Original Research Article

A study of feto-maternal outcomes in twin gestation

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Abstract

Introduction: The incidence of twin gestation has increased mainly due to advanced maternal age and assisted reproductive technology. Twin gestation is considered as high risk pregnancy as it contributes significantly to adverse maternal and perinatal outcomes.
Aim: To evaluate maternal and neonatal complications and pregnancy outcomes in twin pregnancies.
Materials and methods: This was a retrospective analysis of 35 twin pregnancies admitted in Government Victoria Hospital during 12 months study period (January 2019 to December 2019). We studied maternal factors like age, parity, complications, mode of delivery and perinatal morbidity and mortality.
Results: In our study, most common maternal age was 20-25 years. The main maternal outcomes were preterm labour (57.1%), anemia (40%), pregnancy induced hypertension (28.5%), and post-partum hemorrhage (13.33%). Gestational age at delivery in 82.8% cases more than 32 weeks. Significantly higher rate (57.14%) of LSCS was seen in twin pregnancies. Neonatal complications were low birth weight (87.1%), sepsis, RDS and NICU admissions (62.3%). Out of 13 monochorionic twin pregnancies, twin to twin transfusion syndrome (7.6%) and growth discordancy (23.07%) were noted. Perinatal mortality was 11.4%.
Conclusion: The knowledge of maternal and fetal risks associated with multiple gestation helps in better surveillance and in prevention of adverse outcome.

Key words

Twin, Gestation, Fetomaternal.

Introduction

Twin gestation is considered as a high risk pregnancy. In India, twinning occurs in approximately 1% of all pregnancies and has been reported to be responsible for 10% of perinatal mortality [1].

Multiple births are much more common today than they were in the past due to the dramatic increase in the use of ovulation inducing agents, assisted reproductive technologies and due to trend towards delayed childbearing. Incidence of twins among births resulting from ovulation induction and ART is more than 20 times greater as compared to natural conception [2].

In humans, multiple pregnancies occur more frequently from fertilization of two separate oocytes (dizygotic) than from single fertilized oocyte that subsequently divides into two identical twins (monozygotic). Approximately 30% of the twins are monozygous and 70% are dizygotic [3].

Chorionicity, rather than zygosity is the main factor determining pregnancy outcome. The incidence of intrauterine death, fetal abnormality, Twin to twin transfusion syndrome (TTTS) is common in monochorionic twins. An early diagnosis of chorionicity may help in risk stratification, screening for malformations, and increasing surveillance for the development of discordant growth in monochorionic twins.

Multiple gestation is associated with higher rates of almost every potential complication of pregnancy. Antepartum complications like anemia, preeclampsia, placental abruption, GDM are common. They develop in 80% of multiple pregnancy as compared to approximately 25% of singleton pregnancy [4].

Hence, this study was undertaken in our institution to assess the maternal and perinatal complications with twin pregnancy.

Materials and methods

This study included retrospective analysis of 35 women with twin pregnancies, over a period of 12 months with 28 completed weeks of gestation, admitted for delivery in labour room in Department of Obstetrics and Gynecology, Government Victoria Hospital, Visakhapatnam.

Inclusion criteria

- Twin gestation with 28 completed weeks

Exclusion criteria

- Gestational age less than 28 weeks
- Women with pre-existing medical disorders like chronic hypertension, pre gestational diabetes, cardiac disease, renal disease or collagen vascular disorder.

Detailed obstetric history, family history of twins, intake of ovulation induction agents was taken. A general physical examination was done to note the associated complications like anemia, hypertension, and jaundice. Per abdominal examination was done to note the presenting part, lie, position, size and its relation to birth canal and FHS were noted. Pelvic examination was done to note PROM and antepartum hemorrhage and to note the stage of labour, presentation, status of the membranes and the adequacy of pelvis.

Data regarding maternal and neonatal parameters including demographic details, history, antepartum and intrapartum complications, neonatal outcomes and perinatal mortality were taken. Placental examination was done to confirm the chorionicity. Details of mode of delivery, gestational age at the time of delivery, baby's sex, birth weight and Apgar score were noted. Study was conducted during antenatal, labour and post-natal period till the patients were discharged. Microsoft word and excel were used to generate tables.

Results

Analysis of 35 twin gestations satisfying the inclusion criteria was done and following results were observed. Majority of the women studied,

77.14% were in mean age group of 20-25 years (**Table – 1**).

Table - 1: Age distribution.

Age (Years)	Number	%
20-25	27	77.14%
26-30	6	17.14%
>30	2	5.714%

In our study, 42.8% were multigravida and 57.1 % were primigravida. Of these, 80% had spontaneous conception, 20% had ovulation induction. 20(57.1%) had dichorionic diamniotic twins, 13(37.14%) had monochorionic diamniotic twins, 2(5.71%) had monochorionic monoamniotic twins (**Table – 2**). In our study, 57.1% had preterm deliveries and 42.8% had term deliveries. Most of the cases that was 15(42.8%) delivered after 36 weeks of gestation. (**Table – 3**).

Table - 2: Parity of the patients studied with mode of conception.

	Total		Mode of conception	
	Number	%	Spontaneous	Infertility treated
Primigravida	20	57.1	16	4
Multigravida	15	42.8	12	3
			28 (80%)	7(20%)

Table - 3: Gestational age at delivery.

Gestational age	Number	%
28-32 wks	6	17.1%
>32-36 wks	14	40%
>36 wks	15	42.8%

Table - 4: Mode of delivery.

Mode of delivery		Number	%
Vaginal delivery		15	42.8%
Caesarean section (57.14%)	Non vertex	13	37.1%
	previous LSCS	2	5.71%
	Fetal distress	5	14.2%

Table - 5: Maternal complications.

Parameters	Number	%
Preeclampsia	10	28.5%
Antepartum Eclampsia	1	2.8%
Anemia	14	40%
Abruptio placenta	2	5.7%
Oligohydramnios	2	5.7%
GDM	3	8.5%
Hypothyroidism	5	14.2%
PROM	3	8.5%
PPROM	5	14.2%
Gestational Thrombocytopenia	1	2.8%

Most of the women had antenatal complications. 40% were complicated with anemia, 28.5% with hypertension, 14.2% had PPROM (**Table – 5**).

Of the 70 twin babies, 50(71.4%) weighed between 1.5-2.5 kg, with 83% with weight discordance <20% (**Table – 6**).

Table - 6: Birth weight of the twins.

Birth weight	Twin 1	Twin 2
< 1 kg	2	2
1-1.5 kg	2	5
1.5-2 kg	9	11
2-2.5 kg	18	12
>2.5kg	4	5

Table - 7: NICU admissions.

NICU admissions	Number (69)	%
Yes	43	62.3%
No	26	37.6%

Table - 8: Perinatal mortality.

Cause of death	Number (8)	%
IUD	1	1.4%
TTTS	1	1.4%
Birth asphyxia	4	5.7%
Respiratory distress syndrome	2	2.8%

In our study, 62.3% needed NICU admission (**Table – 7**).

When perinatal outcome was analyzed, prematurity was major problem in patients with twin pregnancy. Perinatal mortality was 8 (11.4%), Out of which 1 were IUD'S, 2 due to RDS, 4 due to birth asphyxia due to prematurity and LBW (**Table – 8**).

Discussion

Twin gestation is a high risk pregnancy with unique antepartum, intrapartum as well as fetal complications.

The last two decades, through assisted reproductive technologies, have seen an explosion in the number of multiple gestation pregnancies. In our study, 80 % had spontaneous conception, 20% had ovulation induction. 57.1% had dichorionic diamniotic twins.

Our findings suggest that maternal and perinatal morbidity and mortality associated with twin births in low-resource settings is significant, and twin pregnancy poses an intrinsic risk to both mothers and neonates. These findings are congruent with previous literature [5, 6].

The present study showed that the commonest antepartum complications associated with twin pregnancy were preterm labour (57.1%), anemia (40%), and preeclampsia (28.5%), which were near to the study conducted by Naushaba Rizwan, et al., where 84% patients had preterm labour, anemia (65.6 %) and hypertension (31.2%) [7].

The incidence of preeclampsia is 2.6 times higher in twin gestation than in singleton pregnancy [8].
In our study, 57.14% had caesarean section. A large epidemiologic analysis found that only 16% remained undelivered at 36 weeks.

Average birth weight among both twins was in the range of 2-2.5 kg, as supported by studies by Chowdhury, et al. and US studies [9]. NICU admissions were required in 62.3% of cases and there were 8 perinatal deaths (11.4%) ,of these 1 had IUD, 2 due to RDS due to prematurity and LBW. Adesina K T, et al., also reported similar perinatal mortality rate [10]. Of the 13 monochorionic diamniotic twin pregnancies, one pregnancy was terminated due to twin to twin transfusion syndrome (Quintero stage 4). The natural history of advanced (e.g. stage ≥III) TTTS is bleak, with a reported perinatal loss rate of 70-100% [11]. It is estimated that TTTS accounts for up to 17% of the total perinatal mortality in twins, and for about half of all perinatal deaths in MCDA twins [12]. The lack of a predictable natural history, and therefore the uncertain prognosis for TTTS, pose a significant challenge to the clinician caring for MCDA twins.

Conclusion

Multiple pregnancy is a significant risk factor for maternal and perinatal morbidity and mortality. The knowledge of maternal and fetal complications helps in better surveillance and in prevention of the morbidity and adverse outcome. Hence the need for better obstetric care, neonatal care, health services to get a better fruitful outcome.

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