VOLUME-7, ISSUE-9, SEPTEMBER-2018 • PRINT ISSN No 2277 - 8160

Original Research Paper

Gynaecology

"A COMPARATIVE STUDY OF PERINATAL OUTCOME OF SECOND BABY VERSUS FIRST BABY IN TWIN DELIVERY"

Dr.Ruchi N.Thakur — Department of Obstetrics and Gynaecology, B.J.G.M.C. & S.G.H. Pune, Maharashtra, India

Dr.Seema C.Kshirsagar* — Department of Obstetrics and Gynaecology, B.J.G.M.C. & S.G.H. Pune, Maharashtra, India*Corresponding Author

ABSTRACT

INTRODUCTION: Twin pregnancy is becoming a problem of increasing dimensions worldwide with the dramatic increase in its incidence mostly attributable to assisted reproductive technologies (ARTs).1Its incidence varies worldwide.

OBJECTIVE: To study the perinatal outcome of second twin during labour as against the first twin.

1 .To determine the effect of malpresentations, effect of mode of delivery on perinatal outcome of second twin, i.e. twin B.

2. To study the effect of maternal status, antenatal, intranatal complications, time interval between the delivery of two babies and its relation to the perinatal outcome of second twin.

3 To compare APGAR at 1 and 5 minutes of both the babies.

4. To compare differences in birth weights in both the twins with relation to perinatal deaths.

5. To observe the conventional management and to find out the suitable management for the delivery of second baby.

6. To find out the incidence of perinatal mortality of twins.

MATERIAL AND METHODS:

A prospective analytical study was undertaken with a view to analyze the vulnerability i.e. perinatal outcome of second twin during labour as against the first twin.

RESULTS:

The study findings emphasize the importance of appropriate management protocols directed towards counseling, frequent and regular antenatal check-ups, early admission of mothers, and proper care during intrapartum and immediate postpartum periods. Second twins should be managed more carefully during intranatal and early neonatal periods. Twin pregnancy can be effectively managed in a tertiary health care facility to optimize maternal and fetal care for improving perinatal outcome.

Perinatal mortality of monochorionic twins is much higher than that of dichorionic twins. Antepartum diagnosis of the type of placentation will help in identifying the twins at risk for twin to twin transfusion syndrome, discordant growth and greater perinatal mortality. Good antenatal care, early diagnosis, recognition and treatment of antenatal risk factors, prevention of preterm labour and close fetal surveillance, particularly of monochorionic twins and prompt therapeutic intervention of TTTS are necessary to reduce perinatal mortality. Strict intrapartum monitoring, experienced obstetricians to conduct delivery, liberal use of LSCS along with good neonatal intensive care especially for premature babies, will lead to better outcome.

KEYWORDS : TWIN,OUTCOME,LABOUR,COMPARATIVE STUDY

INTRODUCTION: Twin pregnancy is becoming a problem of increasing dimensions worldwide with the dramatic increase in its incidence mostly attributable to assisted reproductive technologies (ARTs).1Its incidence varies worldwide. The twinning rates are low (6–9 per 1000 births) in the whole of Eastern, South-Eastern, and Southern Asia including India. Latin America has low twin birth rates as those in Asia. The twin birth rates in Europe and North America are intermediate, 9–16 per 1000 births. High national twinning rates of above 18 per 1000 births are found throughout Central Africa.2 The study of twin or multiple births is important because of the elevated health risks for both mothers and babies, and accompanying greater health care cost.3 Perinatal mortality and morbidity in twin pregnancy is five–seven times higher compared to singleton pregnancy.4 Prematurity, low birth weight (LBW), birth asphyxia, birth trauma, intrauterine fetal death, and congenital malformations are the important factors to explain the reasons of high perinatal mortality. Twin gestations comprise 1- 3% of all pregnancies.[5,6] 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.[7,8]

Twins are at higher risk of death, morbidity, and neuro developmental disability than singletons.9 The perinatal death rate in twins has been reported to be8-14 times higher than that in singletons and constitutes 10% of the total perinatal mortality.10 Several studies have shown that second twins are at increased risk of perinatal morbidity and mortality than first born twins.

AIMS AND OBJECTIVE: To study the perinatal outcome of second twin during labour as against the first twin.

1 .To determine the effect of malpresentations, effect of mode of delivery on perinatal outcome of second twin, i.e. twin B.

2. To study the effect of maternal status, antenatal, intranatal complications, time interval between the delivery of two babies and its relation to the perinatal outcome of second twin.

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6. To find out the incidence of perinatal mortality of twins.

MATERIAL AND METHODS:

A prospective analytical study was undertaken with a view to analyze the vulnerability i.e. perinatal outcome of second twin during labour as against the first twin.

Study Population: A prospective analytical institutional study, where in women primarily booked and registered at our tertiary care centre, with TWIN pregnancy were selected and taken up for the study.

Study duration: 2 years

INCLUSION CRITERIA

1. Women primarily booked and registered at our tertiary care centre with gestation period of more than 28 weeks at least 100 cases.

2. Women willing for safe confinement at our centre.

EXCLUSION CRITERIA

1. Women age <16 years
2. Women with eclampsia

Sample size: 100 patients

The present Study was carried out at our tertiary care centre after obtaining written informed consent from the patients and after Approval from Institutional Ethics Committee.

OBSERVATIONS AND RESULTS:

A prospective analytical study was undertaken with a view to analyze the vulnerability i.e. perinatal outcome of second twin during labour as against the first twin.

Distribution of patients according to Age:

Majority of the patients (39%) were in the age group of 26-30 years followed by 23% in the age group of 31-35 years, 16% in the age group of 21-25 years, 14% in the age group of 36-40 years and 8% in the age group of >40 years. The mean age of the patients was 31.27± 5.69 years.

Table 1: Distribution of patients according to Age

Age (yrs)	N	%
21-25	16	16%
26-30	39	39%
31-35	23	23%
36-40	14	14%
>40	8	8%
Total	100	100%
Mean age	31.27 ± 5.69	

Distribution of patients according to Parity

Majority of the patients (73%) were Para 0 patients followed by 19% patients in Para 1, 5% in Para 2 and 3% in Para 3.

Table 2: Distribution of patients according to Parity

Parity	N	%
0	73	73%
1	19	19%
2	5	5%
3	3	3%
Total	100	100%

Distribution of patients according to Chorionicity

84% of the cases were dichorionic diamniotic pregnancy (DCDA) while 9% and 7% cases were mono-chorionic mono-amniotic (MCMA) and mono-chorionic diamniotic pregnancy (MCDA) respectively.

Table 4: Distribution of patients according to Chorionicity

Chorionicity	N	%
DCDA	84	84%
MCMA	9	9%
MCDA	7	7%
Total	100	100%

Distribution of patients according to Cerclage

It was observed in the study that cerclage was done in 39% patients.

Table 7: Distribution of patients according to Cerclage

Cerclage	N	%
Done	39	39%
Not done	61	61%
Total	100	100%

Distribution of patients according to Maternal Complications

The distribution of patients according to maternal complications is characterized in Table 8. The most common maternal complications were Preterm Labor, Anaemia, Increased Symptoms (12%), followed by Anaemia, Increased Symptoms (10%) and Preterm Labor, Anaemia (8%).

Table 8: Distribution of patients according to Maternal Complications

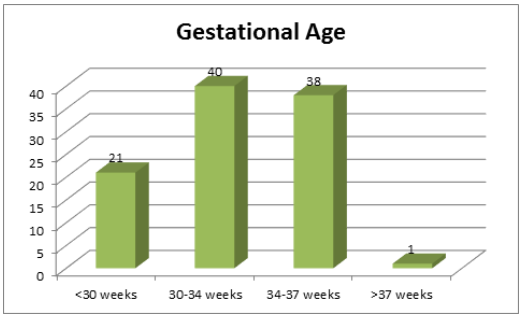
Maternal Complications	N	%
Anaemia	5	5%
Anaemia, Increased Symptoms	10	10%
Anaemia, Placenta Praevia	2	2%
DM, Increased Symptoms	2	2%
DM, PIH, Anaemia, Placenta Praevia	2	2%
Oligohydramnios, Anaemia, Increased Symptoms	1	1%
PIH, Anaemia	6	6%
PIH, Anaemia, Increased Symptoms	3	3%
PIH, Oligohydramnios, Anaemia, Increased Symptoms	1	1%
PIH, Oligohydramnios, Increased Symptoms	2	2%
PIH, Polyhydramnios, Anaemia, APH, Increased Symptoms	1	1%
PIH, Polyhydramnios, Anaemia, DM	2	2%
PIH, Polyhydramnios, Anaemia, Increased Symptoms	1	1%
Polyhydramnios, Anaemia, Increased Symptoms	5	5%
Preterm Labor, Anaemia	8	8%
Preterm Labor, Anaemia, Increased Symptoms	12	12%
Preterm Labor, Oligohydramnios	1	1%
Preterm Labor, PIH, Anaemia	2	2%
Preterm Labor, PIH, Oligohydramnios	2	2%
Preterm Labor, PIH, Polyhydramnios, Anaemia, Increased Symptoms	3	3%
Preterm Labour, Increased Symptoms	1	1%
Preterm Labour, PIH	1	1%
Preterm Labour, PIH, Anaemia, Increased Symptoms	2	2%
Preterm Labour, Anaemia, Increased Symptoms, Oligohydramnios	2	2%
Preterm Labour, Polyhydramnios, Increased Symptoms	1	1%
Preterm Labour, Polyhydramnios, Anaemia	2	2%

Distribution of patients according to Gestational Age at Delivery

40% patients were between 30-34 weeks of gestation followed by 38% patients between 34-37 weeks of gestation, 21% patients with <30 weeks of gestation and 1% patient with >37 weeks of gestation.

Table 9: Distribution of patients according to Gestational Age at Delivery

Gestational Age	N	%
<30 weeks	21	21%
30-34 weeks	40	40%
34-37 weeks	38	38%
>37 weeks	1	1%
Total	100	100%



Graph 9: Distribution of patients according to Gestational Age at Delivery

Distribution of patients according to Mode of delivery

The mode of delivery was LSCS in 43 (43%) patients while it was vaginal delivery for 55 (55%) patients. The mode of delivery of first and second neonate in two of the twin delivery was first twin by vaginal and second twin by LSCS respectively.

Table 13: Distribution of patients according to Mode of delivery

Mode of delivery	N	%
LSCS	43	43%
Vaginal Delivery	55	55%
First Neonate – Vaginal Second Neonate – LSCS	2	2%
Total	100	100%

Distribution of patients according to Fetal Complications

The most common fetal complication was IUGR, Discordance (32%) followed by IUGR (24%), Discordance (20%), Downs Syndrome (16%), IUGR, TTTS (4%) and Cystic Hygroma (4%).

Table 14: Distribution of patients according to Fetal Complications

Fetal Complications	N	%
IUGR, Discordance	8	32%
IUGR	6	24%
Discordance	5	20%
Downs Syndrome	4	16%
IUGR, TTTS	1	4%
Cystic Hygroma	1	4%
Total	25	100%

Birth Weight of Neonates

Majority of Twin 1 and Twin 2 (39% and 41% respectively) weighed between >1.5-2 kg followed by >2-2.5 kgs (34% and 36% respectively). There was no significant difference between the groups as per Chi-Square test (p>0.05).

Table 15: Birth Weight of Neonates

Birth Weight (kgs)	Twin 1		Twin 2		p Value
	N	%	N	%	
≤1 kg	4	4%	4	4%	>0.05
>1-1.5 kgs	17	17%	12	12%	>0.05
>1.5-2 kgs	39	39%	41	41%	>0.05
>2-2.5 kgs	34	34%	36	36%	>0.05
>2.5 kgs	6	6%	7	7%	>0.05
Total	100	100%	100	100%	>0.05

Comparison of Apgar at 1 min and 5 mins of Twin 1 vs. Twin 2

It was observed that Apgar score at 1 min and 5 mins was lower in Twin 2 as compared to Twin 1. This difference was statistically significant as per Chi-Square test (p<0.05).

Table 16:Comparison of Apgar at 1 min and 5 mins of Twin 1 vs. Twin 2

	Twin 1		Twin 2	
	N	N	N	N
0	0	0	7	3
1-4	15	0	55	4
4-7	85	5	38	38
>7	0	95	0	55
Apgar	1 Min	5 Mins	1 Min	5 Mins
Total	100	100	100	100

Time Interval vs. Neonatal Mortality of Twin 2

It was observed that the time interval between two deliveries when both the twins were alive was 10 mins whereas the time interval between two deliveries when Twin 2 was dead was 18 mins. This difference of 8 mins was statistically significant. As the time interval increases, the mortality of Twin 2 increases. If Twin 2 was delivered within 5 minutes, mortality was only 16.7% whereas it was 58.3% when the time interval was more than 20 minutes.

Table 17: Time Interval vs. Neonatal Mortality of Twin 2

Time Interval (in mins)	Total	Mortality		p Value
		N	%	
<5	64	2	16.7%	<0.05
5-10	34	1	8.3%	
10-20	32	2	16.7%	
>20	13	7	58.3%	
Total	100	12	100%	

Neonatal Outcomes

The outcomes of Twin 1 and Twin 2 are summarized in Table 18. There was no significant difference between the groups as per Chi-Square test (p>0.05).

Table 18: Neonatal Outcomes

Neonatal Outcomes	Twin 1		Twin 2		p Value
	N	%	N	%	
NICU Transfer	64	77.1%	58	69.9%	>0.05
Ventilator Support	34	40.9%	29	34.9%	>0.05
Surfactant Therapy	32	38.6%	25	30.1%	>0.05
Bag+Mask	13	15.7%	13	15.7%	>0.05
Necrotising Enterocolitis (NE)	1	1.2%	1	1.2%	>0.05
Retinopathy of Prematurity (ROP)	3	3.6%	3	3.6%	>0.05

RESULT:

A prospective analytical study was undertaken with a view to analyze the vulnerability i.e. perinatal outcome of second twin during labour as against the first twin. The following observations were noted:

1. Majority of the patients (39%) were in the age group of 26-30 years followed by 23% in the age group of 31-35 years, 16% in the age group of 21-25 years, 14% in the age group of 36-40 years and 8% in the age group of >40 years. The mean age of the patients was 31.27± 5.69 years.

2. Majority of the patients (73%) were Para 0 patients followed by 19% patients in Para 1, 5% in Para 2 and 3% in Para 3.

3. The type of conception was Spontaneous in 41% patients while it was After Ovulation Induction and In vitro fertilisation (IVF) in 33% and 15% patients respectively. The type of conception in 8% and 3% patients was intracytoplasmic sperm injection (ICSI) and Intrauterine insemination (IUI) respectively.

4. 84% of the cases were dichorionic diamniotic pregnancy (DCDA) while 9% and 7% cases were mono-chorionic mono-amniotic (MCMA) and mono-chorionic diamniotic pregnancy (MCDA) respectively.

5. cerclage was done in 39% patients.

6. The most common maternal complications were Preterm Labor, Anaemia, Increased Symptoms (12%), followed by Anaemia, Increased Symptoms (10%) and Preterm Labor, Anaemia (8%).

7. 40% patients were between 30-34 weeks of gestation followed by 38% patients between 34-37 weeks of gestation, 21% patients with <30 weeks of gestation and 1% patient with >37 weeks of gestation.

8. Cerclage was done in 19 (48.7%) patients between 30-34 weeks of gestation followed by 17 (43.6%) patients between 34-37 weeks of gestation and 3 (7.7%) patients with <30 weeks of gestation.

9. The association between gestational age at delivery and chorionicity among patients is summarized as In DCDA <30 weeks 18 (21.4%), 30-34 weeks 33 (39.3%), 34-37 weeks32 (38.1%), >37 weeks 1 (1.2%), In MCMA <30 weeks 3 (33.3%), 30-34 weeks 4 (44.5%), 34-37 weeks 2 (22.2%) and in MCDA 30-34 weeks 3 (42.9%), 34-37 weeks 4 (57.1%) respectively.

10. The mode of delivery was LSCS in 43 (43%) patients while it was vaginal delivery for 55 (55%) patients. The mode of delivery of first and second neonate in two of the twin delivery was first by vaginal and second by LSCS respectively.

11. The most common fetal complication was IUGR, Discordance (32%) followed by IUGR (24%), Discordance (20%), Downs Syndrome (16%), IUGR, TTTS (4%) and Cystic Hygroma (4%).

12. Majority of Twin 1 and Twin 2 (39% and 41% respectively) weighed between >1.5-2 kg followed by >2-2.5 kgs (34% and 36% respectively). There was no significant difference between the groups as per Chi-Square test (p>0.05).

13. It was observed that Apgar score at 1 min and 5 mins was lower in Twin 2 as compared to Twin 1. This difference was statistically significant as per Chi-Square test (p<0.05).

14. It was observed that the time interval between two deliveries when both the twins were alive was 10 mins whereas the time interval between two deliveries when Twin 2 was dead was 18 mins. This difference of 8 mins was statistically significant. As the time interval increases, the mortality of Twin 2 increases. If Twin 2 was delivered within 5 minutes, mortality was only 16.7% whereas it was 58.3% when the time interval was more than 20 minutes.

15. There was no significant difference in the outcomes of Twin 1 and Twin 2 as per Chi-Square test (p>0.05).

16. Both the twins were taken home in 81% cases while none was taken home in 14% cases. In 5% cases one of the twins was taken home.

17. Out of 84 cases of DCDA pregnancy, both twins were taken home in 68 (80.9%) cases while none were taken home in 11 (13.2%) cases. One twin was taken home in 5 (5.9%) cases. Out of 9 cases of MCMA pregnancy, both twins were taken home in 6 (66.7%) cases while none were taken home in 3 (33.3%) cases. In all cases of MCDA cases both twins were taken home.

18. It was observed that majority of perinatal death (6 cases) occurred in vertex-vertex presentation in Spontaneous Vaginal delivery followed by Vertex – Breech presentation in Assisted Vaginal Delivery.

CONCLUSION

The study findings emphasize the importance of appropriate management protocols directed towards counseling, frequent and regular antenatal check-ups, early admission of mothers, and proper care during intrapartum and immediate postpartum periods. Second twins should be managed more carefully during intranatal and early neonatal periods. Twin pregnancy can be effectively managed in a tertiary health care facility to optimize maternal and fetal care for improving perinatal outcome.

Perinatal mortality of monochorionic twins is much higher than that of dichorionic twins. Antepartum diagnosis of the type of placentation will help in identifying the twins at risk for twin to twin transfusion syndrome, discordant growth and greater perinatal mortality. Good antenatal care, early diagnosis, recognition and treatment of antenatal risk factors, prevention of preterm labour and close fetal surveillance, particularly of monochorionic twins and prompt therapeutic intervention of TTTS are necessary to reduce perinatal mortality. Strict intrapartum monitoring, experienced obstetricians to conduct delivery, liberal use of LSCS along with good neonatal intensive care especially for premature babies, will lead to better outcome.

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