

Original Research Article

Maternal and neonatal outcome in twin pregnancies at a tertiary care center: a retrospective analysis

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ABSTRACT

Background: Despite many advancements in antenatal health care, twin pregnancies encounter more unfavourable outcomes as multiple pregnancy has always been associated with increased risk of fetomaternal complications in particular prematurity and perinatal morbidity. Rate of twin gestation varies significantly among different societies and geographical region, however with escalating use of assisted reproductive techniques and increased maternal age the incidence of twin gestations is surging. This study was conducted with an objective to analyse the burden of twin gestation along with fetomaternal outcome with any possible associations.

Methods: This retrospective observational study conducted in Dr LH Hiranandani Hospital included 51 women with twin pregnancy with gestational age more than 26 weeks, analysed the neonatal and maternal outcome.

Results: The incidence of twin pregnancy was 24.24 %, with 68.6 % pregnancies through ART. Gestational Diabetes Mellitus (29.41%) was found to be the most prevailing maternal complication, followed by, PPRM (27.45%). 60.78% of mothers had preterm delivery and lower segment caesarean section was the predominant mode of delivery (94.1%). About 53.1 % babies required NICU admission with prematurity being the most prevalent cause (39.8%)

Conclusions: Twin pregnancies warrant systematic follow up for early identification and management of complications. Active supervision with pertinent NICU care can improve fetomaternal outcome.

Keywords: High risk pregnancy, Incidence, Twins

INTRODUCTION

Twin gestation is a multifetal pregnancy where simultaneous development of two fetuses takes place in the uterus. It can occur as a result of fertilization of two separate ova leading to dizygotic twins or by division of single ovum after fertilization causing monozygotic twins. Multifetal gestation constitutes to about significant portion of high-risk pregnancies posing major challenges to obstetrician.¹ Despite many advancements in antenatal health care, twin pregnancies encounter more unfavourable outcomes as multiple pregnancy has always been associated with increased risk of fetomaternal complications in particular prematurity and perinatal morbidity. They also pose a multitude of challenges to the

mother. Major maternal morbidity associated with twins include preterm labor, gestational hypertensive disorders, GDM, APH, PPH, increased caesarean rate among others. Maternal mortality associated with twins is 2.5 times higher compared to singleton.² Adverse neonatal outcomes associated with twin gestation including prematurity, LBW, growth restriction, congenital anomalies and need for NICU admission. These pregnancies also have selected complications like TTTS, TRAP and conjoint twins. Furthermore, such complications lead to increased healthcare costs, predominantly due to the high rate of NICU admission. Rate of twin gestation varies significantly among different societies and geographical region, however with escalating use of assisted reproductive techniques and increased maternal age the

incidence of twin gestations is surging.³ This study was conducted with an objective to analyse the burden of twin gestation along with fetomaternal outcome with any possible associations.

METHODS

This retrospective observational study conducted on a sample size of 51 women with twin pregnancies, over a period of 36 months. Study was conducted in Dr LH Hiranandani Hospital Mumbai from January 2020 to December 2022 in the Department of obstetrics and Gynaecology after obtaining approval from institutional ethics committee

Inclusion criteria

Pregnant women with twin gestation delivered at the institute

Exclusion criteria

Gestational age less than 25 weeks. Women with twin gestation who were discharged after conservative management and delivered elsewhere. Triplets and higher order multiple pregnancies, twins reduced to singleton

Data collection

Data was collected from hospital antenatal records, which includes maternal age, parity, spontaneous or assisted conception. Details of fetomaternal complications occurred during the antenatal period and labor were collected and analysed. Outcome of twins requiring NICU admission and neonatal complications were also studied. Microsoft word and excel were used to generated tables.

RESULTS

A total of 2105 deliveries were conducted in our hospital during the study period, out of which 51 were twin deliveries, thus an incidence rate of 24.24/1000 deliveries. Majority of women studied were in the age group of 30-35 years (52.9%). Parity distribution of patients showed 55% primigravida and 45% multigravida. Of these, 25.5% had spontaneous conception, 68.6 % had ART and 5.9 % via ovulation induction. Most of the twins were dichorionic diamniotic (90.2%), followed by monochorionic diamniotic (9.8%), in this study we did not have any monochorionic monoamniotic twins.

Among major maternal complications Gestational Diabetes Mellitus (29.41%) was found to be the most prevailing, followed by, PPRM (27.45%) and Gestational hypertension (25.49%), (Table 2). 3 cases of post-partum haemorrhage, 2 cases of Adherent placenta and 1 case of chorioamnionitis were also observed, however no case of APH was reported. About 33% of mothers required cervical cerclage.

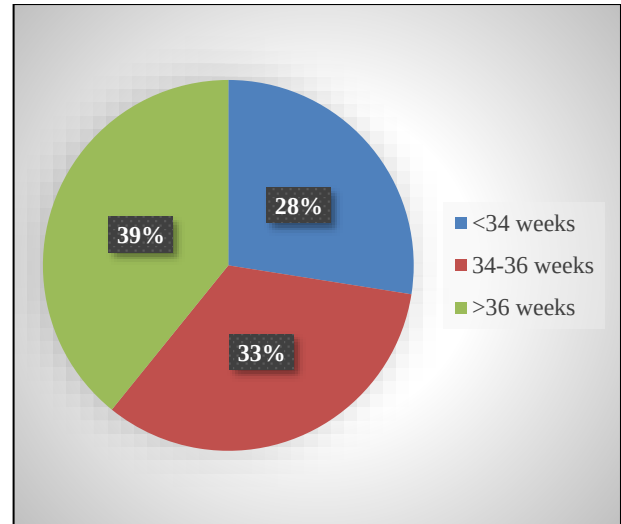


Figure 1: Gestational age at delivery.

In our study 60.78 % of mothers had preterm delivery while 39.22% reached term, 4 cases of single fetal demise was also observed. Lower segment caesarean section was the predominant mode of delivery (94.1%) followed by 5.88% of vaginal delivery which includes one instrumental delivery.

Neonatal outcome

Of the 100 babies delivered, 2 were still born. Among the 98 live births 78.57% of babies had a birthweight between 1-2.49 kgs, 17.34 % had birthweight more than 2.5 kgs while 4.08% were under 1 kg.

Lowest birth weight observed in this study was 750 gms (gestational age 26 weeks and 5 days). About 53.1% babies required NICU admission with average length of stay being 16 days. Prematurity was the most prevalent cause of NICU admission (39.8%).

Table 1: Maternal demographic profile.

Characteristic	Number	%
Maternal age (in years)		
20-29	6	11.7
30-35	27	52.94
>35	18	35.29
Parity		
Primigravida	28	54.9
Multigravida	23	45.1
Mode of conception		
Spontaneous	13	25.5
Ovulation Induction	3	5.9
ART	3	68.6
Gestational age at delivery		
26-34 weeks	14	27.5
34-36 weeks	17	33.33
>=36 weeks	20	39.21

Table 2: Maternal complications.

Parameter	Number	%
GDM	15	29.41
PPROM	14	27.45
Gestational hypertension	13	25.49
Anaemia	7	13.72
Intrahepatic cholestasis	7	13.72
Preterm labor	6	11.76
PPH	3	3.88

Table 3: Neonatal complications.

Complication	Number	%
Prematurity	39	39.8
Hyperbilirubinemia	19	19.38
RDS	7	7.14
Apnoea of newborn	6	6.12
Congenital anomaly	4	4.08
Sepsis	2	2.04
Retinopathy of prematurity	1	1.02

DISCUSSION

Worldwide incidence of multifetal pregnancies ranges from 2-20 per 1000 birth as there exists a larger spectrum of variation in the incidence rate of twins depending on the geographical and racial factors.⁴ Higher incidence of twin gestation in this study can be attributed to the increased number of IVF conceptions in the study population (68.6%). Another contributing aspect can be the advancing age of the mothers in our study, as mentioned in previous literature.^{5,6}

Our study reports 54.9% of mothers to be primigravida while 45.1% multigravida which is comparable to an Indian study published by Chaudhary, et al.⁷ However, in another study published by Dubey et al, reported 45.7% primigravida and 54.3% multigravida, which differs from our results. Twins deliveries are associated with higher incidence of preterm deliveries, 60.78% in our study which is on par with available literature.⁸⁻¹⁰ The incidence of preterm births were found higher in mothers who underwent ART in our study, about 68.5%, while it was about 38.8% in mothers who conceived naturally.

Preterm premature rupture of membranes is a major problem observed in twin gestations, it was reported to be about 31.81% and 38% in some studies, incidence is comparatively lesser of 27.45% in this study.^{11,12} Prevalence of anaemia in our study population was 13.72% whereas corresponding figures in studies published by Brown and Chowdhury et al, were 35.5% and 35.8% respectively, however an Indian study conducted by Gajera et al, reported 7%.^{1,13-15}

Incidence of anaemia varies in different socio-demographic groups, which could be a contributing factor towards this discrepancy. Leading maternal complication

in this study was GDM, 29.41%. This is higher compared to other studies conducted in India which varies from 4%-20%, however a study conducted by Mathew R et al, reported a prevalence of 25.68%.^{7,22-24} Higher incidence of GDM in this study could be due the higher number of assisted pregnancies, advanced maternal age, stricter diagnostic criteria and universal screening of GDM. The incidence of PPH in this study is 3.88% which is at par with the developed nations.¹⁵

The best mode of delivery for twin gestation is still a highly debatable discussion in obstetrics. Most of the studies have shown an inclination towards caesarean section, this could be probably to warrant better perinatal outcome.¹⁶ In study caesarean section was performed on 94.1% population, similar study by Chaudhary et al, reported 92% caesarean deliveries.⁷

Overall rate of caesarean sections among twin gestations reported in literature from different parts of the world is varying from 42-72%.¹⁷⁻²¹ 82.65% of neonates in our study was weighing less than 2.5 kg, which is statistically comparable to Bengal et al, study which had 82%.²⁶ Neonatal outcomes in multiple pregnancies has substantially improved over the years, preferably due to the advancements in steroids, tocolytics along with superior obstetrical and neonatal care. NICU admissions were found to be 53.06% which is lesser when compared published literature by Zanjade TS et al and Bhalla S et al, reported 65.15% and 66% respectively.^{12,25} The average length of stay of in NICU was 16 days, with highest reported number of days being 57 days of stay.

Prematurity was the leading cause of NICU admission accounting to 39.8%. Congenital anomalies encountered includes hydrocephalus, patent ductus arteriosus, perineal canal and right sided aortic arch with aberrant SCA. In spite of more than 50% NICU admission no neonatal mortality was reported in the study population, this may be due to highly specialized intensive care along with experienced neonatologist and multi-disciplinary treatment.

The limitations of this were small sample size, retrospective nature of the study and limited time duration.

CONCLUSION

Twin pregnancies continue to be an important high risk factor, more so with the increasing number of assisted pregnancies along with advanced maternal age. These pregnancies warrant early detection and systematic follow up for early identification and management of complications. Advanced neonatal care set up with a multidisciplinary team can improve the neonatal outcome significantly.

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Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

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