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Original Research Article

## Twin pregnancies: a retrospective analysis

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### ABSTRACT

**Background:** This study aims to analyse the maternal and neonatal complications in twin pregnancy at tertiary institute.

**Methods:** This was a retrospective study of multiple pregnancies after 26 weeks gestation at a tertiary teaching hospital between January 2020 to December 2020. Maternal and neonatal data was collected from the labour room delivery register and NICU records.

**Results:** Out of 1212 births during this period, 66 were twin pregnancies with an incidence of 5.54%. Most of women had twinning after in vitro fertilisation (IVF) treatment (77.27%). Thirty-seven (56.06%) women were in the age group of 21-30 years and primigravida contributed to 63.63% of all twin pregnancies. Maternal complications most frequently noticed was hypertensive disorders of pregnancy in 27 (40.90%) women, Gestational diabetes mellitus (GDM) in 24 (36.36%) women, preterm rupture of membranes (PROM)/ preterm premature rupture of membranes (PPROM) in 21 (31.18%) women, Intrahepatic cholestasis of pregnancy (IHCP) in 4 (6.06%) women, hypothyroidism in 12 (18.8.1%) women and antepartum hemorrhage (APH) in 4 (6.06%). Caesarean section was performed on 49 (74.25%) women with abnormal presentation as indication in 18 (36.73%). 80.30% women had preterm delivery with 86 (65.15 %) neonates having NICU admission. There was no maternal mortality and 1 (1,16 %) perinatal mortality in NICU admitted neonates.

**Conclusions:** This study reveals with increasing ART treatment the incidence of twin pregnancies is increasing along with its maternal complications like hypertensive disorders of pregnancy, GDM and preterm delivery. Frequent antenatal care for early detection of complications, multi-disciplinary approach is key for favourable outcome.

**Keywords:** Multiple pregnancies, ART, Hypertensive disorders of pregnancy, Preterm labour, Prematurity

### INTRODUCTION

Higher order pregnancies are emerging as an important reason for increasing in surveillance during antenatal and intranatal period. The number of multiple pregnancies is increasing leading to frequent hospital visits and financial burden on the family. Such ladies need to get frequent and prolong admission during antenatal and postnatal period for management of different complications like preeclampsia, antepartum and post-partum haemorrhage, anaemia, polyhydramnios, increased rate of caesarean section and preterm birth as compared to singleton

pregnancies.<sup>1,2</sup> Hence contributing to increased maternal and perinatal morbidity and mortality than singleton pregnancy.<sup>3,4</sup>

The prevalence of twin births varies from approximately 2-20 /1000 births. Spontaneous higher order multiple conceptions are uncommon. The reported incidence ranges from 0.01% to 0.07% of all pregnancies.<sup>5</sup>

The incidence of twin gestations is increased considerably following increased use of assisted reproductive technology (ART) for conception due to increased

incidence of infertility, delayed planning of pregnancy for stability and career. Overall complications occur in approximately 83% of twin pregnancies as compared to 25% in singleton pregnancies. For favourable obstetric and neonatal outcome more vigilance is needed.

The aim of the study was to analyse foeto-maternal complications in multiple pregnancies.

## METHODS

This retrospective observational study was conducted in the department of obstetrics and gynaecology in a tertiary care hospital. Labour room and NICU records for a period of one year between January 2020 to December 2020 were analysed.

Women with twin pregnancy admitted after period of viability i.e 26 weeks and beyond and delivered in our hospital during the study period were included in the study. Twins requiring admissions in neonatal units were also studied.

Details of patients like age, parity, gestational age, mode of conception and obstetric complications like hypertensive disorder of pregnancy, preterm labour, fetal growth restriction, PROM/PPROM, GDM were studied.

Mode of delivery for each patient recorded whether vaginal, those requiring instrumentation and also those who required caesarean section. Foetal outcome, gestational age at birth, weight at birth, and requirement for NICU admission was analyzed.

The statistical data was then analysed using SPSS 20. Variables studied were reported as the mean, range and standard deviation (SD).

Ethical committee clearance was not taken in view of retrospective study.

## RESULTS

A total 1212 women delivered during the study period out of which 66 were twin pregnancies i.e 54.5/1000 birth.

Mean maternal age was  $29.45 \pm 4.01$  years of which primigravida women were forty-two (63.63%) while multigravida were twenty four (36.36%) women. Only thirteen (19.69%) women delivered after 37 weeks with mean gestation being  $34.53 \pm 2.56$  weeks. Table 1

Fifty-one (77.27%) women conceived by IVF. A hypertensive disorder of pregnancies were the commonest complication in twenty seven (40.90%) women followed by gestational diabetes mellitus (GDM) in twenty four (36.36%). Other complications were PPROM/ PROM (31.81%), Hypothyroidism (18.18%), Intrahepatic cholestasis of pregnancy (IHCP) (6.06%) and APH (6.06%). (Table 2, 3)

Caesarean section was performed on forty-nine (74.25%) women. Table 4. Abnormal presentation was indication in eighteen (36.73) women for caesarean section followed by fetal distress (20.40%), non-progress of labour (12.24%), failed induction (10.20%), APH (8.16%), severe preeclampsia (12.24 5) and Monoamniotic monochorionic twins (2.04 %). (Table 5)

Mean birth weight of twin I was  $2.11 \pm 0.54$  kgs while of twin II was  $2.02 \pm 0.49$  kgs. Maximum neonates weigh between 1.5 kgs to 2.5 kgs. Eighty-six (65.15%) neonates were admitted in NICU for different indications. Of the 65.15% prematurity (83.72%) being commonest followed by Respiratory distress syndrome (RDS) 26%, FGR 3.03% and birth asphyxia 1.57%. Two women had single intrauterine demise. One (1.16%) neonatal died in NICU with multiple complications. (Table 6)

**Table 1: Characteristic of patients.**

Characteristic	Number (N = 66)	Percentage	Mean	SD
Mean age (mean $\pm$ SD)	-	-	29.45	$\pm$ 4.01
Age				
20 - $\leq$ 29	37	56.06		
30 - $\leq$ 34	22	33.33		
35 years and beyond	7	10.60		
Primigravida	42	63.63		
Multigravida	24	36.36		
Mean gestational age (mean $\pm$ SD)	-	-	34.53	$\pm$ 2.56
$\leq$ 29+6 weeks	3	4.5		
30 - $\leq$ 33+6 weeks	17	25.75		
34 - $\leq$ 36+6weeks	33	50		
Beyond 37 weeks	13	19.69		

**Table 2: Mode of conception.**

Mode	Number (N=66)	Percentage
Spontaneous	06	9.09
IUI	09	13.63
IVF	51	77.27

**Table 3: Complications associated with twin pregnancies.**

Complications	Number (N=66)	Percentage
Hypertensive disorders of pregnancy	27	40.90
GDM	24	36.36
PPROM/PROM	21	31.81
Hypothyroidism	12	18.18
IHCP	04	6.06
APH	04	6.06

**Table 4: Mode of delivery.**

Mode of delivery	Number (N=66)	Percentage
Caesarean	49	74.25
Vaginal	17	25.75

**Table 5: Indication of caesarean section.**

Indications	Number (N=49)	Percentage
Abnormal presentation	18	36.73
Fetal distress	10	20.40
Non progress of labour	6	12.24
Failed induction	5	10.20
APH (Abruptio/placenta previa)	4	8.16
Severe preeclampsia with unfavourable cervix	6	12.24
MAMC Twin	1	2.04

**Table 6: Neonatal outcome.**

	Number	%	Mean	SD
Twin I			2.11	±0.54
Twin II			2.02	±0.49
<b>Weight</b>				
<1.5 kg	9	13.63		
1.5 - <2 kgs	44	33.33		
2 - <2.5 kgs	42	31.84		
2.5 kgs and beyond	28	21.21		
<b>NICU admission</b>	86	65.15		

## DISCUSSION

Of all the high-risk pregnancies twin pregnancies is emerging as an important factor requiring special care

during antenatal and postnatal period. The incidence of twin gestation is increasing, our study population had incidence of 5.44%.

Twinning was most frequently following in vitro fertilisation (IVF) 77.27% in our study this may be due assisted reproductive technique (ART) centre located in hospital and infertility couples are referred from peripheral hospital for treatment.

Even though twinning is on rise with ART treatment the mean age of the women was 29.45 years. Maximum age group with twin pregnancy was between 20 - 29 years (56.06%) in our study whereas 86.9% and 81% in Dubey et al and Tomar et al respectively.<sup>6,7</sup> This shows that maximum women who sought ART treatment are below 30 years.

66.63% ladies were primigravida and 36.36% multigravida which was contrary to Spellacy et al in which 84.2% were multigravida. Dubey et al had 45.7% primigravida and 54.3% multigravida.<sup>6,8</sup> Mean gestational age at delivery in our study was 34.53 weeks which was comparable with Erdemoghu et al and Yuel et al.<sup>9,10</sup>

Hypertensive disorder in pregnancy (40.90%) was the most frequent complication associated with twin pregnancy in our study. 24 to 30 % was noticed by other workers.<sup>11,12</sup> PROM/PPROM was detected in twenty one (31.81%) women which was similar to Chowdery et al (38%).<sup>13</sup> Very high number of women i.e 36.36% were found to have GDM while Dubey et al had 1.8% and Buhling et al reported 3.4% of patients and did not found any association with twin pregnancy.<sup>6,14</sup> IHCP was observed in 6.06 % women which was also noticed by Dubey et al in 5.5% women.<sup>6</sup>

Seventeen (25.75%) women had vaginal delivery while forty nine (74.25%) had caesarean section due to associate complications like hypertensive disorders of pregnancy, PPROM and IHCP and GDM. Assuncao et al has reported caesarean section in 84.8% whereas Deepthi et al and Shetty et al reported 45% and 68% respectively.<sup>15,16</sup> Commonest indication for caesarean section was abnormal presentation (36.73%) which was also seen by Bhalla et al (48.14 %) and Erdenoghu et al (46.3%).<sup>9,11</sup>

80.30% women had preterm delivery (spontaneous or induced) while 70% and 67% was found by other authors.<sup>6,11,17</sup> Some researcher had lower incidence of preterm twin delivery i.e 50.7% and 41.5%.<sup>18,19</sup> This high incidence is due to mostly IVF pregnancies with comorbidities requiring induction and PPROM.

NICU admissions was seen in 65.15% neonates which was similar to Bhalla et al i.e 66%.<sup>11</sup> 78.8% neonates were weighing less than 2.5 kgs in our study while Bengal et al study had 82%.<sup>20</sup> Prematurity was seen in 61 (70.93%) neonates, RDS in 28 (32.55%) neonates, fetal growth restriction in 6 (6.97%), and birth asphyxia in 2 (2.32%)

neonates. In spite of high NICU admissions perinatal mortality was very low i.e 01 (1,16%) compare to Ambiben et al of 26.5% this may be due to round the clock availability of experienced neonatologist and set NICU protocols.<sup>20</sup>

## CONCLUSION

Twin pregnancies is an important emerging high risk factor which warrants early detection, systematic evaluation and follow-up for identifications of complications and its management by multidisciplinary team for optimum outcome

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