MATERNAL AND PERINATAL OUTCOME IN TWIN PREGNANCIES

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ABSTRACT

BACKGROUND AND OBJECTIVE

Twin pregnancy is a high-risk pregnancy associated with high maternal and perinatal morbidity and mortality. This study is conducted for evaluation of obstetric and perinatal outcome in our hospital.

MATERIAL AND METHODS

This prospective study was conducted in Thoothukudi Medical College Hospital in Department of Obstetrics and Gynaecology between March 2014 to February 2016 over a period of two years in twin pregnancies with gestational age more than 30 weeks and outcomes were studied.

RESULTS

Incidence of twin pregnancy was 9.64 per 1000 live births. 96% of cases are booked and had regular antenatal checkups. Among them, 75.82% of pregnant women belonged to the age group of 20-29 years and 60.43% were multiparous and 39.56% were primiparous women. Even though there was no maternal mortality, pregnancy complications were significantly higher in twin pregnancies. Most common obstetric problems seen in our study are preterm labour (25.27%), nutritional anaemia (37.36%), preeclampsia (17.58%), and premature rupture of membranes (13.18%). The other complication noted were antepartum haemorrhage (4.39%) postpartum haemorrhage (9.89%), oligohydramnios (6.59%), polyhydramnios (2.19%), hyperemesis gravidarum (6.59%), gestational diabetes mellitus (1.09%). Only 13.18% of patients had no complications. More than one complication was seen in most of the patients. Most common presentation of the fetuses during delivery of twin babies was cephalic-cephalic presentation followed by cephalic-breech and breech-cephalic. Caesarean delivery was the most common mode of delivery. Caesarean section rate was 70% in our study. Incidence of perinatal morbidity requiring admissions in Neonatal Care Unit was 62.08%. Major reasons are prematurity, low birth weight, respiratory distress. Among the twins delivered, 14.28% were very low birth weight and 64.83% were low birth weight babies. Only 20.87% were normal weight babies. Discordant growth in twins was observed only in 4.39% of cases. The perinatal mortality rate was 10.43% and the major causes of death are respiratory distress, pulmonary haemorrhage, disseminated intravascular coagulation, sepsis, which are the complications of prematurity.

CONCLUSION

Prematurity was the major issue in twin pregnancies. So, regular antenatal checkups, nutritious diet, adequate rest, maternal corticosteroids therapy, and short-term tocolytic therapy in cases of preterm labour and institutional delivery with good neonatal care unit set up will definitely improve the outcome in twin pregnancy.

KEYWORDS

Twin Pregnancy, Chorionicity, Preterm Labour, Low Birth Weight, Maternal Morbidity, Neonatal Morbidity.

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INTRODUCTION

The term multiple pregnancies refer to a pregnancy in which there are two or more fetuses. The most common multiple pregnancy is twin pregnancy. This may result from a single ovum (monozygotic) or from two ova (dizygotic). Monozygotic twinning is a random event. However, the incidence of dizygotic twins is on the increase. The factors known to be associated with dizygotic twinning are 1) Increased maternal age 2) Artificial reproductive techniques 3) Race 4) Hereditary 5) Nutritional status.^(1,2,&3) Now, the prevalence varies from 2 to 20 per 1000 live births.

All the physiological changes that take place in pregnancy are exaggerated in multiple pregnancies. Due to these exaggerated physiological changes, increased levels of placental hormones and large size of uterus, several maternal and foetal complications occur. The maternal complications in early pregnancy are spontaneous abortion, hyperemesis gravidarum. Due to increased demand for iron and folate in order to meet the increased red cell mass and additional iron requirements of multiple fetuses, iron-deficiency anaemia, or dimorphic anaemia commonly occurs in these patients.

Gestational diabetes is also on the rise due to the effect of diabetogenic hormones of pregnancy especially human placental lactogen. Other complications commonly seen are gestational hypertension or preeclampsia, urinary tract infections due to urinary stasis, preterm labour, antepartum haemorrhage, polyhydramnios, preterm premature rupture of membranes, malpresentations, prolonged labour, prolapse of umbilical cord, increased operative vaginal delivery, and caesarean section. Postpartum complications like postpartum haemorrhage, subinvolution of uterus, sepsis, lactation difficulties are more common in multiple pregnancies.^(4,5,&6)

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The major foetal complications in twin pregnancy are prematurity, intrauterine growth retardation, and low birth weight. The other complications inherent to twinning are discordant growth of twin, twin-to-twin transfusion syndrome, acardiac twins, death of one foetus in utero, and congenital anomalies. These are more common in monozygotic twins. The incidence of congenital anomalies is considerably greater. Major anomalies are seen in 2% and minor malformations in 4% of twins. The major malformations occur in monozygotic twins. Maternal age related chromosomal anomalies are seen in dizygotic twins. Perinatal mortality in twin pregnancy is three to tenfold higher than that in singletons. Prematurity is the leading cause of perinatal mortality in twin pregnancy. All the complications of prematurity namely respiratory distress syndrome, sepsis, pulmonary haemorrhage, and necrotising enterocolitis causes mortality. The morbidity increases if the babies are also discordant.

This study was conducted to assess maternal and neonatal complications and pregnancy outcome of twin pregnancy. The results may be useful for evaluating the quality of the obstetric care and neonatal services and may guide in the management protocols in future.

MATERIALS AND METHODS

This observational study was conducted in the department of Obstetrics and Gynaecology, Thoothukudi Medical College from March 2014 to February 2016. Total number of cases included was 91. Women with twin pregnancy completing 30 weeks of gestation irrespective of parity status, age, and medical disorders admitted in our hospital during the study period were included in this study. But, patients discharged after conservative management was excluded.

Thorough obstetric history and family history were taken. Careful physical examination was done to note the associated complications like anaemia, hypertension. Per abdomen examination was done to find the lie presenting part, liquor status, and foetal heart rate. Pelvic examination was done to note the presenting part, membrane status, and adequacy of pelvis. All necessary investigations were done. USG was performed to identify the chorionicity and congenital anomalies. Placenta was examined to confirm chorionicity. Details about the gestational age at the time of delivery, delivery interval between twins, birth weight were recorded. Both mothers and babies were followed till discharge. Twins admitted in neonatal care unit were also followed till discharge and finally findings were compiled and analysed.

RESULTS

Total number of deliveries from 1st March to 29th February was 9439 births including 91 twins giving an incidence of 9.64 per 1000 births. In the present study, 88 cases (96.7%) were booked whereas 3 cases (3.3%) were unbooked.

Age in Years	Number	%
<20	8	8.79%
20-29	69	75.82%
30-35	10	10.98%
>35	4	4.39%

Table I: Age Incidence in Twin Pregnancy (N=91)

Maximum incidence of twin pregnancies were in the age group of 20-29 years (75.82%). 3.29% were teenage pregnancies and 4.39% were elderly.

Parity	Number	%
Primi	36	39.56%
Multi	52	57.14%
Grand Multi	3	3.29%

Table II: Parity Incidence in Twin Pregnancy (N=91)

The parity distribution of patients shows 57.14% were multiparous and 39.56% were primiparous.

	Gestation in Wks.	Number	%
Term	>37	32	35.16%
Borderline Term	34-36	39	42.85%
Preterm	30-34	20	21.97%

Table III: Incidence of Twin Pregnancy in Relation to Gestational Age (N=91)

Nearly 64.82% had preterm delivery and 35.16% had term delivery. The main cause for increased frequency of preterm labour in twins was found to be due to over distension of the uterus. This hypothesis originated from observations, which demonstrated a direct correlation between uterine stretching and initiation of parturition. Another hypothesis is that intrauterine infection is an important cause of preterm labour in twins, which was due to the early opening of the cervix as a result of excessive growth of the uterus leading to exposure of foetal membranes to the bacterial flora of the vagina.

In pregnancies with gestational age <34 weeks around 15(16.48%) received corticosteroid therapy before delivery. Forty nine preterm cases (53.84%) received prophylactic antibiotics before delivery.

Pregnancy Complication	Number	%
Hyperemesis Gravidarum	6	6.59%
Preterm Labour	23	25.27%
PROM	12	13.18%
Anaemia	34	37.36%
Preeclampsia	16	17.58%
Eclampsia	1	1.09%
Polyhydramnios	2	2.19%
Oligohydramnios	6	6.59%
Antepartum Haemorrhage	4	4.39%
Postpartum Haemorrhage	9	9.89%
Gestational Diabetes Mellitus	1	1.09%
Discordant Growth	4	4.39%
No High Risk	12	13.18%

Table IV: Maternal Complications in Twin Pregnancy

The three leading pregnancy complications were anaemia (37.36%), preterm labour (25.27%), and preeclampsia (17.58%). In this study, birth weight discrepancy of 20% or >20% between twins was considered as significant discordant growth. Number of such pairs was 4(4.39%).

Presentation	Cases	%
Cephalic-Cephalic	53	58.24%
Cephalic-Breech	14	15.38%
Breech-Cephalic	10	10.98%
Breech-Transverse	5	5.49%
Breech-Breech	4	4.39%
Cephalic-Transverse	5	5.49%

Table V: Foetal Presentation at the Time of Delivery (N=91)

This table demonstrates the foetal presentation at delivery. Cephalic-cephalic presentation was the commonest and was found in 58.24% of the cases while cephalic-non-cephalic was found in 20.87% and non-vertex presentations was found in 20.86%.

	1 ST Twin	%	2 ND Twin	%
Vertex Vaginal Delivery	28	30.76%	24	26.37%
Assisted Breech Delivery	-	-	2	2.19%
Outlet Forceps	-	-	1	1.09%
LSCS	63	69.23%	64	70.32%
Table VI: Mode of Delivery and Twin Pregnancy				

In this study, 30.76% of first twin had normal vaginal delivery while 26.37% of second twin had normal vaginal delivery. 69.23% of first twin was delivered by caesarean section while 70.32% of second twin was delivered by caesarean section. In one patient alone, first twin was delivered vaginally while second twin was delivered by caesarean section because of transverse lie of second twin with failed internal podalic version.

	Number	%
<1 Min	32	35.16%
1-5 Min	35	38.46%
5-10 Min	13	14.28%
>10 Min	7	7.69%
>20 Min	4	4.39%
Table VII: Twin-Twin Delivery Interval (N=91)		

Second twin was delivered within five minutes in 73.62% of deliveries.

Weight	Number	%
<1.5 kg	26	14.28%
1.5-2 kg	48	26.37%
2-2.4 kg	70	38.46%
>2.5 kg	38	20.87%
Table VIII: Baby Birth Weight in Twins (N=182)		

20.87% of babies had birth weight of >2.5 kg while 79.13% of babies had low birth weight or very low birth weight.

Type of Placenta	Number	%
Diamniotic Dichorionic	55	60.43%
Diamniotic Monochorionic	32	35.16%
Monoamniotic Monochorionic	4	4.39%
Table IX: Placentation in Twin Pregnancy (N=91)		

Most common type of placentation observed was diamniotic-dichorionic, which constitutes about 60.43% of the cases while the least common type was monoamniotic-monochorionic twins, which constituted about 4.39%.

Morbidity	1 st Twin	%	2 nd Twin	%
VLBW	12	13.18%	14	15.38%
LBW	40	43.95%	43	47.25%
RDS	8	8.79%	6	6.59%

Birth Asphyxia	-		4	4.39%
Sepsis	2	2.19%	3	3.29%
Congenital Anomaly	1	1.09%	3	3.29%
Meconium Aspiration Syndrome	3	3.29%	1	1.09%
Table X: Neonatal Morbidity in Twins				

No. of NICU Admissions=113(62.08%).

The incidence of perinatal morbidity that required admissions in neonatal ICU was 62.08%. Among them, the leading cause of perinatal morbidity was found to be due to low birth weight (43.95% in first twin and 47.25% in second twin). Apart from the data shown in the table four babies had specific problems.

1. One baby had meningomyelocele. The other baby of the twin pair was normal.
2. In another pair, one of the twins was born with imperforate anus while the other twin was normal.
3. In a third pair of twins, one baby had meningomyelocele while its twin had tracheoesophageal fistula with hydrocephalic changes.

Deaths	Number	%
First Twin	8	4.39%
Second Twin	11	6.04%
Total	19	10.43%
Table XI: Neonatal Mortality in Twins		

The neonatal mortality in our study was 10.43% of which the mortality of second twin was higher (6.04%) when compared to the first twin.

Causes	Number	%
Preterm/RDS	10	52.63%
Sepsis	4	21.05%
Birth Asphyxia	2	10.52%
Congenital Anomaly	3	15.78%
Table XII: Causes of Neonatal Mortality (N=19)		

In our study, it was observed that perinatal mortality was mainly in preterm babies 89.48% with only two deaths (10.52%) in term babies due to birth asphyxia. The three most common causes of neonatal mortality was prematurity/respiratory distress syndrome, which constitutes about 52.63% while sepsis constitutes about 21.05% and congenital anomaly constitutes about 15.78%.

DISCUSSION

In the present study, prevalence of twin pregnancy is 9.64 per 1000 births in our hospital, which corresponds to the quoted Asian incidence.⁽²⁾ 75% belonged to age group of 20-30 years (Table I) since most of the pregnancies occur during this period. This study also shows that 57% of them were multigravid, which is similar to study done by Dr. Deepthi H. R. et al (50%),⁽⁷⁾ Chowdhury S et al (64.2%).⁽⁸⁾ Incidence of preterm delivery is 65%. It is found to be high when compared to study done by Sultana et al,⁽⁹⁾ but correlates well with Narongwat Suriya et al (62.9%)⁽¹⁰⁾ and Deepthi et al (60%).⁽⁷⁾

Majority of the twins is born around 34-36 weeks. Incidence of low birth weight (<2.5 kg) was 79.13% in this study, which was similar to the study of Bangal et al (82%).⁽¹¹⁾

Pregnancy complications were shown in (Table-IV). Most common were preterm labour (25.27%), anaemia (37.36%), preeclampsia (17.58%), and PROM (13.18%), which is mostly similar to study by Deepthi et al.⁷ In this study, almost two thirds of women (70%) were delivered by caesarean section out of which 20% were repeat caesarean deliveries. Caesarean section rate is similar to Sultana et al study (68%).⁹ No maternal mortality is seen in our study.

In our study, perinatal morbidity requiring neonatal admissions were 62.08% mainly for prematurity, low birth weight, and respiratory distress. Perinatal mortality found in our study was 10.43%. Several studies also reported similar perinatal mortality rate (Sultana et al 11%, Bangal et al 10%).^{9,11} Slightly increased perinatal mortality was observed in second twin (Table XI). We found only 3 neonatal deaths after 34 weeks. All other deaths are seen in less than 34 weeks gestational age group. Hence, prematurity and low birth weight appears to be the major risk factor that increases the rate of neonatal death in twin pregnancy.

CONCLUSION

Preterm delivery and prematurity are the important problems identified in twin pregnancy and were the leading cause of perinatal mortality. So, prevention of preterm labour along with good neonatal intensive care unit for preterm babies will definitely bring down the mortality in twin pregnancies.

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