

Perinatal Mortality And Mode Of Delivery In Twin Pregnancies: A Prospective Study

Marawi Dolly

Bansal Aditi

Bagotia Priyanka

PG Student, SMS Medical College, Jaipur

Rajoria Lata

HOD OBS & Gynae, SMS Medical College, Jaipur

Bansal Shikha

AP OBS & Gynae, SMS Medical College, Jaipur

Abstract:

Objective: To study perinatal mortality and mode of delivery in twin pregnancies.

Design: Prospective study

Material And Method: All pregnant women with twin pregnancy visiting the antenatal clinic without TTTS.

Result: Among 200 twin pregnancy included in the study, 57(28.50%) were monochorionic and 143(71.50%) were dichorionic. Mean gestational age at the time of delivery was 33.07 wks in MC and 35.67 wks in DC. 119(59.50%) women delivered vaginally and 81(40.50%) by cesarean section. LSCS was more in monochorionic twin compared to dichorionic (45.61% vs 40.50%). Perinatal mortality in monochorionic twin was much higher than dichorionic twins (29.04% vs 4.2%).

Conclusion: Early diagnosis of chorionicity, regular antenatal checkups, timely intervention period by trained obstetrician and good NICU facilities helps improving the fetal outcomes especially in monochorionic pregnancies.

I. INTRODUCTION

Twin pregnancy is associated with increased maternal and perinatal morbidity and mortality as well as healthcare costs (1) Women with multiple gestations are nearly six times more likely to be hospitalized due to complications during pregnancy (2); perinatal mortality rates are four times higher in twin babies than in singletons (3) Monochorionic diamniotic twins are at higher risk of perinatal mortality and morbidity when compared with dichorionic diamniotic twins. Monochorionic diamniotic twins have a perinatal mortality rate three times higher and are eight times more likely to have cerebral palsy than dichorionic diamniotic twins (4). The contribution of mode of delivery to the increased perinatal mortality in monochorionic diamniotic twins is not clear and

there is no consensus regarding the optimum mode of delivery.

II. MATERIAL AND METHOD

This hospital based prospective study was conducted in the Department of Obstetrics and Gynecology, SMS Medical College and Attached Group of Hospitals Jaipur, during the period from 2015-2016 in women with twin pregnancy visiting the antenatal clinic. Women with the antenatal visit in the 1st trimester were enrolled from the antenatal clinic and follow up done till term. These women were subjected to 1st trimester ultrasonography for the diagnosis of chorionicity using the lambda sign or T sign. Color Doppler study done to rule out twin to twin transfusion syndrome. All women

fulfilling the inclusion criteria and gave a written informed consent became the study group.

INCLUSION CRITERIA

All cases of twin pregnancies presenting in the first trimester and Doppler study done were included in the study.

EXCLUSION CRITERIA

Presence of more than two fetuses, women with history of any medical disorder like chronic hypertension, Diabetes Mellitus, Epilepsy, Heart disease etc. Pregnancies complicated by TTTS were excluded from the study.

The fetal outcome was analyzed based on the gestational age, birth weight, APGAR scores, congenital malformations, NICU admissions and factors like stillbirth and neonatal death. Chorionicity of the placentae was confirmed after the delivery of both babies. The data was analyzed using SPSS software version 17.0.

III. RESULT

Distribution of Cases According to Gestational Age at The Time of Delivery

Gestational Age (in wks)	Monochorionic		Dichorionic		Total	
	No.	%	No.	%	No.	%
< 34	32	56.10	13	9.10	45	22.50
34 - 37	24	42.10	113	79.00	137	68.50
>37	1	1.80	17	11.90	18	9.00
Total	57	100.00	143	100.00	200	100.00
Mean	33.07		35.67			

$$\chi^2 = 52.8 \quad p < 0.001 \quad \text{Sig}$$

Table 1

In the present study it was observed that 32 (56.1%) women with monochorionic placenta had delivered at gestational age <34 wks which was significantly higher as compared to dichorionic group i.e. 13 (9.1%). This could be due to early termination of pregnancy in anticipation of high complication rate in monochorionic placentation as compared to dichorionic.

In the dichorionic group, 113 (79%) women had delivered at gestational age between 34-37 wks which was significantly higher than monochorionic group i.e. 24 (42.1%). The reason could be higher incidence of preterm delivery in twin pregnancies, as the number of fetuses increases, the period of gestation at delivery decreases, leading to preterm delivery.

The mean gestational age at the time of delivery in dichorionic group was 35.65 wks and monochorionic group was 33.07 wks which was statistically significant ($p < 0.001$).

Ebony B Carter MD et al (2015) found that monochorionic twin delivered earlier at mean gestational age of 34.2 wks compared to 35 wks for dichorionic twin. This study was comparable to the present study and found to be statistically significant.

Radhakrishnan R et al (2014) found that average gestational age at the time of delivery in monochorionic twin was 35.78 wks and in dichorionic twin 36.5 wks

Hatkar PA et al (1999)⁷ found that average gestational age of monochorionic twin was 35.5 wks and dichorionic was 35.7 wks. Majority of twins delivered around 34-37 wks. In our study also majority of twin delivered between 34-37 wks i.e. 137 (68.5%). Approximately more than half of twin deliver at less than 37 wks, however 1.8% cases in monochorionic group could be due to the late reporting to the hospital.

Masheer S et al (2015) found the mean gestation age at the time of delivery in monochorionic twin was 34.4 ± 3.57 wks and 35.5 ± 2.88 wks in dichorionic twins.

Distribution of Cases According to Mode of Delivery

Mode of Delivery	Monochorionic		Dichorionic		Total	
	No.	%	No.	%	No.	%
NVD	30	21.81	89	62.24	119	59.50
LSCS	26	45.61	52	36.36	81	40.50
Both	1	1.75	2	1.40	3	1.50
Total	57	100.00	143	100.00	200	100.00

Table 2

In our study 89 (62.24%) women were delivered vaginally, 52 (36.36%) were delivered by caesarean section and 2 (1.40%) women delivered both vaginal and abdominal route (1st baby vaginally followed by LSCS for 2nd baby) in dichorionic group; whereas 30 (21.81%) women delivered vaginally, 26 (45.61%) delivered by LSCS and 1 (1.75%) by both in monochorionic group.

Caesarean rate is more in monochorionic twin as compared to dichorionic twin because of higher rates of complications in antepartum period in monochorionic twin.

Our study was comparable to the study done by Alsam S et al (2010) found that 17 (54.84%) women delivered vaginally, 13 (45.16%) by LSCS in monochorionic group and 22 (56.41%) delivered vaginally and 17 (43.59%) by LSCS in dichorionic group. In our study 119 (59.50%) women delivered vaginally and 81 (40.50%) by caesarean section i.e. the rate of LSCS in our study was 40.50%.

This was comparable to other studies by Persad VL et al (2001), Mutihir JT et al (2007)³ and Kontopoulos et al (2004) separately in a population based study showed caesarean rate of 38.9%, 43.1% and 45% respectively.

Hatkar PA et al (1999) showed that out of 100 twins only 29.3% monochorionic twins required LSCS whereas 34.50% dichorionic delivered by LSCS.

Kurdi AM et al (2004) found 220 (73.33%) delivered vaginally, 72 (24%) delivered by LSCS and rest i.e. 2.67% by both. This study was comparable to our study.

In our study rate of vaginal delivery was 59.50% which was higher than caesarean rate i.e. 40.50%, the possible reason for high rate of vaginal delivery in our study was due to good follow-up and planned delivery for the booked women. Vaginal delivery appears to be a good management option in uneventful twin pregnancies.

Study by Hanumainh I et al (2013) found that out of 92 twin deliveries, 65 (70.65%) had vaginal delivery, 23 (25%) had LSCS and 4 (4.35%) had LSCS for second twin in view of placental prolapse and fetal distress.

Distribution According to Neonatal Outcomes of Twins

Neonatal Outcome	Monochorionic		Dichorionic	
	No.	%	No.	%
Live	81	71.05	274	95.80
Still Birth	11	9.65	4	1.40
Neonatal Mortality	22	19.30	8	2.80
Total	114	100.00	286	100.00

$\chi^2 = 68.077$ $p < 0.000$ Sig
Table 3

In the present study it was observed that neonatal mortality was found in 8 (2.80%) of dichorionic twin babies and 22 (19.30%) of mono chorionic babies which was statistically significant. Evidence suggests a consistently higher fetal death rate (at all gestational ages) in mono chorionic twin pregnancies than in dichorionic pregnancies.

Occurrence of live births was significantly more in dichorionic placenta compared to mono chorionic placenta.

The reason for high neonatal mortality could be lower gestational age at the time of delivery in mono chorionic group.

Perinatal mortality in dichorionic twin 12(4.2%) as compared to mono chorionic twins 33 (29.04% %) and found to be statistically significant.

In study by Hatkar PA et al (1999) found that perinatal mortality rate of mono chorionic twin is about 17.64% and that of dichorionic twin was 8.88%.

In the study by Masheer S et al (2015) neonatal death observed in 12 (7.1%) of mono chorionic twins as compared to 11 (2.1%) in dichorionic group.

Abasiattai AM et al (2010) showed stillbirth rate of <201 per 1000. The high stillbirth rate have been contributed to by the unbooked status of the women.

Ahmed M Kurdi et al (2004) found 24 (8%) and 37 (12.3%) stillbirth among the 1st and 2nd baby respectively. Total 61 (10.2%) reported as stillbirth at rate of 102/1000 births.

Hack KEA et al (2007) studied 1407 twin pregnancies found the perinatal mortality was 11.6% in mono chorionic twin pregnancies and 5% in dichorionic twin pregnancies ($p < 0.001$) with high incidence of stillbirths.

IV. CONCLUSION

In conclusion, this study highlights the importance of determining chorionicity at early pregnancy, as the results clearly demonstrates that fetal complications are more common in MC twins compared to DC twins. As the incidence of twins is on the rise, these findings will help the Obstetricians to plan the care of these patients.

REFERENCES

[1] Omu AE. Multifetal pregnancy. In: Okpere EE, editor. Clinical obstetrics. 2nd ed. Benin: Uniben Press, 2003:180-8.

[2] American College of Obstetricians and Gynecologists Committee on Practice Bulletins-Obstetrics, Society for Maternal-Fetal Medicine, ACOG Joint Editorial Committee. ACOG Practice Bulletin #56: Multiple gestation: complicated twin, triplet, and high-order multifetal pregnancy. *Obstet Gynecol* 2004; 104:869- 83.

[3] Mutihir JT, Pam VC. Obstetric outcome of twin pregnancies in Jos, Nigeria. *Niger J Clin Pract* 2007; 10:15-8.

[4] Bejar R, Vigliocco G, Gramajo H, Solana C, Benirschke K, Berry C, et al. Antenatal origin of neurologic damage in newborn infants. II Multiple gestations. *Am J Obstet Gynecol*. 1990; 162:1230-1236.

[5] Carter EB, Bishop KC, Goetzinger KR, Tuuli MG, Cahill AG. The impact of chorionicity on maternal pregnancy outcomes. *American Journal of Obstetrics & Gynecology*, September 2015; 213: 390.e1-7.

[6] Radhakrishnan R, Radhakrishnan R. Perinatal outcome of twin pregnancy and influence of chorionicity on it. *IJPTM*, Jan-Mar 2014; 2(1).

[7] Hatkar PA, Bhide AG. Perinatal Outcome of Twins in Relation to Chorionicity. *J Postgrad Med*, 1999; 45(2): 33-37.

[8] Masheer S, Maheen H, Munim S. Perinatal outcome of twin pregnancies according to chorionicity: an observational study from tertiary care hospital. *J Matern Fetal Neonatal Med*, 2015; 28(1): 23-25.

[9] Alsam S, Rashid Y. A comparative study between mono chorionic and dichorionic twins to assess the perinatal outcome. *Pakistan Journal of Medical and Health Sciences*, October 2010; 4(4).

[10] Persad VL, Baskett TF, O'Connell CM, Scott HM. Combined vaginal-cesarean delivery of twin pregnancies. *Obstet Gynecol*, 2001 Dec; 98(6): 1032-7.

[11] Kontopoulos EV, Ananth CV, Smulian JC, Vintzileos AM. The impact of route of delivery and presentation on twin neonatal and infant mortality: a population-based study in the USA, 1995-97. *J Matern Fetal Neonatal Med*, 2004; 15: 219-24.

[12] Kurdi AM, Mesleh RA, Al-Hakeem MM, Khashoggi TY, Khalifa HM. Multiple pregnancy and preterm labor. *Saudi Med J*, 2004 May; 25(5): 632-7.

[13] Hanumaiah I, Shivanand DR, Visweshwaraiah KG, Hoolageri MS. Perinatal outcome of twin pregnancies at a tertiary care centre, South India. *Int J Biol Med Res*, 2013; 4(1): 2683-2685.

[14] Abasiattai AM, Umoyoho AJ, Utuk NM, Shittu DG. Incidence and mode of delivery of twin pregnancies in Uyo, Nigeria. *Niger Med J*, 2010; 51: 270-2.

[15] Hack KEA, Derks JB, Elias SG et al. Increased perinatal mortality and morbidity in mono chorionic versus dichorionic twin pregnancies: clinical implications of a large dutch cohort study. *BJOG: Int J Obstet Gynaecol*, 2008; 115: 58-67.