Original Article

Fetal and neonatal outcome in twin gestation

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Abstract

Introduction: Twin pregnancy is significantly related to increased maternal and fetal morbidity and mortality as compared to singleton pregnancy. The rate of twin specific complications varies in relation to zygosity and chorionicity, with the latter being the more important determinant. **Design:** Prospective observational study. **Aims and Objective:** To study the fetal and neonatal outcome in twin gestation **Methods:** 58 Patients with sonographically confirmed twin pregnancy attending ante-natal care outpatient department (ANC OPD) and labor room at a tertiary care hospital were enrolled in this study and followed till delivery and thereafter in the neonatal period. RESULTS: Out of 116 twins, 86 were dichorionic (DC) and 30 were monochorionic (MC). 95.6% of twins had birth weight less than 2500 grams while14.6% twins were extremely low birth weight. 80% of the monochorionic twins delivered before term while 76.7% of the dichoronic twins delivered preterm. Fatal growth restriction was observed in 51.7% twins. 10.3% twins died in utero and 11.2% died in neonatal period. CONCLUSION: Twinning in pregnancy is a high risk factor which can cause various maternal as well fetal complications. Twin gestation increases the risk for adverse fetal and neonatal outcome due to prematurity, low birth weight, growth restriction. Prompt antenatal care and timely intervention is required to avoid these complications.

Keywords: Twin pregnancy, complications, neonatal outcomes.

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INTRODUCTION

The numbers of multiple gestations have increased significantly in the past two decades.[1] This change can be attributed to an increase in the use and success of assisted reproductive technologies. Because perinatal morbidity and mortality are increased in multiple gestations, healthcare providers should familiarise themselves with these complications and their management and prevention.[2] Although twins occur in approximately one of 80 pregnancies, corresponding to 2.6% of all newborns, they account for 12.2% of preterm births and 15.4% of neonatal deaths.[3,4] The main causes of adverse neonatal outcomes in multiple pregnancies are related to prematurity, fetal growth restriction and low birth weight.[5]

AIMS AND OBJECTIVE

To study the fetal and neonatal outcome in twin gestations.

INCLUSION AND EXCLUSION CRITERIA

Inclusion Criteria: Twin pregnancy with sonographically confirmed chorionicity. Exclusion Criteria: Triplets or higher order multiple pregnancy, twin pregnancy with less than 20 weeks of gestation.

METHODS

58 Patients with sonographically confirmed twin pregnancy attending ante-natal care outpatient department (ANC OPD) and labor room at a tertiary care hospital were enrolled in this study and followed till delivery and thereafter in the neonatal period. Birth weight was recorded. Twin specific growth charts were used for documenting intrauterine growth restriction.[6] Preterm delivery was noted. Neonates requiring NICU admission were followed till 28 days and outcome was noted. Data was collected and analysed using Statistical Package for Social Sciences.

OBSERVATIONS AND RESULTS

58 patients with sonographically confirmed twin pregnancy with more than 20 weeks of gestation were enrolled in the study. Mean age at delivery of patients was 23.7 years with youngest patient of 20 years and oldest 36 years. The chorionicity could be confirmed from the earliest ultrasonography available, preferably first trimester ultrasonography. Out of 58 patients, 74.1% patients had dichorionic (DC) twins while 17.2% twins were monochorionic. diamniotic (MCDA) and 8.6% had monochorionic monoamniotic (MCMA) twins. The mean gestation age at delivery was 33.7 weeks with mean birth weight of twins 1709 grams. Mean gestation age at delivery and mean birth weight were lowest for monochorionic monoamniotic (MCMA) twins (31 weeks and 1290 grams respectively) 26 patients were primipara and 32 were multipara. Out of 116 twins, 57 (49.1%) were males and 59 (50.8%) were females.

Outcome of baby

Birth weight

Out of the total 116 babies delivered among study group, 111 (95.6%) babies had birth weight less than 2500 grams of which 17 babies had birth weight less than 1000 grams. 15.1% of DC and 40% of MCMA twins were having extremely low birth weight. Prematurity was the major contributor to low birth weight.

Table 1: Perinatal outcome of twin pregnancy

	Total	Dichorionic	Monochorionic Diamniotic	Monochorionic Monoamniotic
No. of twin pregnancies	58 (100%)	43 (74.1%)	10 (17.2%)	5 (8.6%)
mean age at delivery(yrs)	23.7	23.4	25.4	22.6
No. of fetuses/neonates	116	86	20	10
Mean Birth wt(gms)	1709	1706	1932	1290
Mean gestation age(wks)	33.7	33.7	35	31
Primipara	26 (44.8%)	20 (46.5%)	3 (30%)	3 (60%)
Male gender	57 (49.1%)	45 (52.3%)	8 (40%)	4 (40%)
preterm(< 37 wks)	90 (77.5%)	66 (76.7%)	16 (80%)	8 (80%)
very preterm (< 32 wks)	26 (22.4%)	20 (23.2%)	-	6 (60%)
LBW(< 2500 gms)	111 (95.6%)	83 (96.5%)	18 (90%)	10 (100%)
VLBW(< 1500 gms)	35 (30.1%)	27 (31.3%)	2 (10%)	6 (60%)
ELBW(< 1000 gms)	17 (14.6%)	13 (15.1%)	-	4 (40%)
SGA(< 10th percentile)	60 (51.7%)	44 (51.1%)	9 (45%)	7 (70%)
Fetal growth discordance (>15%)	22 (37.9%)	19 (44.1%)	3 (30%)	-
Fetal growth discordance (>30%)	7 (12%)	6 (13.9%)	1 (10%)	-
Congenital malformations	4 (3.4%)	2 (2.3%)	1 (5%)	1 (10%)
IUFD	12 (10.3%)	7 (8.1%)	-	5 (50%)
NND	13 (11.2%)	12 (13.9%)	1 (5%)	-
Survival at Discharge	91 (78.4%)	67 (77.9%)	19 (95%)	5 (50%)

Table 2: Fetal and neonatal outcome

	Both babies alive	Only one baby alive	None of baby alive
Total twin Pregnancies	42 (72.4%)	7 (12%)	9 (15.5%)
Dichorionic	31 (72%)	5 (11.6%)	7 (16.2%)
Monochorionic Diamniotic	9 (90%)	1 (10%)	-
Monochorionic	2 (40%)	1 (20%)	2 (40%)

Preterm labour

Among the 116twins, 77.5 % were born preterm. Median age at the time of delivery was 33.7 weeks for DC, 35 weeks for MCDA and 31 weeks for MCMA twins. Extreme prematurity (< 32 weeks) was observed in 23.2% of DC and 60% of MCMA twins

Intrauterine growth restriction

Out of 116 twins, 60 (51.7%) patients were small for gestational age (birth weight less than 10th percentile according to twin specific intrauterine growth charts).Intrauterine growth restriction was present in 51.1% of DC, 45% of MCDA and 70% of MCMA twins.

Fetal growth discordance

Fetal growth discordance (FGD) >15% was present in 22 (37.9%) twin pregnancies out of which 7 had growth discordance of more than 30%. Fetal growth discordance of >15% was present in 44.1% of DC and 30% of MCDA pregnancies. Severe growth discordance (>30%) was present in 13.9% of DC and 10% of MCDA pregnancies.

Congenital malformations

Congenital malformations were observed in 3.4% of twins.Congenital anomalies were present in 2.3% of dichorionic and 6.6% of monochorionic twins.

Perinatal outcome

Among the 116 foetuses, 12 (10.3%) foetuses died in utero whereas 13 (11.2%) fetuses died in neonatal period.

As shown in table 2, both babies were alive in 72.4% cases, at least one baby was alive in 12% and none of the baby was alive in 15.5% cases. Overall survival was lowest (50%) in MCMA twins. Both twins died in 40% of MCMA and 16.2% of DC cases.

DISCUSSION

The prevalence of twin pregnancy is influenced by racial and genetic factors, as well as some environmental factors and use of assisted reproductive technology, accounting for the different figures reported from different regions. Twin pregnancies in low - resource settings like India poses higher feto-maternal risks due to scarcity of human and material resources, which translate into insufficient care during pregnancy and delivery. As twin gestations can contribute significantly to perinatal morbidity and mortality, it is important to investigate the magnitude of the increase in fetal and neonatal risk. We studied 58 patients with twin pregnancy confirmed by ultrasonography. 32 (55.2%) patients were multipara and 26 (44.8%) patients with primipara. The mean maternal age was 23.7 years with mean birth weight 1709 grams. In a study of 119 twin births by Aziz S., Soomro N. (2012), Patients' mean age was 27.51+/-4.2 years.[7] The average birth weight and gestational age was 2347 grams at 35.3 weeks for twins in a data studied by Martin *et al*.[8] Younger maternal age in our study may be due to differences in age at marriage and pregnancy. 26 patients were primipara and 32 were multipara in our study. Musilli *et al*[9] reported twin pregnancy to be significantly more frequent in women with lower parity and Szymusik *et al* [10] observed twin pregnancy to be significantly more frequent in multiparous women. Out of 116 twins in our study, 59 (50.9%) were girls and 57 (49.1%) were boys. Mutihir *et al*[11] reported 54.7 % of twins to be boys and in the study by Kavehmanesh *et al* [12], Melamed *et al*[13]and Chittacharoen *et al*[14] , female neonates were significantly more frequent in twin pregnancies. This may be due to the tendency of genetically female zygotes for division. The mean gestation age at delivery in our study was 33.7 weeks with 77.5% of patients delivered preterm. Extreme prematurity (<32 weeks) was observed in 22.4% cases. 84% patients presented with preterm labour in a study of twin pregnancy by Rizwan *et al*.[15] The average gestational age at delivery in multiple gestations decreases with an increasing number of fetuses. The study conducted by Cunningham FG *et al* (2001), concluded that the mean gestational age at delivery is 36 weeks for twins.[16] According to Aziz S, Soomro N (2012) twin pregnancies in women of low socioeconomic profile result in very high rates of pre-term births and mean gestational age was 34.76+/-3.4 weeks [7]. Rate of preterm birth was 58.82%.The higher rate of preterm delivery in present study can be attributed to multiple factors including twins, anemia, infections. The incidence of low birth weight babies (< 2500 g) was 58.7% in a study done by Aisien *et al* [17] which was lower than found in our study (95.6%). Prematurity, maternal age, intrauterine growth restriction may account for increased incidence of low birth weight in our study. The incidence of very low birth weight babies was 30.1% which was similar (32.8%) to findings of Rizwan N *et al*.[15] Jadranko,[18] Mazhar,[19] Melamed,[13] and Wennerhoim[20] reported that fetal anomalies are significantly more frequent in twin pregnancies which is consistent with findings of our study. Increased perinatal mortality rate in twin pregnancy found in our study was consistent with findings by Jadranko[18], Mutihir[11], Mazhaar[19], and Chittacharoen.[14] Thisincreased perinatal mortality rate of twin pregnancies may be primarily due to preterm labor, intrauterine growth restriction, fetal anomalies as well as obstetric complications of twin pregnancy.

CONCLUSION

The study group included all the patients with sonographically confirmed twin pregnancy. Hence the chorionicity could be confirmed from the earliest ultrasonography available preferably first trimester ultrasonography. 74.1% patients had diamniotic dichorionic twins while 17.2% twins were diamniotic monochorionic. 8.6% patients had monoamniotic monochorionic twins. Mean maternal age of twin gestation was 23.7 years. The gestational age and birth weight were 33.7 weeks and 1709 grams respectively. Among the 116 twins, 77.5 % were born preterm. Extreme prematurity (< 32 weeks) was observed in 23.2% of DC and 60% of MCMA twins. 95.6%% babies were low birth weight babies with prematurity being the major contributor. 15.1% of DC and 40% of MCMA twins were having extremely low birth weights. Severe growth discordance (>30%) was present in 13.9% of DC and 10% of MCDA pregnancies. Congenital malformations were observed in 3.4% of twins. The overall survival amongst 116 twins was 78.4%. The survival was lowest (50%) in monochorionic monoamniotic twins.

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