

ORIGINAL RESEARCH

Maternal and fetal outcome in twin pregnancy in tertiary center

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ABSTRACT

Background: Multiple births are much more common today than they were in the past. The incidence of twin gestation has increased mainly due to advanced maternal age and assisted reproductive technology. Throughout the world, the prevalence of twin births varies from approximately 2-20 /1000 birth. This delayed childbearing has resulted in an increased maternal age at conception. Twin gestation is considered as high-risk pregnancy as it contributes significantly to adverse maternal and perinatal outcomes. This study was conducted to evaluate the risks of pregnancy complications and adverse perinatal outcome in women with twin pregnancy. Multiple pregnancies are associated with an increased risk of obstetric complications as well as perinatal morbidity and mortality especially in developing countries.

Materials and Methods: Present study is a retrospective study of 223 cases of twin pregnancies admitted at our institute from Sept 2020 to Oct 2021 including all emergency as well as registered cases. In all cases a detailed history was taken, all routine and specific investigations were done. We studied maternal factors like age, parity, complications, mode of delivery and perinatal morbidity and mortality. Main outcome measures were maternal complications (i.e., anaemia, preterm labour, pregnancy induced hypertension, postpartum haemorrhage etc.) perinatal morbidity and mortality.

Results: In this retrospective study we observed 223 cases of twin pregnancies. In this study most of the patients (45.7%) delivered at 37- 42 weeks of gestation. 5% of patients had abortion at an early gestation. Majority of the patients delivered vaginally (51.56%), followed by LSCS (Lower Segment Caesarean Section) (48.43%). In this study low birth weight babies were the most common (138 babies) to the extent of 73.29%. We had 0.05% (13) extremely low birth weight babies. There were 38 neonatal deaths. We observed the highest incidence of twins in the age group of 26-30 years. The least were below the age of 20 years.

Conclusions: Most of the complications in multiple gestations can be prevented. High risk units in the obstetric ward and well developed NICU set up would reduce the maternal, perinatal morbidity and mortality. Good antenatal care, with increased rest and nutritional supplementation, early detection of fetal and maternal complications together with thorough intranatal and postnatal vigilance, can lower both maternal and fetal dangers.

Keywords: Twins, Ovulation induction, Preterm, Low birth weight baby, Perinatal morbidity, Perinatal mortality

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INTRODUCTION

Twin gestation is considered as high-risk pregnancy as it contributes significantly to adverse maternal and perinatal outcomes. Multiple gestations are becoming a problem of increasing dimensions with the dramatic increase in numbers due to a trend towards late childbearing and the widespread use of assisted reproduction. This delayed childbearing has resulted in an increased maternal age at conception. This study was conducted to evaluate the risks of pregnancy complications and adverse perinatal outcome in women with twin pregnancy.

Multiple pregnancies are associated with an increased risk of obstetric complications as well as perinatal morbidity and mortality especially in developing countries. Overall complications occur in approximately 83% of twin pregnancies as compared to 25% in singleton pregnancies. Hence twin pregnancies should be considered as high-risk pregnancies. Vigilant obstetric care not only decreases the maternal morbidity and mortality but also improves the fetal outcome. Advances in assisted reproductive techniques such as drugs for induction of ovulation *in vitro* fertilisation and a variety of intra-fallopian transfer procedures have resulted in increased number of higher order multiple pregnancy.

The various complications encountered in mothers are anaemia, hyperemesis, preterm labour, hypertensive disorders of pregnancy, antepartum haemorrhage, polyhydramnios, increased pressure symptoms, varicose veins and gestational diabetes. Low birth weight, contributed by both prematurity and IUGR, is the main factor responsible for higher perinatal mortality in twins.

MATERIAL AND METHODS

This study was a retrospective study of 223 cases of twin pregnancies conducted in the department of obstetrics and gynecology, SMGS hospital, GMC Jammu from Sept 2020 to Oct 2021. In all cases a detailed history was taken, all routine and specific investigations were done. All these patients were delivered in our institute under close observation. All stages of labour were carefully managed in the presence of team of obstetrician. All babies were examined by the neonatologist and NICU care was given as and when it was required. Present study was undertaken with aim to study maternal and fetal complications in twin pregnancy and to analyse perinatal mortality and morbidity associated with twin pregnancy.

Inclusion criteria:

All women admitted to the labour ward with clinical and or ultrasound diagnosis of multiple pregnancy after 28 weeks gestation were included in the study.

Exclusion criteria:

- a. Gestational age less than 28 weeks
- b. Women with pre-existing medical disorders like chronic hypertension, pregestational diabetes, cardiac disease, renal disease or collagen vascular disorder.
- c. Triplets and quadruplets were not included in the study

- d. Detailed obstetric history, family history of twins, intake of ovulation induction agents was
- e. 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

In this retrospective study we observed **223** cases of twin pregnancies. Out of the 223 twin pregnancies, 127 patients were booked in our hospital, 96 patients were unbooked and had got admitted with some complications. The incidence of twin pregnancy was highest in the age group of 26-30 years followed by 20-25 years which were 50.22% and 43.04% respectively. The least incidence was seen in patients above 30 years which was around 4.93%. (table no.1, fig.1) Frequency of twin gestation was 73.99% in multigravida, 26.0% in multigravida (Table-2) Twins were seen more in multigravida as compared to primigravida. Mode of conception in both groups was primarily spontaneous (91.92%) and cumulative infertility treatment rate in both groups was 8.07%. Most of patients were 37-42 wks (45.7%) with least in 28-32 wks of gestation. History of ovulation induction was seen in 65 cases (29.147) and maternal & paternal h/o had cumulative rate of 8.06% (18 cases). There were 12 cases (5.38%) with past history of twin pregnancy & 3 cases were with history of OCP intake.(table no.4, fig .3).

We came across vertex-vertex as the most common presentation (62.78%) followed by vertex- breech presentation (19.28%), least was either vertex – transverse or breech – transverse (Table 5). Majority of the patients delivered vaginally (61%), followed by LSCS (Lower Segment Caesarean Section) (38%). Majority of the patients delivered vaginally (**51.56%**), followed by LSCS (Lower Segment Caesarean Section) (**48.43%**). There were 2 incidences of internal podalic version (Table 4).

Table 7. shows major complications developing in others in antenatal and intrapartum period. 9.86 % of women among twin pregnancies delivered preterm, out which 5.83% had PROM and 4.03% had PPROM. Anaemia was seen in 17.93%, PPH was seen in 38.12%, APH was seen in 0.89%, polyhydraminos seen in 4.03%.GDM was seen in 6.73% of cases, preeclampsia was seen in 11 cases(4.93%), oligohraminos in 2.24% and hypothyroidism in 0.89% cases.

When perinatal outcome was analyzed, prematurity was major problem in patients with twin pregnancy, majority Twin 1 were with birth weight of 2-2.5 (49.21%) and majority of twin 2 were with 1.5-2 kg(42.11%).(table no.8)

Still birth acquired in 7.4% of babies. Neonatal death due to very low birth weight was 22.8% for twin A and 30.4% for twin B. followed by sepsis and jaundice as a reason for neonatal death. Sepsis and jaundice was slightly higher in twin B as compared to twin A. Both twins IUD were seen in 38 cases (9.64%) and SFD were seen in 5.33%. NICU admissions were seen in 28.68% cases, TTTS was seen in 1.26%, birth asphyxia was seen in 3.04%, RDS was seen in 2.24% and foot deformities were seen in 0.51% (table no.8)

Most of twins were diamniotic dichorionic (57.39%). There were 12 cases of monoamniotic monochorionic pregnancy. Perinatal mortality rate of monochorionic pregnancy was 43.03% and it was 12.5% for dichorionic pregnancy which shows a significant association of perinatal mortality rate and chronicity.

Table 1: Age Distribution

Age(Yrs)	No.	%
<20 yrs	4	1.79
20-25	96	43.04
26-30	112	50.22
>30	11	4.93

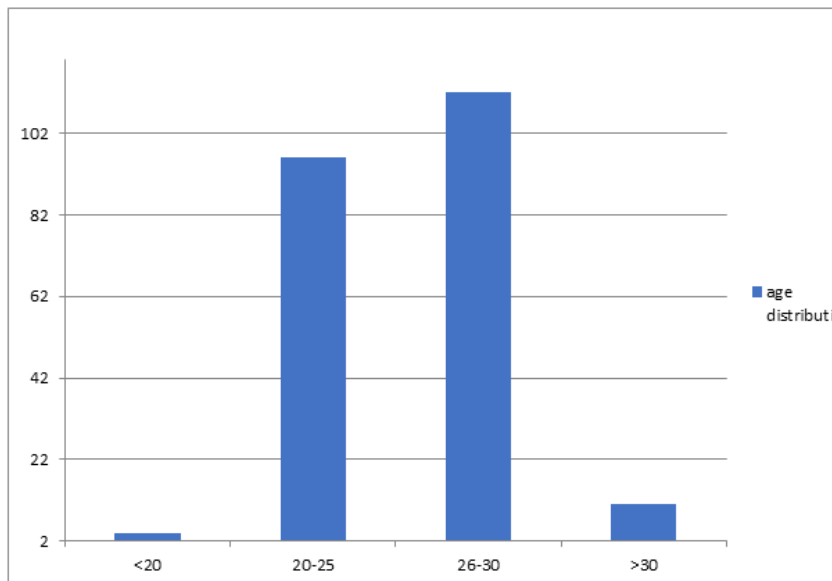


Figure 1: Age distribution

Table 2: Parity of patients and mode of conception

Parity	Total no.		Mode of conception	
		%	spontaneous	Infertility Rx
Primi	58	26.0	52	6
multi	165	73.99	153	12
			91.92%	8.07%

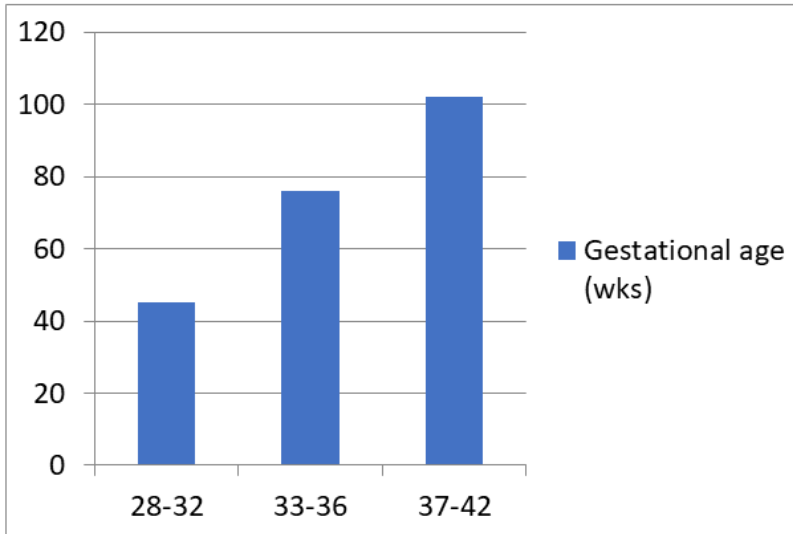


Figure 2: Gestational age (wks)

Table 3: Gestational age at delivery

Weeks of gestation	No.	%
28-32	45	20.17
33-36	76	34.08
37-42	102	45.7

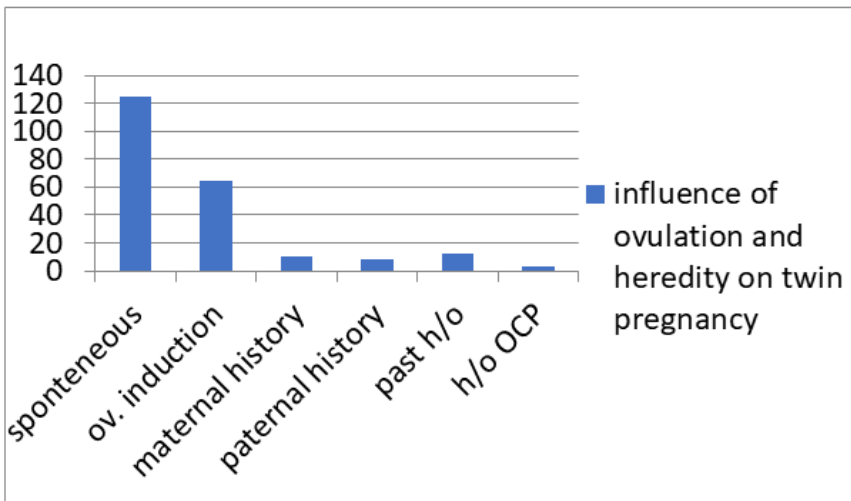


Figure 3: Influence of ovulation and heredity on twin pregnancy

Table 4: Mode of Delivery

Mode Of Delivery		No.	%
Vaginal		115	51.56
Caserean	Non-vx	34	15.25
	Pr. Lscs	58	26.08
48.43%	Fetal distress	16	7.17

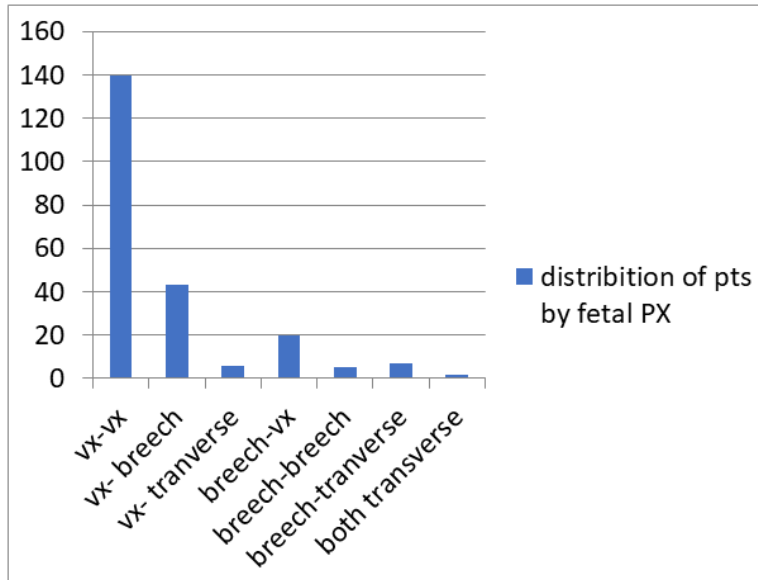
Table 5: Influence of ovulation induction and heredity on twin pregnancy

History	cases	%
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Spontaneous	125	56.05
Maternal history	10	4.48
Ovulation induction	65	29.147
Past history	12	5.38
Paternal history	8	3.58
h/o OCP	3	1.34

Table 6: Distribution of pts a/c to fetal presentation

Presentation	No.	%
Vertex-vertex	140	62.78
Vertex-breech	43	19.28
Vertex –transverse	6	2.69
Breech-vertex	20	8.96
Breech-breech	5	2.24
Breech-tranverse	7	3.13
Both tranverse	2	0.89

**Figure 4: Distribution of pts by fetal Presentation****Table 7: Complications observed in patients**

Complications	No.	%
Anaemia	40	17.93
PPH	85	38.12
APH(abruption)	2	0.89
Polyhraminos	9	4.03
Preterm labour(spont/induced)	22	9.86
PROM	13	5.83
PPROM	9	4.03
GDM	15	6.73
Preeclampsia	11	4.93

Oligohraminos	5	2.24
Hypothyroidism	2	0.89
No complications	10	8.07

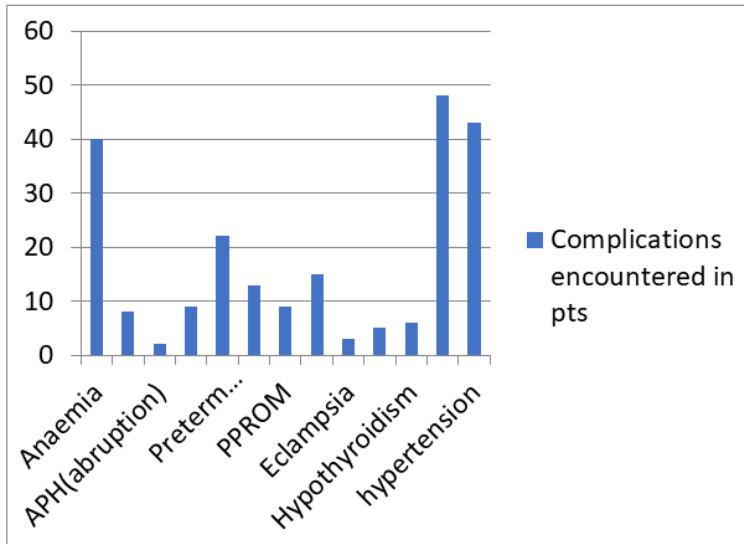


Figure 5: Complications encountered in pts

Table 8: Birth weight of twins

Birth weight(kg)	Twin 1	%	Twin 2	%
<1	8	16	5	5.26
1-1.5	25	19.53	35	36.84
1.5-2	25	19.53	40	42.11
2-2.5	63	49.21	11	11.57
>2.5	7	5.4	4	4.21
Total no.	128		95	

Table 8: Perinatal Neonatal Complications

Complication	no	%
Premature babies	168	42.6
Both IUD	38	9.64
SFD	21	5.33
NICU admissions	113	28.68
Neonatal death	26	6.66
TTTS	5	1.26
Birth asphyxia	12	3.04
RDS	9	2.24
Foot deformities	2	0.51
Fetus compression	-	

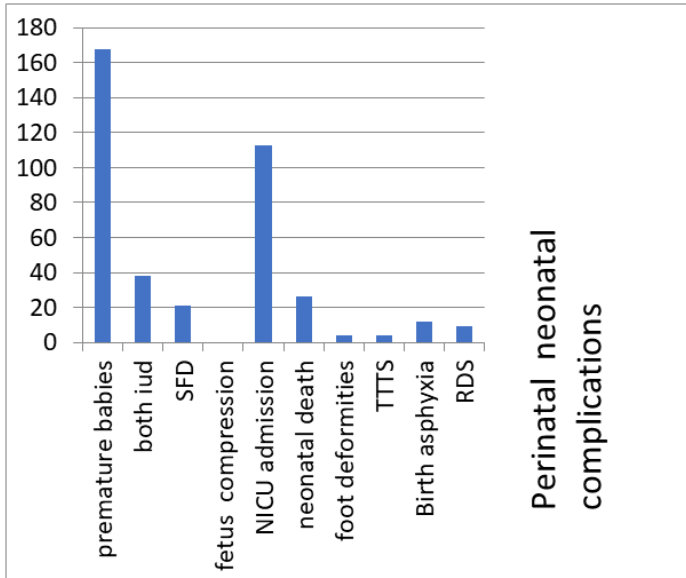


Figure 6

Table 9

Type of placentation	twin	%	Perinatal mortality	%
MCMA	12	5.3	4	33.33
MCDA	83	37.21	9	10.84
DCDA	128	57.39	16	12.5
Conjoined	-		-	

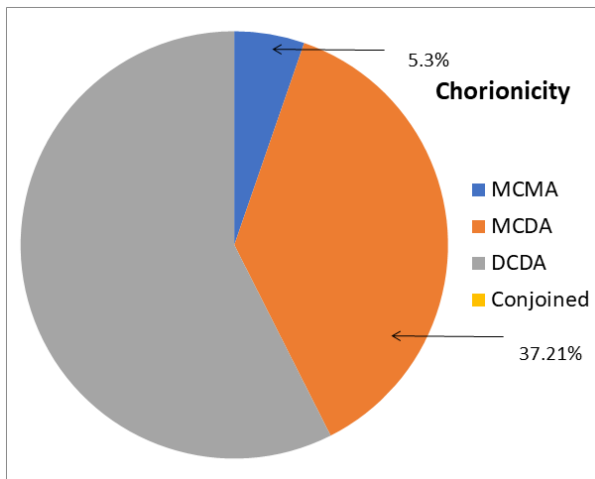


Figure 7

DISCUSSION

Twin gestation is a high-risk pregnancy with unique antepartum, intrapartum as well as fetal complications. The incidence of twin pregnancy in this study was 1.56%. The main contributing factor for the twin rate in this study seems to be the referral of all high-risk cases to our hospital, it being a tertiary care centre. The past two decades, through assisted reproductive technologies, have seen an increase in the number of multiple gestation pregnancies. Also, twin pregnancies with complications are referred from many private hospitals for better management in our tertiary center.

In our study, 56.05% had spontaneous conception, 29.147% had ovulation induction. 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 consistent with previous studies [9,10].

We observed the highest incidence of twins in the age group of 26-30 years. The least were below the age of 20 years.

The present study showed that the commonest complications associated with twin pregnancy were preterm labour (42.6%), PPH (38.5%), preeclampsia (4.93%) and anemia (17.93%) which were similar to the study conducted by **Blondel B, Kaminski M. et al.**, where 68% patients had preterm labour, anemia (45.6 %) and hypertension (31.2%) [7]. Incidence of anaemia was more in twin gestations as compared to singleton gestations. The main reason is higher demand in twin gestations resulting in iron, Vitamin B12 and folic acid deficiency anemia. Similar results have been seen in studies by Bangal et al and Brown et al. Also incidence of GDM (15 cases; 6.73%) and preeclampsia (11 cases; 4.93%) was seen to be higher in twin pregnancy. High incidence of Pregnancy Induced Hypertension was also observed by **Bangal et al** as 18% and by **Chowdhury et al.** who reported incidence of 22.6% for hypertension cases in twin gestations.

In our study, 48.43% had caesarean section. Average birth weight among both twins was in the range of 2-2.5 kg, as supported by studies by **Chowdhury, et al.** and **Berghella V et al.** NICU

Admissions were required in 28.8% of cases and there were 26 neonatal deaths (6.6%), both IUD cases were seen in 9.64% cases and SFD seen in 5.33%. Adesina K T, et al., also reported similar perinatal mortality rate. The commonest presentation was vertex-vertex and the commonest mode of delivery was normal delivery and no complication seen in about 10% cases. Similar results seen in studies by **Walker MC et. Al.**

Most of the chorionicity seen was DCDA (57.39%) followed by MCDA, (37.12%) and MCMA (5.3%) with respective perinatal mortality of 12.5%, 10.84% and 33.33%. Thus perinatal mortality was directly with type of chorionicity. The highest mortality was seen with MCMA type of twin gestation. Similar results were seen in studies by **Blondel B, Kaminski M. et.al.** Perinatal morbidity which required admission in neonatal unit was 28.8%. Majority of these babies were preterm babies and had complications like IUGR, birth asphyxia and septicaemia.

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. Most of the complications in multiple gestations are preventable. High risk units in the obstetric ward and well developed NICU set up would reduce the maternal, perinatal morbidity and mortality.

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