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Original Research Article

Study of feto-maternal outcome in twin pregnancy

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ABSTRACT

Background: In modern obstetrics with advanced ultrasonographic techniques and color Doppler, multiple pregnancy and associated condition like chorionicity, growth discordance, vascular complications, twin to twin transfusion syndrome, intrauterine death of one or more fetus and congenital anomalies can now be diagnosed at early stage of gestation. Vigilant obstetric care during antepartum, intrapartum and postpartum period decreases maternal morbidity and mortality as well as improves fetal outcome in twin pregnancy.

Methods: This is a randomized prospective study of 250 patients of multiple pregnancy admitted at our institute from July 2020 to June 2022 including all emergency as well as registered patients. In all cases a detailed history was taken and all routine investigations were done. All information was entered in a proforma and the fetomaternal outcome of twin pregnancy was analysed.

Results: Around 67% patients had onset of labor after 32 weeks of gestation, rest 32% patients had onset of labor at or before 32 weeks of gestation. The 55% patients underwent lower segment caesarean section and 45% patients delivered vaginally. We observed highest incidence of twins in age group 21-30 years. Maximum number of patients 59% were multigravida compared to primigravida.

Conclusions: Multiple pregnancy is considered as “high risk pregnancy”. hence early diagnosis of multiple pregnancy is essential in reducing maternal and perinatal morbidity and mortality.

Keywords: Twins, Preterm, Perinatal morbidity, Perinatal mortality

INTRODUCTION

Twin is a type of multiple birth in which mother gives birth to two off springs in the same pregnancy. Twin pregnancy resulting from a single zygote is called monozygotic and from two zygotes is called dizygotic.

Twin pregnancies are associated with increased risk of obstetric complications as well as prenatal morbidity and mortality especially in developing countries. Multiple pregnancies carry higher risks of adverse fetal and neonatal outcomes and this has consequences for child health as well as for families and the health care system.¹

Twin births are associated with a higher frequency of preterm infant (less than 37 weeks of gestation period) and

low birth weight infant (less than 2,500 gm. of birth weight) and around 10% of perinatal mortality. In addition, the rates of congenital malformations, abnormal growth, and trauma at delivery, NICU admission are higher than in singleton pregnancies. Therefore, multiple births are considered high risk and require close monitoring and in many cases neonatal intensive care.²

In modern obstetrics with advanced ultrasonographic techniques and color Doppler, multiple pregnancy and associated condition like chorionicity, growth discordance, vascular complications, twin to twin transfusion syndrome, intrauterine death of one or more fetus and congenital anomalies can now be diagnosed at early stage of gestation.³

Twin pregnancies are associated with increased emotional, personal, financial and social costs in pregnant patients and their families also there is significant increase in maternal complications such as spontaneous abortion, anemia, preeclampsia, gestational diabetes, hydramnios, preterm labor, maternal hemorrhage in form of APH and PPH, caesarean section, obstetric hysterectomy, prolonged hospital stay, blood transfusion in multiple pregnancies than in singletons.⁵ Thus increasing maternal morbidity and mortality with increase in number of fetuses.^{6,7}

Vigilant obstetric care during antepartum, intrapartum and postpartum period decreases maternal morbidity and mortality and improves fetal outcome in twin pregnancy.

METHOD

Present study is a randomized prospective study of 250 patients of multiple pregnancy admitted at our institute from July 2020 to June 2022 including all emergency as well as registered patients. During this period 19568 deliveries were done out of which 250 patients of twin pregnancy at different age were studied, they were from various socio economical classes and having different level of education.

Inclusion criteria

Pregnant women carrying twins and delivered at institute, conceived spontaneously or with treatment, were included.

Exclusion criteria

Pregnancies with triplets and higher-order multifetal pregnancies were excluded.

RESULTS

In present study, 76% patients had age <30 years and 41% patients being primigravida, 60% patients have maternal BMI >30. Mothers of dizygotic twins tend to be heavier and taller than singletons, which may be due to high level of circulating gonadotropins.⁶ Positive family history was observed in 15% of cases, 12% patients had taken treatment taken for infertility. There is a well-known but poorly defined familial tendency of dizygotic twinning, possibly through both maternal and paternal linkage. Maternal history however more important than paternal.⁶

Table 1: Predisposing factors for twin pregnancy.

Predisposing factors	N	Percentage (%)
Maternal age <30 years	190	76.0
Higher parity (multigravida)	148	59.2
Maternal BMI >30 kg/m ²	149	59.6
Treatment taken for infertility	32	12.8
Positive family history	38	15.2

In present study, most common complication observed was preterm labor (71%), second most common complication observed was anemia, hypertensive disorders of pregnancy were observed in 29% of cases which includes pregnancy induced hypertension, preeclampsia and eclampsia, Also APH was observed in 4.4% of cases. The 74 patients had complications at time of labor and during delivery. The 13% patients had PROM, 2% patients had cord prolapse and 15% patients develop PPH.

Table 2: Associated maternal complications.

Variables	N	Percentage (%)
Anemia	78	31.2
Hypertensive disorders of pregnancy	72	28.8
Diabetes mellitus	19	7.6
APH	11	4.4
Hypothyroidism	51	20.4
Preterm labor	178	71.2
Cord prolapse	4	1.6
PROM	33	13.2
PPH	37	14.8
Wound gap/infection	14	5.6

In present study 20(5%) fetus died intrauterine, 11 babies (2%) delivered with congenital anomalies, 36 babies (7.2%) represented IUGR and birth weight discordance is seen in 3% babies. Out of 480 live births 10% died in neonatal period. Out of 46 neonatal deaths 28 babies died in early neonatal period and 18 babies in late neonatal period.

Table 3: Associated fetal complications, (n=500).

Fetal complication	N	Percentage (%)
Single fetal demise	8	1.6
Intra uterine fetal demise (both fetus)	12	2.4
Congenital anomalies	11	2.2
IUGR	36	7.2
Birth weight discordance	16	3.2
Early neonatal deaths	28	5.6
Late neonatal deaths	18	3.6

Out of 250 cases, 137 (55%) patients underwent lower segment caesarean section and 113 (45%) patients delivered vaginally in our study.

Table 4: Mode of delivery, (n=250).

Mode of delivery	N	Percentage (%)
Vaginal	113	45.2
LSCS	137	54.8

In present study approximately 18% patients delivered full term (>36 weeks), 50% and 26% delivered between the age of 33-36 weeks and 29-32weeks respectively, in 7% cases onset of labour occurred at ≤28 weeks of gestation.

Thus, the mean gestational age for delivery in present study was between 33-36 weeks.

Table 5: Duration of gestation at onset of labour and delivery, (n=250).

Gestation age (weeks)	No. of vaginal delivery	No. of LSCS	No. of total cases	Percent (%)
≤ 28	8	9	17	6.8
29-32	27	38	65	26
33-36	51	73	124	49.6
>36	27	17	44	17.6

DISCUSSION

In this study most common complication observed was preterm labor (71%). The duration of gestation decreases with increasing fetal number. Delivery before term is a major reason for increased rate of neonatal morbidity and mortality in twin pregnancy. The proportion of preterm birth associated with premature rupture of membrane increased with gestational plurality from 13 percent with singletons to 20 percent with triplets or more.⁶ The incidence of preterm delivery was higher (71%) in the current study as compared to Chowdhury et al (44%). However, the incidence reported by Bangal et al was much higher (88%).^{9,10}

Around 31% patients had anemia. In twin pregnancy, the iron requirement is increased due to increase in red cell mass and the additional iron requirement of multiple fetuses.⁴ There is considerable improvement in the prenatal care in India which is evidence by a much lesser incidence of anaemia than it was in the past.⁸ The 29% patients developed hypertensive disorders of pregnancy.

Hypertensive disorders due to pregnancy are more likely to develop with twin fetuses. Fetal number and placental mass are involved in preeclampsia pathogenesis. Placental vasculogenesis is evident by 21 days after conception.⁷

Out of 250 patients 37 (15%) patients developed PPH. Because of Multiple fetuses and excessive liquor, there is undue enlargement of uterus resulting in reduced tone of uterine muscle after delivery which in turn increases risk of atonic PPH.⁷

Positive family history was observed in 15% of cases, 13% patients had taken treatment taken for infertility. Maximum numbers of patients were in age group 21-30 years around 76%. Maximum number of patients (59%) multipara e.g., 2nd para and onwards. Around 67% patients had onset of labor after 32 weeks of gestation, rest 32% patients had onset of labor at before 32 weeks of gestation.

CONCLUSION

Multiple pregnancy is considered as “high risk pregnancy”. hence early diagnosis of multiple pregnancy is essential in reducing maternal and perinatal morbidity and mortality. Good antenatal care and diagnosis and management of complication at tertiary care center with level three neonatal care can help in reduction of maternal and perinatal morbidity and mortality.

Presence of skilled and experienced obstetrician, neonatologist and well-equipped NICU facility is essential in management of multiple pregnancy during labor.

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Ethical approval: The study was approved by the Institutional Ethics Committee

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