

Neonatal Death and Morbidity in Second Twins

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Abstract

Background: The second twin is generally considered at higher risk of severe morbidity and mortality because of obstetric complications that may occur after delivery of the first twin.

Methods: The hospital based descriptive type of observational study was conducted in the Department of Obstetrics and Gynaecology, RVRS Medical College, Bhilwara.

Results: In 5-7 APGAR score neonates had birth weight 1.82 kg. In >7 APGAR score neonates mean birth weight was 2.25 kg. The association between neonatal APGAR score and birth weight was statistically significant (p-value<0.05).

Conclusion: Mode of delivery and birth weight are the major determinants of perinatal outcome of the second twin.

Keywords: NICU, APGAR score, Neonates.

Introduction

During the last 25 years, the prevalence of twin and higher-order multiple pregnancies has been rising considerably due to novel therapies of infertility. One study reported the prevalence of twin pregnancies to have

risen from 18.9 cases per 1,000 live births in 1980 to 32.1 cases in 2005^{1,2}. The incidence of monozygotic twins is almost constant throughout the world (1 per 250 births) and is independent from race, heredity, age, and parity. On the other hand, the incidence of dizygotic twin pregnancy is considerably influenced by race, heredity, maternal age, parity, and especially drugs affecting reproduction, thus giving rise to different incidence throughout the world^{3,4}.

Perinatal mortality is an index of obstetric care. Recent advances in Obstetrics and Neonatology have dramatically improved perinatal outcome in various types of high risk pregnancies. Nonetheless the risk in twin gestation remains significantly higher than that of singleton.⁵ The perinatal death rate in twins is 4 – 10 times higher than that in singletons and constitutes 10% of the total perinatal mortality.⁶⁻⁸

The optimal mode of birth for twin pregnancy is controversial. A great vulnerability of second twin at birth appears to arise mainly, if not entirely, on account of its peculiar and favorable position. Retrospective reviews in

the literature provide support for both caesarean birth and vaginal birth for the second non-vertex twin.⁹

Clinically, it is well recognized that the second twin is at increased risk of complications during labour due to difficulties in fetal monitoring and the possibility of traumatic delivery following vaginal birth of the first twin.¹⁰

The second twin is generally considered at higher risk of severe morbidity and mortality because of obstetric complications that may occur after delivery of the first twin. Including placental separation, cord prolapse, uterine atony, long interval delivery and cervical spasm.^{11,12}

The second twin is more likely to have lower APGAR scores, less favorable umbilical arterial or venous parameters, a higher incidence of respiratory distress syndrome, a higher need for intubation, and a higher perinatal mortality.¹³⁻¹⁵

Material & Methods

Study Design: Hospital-based descriptive type of observational study.

Place of Study: Department of Obstetrics and Gynaecology, RVRS Medical College, Bhilwara

Study Population: Pregnant women who have confirmed diagnosis of twin gestation attending Labour room of Department of Obstetrics and Gynaecology, RVRS Medical College with period of gestation 28 weeks or more was included in the study.

Inclusion Criteria

- Diagnosis of twin pregnancy confirmed by ultrasound examination.
- Pregnant women who have twin gestation with period of gestation 28 weeks or more and are giving written and inform consent.
- Age between 18-36 years.

- First twin with cephalic presentation and selected for vaginal delivery.

Exclusion Criteria

- Pregnant woman with pre-existing medical complication like chronic hypertension, diabetes mellitus, renal disease, collagen vascular disease, or any other disorder that could complicate the present pregnancy.
- Intrauterine death of either one of twin before the onset of labour.
- Pregnancies complicated by fetal malformation or lethal anomaly of either twin.
- Contraindication to vaginal delivery.

Data collection

All the relevant information were recorded in the case record form, e.g., maternal age, gravidity, parity, detailed history, clinical examination findings including obstetric examination, ultrasound reports, gestational age at birth, presentation of both the fetuses at labor and delivery, mode of delivery, birth weight, and lastly, perinatal outcome of the babies including perinatal morbidity (neonatal illness and complications), and mortality (stillbirth and early neonatal death).

Statistical Analysis

Continuous variables were summarised as Mean and Standard Deviation whereas nominal / categorical variables as proportion (%).

Unpaired 't' test and parametric test were used for analysis of continuous variables while chi-square test / fisher exact test and other non-parametric test was used for normal / categorical variables. p-value < 0.05 was taken as significant.

Results & Discussion

Table no.1. Association between mode of delivery and APGAR score.

Mode of delivery	APGAR score			Total
	<5	5-7	>7	
Assisted vaginal breech	0	5	4	9
Normal vaginal delivery	2	16	23	41
Total	2	21	27	50
p-value	0.61			

In present study 23 neonates APGAR score was more than 7 in Assisted vaginal breech delivery and 4 neonates APGAR score was more than 7 in normal vaginal delivery. The association between mode of delivery and APGAR score was statistically Insignificant (p-value>0.05). This could be explained by the fact that during the vaginal breech delivery, birth asphyxia was more common.

Katarzyna Kosińska-Kaczyńska et al¹⁶observed that no increased risk for morbidity in twins with intended vaginal delivery. As an elective cesarean section does not bring any benefit to the perinatal outcome, nowadays the indications for a planned operative delivery in twins are fewer.

Table no.2. Association between birth weight and APGAR score.

Birth weight	APGAR score		
	<5	5-7	>7
Mean ± SD	1.01±0.3	1.82±0.86	2.25±0.36
p-value	0.001(S)		

In 5-7 APGAR score neonates had birth weight 1.82 kg. In >7 APGAR score neonates mean birth weight was 2.25 kg. The association between neonatal APGAR score and birth weight was statistically significant (p-value<0.05).

Table no. 3. Association between birth weight and neonatal mortality

Birth weight	Neonatal mortality	
	Yes	No
Mean ± SD	1.32±0.21	2.08±0.48
p-value	0.001(S)	

Mean birth weight of neonates who died was 1.32 kg. Maximum mortality was found in low birth babies. The association between neonatal mortality and birth weight was statistically significant (p-value<0.05).

Discussion

In present study 23 neonates APGAR score was more than 7 in Assisted vaginal breech delivery and 4 neonates APGAR score was more than 7 in normal vaginal delivery. The association between mode of delivery and APGAR score was statistically Insignificant (p-value>0.05). This could be explained by the fact that during the vaginal breech delivery, birth asphyxia was more common.

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Mean birth weight of neonates who died was 1.32 kg. Maximum mortality was found in low birth babies. The association between neonatal mortality and birth weight was statistically significant (p-value<0.05).

H. Konar et al¹⁷ observed that perinatal mortality of second twins was three times higher (42.86%) among low birth weight babies (<2.5 kg) than normal birth weight

babies (14.28%) (>2.5Kg). The differences was found to be statistically significant (p-value<0.05).

Twin pregnancy is more likely to be characterized by LBW than singleton pregnancy mostly due to fetal growth restriction and preterm delivery¹⁸

Conclusion

Mode of delivery and birth weight are the major determinants of perinatal outcome of the second twin. The second twin is at higher risk of perinatal morbidity and mortality than the first twin. The study findings suggested that early diagnosis, frequent and regular antenatal check-ups, strict intrapartum monitoring, availability of expert obstetrician to conduct delivery and good neonatal intensive care can improve perinatal outcome of the Second Twins.

References

1. Martin J, Hamilton B, Sulton P, et al. Final data for 2006. National vital statistics reports, vol 57, no 7, Hyattsville, National center for Health statistics, 2009.
2. Aston K, Peterson C, Carrell D. Monozygotic twinning assisted reproductive technologies: a review. *Reproduction*. 2008; 136:377
3. Choi Y, Bishai D, Minkovitz C. Multiple births are a risk factor for postpartum maternal depressive symptoms. *Pediatrics*. 2009; 123(4): 1147.
4. Francois K, Ortiz J, Harris C. Is peripartum hysterectomy more common in multiple gestations? *ObstetGynecol*. 2005 ; 105: 1369.
5. KR Chaudhari. Perinatal outcome of second twin. *Bombay Hospital Journal*, Vol 51, No. 4, 2009.
6. Naqvi MM, Outcome of twin pregnancy in booked versus un booked cases. *J Coll Physicians Surg Pak* 2003; 13: 498-500.

7. Hartely RS, Emanuel I, Hitti J. Perinatal mortality and neonatal morbidity rates among twin pairs at different gestational ages: optimal delivery timing at 37 to 38 weeks gestation. *Am J ObstetGynecol* 2001 ; 184: 451-8.
8. Sheay W, Ananth CV, Kinzler WL. Perinatal mortality in first and second born twins in the United States. *ObstetGynecol* 2004; 103:63-70.
9. Rossi AC, Mullin PM, Chmait RH. Neonatal outcomes of twins according to birth order, presentation and mode of delivery: A systematic review and metaanalysis. *BJOG*, 2011; 118(5): 523.
10. Schmitz T, deCarne Carnavalet C, Azria E, et al. Neonatal outcomes of twin pregnancy according to the planned mode of delivery. *ObstetGynecol*, 2008; 111: 695-703.
11. MacKay AP, Berg CJ, King JC, Duran C, Chang J. Pregnancy related mortality among women with multifetal pregnancies. *ObstetGynecol* 2006 ; 107: 563-8.
12. Wen SW, Fun KF, Oppenheimer L, Demissie K, Yang Q, Walker M. Occurrence and predictors of cesarean delivery for the second twin after vaginal delivery of the first twin. *ObstetGynecol* 2004 ; 103 : 413-9.
13. Prins RP. The second born twin: can we improve outcome? *Am J Obstet Gynecol*. 1994; 170:1649-56.
14. Young BK, Suidan J, Antoine C. et al. Differences in twins : the importance of birth order. *Am J Obstet Gynecol*. 1985; 151:915-21.
15. Eskes TK, Timmer H, Kollee L et al. The second twin. *Eur J ObstetGynecolReprod Biol*. 1985 ; 19: 159-66.
16. Katarzyna Kosińska-Kaczyńska, Iwona Szymusik. Perinatal outcome according to chorionicity in twins — a Polish multicenter study. *Ginekologia Polska* 2016; 87, 5: 384–389.

17.Hiralal Konar, Madhutandra Sarkar. Perinatal Outcome of the Second Twin at a Tertiary Care Center in India.J ObstetGynaecol India. 2016 Dec; 66(6): 441–447.

18.Buekens P,Wilcox A. Why do small twins have a lower mortality rate than small singletons?Am J Obstet Gynecol.1993;168:937-41.