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Original Research Article

A prospective observational study of foetal outcome in twin pregnancy delivering at a tertiary health care center of South Gujarat

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ABSTRACT

Background: Worldwide increased incidence of twin gestation. The rates of twin gestation have a direct effect on the rates of preterm birth and its co-morbidities. Importantly, this increased risk applies to each fetus and is not simply the result of more foetuses.
Methods: This prospective study was carried out in department of obstetrics and gynaecology. 100 consecutive subjects fulfilling inclusion criteria admitted to labour room and obstetrics intensive care enrolled over a period of around 1 year.
Results: In this study twin delivery accounted for 1.3% of all delivery at our institute. On analysing neonatal morbidities Prematurity was commonest 65%, VLBW (23% first twin, 30% second twin), RDS (9% first twin, 13% second twin), birth asphyxia (7% first twin, 12% second twin), neonatal hyperbilirubinemia (7% first twin, 8% second twin). 34% of first twin and 40% of second twin required NICU admission. Early neonatal death observed in 6% of first twin and 8% of second twin. It was observed that proportion of neonatal complications was more in MCDA as compared to DCDA and in un-booked subjects as compared to booked subjects. This difference is statistically significant among both twin (p value<0.05).
Conclusions: Twin pregnancy is associated with high perinatal morbidity. Specialized obstetrics and Intensive Neonatal care can decrease neonatal morbidity and mortality in twin gestation. We need to be extra vigilant in monochorionic twins and twin pregnancy with inadequate antenatal care.

Keywords: Twins, Foetal outcome, Chorionicity, Perinatal morbidity, Perinatal mortality

INTRODUCTION

Worldwide, the incidence of multifetal pregnancies varies considerably. The available evidence indicates that the incidence is 2-20 per 1,000 births. There has been an increase in all types of multiple pregnancies in past 30 years with the increasing use of assisted reproductive technology, sociodemographic changes in our population associated with migration and deferment of pregnancy to a later maternal age. Specifically, the twinning rate rose 76 percent from 18.9 to 32.1 per 1000 live births in 2009 (Martin, 2012). Incidence of twin pregnancy is lowest in Asia with a frequency of 1.3/1000 births in Japan, while the highest rate of 49/1000 births has been documented in Western Nigeria. India has twining rates below 9 per 1000 births.[1] The rates of twin gestation have a direct effect on the rates of preterm birth and its co-morbidities. In addition, the risks for congenital malformation and its consequences are greater with multifetal gestations. Importantly, this increased risk applies to each foetus and is not simply the result of more foetuses. In sum, in 2013 in the United States, twin births accounted for 3 percent of all live births but for 15 percent of all infant deaths. Specifically, the infant mortality rate for twins was more than four times the rate for single births. Prematurity, mono-chorionicity and growth restriction cause main risks to the fetus and neonates in twin gestation. Now a days perinatal death has decreased in twin gestation but risk for prematurity has not changed significantly. In a recent study Vasak et

al, over all perinatal mortality rate was higher in twin pregnancies then in singleton pregnancies, which is most likely caused by high preterm birth rate in twins.[2] Thus, Twin pregnancies lead to corresponding increase in number of preterm births which compromises neonatal survival and increases risk of lifelong disability in children. So, we did this study to evaluate foetal outcome in twin gestation.

Objectives

Objective of the study were to study the fetal outcome in terms of morbidity and mortality in twin pregnancy.

METHODS

This observational, prospective study was carried out in department of obstetrics and gynaecology, government medical college Surat enrolling 100 consecutive subjects fulfilling inclusion criteria with twin pregnancy admitted to labor room and obstetrics intensive care unit, over a period of around 1 year from April 2019-April 2020, after obtaining approval from ethical committee.

Sample size

100 subjects in reference to previous year labour room statics.

Inclusion criteria

All twin delivery at NCHS after 28 weeks of gestation.

Exclusion criteria

All twin deliveries outside NCHS and twin pregnancies <28 weeks.

All data related to fetal outcome were collected from case records of mother in a structured Performa. We recorded birth weight, APGAR at 5 min, maturity, indication of NICU admission, early neonatal mortality, NICU outcome. We followed up babies till discharge from hospital.

Data analysis

The collected data were entered in MS excel followed by its analysis. The baseline variables were sheet represented using their percentages. The possible association between variables mentioned below was found using a chi square test and fisher's exact test. (p value <0.05 was considered statistically significant). Chorionicity and neonatal complications and type of admission and neonatal complications.

RESULTS

This study shows that twin delivery accounted for 1.3% of all delivery at our institute. We excluded 39 subjects who didn't fit into inclusion criteria (<28 weeks gestation, non-consenting and outside twin delivery).

On analysing neonatal morbidities Table 1 shows, prematurity was commonest 65% (58% were 32-37 weeks, 7% extreme preterm), VLBW (23% first twin, 30% second twin), RDS (9% first twin, 13% second twin), birth asphyxia (7% first twin, 12% second twin), neonatal hyperbilirubinemia (7% first twin, 8% second twin).

Prematurity was most common association because of majority of mothers of study group were undernourished and hypertensive disorder of pregnancy (44%) which required early termination of pregnancy.

This observation was comparable with Gajera et al, which showed 74% neonates with prematurity.[3]

23% of first twin and 30% of second twin were VLBW in present study and results are comparable with Ara et al, which showed 16% of first twin and 14.5% of second twin were VLBW.[4]

There was no discordant twin in our study. 5% of first twin and 6% of second twin were Stillborn (Table 1).

On analysing indications of NICU admission, Table 1 shows that 34% of first twin required NICU care, reasons were VLBW 23%, RDS 9%, neonatal hyperbilirubinemia 7 and 40% of second twin required OBICU admission for VLBW 30%, RDS 13%, Neonatal hyperbirubinemia 7%.

Table 1: Neonatal morbidity.

Variables	First twin (%)	Second twin (%)
LBW	74	67
VLBW	23	30
APGAR <7 at 5 min.	7	12
Neonatal hyperbilirubinemia	7	8
RDS	9	13
Extreme prematurity (28-32 weeks)	7	7
Prematurity (33-37 weeks)	58	58
SB	5	6

As shown in the Table 2 (NICU outcome) 28% of first twin and 32% second twin were discharged.

Table 2: NICU outcome.

Variables	First twin	Second twin
Discharge	28	32
Mortality	6	8

There was mortality in 6% of first twin and 8% of second twin Table 2 (NICU Outcome).

As shown in above table rate of admission in NICU is more in twin delivery.

As shown in Table 3 cause of neonatal death in majority of the neonates is neonatal sepsis (5) because septicaemia is more common in preterm babies. Second most common cause of death is respiratory distress syndrome, third most common cause is extreme prematurity and least common cause is hypoxemic ischemic encephalopathy which occurs in birth asphyxia.

In our study 7% of subjects delivered at gestational age <32 weeks.

Table 3: Neonatal death.

Causes of death	Number of subjects
Neonatal sepsis	5
RDS	4
Extreme prematurity	3
HIE	2

From Table 4 it is observed that proportion of neonatal complications are more in MCDA as compared to DCDA. This difference is statistically significant among both twin (p value<0.05).

Table 4: Association between chorionicity and neonatal complications.

Chorionicity	First twin (%)	Second twin (%)	P value
DCDA (n=78)	26	31	<0.05
MCDA (n=22)	59	76	<0.05

Chi square test 6.544, Df 1

This observation is comparable with Bassey et al study 2014 which showed same result.[5]

From Table 5 it observed that proportion of neonatal complications are more in un-booked subjects as compared to booked subjects. This difference was statistically significant in first twin and second twin (p value<0.05).

Table 5: Association between booking status and neonatal complications.

Booking status	First twin (%)	Second twin (%)	P value
Booked (n=86)	29	34	<0.05
Un-booked (n=14)	57	71	<0.05

Fisher exact test 0.0148, Df1 for first twin, 0.00165, Df1 for second twin

This observation is comparable with Bassey, et al study 2014 which showed same result.[5] This data also shows the importance of antenatal care in twin gestation.

On analysing, neonatal morbidity among first twin and second twin (Table 6), It is observed that proportion of neonatal complications is more in second twin compared to first twin. But This difference is statistically not significant.

Table 6: Neonatal morbidity among first twin and second twin.

Variables	Neonatal complications (%)
First twin	34
Second twin	40

Chi square 0.772, Df =1, p value>0.05-Not significant

DISCUSSION

Total delivery during study period is 9899. Out of this 137 are twin delivery. So, twin delivery accounted for 1.3% of all delivery at our institute. This twin delivery rate is comparable with Gajera et al study.[1] We included 100 subjects as per inclusion criteria. On analysing neonatal morbidities prematurity was commonest 65% (58% were 32-37 weeks, 7% extreme preterm) in present study. We compared data of total preterm delivery in our institute and preterm delivery in twin pregnancy between gestational age of 28 weeks to 37 weeks which shows that rate of preterm delivery in overall pregnancy is 5.6% whereas in twin pregnancy it is 65%. This result is comparable with Gajera et al study.[4] Prematurity is six-fold greater in twin pregnancy.[6] Mean gestational age of delivery in our study is 35 weeks because of malnourishment and hypertensive disorders of pregnancy (44%) which need early termination of pregnancy.

Second most common morbidity is LBW. LBW observed in 74% of first twin and 67% of second twin were in weight group of 1.5-2.5 kg. VLBW observed in 23% of first twin and 30% of second twin. No babies were born more than 3.5 kg. There was no discordant twin in our study. This results is comparable with Ara et al study which showed similar results.[5]

Other neonatal morbidity observed are RDS (9% first twin, 13% second twin), birth asphyxia (7% first twin, 12% second twin), neonatal hyperbilirubinemia (7% first twin, 8% second twin).

34% of first twin and 40% of second twin required NICU admission. On comparing NICU admission, it was 4% in singleton pregnancy versus 38.4% in present study. This also suggest high perinatal morbidity in twin gestation.

Early neonatal death observed in 6% of first twin and 8% of second twin. Neonatal septicaemia is commonest cause in present study. Majority of babies 65% were premature and among them 7 % were extreme preterm. As premature babies are more susceptible for septicaemia, neonatal sepsis is major factor in present study.

On analysing chorionicity majority (78%) of the subjects are DCDA while remaining 22% are MCDA. No Subject is MCMA. This result is comparable with Yeasmin et al, which showed majority of subjects DCDA (67%).[7] It is observed that proportion of neonatal complications are more in MCDA as compared to DCDA in present study. This difference is statistically significant among both twin (p value<0.05).

Majority of subjects are booked (86%) while 14% are un-booked. On analysing un-booked majority are migrants from other states. Reason for no antenatal care was due to poverty, lack of awareness regarding twin pregnancy, ignorance by subjects and their relatives. Neonatal complications were more in un-booked subjects as compared to booked subjects. This observation is statistically significant among both twins. (p value<0.05).

Neonatal complications are more in second twin as compared to first twin. This observation is statistically not significant (p value>0.05).

Limitations

Our study did not include twin deliveries less than 28 weeks of gestation. We did not include subjects not in labour.

CONCLUSION

Twin pregnancy is high risk pregnancy with increased rate of perinatal mortality. We need to be extra vigilant in providing antenatal, intra-natal and postpartum care in case of twin gestation as well as ensuring adequate haemoglobin level in mothers. We have to be extra vigilant in managing monochorionic twins and in twins with inadequate antenatal care. As twin pregnancy is a high-risk condition, these patients should be managed at tertiary health care centre with neonatal intensive care unit to decrease neonatal morbidity and mortality.

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REFERENCES

1. Smits J, Monden C. Twinning across the Developing World. PLoS one. 2011;6(9):e25239.
2. Vasak B, Verhagen JJ, Koenen SV, Koster MP, de Reu PA, Franx A et al. Lower perinatal mortality in preterm born twins than in singletons: a nationwide study from The Netherlands. Am J Obstet Gynecol. 2017;216(2):161.e1-161.e9.
3. Gajera AV, Basavannayya HP, Kavitha C, Hiremath R. Feto-maternal outcome in twin pregnancy. Int J Reprod Contracept Obstet Gynecol. 2015;4(6):1836-9.
4. Ara A, Saxena B, Khan A, Meena R, Meena A. A Study of Feto-Maternal Outcome in Twin Pregnancy. Int J Med Res Prof. 2016;2(6);183-5.
5. Bassey G, Inimgba NM. Fetomaternal outcome of twin gestation in Port Harcourt, South-South, Nigeria Niger J Med. 2014;23(4):282-7.
6. Giure M, Piro E, Corsello G. Prematurity and twinning. J Matern Fetal Neonatal Med. 2012;25(53):6.
7. Yeasmin S, Uddin MJ, Khanam SK. Maternal and Perinatal Outcome of Multiple Pregnancy in a Tertiary Care Hospital of Bangladesh, Chattogram Maa-O-Shishu Hospital Medical College. J Vol. 2019;18:2.

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