

Original Research Article


A study on risk of twin pregnancy

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Abstract

Introduction: Twin pregnancy is associated with more pregnancy complications and poorer pregnancy outcome than singleton pregnancy.

Aim: To evaluate the maternal and fetal complications in twin pregnancies.

Materials and methods: 300 Twin Pregnancies were studied over a period of 16 months from 2006-07 to evaluate complications to the mother and both fetuses. Data obtained at the time of delivery included maternal age, parity, gestational age at the time of delivery, mode of delivery and fetal weights.

Results: Among 25754 deliveries in 16 months we had 300 twin pregnancies, incidence being 1:85. Incidence of twins in percentage was 1.16%. Majority of women were in the age group of 20-25 years and majority of women gestational age 28- 32 weeks. Almost half of the twin pregnancies were unbooked cases. Out of the twin deliveries 50.3% were unbooked cases where as 49.6% were booked cases. Ratio of Primigravidae and multigravidae was 2.4:1 respectively. The most frequent maternal complication was pregnancy induced hypertension which occurred in 39.3% of cases. Other common complications encountered were premature rupture of membranes (10%) and anemia (6.3%). The commonest fetal complication was preterm labour accounting in 130 (43.3%) cases and with malpresentations in 87 (29%) cases followed by severe discordancy in 26 (12.4%). The highest perinatal mortality rate was 28/97 in low birth weight group i.e., 1-1.5 kg and high survival rate was seen in >2.5 kg body weight children.

Conclusion: Twin pregnancies are significant risk factor for maternal and fetal complications include pregnancy induced hypertension and prematurity respectively.

Key words

Twin pregnancy, Low birth weight, Pregnancy induced hypertension.

Introduction

The incidence of twin pregnancies varies greatly among the different races of the world. The prevalence of spontaneous twin pregnancies ranges from approximately 0.6% of pregnancies in Asia. Twin is a type of multiple birth in which the mother gives birth to two offspring from the same pregnancy. It can be either dizygotic or monozygotic [1, 2]. It is associated with increased risk of maternal and neonatal complications both in the developed and developing countries. This is probably worse in Asian countries, where lack of facilities to manage twin delivery and poverty and harmful cultural beliefs and practices are still frequent. Available evidences also indicate that twin pregnancies are associated with increased financial, emotional, personal and social costs for the twins themselves and their families. It also accounts for at least 10% of global perinatal mortality [2-4]. There is an increase in incidence of twins primarily due to related trends of childbearing at older ages and widespread use of fertility therapies.

A number of factors have been associated with increased incidence of twinning. These include advanced maternal age and the use of fertility drugs for induction of ovulation [5-7]. Other factors include family history of twinning, maternal height and weight, previous history of twin delivery and diet. Twin pregnancies are associated with increased perinatal morbidity and mortality as well as a higher rate of cesarean deliveries. The obstetric complications include preterm labor, anemia, pregnancy-induced hypertension, postpartum hemorrhage, prematurity and low birth weight [8, 9]. In India, studies on the incidence of twin pregnancies and risk factors are very limited. Thus, conducting study to determine the incidence and identify the risk factors is very essential for program improvement.

Materials and methods

This was a cross-sectional study, were analyzing protocols of births during 2013, in Obstetrical

and Gynecological department at Modern Govt. maternity hospital Hyderabad from 2006-07 to evaluate complications to the mother and both fetuses which is tertiary medical care, the staff consists of 50 professionals, with over 300 Twin Pregnancies were studied over a period of 16 months in Among 25754 deliveries.

A pre-tested interviewer-administered structured questionnaire was developed after reviewing different related literatures to collect the data. The questionnaire, prepared and used to collect the data. Three Obstetrics and Gynecology residents, one pediatrics resident, one midwife nurse and two medical interns were recruited, trained and collected the required data from the mothers just. The training was given for three days on the objective, relevance of the study, confidentiality of information, respondent's right, informed consent and techniques of interview. All completed questionnaires were reviewed each night and morning sessions were conducted every day with the data collectors to discuss on the problem encountered during data collection procedures. Data obtained at the time of delivery included maternal age, parity, gestational age at the time of delivery, mode of delivery and fetal weights.

Before conduct of the study, ethical clearance was obtained from the College. Written informed consent was obtained from every study participant before the interview by explaining the objective of the research. All the information collected from the study participants were handled confidentially through omitting their personal identification, conducting the interview in private place and using the data for the research purpose only.

The collected data were coded and entered to SPSS for windows version for cleaning and analysis. Descriptive statistics (means and proportions) were used to describe the main features of the data. The incidence of twin delivery was expressed in rates per 1000 deliveries.

Results

Initially, it was planned to include a sample of over 300 Twin Pregnancies were studied over a period of 16 months in Among 25754 deliveries. Incidence in our study was 1:85 (**Table - 1**).

Out of 300 mothers, 19 (6.3%) were taken treatment for Infertility, 12 (4%) mothers gave history of twins and 3 (1%) gave history of recurrent twins. Incidence of twins in percentage was 1.16%.

Table - 1: The rate of the incidence of twin pregnancy.

Total number of births	Number of twin pregnancies	The number of twins in percentage	Report of twins pregnancies in 1000/births
25754	300	1.16	11.64

Almost half of the twin pregnancies were unbooked cases. Out of the twin deliveries 50.3% were unbooked cases where as 49.6% were booked cases. Ratio of Primigravidae and multigravidae was 2.4:1 respectively (**Table - 2**). Delivery at 36-37 weeks is associated with lowest risk of fetal death.

The peak age incidence as per **Table - 1** was the 20-25 year group, which accounted for 180 (60.0%) cases and, youngest being 18yrs old and eldest being 37 years .While the modal parity was Para 0, with the lowest in the Para 4 group (**Table - 2, Table - 3**). Incidence of twin births was 1:85.

Table - 2: Maternal characteristics.

Characteristic	No. of cases	%
Patients with treatment for Infertility	19	6.3
Family history of twins	12	4
Recurrent history twins	3	1
Parity		
Primigravidae	87	29
Multigravidae	213	71
Gestational age		
>28 weeks	28	9.3
28-34 weeks	102	34
>34 weeks	170	56
Cases referred as		
Unbooked cases	151	50.3
Booked cases	149	49.6

Vaginal delivery occurred in 165 cases, in that spontaneous being 149, forceps being 3 and induced 14. Caesarean delivery occurred in 135 cases with elective LSCS being 42 and emergency LSCS being 92 reported (**Table - 1, Figure - 1**).

The most frequent maternal complication was pregnancy induced hypertension which occurred in 39.3% of cases. Other common complications encountered were premature rupture of membranes (10%) and anemia (6.3%) as per **Table - 4**.

The commonest fetal complication as per **Table - 4** was preterm labour accounting in 130 (43.3%) cases and with malpresentations in 87 (29%) cases followed by severe discordancy in 26 (12.4%).

The highest perinatal mortality rate was 28/97 in low birth weight group i.e., 1-1.5 kg and high survival rate was seen in >2.5 kg body weight children (**Table - 5**).

Discussion

Multiple pregnancies are associated with significantly higher maternal and neonatal morbidity and mortality. Women pregnant with multiples are nearly six times more likely to be hospitalized during pregnancy, more than twice as likely to be admitted to the adult intensive care unit and to die compared with women with singleton pregnancies. Incidence in our study

was 1:85. Delivery at 36-37 weeks is associated with lowest risk of fetal death. Risk of cerebral palsy is 3 times increased due to various factors

like preeclampsia, PROM, IUD of one twin and delivery before 32 weeks of gestation.

Figure - 1: Mode of delivery in the study.

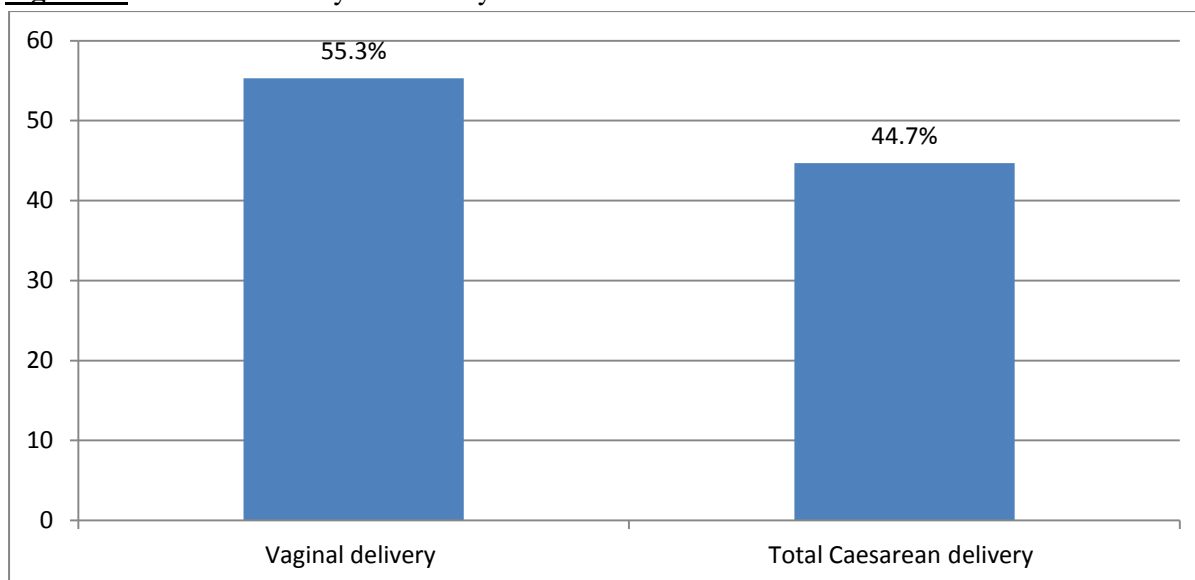


Table - 3: Age and parity distribution.

Age	Nullipara	Para 1	Para 2	Para 3	>Para 4
Teenage	5	1			
20-25 years	93	62	19	4	2
26-30 years	7	53	33	5	1
31-35 years	1	2	4	5	2
> 35 years	1				

Maternal complications

Pregnancy induced hypertension (39.3%): The incidence of hypertensive disorders of pregnancy was significantly higher in twin pregnancies [10, 11]. This has been attributed to exposure to superabundant chorionic villi in twin pregnancies [9]. Both preeclampsia and eclampsia though are common in twin pregnancy are milder than in singleton pregnancies. Neonatal survival – 89.6%.

Preterm premature rupture of membranes (10%): It is hypothesized that excessive growth of uterus in twin gestation results in early opening of the cervix & exposure of the fetal membranes to the bacterial flora of the vagina leading to amnionitis with intact membranes and in severe cases to

amnionitis with ruptured membranes. Hence infections of the urinary tract, the cervix and the vagina in these mothers, must be treated aggressively. Neonatal survival – 75%.

Anemia (6.3%): It may be due to increased fetal drain on maternal iron and folate stores and increased hemodilution that accompanies twin gestation. Women with twin pregnancies should be supplemented with prophylactic iron (200 mg/day) and folic acid (1 mg/day).

Hydramnios (6%): Acute hydramnios is more common in monozygotic twin pregnancies. Chronic hydramnios incidence is same in both dizygotic and monozygotic twin pregnancies.

Table - 4: Maternal and fetal complications.

Maternal complications	No. of patients (N-300)	%
Pregnancy induced hypertension	118	39.3
Premature rupture of membranes	30	10
Anaemia	19	6.3
Hydramnios	18	6
Oligohydramnios	13	4.3
Antepartum Hemorrhage	11	3.6
Postpartum Hemorrhage	9	3
Eclampsia	7	2.3
Fetal Compilations		
preterm labour	130	43.3
malpresentations	87	29
severe discordancy	26	12.4
single fetal demise	15	5
cord prolapse	3	1
congenital anomalies	3	1
conjoined twins	2	
stuck twin	2	
interlocked twin	2	

Postpartum hemorrhage (3%): it may occur due to stretching of the uterine muscle fibers to the maximum. It can be prevented by aggressive use of oxytocic agents immediately after delivery of the placenta which we follow routinely in our hospital. The lower incidence of postpartum hemorrhage may be related to the use of active management of labor [12].

The increased risks to maternal outcomes from multiple pregnancies, such as anemia, hypertensive disorders and caesarean delivery were consistent with previous findings (Table – 6).

Fetal complications

Preterm labour (43.3%): Prematurity is the leading cause of neonatal death among twin gestations. The higher rate of preterm delivery compromises the survival chances of the neonates and increases their risk of lifelong disability. Multiple births account for about 20% of all the preterm births.

Malpresentations (29%): They are common in twin pregnancies and more so in the second twin when compared to first.

Discordancy (33%): Etiology of discordancy may be IUGR, Twin to twin transfusion syndrome, Congenital anomalies. Neonatal mortality is increased with increasing degrees of discordancy regardless of mode of delivery. But in severe cases of discordancy, caesarean delivery is preferred as the neonatal mortality rate is lower. In this study severe discordancy was seen in 12.4%.

Single fetal demise (5%): The prognosis for the surviving twin depends on the gestational age at the time of the demise, the chorionicity, and the length of time between the demise and delivery of the surviving twin. Risk of co twin demise, neurological abnormality and preterm delivery is more in monochorionic twins when compared to dichorionic twins.

Congenital malformations (1%): It may be due to defects resulting from twinning, defects from vascular anastomoses, and defects as a result of crowding (Table – 7).

Mode of delivery

Vaginal delivery occurred in 165 cases, in that spontaneous being 149, forceps being 3 and induced 14. Caesarean delivery occurred in 135 cases with elective LSCS being 42 and emergency LSCS being 92 reported (Table - 1). The commonest indications for cesarian section in this study were malpresentation and pregnancy-induced hypertension, but the earlier observed hypertension was cord prolapse [11].

Table - 5: Perinatal mortality.

Birth Weight in Kg	No. of Births	No. of Deaths	Survival	Survival Rate
1-1.5	97	28	69	71%
1.5-2.5	394	16	378	95.9%
2.5-3	50	-	50	100%
>3	4	-	4	100%

Table - 6: Maternal complications in comparison with other study.

Maternal Complications	Number n=300	%	Comparatve study in CMC Ludhiana (178 twins) JOGI 2007 [13]
Pregnancy induced hypertension	118	39.3	19%
Premature rupture of membranes	30	10	18%
Anaemia	19	6.3	28%
Hydramnios	18	6	
Oligohydramnios	13	4.3	
Antepartum Hemorrhage	11	3.6	2%
Postpartum Hemorrhage	9	3	8%
Eclampsia	7	2.3	

Table - 7: Fetal complications in comparison with other study.

Fetal Complications	Number (n = 300)	Percentage	Comparative Study in CMC Ludhiana (178 twins) JOGI 2007 [13]
Preterm Labour	130	43.3	57.5%
Malpresentations	87	29	
Severe Discordancy	26	12.4	
Single fetal demise	15	5	6.5%
Cord prolapse	3	1	1%
Congenital Anomalies	3	1	0.5%
Conjoined Twins	2	0.8	-
Stuck Twin	2	0.8	-
Interlocked Twin	1	0.5	-

High incidence of prematurity, LBW, birth asphyxia, associated with delay in delivery of 2nd twin and high incidence of malpresentations contribute to high perinatal mortality. Perinatal mortality rate in our study is 8.08%. PNMR is 2.3% higher in the second twin when compared to the first. The increased rate of perinatal death observed in twin pregnancies may be explained by the increased rate of intra-uterine growth restrictions, premature rupture of membranes among the twin deliveries [7, 9, 10]. The higher

perinatal mortality observed in this study in low birth weight infants. Similar results are reported by Hatkar and Bhide [14]. Birth asphyxia and hyperbilirubinemia were other neonatal complications seen in our study. This was also observed by Hatkar and Bhide [14]. All the complications were found to be more among the triplets than in the twins. Other studies report the same.

Conclusion

In 300 twin pregnancies the most common maternal complications were pregnancy induced hypertension and PROM and the most common fetal complications were prematurity and malpresentations. Compared to other studies with a perinatal mortality of 8.55% we had a perinatal mortality of 8.08%. The risk of twin pregnancy is significant. Early diagnosis, good antenatal care with early recognition of complications and their management at a tertiary care with level 3 neonatal care can help reduce maternal and perinatal mortality and morbidity.

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