes, with 33 (66%) of second twins delivered within 15 minutes of the delivery of the first twin and 16 (32%) delivered within 16 – 30 minutes. Only one second twin delivered within 31 – 45 minutes of the delivery of first twin. The presentation of first twin was cephalic in 33(66%) and breech in 17(34%). The second twin was cephalic in 32(64%), breech 15(30%) and transverse in 3(6%). The mode of delivery of first twin was spontaneous vaginal delivery in 25(50%), vacuum delivery in 8(16%), spontaneous breech delivery in 3(6%), assisted breech delivery in 14(28%). The second twin delivered by spontaneous vaginal delivery in 29(58%), vacuum delivery 3(6%), spontaneous breech delivery in 5(10%), assisted breech delivery in 7(14%), breech extraction in 3(6%), internal podalic version and breech extraction in 3 (6%). The mean birth weight of first twin was 2.8 kg± 0.44 SD and that of second twin was 2.7 kg±0.44 SD. (Table 1).

With regard to comparison of perinatal outcome of first and second twins, the 1- minute Apgar score was < 7 in 4(8%) first and in 11(22%) second twins, (p value 0.038). Seven (14%) of second twin were admitted to nursery while 1(2%) of first twins were admitted to nursery. Early neonatal death occurred in 1(2%) of first twins and in 2(4%) of second twin, (p value 0.50). The overall neonatal morbidity was 4(8%) in first and 8(16%) in second twins, (p value 0.05). The variables of neonatal morbidity i-e birth asphyxia, respiratory distress syndrome, infection were all increased in second twin than first except neonatal seizures and birth trauma which were equal in both groups (Table 2).

DISCUSSION

The conduct of a twin delivery remains one of the most challenging events in the daily practice of obstetrics. The delivery of the second twin is considered to be associated with increased risk. This study was a focused on delivery- related perinatal outcome of vaginally delivered second twins excluding the confounding effects of prematurity, congenital malformations and antepartum fetal death. Low birth weight and prematurity are the main causes of high perinatal morbidity and mortality in twins, whereas mal-presentation and the hazards of delivery are next in order of concern. Mal- presentation of one or both babies occurs in about 60% of all twin pregnancies.

Several retrospective analyses and meta- analyses have reported that the prognosis of twins was not different according to delivery mode but population-based studies reported that the mortality rate of second twins is higher in vaginal deliveries [10-13]. In our study low Apgar score at 1 and 5 minutes for the 2nd twins were statistically significant with p value of 0.04 and 0.038 respectively. A recent study has shown that 1- and 5-minute Apgar scores were significantly lower in second twins delivered vaginally[14, 15]. Similarly Shafqat et al in their study has reported a low Apgar score of <7 in the second twin[16]. An important difference between second twins in vaginal delivery is the inter- twin delivery interval, which may be the most important factor in causing increased neonatal morbidity of the second twin particularly the birth asphyxia, and low Apgar score[15, 16].

In our study admission to neonatal intensive care unit was also statistically significant, 14% of the second twin were admitted in the NICU, while only 2% of the 1st twin required NICU admission. The same study has also reported a high NICU admission due to birth asphaxia[16].

Neonatal morbidity including birth asphaxia, respiratory distress syndrome, birth trauma, neonatal infection and neonatal seizures in our study were more in

the second twin although not statistically significant (p value 0.05). Hoffmann has reported a high perinatal morbidity of the second twin in vaginal delivery[18].

An important difference between the first and the second twins in vaginal delivery is the inter- twin delivery interval, which may be the most important factor in causing increased neonatal morbidity of the second twin particularly the birth asphyxia, and low Apgar score[15, 16].

In our study the neonatal mortality was 4% in second twin and 2% in the 1st twin, with p value of 0.5. Shafqat et al has reported a high perinatal mortality of 68%, the reason of this high perinatal mortality was because all these babies were delivered 30 minutes after the delivery of the 1st twin[16].

The results of this study must be interpreted with caution. A limitation of our study was the small number of women investigated. Further research needs to be done to compare the perinatal outcome of vertex versus non-vertex second twins, and to compare the vaginally delivered second twins with those delivered by caesarean section.

CONCLUSION

Second twins are vulnerable to complications during labour and delivery. The perinatal outcome of vaginally delivered twins at or after 36weeks' gestation showed that second twins were at greater risks of perinatal morbidity than the first born twins. But the early neonatal mortality was not significantly different between the two groups.

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CONTRIBUTORS

FJ conceived the idea, planned and wrote the manuscript of the study. RA, RK and MY helped in the data analysis and write up of the manuscript. All the authors contributed significantly to the research that resulted in the submitted manuscript.