

ORIGINAL ARTICLE

*Fetomaternal Outcome in Twin Pregnancies - A Prospective Observational Study at a Tertiary Care Center*Shital Umesh Lad¹, Umesh Lad², Shruti Gawade¹ and Varsha Deshmukh¹¹Department of Obstetrics and Gynaecology, ²Department of Physiology
Vilasrao Deshmukh Government Medical College, Latur- 413512, Maharashtra, India**Abstract:**

Background: Multiple pregnancies are considered high-risk pregnancies, the commonest being twin pregnancies. It can lead to many maternal and perinatal complications. Twin gestation imposes greater demand on the maternal physiological system than does singleton pregnancy. The incidence of multifetal gestation has increased mainly because of advanced maternal age and assisted reproductive technology. This research was planned to study the outcomes of twin pregnancy in a tertiary care center and teaching hospital. **Aims and objectives:** To study the fetomaternal outcomes of twin pregnancy in a tertiary care center and teaching hospital. **Material and Methods:** The study was a prospective observational study, conducted from January 2021 to December 2021. Patients reporting to the OPD and labor room of our hospital as well as those referred from other centers were included as per inclusion and exclusion criteria. Data related to maternal age, residence, mode of conception, parity, gestational age, fetal presentation, mode of delivery, and maternal and neonatal complications was collected and statistically analyzed. **Results:** 63.3% of women with twin pregnancies were in the age group of 18-25 years. Most of them had pregnancy as a result of spontaneous conception. Among the total sample size urban dwellers were 56.6% and patients who had conceived spontaneously were 60%, 56.6% were multipara, dichorionic monoamniotic(DCMA) was 63.3%, whereas 56.6% females had a gestational age between 32-36 weeks at the time of delivery. LSCS was a mode of delivery in 56% of patients and 71% were preterm deliveries. Neonatal Intensive care unit (NICU) admission(68%) neonatal deaths (10%) and Intrauterine death (IUD) (10%) were major neonatal complications. **Conclusion:** Twin pregnancy is a high-risk pregnancy associated with adverse maternal and fetal outcomes. There is a rise in caesarean section in twin pregnancies. Vigilant monitoring and counseling in ANC visits along with the availability of good NICU care is needed for better outcomes.

Keywords: twin pregnancy, preeclampsia, preterm labor, maternal outcomes, fetal outcomes, NICU admission.

Introduction:

Multiple pregnancy is defined as the development of 2 or more fetuses simultaneously in a uterus. 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 all perinatal mortality^[1]. Multiple pregnancies are more common in recent days as compared to those in the past. Increased maternal age at the time of conception due to delayed childbearing has resulted in multifetal gestations. Twin gestation imposes greater demand on the maternal physiological system than a singleton pregnancy. Multiple pregnancy is considered a high-risk pregnancy as it contributes significantly to adverse maternal and perinatal outcomes. The naturally occurring twin pregnancy is approximately 1 in 80 births^[2]. One of the predisposing factors of twin gestation is the increase in maternal age which leads to a decrease in fertility and this may lead to increased use of ART like ovulation induction, in vitro fertilization, and intracytoplasmic sperm injection^[3]. Increased rates of maternal risks like antepartum hemorrhage, pre-eclampsia, anemia, polyhydramnios, premature rupture of membranes (PROM), preterm labor, and postpartum hemorrhage are noted in multifetal gestation. Because of the higher rate of complications, the cesarean section rate is also higher in twin pregnancies than in singleton gestation^[4]. An increase in the rate of maternal mortality was noted in the twin gestation. Complications occur in approximately 25% of singleton pregnancies which rises significantly to 83% in the case of twin pregnancies, leading to 10% perinatal mortality^[2]. Increased maternal complications are due to the burden on the adaptive capacity, hence twin pregnancy is considered a high-risk pregnancy and needs vigilant obstetric care^[5-6]. There are two types of twin pregnancies: fraternal and identical. Multiple pregnancies occur more frequently from the fertilization of two separate oocytes (dizygotic) than from a single

fertilized oocyte which subsequently divides into two identical twins(monozygotic). Approximately 30% of all twin pregnancies are monozygotic and 70% are dizygotic. Monozygotic twins occur at a rate of 1 in 250 births and are constant throughout the world. Two-to-five-fold increase in the incidence of dizygotic twins is seen due to conception by ART. Maternal factors like high parity, rising maternal age, race, and hereditary factors (especially maternal side) lead to increased frequency of dizygotic twins. Chorionicity rather than zygosity is the main factor in determining the pregnancy outcome^[7]. Chorionicity is detected by ultrasonography in the antenatal period and by placental examination following delivery. It is classified as monochorionic monoamniotic(MCMA), monochorionic diamniotic(MCDA), and dichorionic diamniotic(DCDA). The incidence of intrauterine death (IUD), fetal abnormalities, and twin-twin transfusion syndrome (TTTS) are common in monochorionic twins, and increasing development of discordant growth is seen in monochorionic twins, hence monozygotic twins are at greater risk^[7]. It is observed that twins have approximately a five-fold risk of mortality before the age of one year as compared to singleton pregnancy^[2]. Failure rates are higher in reverting the complications in twin pregnancy even with the vast availability of knowledge and advanced care. The present study was planned to study the maternal and fetal complications and to analyze perinatal mortality and morbidity associated with twin pregnancies in our institution.

Material and Methods:

This was a prospective observational analysis of 60 women with twin pregnancies, over 12 months from January 2021 to December 2021 in the Department of Obstetrics and Gynecology, VDGMC Latur, Maharashtra, India. This study was approved by the Institutional Ethics Committee and patients were enrolled from different socio-economic statuses and had different educational status. Pregnant women with twins with gestational age > 28 weeks and patient who has given consent were included in the study. The patients having single tons, triplets, and higher-order pregnancy, Known cases of chronic hypertension, Diabetes mellitus and non-obstetric complications were excluded from the study. Detailed history in an approved proforma was taken which included family history as well as that of infertility treatment if any. All routine and specific investigations were performed. Patients were hospitalized when required and complications were treated. Information about the study like age, residence, parity, gravida, and family history of twin pregnancy

was obtained. Chorionicity was assessed using ultrasonogram antenatally and placental examination after delivery of the placenta. All the patients were delivered to our institution under close observation. The course of labor, mode of delivery, and outcomes of labor including fetal outcomes were noted. The date, time of delivery, duration of labor, and the interval between the deliveries of two babies were noted. All stages of labor were carefully managed by a team of obstetricians. Antepartum, intrapartum, and postpartum complications were also recorded. All the babies were examined by a neonatologist after birth and NICU care was given when required. Patients were followed up till discharge. The data was collected and analyzed in the form of percentages using Microsoft Excel.

Results:

Observations in our study revealed that 63.3 % of patients were between 18-25 years of age group and 10 % were beyond 30 years of age. Urban dwellers are 56.67 %, spontaneous conception was in 60 % of patients while 40 % underwent ovulation induction. The majority of the patients i.e. 56.6% were multigravida. Dichorionic diamniotic (DCDA) chorionicity was observed in 63.3 % of patients. 50% of patients had both vertex presentation of the twins. 56.6 % of patients were delivered by LSCS and 71.2 % were preterm deliveries due to various indications [Table 1]. A major maternal complication of twin gestation in our study was preterm labor (71%) followed by PROM (50%) followed by preeclampsia (46.6 %)[Table 2]. In our study, in the first twin labeled as Twin A; 83.6 % of babies were born alive while there were 10% Intra-uterine deaths (IUD). 68 % needed NICU while 10% neonatal deaths were reported. In Twin B, 86.6 % live births, 8.3 % still births, and 5 % IUDs were reported, 50 % required NICU care while there were 10% neonatal deaths[Table-3].

Table-1 Demographic profile and mode of delivery of patients with twin gestation.

	Number of Twin pregnancies	Percentage of Twin Pregnancies
Age (Years)		
18-25	38	63.3
25-30	16	26.7
> 30	6	10
Residence of patients		
Urban	34	56.67
Rural	26	43.33

Mode of conception		
Spontaneous	36	60
Ovulation induction	24	40
IVF	0	0
Parity		
Primipara	26	43.33
Multipara	34	56.66
Chorionicity		
MCMA	6	10
MCDA	16	26.66
DCDA	38	63.33
Gestational Age (in weeks)		
28-32	8	13.33
32- 36	34	56.66
>36	18	30
Fetal Presentation		
both Vertex	30	50
vertex- breach	10	16.6
breech-vertex	12	20
both breach	6	10
transverse	2	3.3
Mode of Delivery		
vaginal	22	36.6
LSCS	34	56.6
VAGINAL F/B LSCS	4	6.6
Preterm Delivery	43	71.2
Term Delivery	17	28.3

Table-2. Maternal complications in patients with twin gestation

Complications	Number	Percentage(%)
Anaemia	18	30
Preeclampsia	19	46.6
PROM	30	50
Antepartum haemorrhage	2	6.6
Preterm labor	43	71
Polyhydramnios	3	5
Oligohydramnios	6	10
Gestational diabetes	0	0
Postpartum haemorrhage	6	10
No Complications	7	13

Table- 3. Neonatal outcome and weight in twin pregnancy

Neonatal outcome	Twin A		Twin B	
	case	Percentage (%)	case	Percentage (%)
Live	50	83.6	52	86.6
Still Birth	4	6.6	5	8.3
IUD	6	10	3	5
Need of NICU for Admission	35	68	30	50
Neonatal Death	6	10	6	10
Birth Weight				
<1 Kg	4	6.6	6	10
1- 1.5 Kg	12	20	14	23.3
1.5- 2 Kg	24	40	22	26.6
2-2.5 Kg	16	26.66	12	20
> 2.5 Kg	4	6.66	6	10

Discussion:

Multifetal gestation is a high-risk pregnancy as it has antepartum, intrapartum as well as fetal complications, including long-term developmental issues. Studies conducted in India since the 1970s showed the maternal twinning rate at 9-16/1000 births^[9]. Our institute is the only tertiary care referral center in the district. We receive complicated case referrals from across the district. In our study, we observed that twin pregnancies are common in the age group of 18-25 years. Similar findings were reported by Bangal VB et al^[1], Sundaram S et al^[2], Kundariya KR et al^[6], Singh L et al^[10], Chowdhury S et al^[11] which might be due to the social reasons as this is a common age of conception among most of the Indian female. In the present study, 60% of total subjects had spontaneous conception and 40% conceived from ovulation induction. The spontaneous conception rate reported by Shobha Raniet al was 80%^[8], Kandariya et al reported an incidence of spontaneous conception as 97.2%^[6] and Sundarum S et al reported a rate of 80%^[2]. The twin pregnancy rate was higher in multipara as compared to primipara subjects. In this study, the vertex-vertex presentation was in 50% of cases which was the most common presentation. Breach-vertex was 20%, vertex-breach 16.6% whereas breech-breech was 10%, transverse and others were 3.3%. Similar results were observed in a prospective study conducted by More N et al in which they observed that the most common presentation was vertex-vertex amounting to 50% of all, breach-vertex was 29%, vertex-breach was 11%, breech-

breech 5%, transverse and others were 5%^[12]. A retrospective study on 291 cases of twins by Lawal et al at Ilorin Teaching Hospital over 5 years found that the most common fetal presentation was cephalic, which constituted about 37.4%, followed by cephalic-breech (22.1%), breech-cephalic (21.4%) and 2.1% breech-breech^[13]. In the present study, 56.6 % of patients were delivered by LSCS; similar observations were reported by various researchers^[1,2,6,12]. The higher cesarean section rate in the present study was due to malpresentation of the first twin, preterm premature rupture of membranes, antepartum hemorrhage, fetal distress, and previous cesarean section. All participants were registered and had undergone regular antenatal check-ups in our institution including ultrasounds. Despite good antenatal care, 71.2 % delivered preterm, whereas Chowdhury et al^[11] reported 44% preterm deliveries in their study which is less than that observed in our study. Bangal et al^[1] showed 88%, Kandariya et al^[6] showed 83.3%, Singh et al^[10] showed 74.7% preterm delivery which was similar to our study. Preeclampsia was observed in 46.6 % of patients and anemia in 30% of the patients. An observational study conducted by Pyrbot JE et al^[14] reported most common complication was anemia 27.08% and preeclampsia 27.08% in their study. Similar findings Twin neonates

have significantly higher mortality and were reported by Kanduriya et al^[6] and Singh et al^[10]. longer hospital stays because of prematurity and low birth weight. Various studies revealed that NICU admission was required by the majority of babies at <34 weeks which decreased with an increase in gestational age. All mothers with twin gestations delivering before 36 weeks who received 2 doses of steroids contributed to better Apgar scores and lower incidence of respiratory distress among the babies^[11, 12, 15]. The rate of perinatal mortality can be up to six times higher in twins compared to singleton pregnancies, largely due to higher rates of preterm delivery and fetal growth restriction seen in twin pregnancies^[13].

Conclusion:

Twin gestation is considered a high-risk pregnancy with characteristic complications with severe implications on the perinatal outcomes. Gestational age at the time of delivery is known to be the single most important factor affecting neonatal outcome and perinatal mortality in twin pregnancies. Efficient and routine follow-up of women with a twin pregnancy is therefore necessary. Improved obstetric care facilities and NICU facilities are of prime importance in saving the lives of twin babies

Sources of supports: Nil

Conflicts of Interest: Nil

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