

NEONATAL DEATH AND MORBIDITY IN SECOND TWINS ACCORDING TO MODE OF DELIVERY AND BIRTH WEIGHT

Lata Rajoria¹, Shimala Meena^{2*}, Suman Mendiratta³, Anita Sharma⁴, Mamta Meena⁵

¹Sr. Professor & HOD, ²IIIrd Yr. Post Graduate Student, ³sr. Professor & Unit Head, ^{4,5} Asst. Professor
Department of Obstetrics & Gynaecology, SMS Medical College, Jaipur

Conflicts of Interest: Nil

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, SMS Medical College, Jaipur from January 2017 to Dec. 2018.

Results - In present study 37.5% neonates APGAR score was more than 7 in Assisted vaginal breech delivery and 42.59% neonates APGAR score was more than 7 in normal vaginal delivery. 7.41% neonatal mortality was observe in normal vaginal delivery and 12.5% mortality was observe in Assisted vaginal breech delivery. The association between neonatal APGAR score & Neonatal mortality 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.⁵The

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, SMS Medical College & associated Hospitals, Jaipur.

Duration of Study: From April 2017 to Nov 2018

Type of Study: Descriptive type

Study Population: Pregnant women who have confirmed diagnosis of twin gestation attending Labour room of Department of Obstetrics and Gynaecology, SMS Medical College & associated Hospitals 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 informed 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.

METHODOLOGY

- Ethical clearance for doing this study was obtained from the Institutional Ethics Committee.
- Pregnant women who have confirmed diagnosis of twin gestation attending Labour room of Department of Obstetrics and Gynaecology, SMS Medical College & associated Hospitals with period of gestation 28 weeks or more was included in the study.
- After their complete medical & surgical history and a thorough physical examination was done.
- After applying inclusion and exclusion criteria patients written informed consent was taken.
- 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.

MEDCALC 16.4 version software was used for all statistical analysis.

RESULTS & DISCUSSION

Table 1: Association between mode of delivery and APGAR score.

Mode of delivery	APGAR score			Total
	<5	5-7	>7	
Assisted vaginal breech	0(0.00%)	5(62.5%)	3(37.5%)	8(12.70%)
Normal vaginal delivery	3(5.56%)	28(51.85%)	23(42.59%)	54(85.71%)
IPV+BE	0(0.00%)	1(100.00%)	0(0.00%)	1(1.59%)
Total	3(4.76%)	34(53.97%)	26(41.27%)	63(100.00%)
p-value	0.94(NS)			

In present study 37.5% neonates APGAR score was more than 7 in Assisted vaginal breech delivery and 42.59% 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 al¹⁶ observed 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 2: Association between mode of delivery and neonatal mortality

Mode of delivery	Neonatal mortality		Total
	Yes	No	
Assisted vaginal breech	1(12.5%)	7(87.5%)	8(12.70%)
Normal Vaginal Delivery	4(7.41%)	50(92.59%)	54(85.71%)
IPV+BE	0(0.00%)	1(100.00%)	1(1.69%)
Total	5(7.93%)	58(92.07%)	63(100.00%)
p-value	0.51(NS)		

In present study 7.41% neonatal mortality was observe in normal vaginal delivery and 12.5% mortality was observe in Assisted vaginal breech delivery. The association between mode of delivery and neonatal mortality 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 al¹⁶ observed that mode of delivery and neonatal mortality was statistically Insignificant.

Table 3: Association between birth weight and APGAR score.

Birth weight	APGAR score		
	<5	5-7	>7
Mean ± SD	1.00±0.00	1.81±0.84	2.25±0.36
p-value	0.001(S)		

In 5-7 APGAR score neonates had birth weight 1.81 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 4: Association between birth weight and neonatal mortality

Birth weight	Neonatal mortality	
	Yes	No
Mean $\pm$ SD	1.30 $\pm$ 0.26	2.08 $\pm$ 0.48
p-value	0.001(S)	

Mean birth weight of neonates who died was 1.30 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.

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