

Maternal and perinatal outcomes associated with twin pregnancy

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Abstract

Introduction: Twin gestation has always fascinated mankind throughout history. Twin pregnancy is one of interesting event occurring in human reproductive biology. Prematurity and low birth weight is the main causes of high perinatal morbidity and mortality in twins. They are also at higher risk having negative impact on long-term mental and physical health and tend to have significantly higher care costs. Considering all these factors, the management of twin pregnancies remains a challenge. **Aims and objectives:** To study the Maternal and perinatal outcomes associated with twin pregnancy. **Materials and Method:** The present study was conducted in the in post graduate Department of Obstetrics and Gynaecology of SMGS hospital, Government Medical Collage Jammu. Data was collected from November 2013 to octomber 2014. All women admitted to the labour room after clinical or ultrasound diagnosis of twin gestation were enrolled in the study. Women with less than 28 weeks of gestation were excluded. Women with preexisting medical disorder e.g. cardiac disorder, renal disorder, vasculopathies etc were also excluded. Thus total 195 mothers with twin pregnancies were enrolled during the study. Informed consent was obtained from all the cases. Data was collected on a predesigned semi structured proforma on which patient's demographics data, risk factor for twin pregnancy, gestation, hemoglobin, mode of delivery, antepartum, intrapartum and postpartum complication comprising severe anemia, pregnancy-induced hypertension, pre-eclampsia, eclampisa, antepartum hemorrhage, maternal death, birth weight, Apgar score, neonatal intensive care admission (NICU), and perinatal outcome was recorded. Patients were followed up after one week of delivery to record early neonatal complication and deaths within the first 7 days. **Results:** Out of total 195 twin deliveries were studied and it was observed that 60% cases delivered vaginally whereas 39.49% cases delivered by caesarean section. Out of total cases delivered by caesarean deliveries 38.96% were elective and 61.03% were emergency. It was observed that 12.82% of cases had premature rupture of membranes. Preterm labour was observed in 41.03% of cases. Out of the total 390 deliveries (195 twin pregnancies) 91.09% were live births whereas 8.20% were still births. NICU admission was required in 29.23% newborns. Birth weight of <2.5 kg was seen in 61.03% of first twin and 73.33% of second twin. Apgar score of <7 was more commonly observed in twins with vaginal mode of delivery. Apgar score of <7 was observed in 12.82% of second delivered twin in comparison to 6.67% observed in first twin. **Conclusion:** Multiple pregnancies had higher likelihood of maternal and neonatal adverse outcome. Prematurity, low birth weight and perinatal death were the common adverse outcome associated with twin pregnancies.

Keywords: twin pregnancy, Preterm labour, low birth weight, still birth.

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INTRODUCTION

Twin gestation has always fascinated mankind throughout history. Twin pregnancy is one of interesting event occurring in human reproductive biology. They appear in every aspect of our culture from their central role in mythology with the foundation of rome by romulus and Remus, the Gemini twins in astrology, the biblical description of Rebekash giving birth of Esau and Jacob in Genesis.¹ According to Hillin's rule (1985), the mathematical frequency of multiple birth is twins 1 in 80 pregnancies, triplets in 1 in 80², quadruplets 1 in 80³ and so on². The twin birth rate in the united states rose 76%

from 1980 through 2009, from 18.9 to 33.3 per 1000 births. The Yoruba have the highest rate of twinning in the world, at 45-50 twin sets (or 90-100 twins) per 1000 live births, possibly because of high consumption of a specific type of yam containing a natural phytoestrogen which may stimulate the ovaries to release an egg from each side³. In central Africa there are 18-30 twin sets (36-60 twins) per 1000 live births. In Latin America, South Asia, and Southeast Asia, the lowest rates are found; only 6-9 twin per 1000 live births. North America and Europe have intermediate rates of 9-16 twin per 1000 live births⁴. The reports on preterm delivery rates of babies in France, the UK, Canada and the USA found that singleton preterm delivery rates were 10% in 1995 to 1997 the rate for twins was nearly 50%⁵. Prematurity and low birth weight are the main causes of high perinatal morbidity and mortality in twins. They are also at higher risk having negative impact on long-term mental and physical health and tend to have significantly higher care costs. Considering all these factors, the management of twin pregnancies remains a challenge. However during the past decade, maternal nutritional intervention has emerged as the only means that consistently improves outcome in twin pregnancy⁶ the complication of twin gestation may occur any time during pregnancy, delivery or in the postnatal period. In early pregnancy well known complications. In second half of pregnancy, anemia, pregnancy induced hypertension, preeclampsia, eclampsia, intrauterine growth restriction, preterm labor, premature rupture of membranes and antepartum hemorrhage are known to occur⁷. Prematurity, growth restriction, congenital anomalies, twin-to-twin transfusion, birth asphyxia, and birth trauma are various perinatal problems in multiple pregnancies. Every one fourth of twin pregnancy, three fourth of triplets and virtually all quadruplets require Neonatal intensive care unit (NICU) admissions. In the presence of congenital anomalies in one fetus, the management decisions become complex because the fates of sibling fetuses are necessarily linked⁸. Twins have a fivefold greater risk of dying before their first birthday compared to singletons. While triplets are at an almost 14-fold greater risk. Among the survivors. There is an increased risk of long term mental and physical growth restriction. The overall risk of requirement of adult intensive care unit to mother shift from 0.3% in a singleton pregnancy to 3.1% after a twin delivery⁹.

AIMS AND OBJECTIVES

To study the Maternal and perinatal outcomes associated with twin pregnancy.

MATERIALS AND METHOD

The present study was conducted in the in post graduate Department of Obstetrics and Gynaecology of SMGS hospital, Government Medical College Jammu. Data was collected from November 2013 to October 2014. All women admitted to the labour room after clinical or ultrasound diagnosis of twin gestation were enrolled in the study. Women with less than 28 weeks of gestation were excluded. Women with preexisting medical disorder e.g. cardiac disorder, renal disorder, vasculopathies etc were also excluded. Thus total 195 mothers with twin pregnancies were enrolled during the study. Informed consent was obtained from all the cases. Data was collected on a predesigned semi structured proforma on which patient's demographics data, risk factor for twin pregnancy, gestation, hemoglobin, mode of delivery, antepartum, intrapartum and postpartum complication comprising severe anemia, pregnancy-induced hypertension, pre-eclampsia, eclampsia, antepartum hemorrhage, maternal death, birth weight, Apgar score, neonatal intensive care admission (NICU), and perinatal outcome was recorded. Patients were followed up after one week of delivery to record early neonatal complication and deaths within the first 7 days. The collected data was analyzed using proper statistical method. The data is presented as mean±SD. Data analysis was performed using statistical package for social sciences (SPSS, version 16) of window 7, chi square is used for parity and 95% confidence interval is calculated for prevalence.

RESULTS

Table 1: Distribution according to mode of delivery

Mode of delivery	Number of cases	Percentage
Vaginal delivery	117	60.00%
Cesarean section	77	39.49%
1 st VD and 2 nd CS	1	0.51%

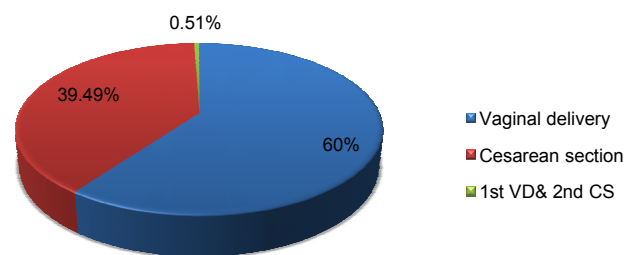


Figure 1: Distribution according to mode of delivery

In the present study total 195 twin deliveries were studied and it was observed that 60% cases delivered vaginally whereas 39.49% cases delivered by caesarean section. Out of total cases delivered by caesarean deliveries 38.96% were elective and 61.03% were emergency.

Table 2: Distribution according to age of mother and gestational age

		Number of cases	Percentage
Age groups	<20 yrs	8	4.10%
	21-25 yrs	72	36.92%
	26-30 yrs	92	47.18%
	31-35 yrs	20	10.26%
	36-40 yrs	2	1.03%
	>40 yrs	1	0.51%
Gest. Age	29-32 wks	30	15.38%
	33-36 wks	113	57.94%
	≥37 wks	52	26.66%

It was observed that age of mother in the present study was ranging from 19 to 42 years with mean age of 26.31 years. Majority of the mothers were in the age group of 21 to 30 year of age. The mean gestational age at the time of delivery is 35.43 ± 1.95 weeks.

Table 3: Distribution according to complication observed during labour

Complication		Number of cases	Percentage
PROM	Yes	25	12.82%
	No	170	87.18%
Preterm labour	Yes	80	41.03%
	No	115	58.97%
Outcome	Live birth	358	91.80%
	Still birth	032	08.20%
NICU admission	Required	114	29.23%
	Not required	276	70.77%

It was observed that 12.82% of cases had premature rupture of membranes. In the present study preterm labour is observed in 41.03% of cases. Out of the total 390 deliveries (195 twin pregnancies) 91.09% were live births whereas 8.20% were still births. NICU admission was required in 29.23% newborns.

Table 4: Distribution according to Birth weight of babies

Birth weight	Perinatal outcome			
	First baby		Second baby	
	Number of cases	Percentage	Number of cases	Percentage
<2.5 kg	119	61.03%	143	73.33%
≥ 2.5kg	76	38.97%	52	26.67%

Birth weight of <2.5 kg was seen in 61.03% of first twin and 73.33% of second twin.

Table 5: Distribution according to APGAR score

Mode of delivery	Perinatal outcome (Apgar score)			
	First baby		Second baby	
	<7/10(%)	>7/10(%)	<7/10(%)	>7/10(%)
VD	11(5.64%)	106(54.36%)	23(11.79%)	94(48.21%)
CS	2(1.03%)	75(38.46%)	2(1.03%)	75(38.46%)
1 st VD and 2 nd CS	0(0.00%)	1(0.51%)	0(0.00%)	1(0.51%)
Total	13	182	25	171

Apgar score of <7 was more commonly observed in twins with vaginal mode of delivery. Apgar score of <7 was observed in 12.82% of second delivered twin in comparison to 6.67% observed in first twin.

DISCUSSION

It is important to have a diagnosis of twin pregnancy in antenatal period or before labour so that optimal safe mode of delivery could be decided. The mode of delivery of twins remains a challenge and a subject of controversy among obstetricians. The best route for the twin delivery is based on the presentation of the fetuses, the case of fetal heart rate monitoring and the maternal and fetal status. In the present study total 195 twin deliveries were studied and it was observed that 60% cases delivered vaginally whereas 39.49% cases delivered by caesarean section. Out of total cases delivered by caesarean deliveries 38.96% were elective and 61.03% were emergency section. In a study conducted by Qazi G¹⁰ most common route of delivery was caesarean section (53.3%). This high rate of caesarean was due to injudicious use of uterotonic agents at rural health central and some private sector from where they received their cases, leading to obstructed labour and fetal distress. A study by Mutahir JT *et al*¹¹ found the rate of caesarean section to be 41% some of factors which he has correlated with the increase in the caesarean section rate include the decline in internal version and breech extraction of a second transverse lie twin in their institution. It was observed that majority (85%) of the mothers in the present study were between the age group of 21 to 30 year. Similar findings were also reported by Sultana M *et al*¹² (60%); spellacy wn *et al*¹³ (55%). In contrary to this higher incidence in the age group of 31-40 years was reported by Malik MS *et al*¹⁴. It was observed that at the time of delivery 15.38% of the women had an estimated gestation age of less than 32 weeks and 57.94% of the women studied had an estimated gestation age between 32-36 weeks. Overall in this study 73.32% of all twin pregnancies delivered at an estimated gestation age of less than 37 weeks (preterm delivery). Similar observation was reported by Peter BZ *et al*¹⁵ in their study. It was observed that 12.82% of cases had premature rupture of membranes. In the present study preterm labour is observed in 41.03% of cases. Otuodichinma GA *et al*¹⁶ reported that preterm delivery occurred in 39.7% cases. In present study 73.33% of twin II were having birth weight of <2.5kg as compared to 61.03% of twin I. Similar findings were also reported by Swende TZ *et al*¹⁷ in their study. It was observed that majority of babies born from multiple pregnancies had low birth weight. This could be in part associated with preterm deliveries. Similar findings have been reported

from other previous studies which report that low birth weight was common to multiple than singleton pregnancies. Apgar score is used worldwide to assess the newborn clinical status at the first minutes of life and is considered a standardized assessment for infants after delivery. Out of the 390 twins, 91.80% were alive, 8.2% were stillbirths, 29.23% were admitted to NICU due to low apgar score. Low apgar score of <7/10 was more in second twin (12.82%)as compared to first twin (6.67%). These findings stress the risk associated with long duration of delivery of the second twin. In this study there were more low apgar score at one minute in first twins (5.64%) delivered by caesarean section and in second twins (11.79%) delivered vaginally compared to second twins (1.03%) delivered by caesarean section, and these differences were statistically significant ($p=0.01$, $p=0.00$ respectively). These findings are consistent with a study by Keith JL *et al*⁹ done in Korea.

CONCLUSION

Multiple pregnancies had higher likelihood of maternal and neonatal adverse outcome. Prematurity, low birth weight and perinatal death were the common adverse outcome associated with twin pregnancies.

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