

Obstetric and Perinatal Outcome of Multiple Pregnancy

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ABSTRACT

Objective: To determine the obstetric and perinatal outcome in multiple pregnancies at a teaching hospital.

Study Design: Cross-sectional observational study.

Place and Duration of Study: Unit-A of the Department of Obstetrics and Gynaecology, PGMI, Lady Reading Hospital, Peshawar, from January to December 2009.

Methodology: The analysis included data on all women between 20 and 35 years of age with ≥ 24 completed weeks gestation having multiple pregnancies during the study period after applying the exclusion criteria. The data retrieved from the hospital-based maternal health medical records included demographic details, complications of pregnancy, and maternal and neonatal outcomes. The data was expressed as frequencies, percentages, mean and standard deviation. Normal distribution of continuous variables was determined by Shapiro Wilk test. The differences in the mean birth weight of the first and second twin were compared by student's t-test considering a p-value less than 0.05 as statistically significant.

Results: There were a total of 161 multiple pregnancies with the overall incidence of 37.1 per 1,000 births (3.2%) during the study period. One hundred and twenty two cases had the inclusion criteria applicable. There were 9 triplets among these of whom seven were received as intrauterine death and the other two were lost to follow-up. The four leading maternal adverse outcomes were anemia (74.6%), preterm delivery (31%), pregnancy - induced hypertension (30%) and preterm premature rupture of membranes (26.2%). Median gestational age at delivery was 37 weeks. Most common route of delivery was caesarean section (53.3%). Most common neonatal complication was low birth weight. Prematurity was the most common cause of neonatal death.

Conclusion: Multiple pregnancy have high maternal and neonatal complications, especially preterm delivery that increases risk of significant neonatal morbidity and mortality.

Key words: Multiple pregnancy. Outcome. Fetal/neonatal complications.

INTRODUCTION

Multiple births are much more common today than they were in the past. According to the U.S. Department of Health and Human Services, the twin birth rate has increased over 50% since 1980, and triplet, quadruplet, and higher order multiple births have increased at an even higher rate.¹ Multiple pregnancy warrants special attention, also because they make a disproportionate contribution to maternal/perinatal morbidity/mortality well in excess of that due to multiplication of singleton risks by fetal number.^{2,3} Throughout the world, the prevalence of twin births varies considerably i.e. 2-20 per 1000 birth. This dramatic rise in the incidence of multiple gestation, especially in higher order multiple gestation, has been attributed to the increase in the use of ovulation inducing agents, use of assisted reproductive technologies, and a shift toward bearing children at older maternal ages, when multiple gestation are more likely to occur naturally.^{4,5}

Due to the high risk nature of multiple pregnancy, associated with increased incidence of adverse obstetric and perinatal outcome; the purpose of this article was to assess the causes of increasing trend of multiple births in this setup and also the outcomes in terms of maternal/fetal and neonatal complications.

METHODOLOGY

All the women having multiple pregnancies received in the Unit-A of the Obstetrics and Gynaecology Department, Lady Reading Hospital, Peshawar, from January 2009 to December 2009 were recruited through consecutive non-probability sampling. They were received either from emergency department (A/E), regular outpatient department or private clinics. These patients were selected after applying the criteria i.e. only multigravidas (2-4) with multiple pregnancies between 20 and 35 years of age with ≥ 24 completed weeks gestation were enrolled for the study. All those with age below 20 and above 34 years, primigravidas, grand-multigravidas (≥ 5) and above, gestational age < 24 completed weeks were excluded. The diagnosis of multiple gestations was established by transabdominal ultrasonographic imaging performed by trained attending physicians, and the last ultrasonographic examination before delivery was used to establish correct diagnosis.

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A detailed analysis of the medical records of these cases, both for mother and neonates and the direct interview of the women subject to their availability was entered on the record proforma.

The data concerning maternal and neonatal parameters included demographic details, past and present history, antepartum and intrapartum complications, neonatal outcomes and complications and perinatal mortality. The data processing was carried out on SPSS version 10.0 software and it was expressed as frequencies, percentages, mean and standard deviation. Normal distribution of continuous variables were determined by Shapiro Wilk test. The differences in the mean birth weight of the first and second twin were compared by student's t-test considering a p-value less than 0.05 as statistically significant.

RESULTS

There were a total of 5084 deliveries in the year 2009, with 152 pairs of twins and 9 triplets during the study period. This made an overall incidence of multiple pregnancies as 31.7 per 1,000 births (3.2%). One hundred and twenty two (122) cases were available for evaluation after fulfilling the inclusion criteria. Thirteen (10.7%) were Afghani nationals. Majority were uneducated (89%) and unbooked (82%). Thirty eight (31%) were mono-chorionic twins. The mean maternal age at presentation was 28.07 ± 6.44 years. Most of them were nulliparous (35%). Only 16 cases (13%) were conceived by ovulation induction. The four leading maternal adverse outcomes were anemia, preterm delivery, pregnancy - induced hypertension and preterm premature rupture of membranes in descending order of frequency. Postpartum hemorrhage occurred in 9 (11.5%) cases, secondary postpartum hemorrhage in 6 (4.9%) cases and puerperal pyrexia in 7 (5.7%) cases, the main cause for which was chorio-amnionitis. Mean birth weight of first twin was 2397 ± 691 grams and second twin was 2492 ± 856 grams which were not significantly different (p= 0.3411, t=0.9538, df=242). The commonest intrapartum fetal presentation was vertex-vertex (51%) followed by vertex-breech (24%), breech vertex (15%) and breech-breech (10%) respectively.

Table I shows the mode of delivery. Higher caesarean section rate was mainly due to obstructed labour and fetal distress. Table II shows the neonatal outcomes. In 65 cases both the twins were males and in 45 cases both female babies. Of the 9 triplets, 7 cases were

Table I: Mode of delivery.

Mode of delivery	First twin No. (%)	Second twin No. (%)	Total No. (%)
Spontaneous	45 (37.0)	28 (23.0)	73 (30.0)
Breech assisting	10 (8.2)	15 (12.3)	25 (10.2)
Instrument	7 (6.0)	9 (7.4)	16 (7.0)
Cesarean section	60 (49.2)	70 (57.4)	130 (53.3)
Total	122 (100)	122 (100)	244 (100)

* Instrument = vacuum extraction, forceps extraction.

received as intrauterine death while the other 2 were lost to follow-up.

Table III is showing the perinatal mortality rate of 172 per 1000 births in this study. Among 244 twin babies, there were 42 perinatal deaths which included 30 stillborn and 12 neonatal deaths. In 30 stillborn fetuses, cases were equal for first and second twin while 2 more second twin had early neonatal death as compared to the first twin. Neonatal mortality decreased as gestation advanced suggesting prematurity to be the main cause for higher perinatal mortality. Sepsis was responsible for 6 neonatal deaths and congenital malformation i.e. severe neural tube defects for 10 cases.

Table II: Neonatal outcomes with regard to 1st and 2nd twin.

Neonatal outcomes	First twin (%) n = 122	Second twin (%) n = 122	Total (%) n = 244
LBW	46 (37.7)	45 (37)	91 (37.3)
VLBW	8 (6.5)	8 (6.5)	16 (6.5)
Apgar < 7 at 5 min	29 (24)	38 (31)	67 (27.5)
Admit NICU	12 (9.8)	12 (9.8)	24 (9.8)
RDS	8 (6.5)	9 (7.3)	17 (7.0)
B.asphy	8 (6.5)	11 (9.0)	19 (7.8)
Sepsis	8 (6.5)	7 (5.7)	15 (6.1)
Congenital anomaly	10 (8.2)	7 (6.0)	17 (7.0)
Perinatal death	20 (16.4)	22 (18.0)	42 (17.2)

LBW = Low birth weight; VLBW = Very low birth weight; NICU = Neonatal intensive care unit; RDS = Respiratory distress syndrome; B.asphy= Birth asphyxia.

Table III: Perinatal mortality, showing distribution of stillbirths and neonatal deaths with gestational age.

GA at delivery	Patient		Perinatal mortality		
	No. (%)	Stillbirths	Neonatal	Total	Percentage
24-28	4 (3.3)	1	3	4	50
29-31	14 (11.5)	7	4	11	39.3
32-34	25 (20.5)	9	3	12	24
35-37	49 (40.2)	10	1	11	11.2
> 37	30 (24.6)	3	1	4	6.6
Total	122 (100)	30	12	42	17.2

DISCUSSION

Multiple pregnancy is considered to be unfavourable due to the poor neonatal outcome, maternal complications, possible long-term developmental problems and high costs involved. However, this analysis of multiple pregnancy, found that the incidence of multiple delivery was 31.7 per 1,000 births, which is higher than the quoted Asian incidence.⁴ The main contributory factor for the higher incidence here seems to be the referral of all high risk cases, this being the tertiary care hospital of the province.

Generally speaking the dramatic rising incidence in multiple gestations, worldwide, especially in higher order multiple, has been attributed mainly to the increasing use of ovulation inducing agents. While in this study, the use of ovulation inducing agents in only 16% of cases suggest child bearing at older maternal ages, the more likely cause as it tend to occur naturally at these ages.^{3,4}

Other reproductive technologies are less available and so used in this part of the country.

The average length of twin pregnancy is 35 weeks. Preterm delivery occurs in about one-half of the twins and accounts for 10-12% of all preterm births.⁶⁻⁸ The preterm delivery incidence of 31.2% was in general agreement with those reported from other series (29-54%).⁴ This was the second most common maternal complication probably due to the higher incidence of concurrent maternal complications.

Moreover, all current speculations about the mechanism of zygotic splitting are based on educated deduction.⁹ There was no demonstrable relationship between preterm delivery and zygosity and level of care with time of antenatal diagnosis of twin pregnancy, because of the limitation of the study design. However, there was a higher proportion of very preterm (< 32 weeks) in dichorionic twins (27.8%) than monochromic twins (11%) as opposed to some other studies.^{7,10} Such babies are more likely to suffer serious, lifelong health problems, such as cerebral palsy and disability. The risk per pregnancy of producing a child with cerebral palsy is eight times greater in twin pregnancy than in singleton pregnancy.^{11,12} Other leading maternal complications i.e. anemia, pregnancy-induced hypertension and premature rupture of membrane were mainly due to chronic malnutrition, illiteracy and lack of approach to antenatal care respectively.^{11,13}

The most common finding of vertex-vertex presentation and the caesarean section as the commonest mode of delivery was similar to the previous studies.^{4,14} Injudicious use of uterotonic agents at rural health centers and some private sectors leading to obstructed labour and fetal distress were the main culprits for higher caesarean rate.¹⁵ Low birth weight was the most common neonatal complication, which was slightly more than mentioned by others.^{5,16}

Perinatal mortality is four times higher in twins and six times higher in triplets as compared to singletons, attributable to the increased incidence of prematurity and intrauterine growth restriction specific to multiple pregnancy.^{1,17} The perinatal mortality rate in this study was 172 per 1,000 births. According to gestational age at delivery, perinatal death decreased when gestational age increased as shown in the results so we found only 2 neonatal deaths after 34 weeks' gestation at delivery. This was mainly due to more neonatal complications as most women were received unbooked, late in pregnancy and higher associated maternal antenatal complications. Therefore, prematurity was revealed to be the major factor to increase the risk of neonatal death in multiple pregnancies.

The reduction of perinatal mortality in multiple births may be achieved by early diagnosis, better antenatal

care, early detection of complications, and steroid administration for lung maturity, better neonatal care and last but not the least mother's education.

The situation with higher order multiple have been more controversial with many considering this a social issue for parents. Regarding its incidence, much increase has been shown worldwide which has raised public concern as early as the late 1980s when it was recognized as serious side effect of infertility treatment.¹⁸⁻²¹ Here we found only 9 triplets, seven of which were already intrauterine death received at early third trimester and labour and the other two were lost to follow-up.

CONCLUSION

Multiple pregnancies had higher likelihood of maternal and neonatal adverse outcome. There is a need for effective implementation of strategies to ascertain the risk factors, incidence and indications for operative deliveries so that comparison and improvements of care can take place at a local and national level to reduce these complications.

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