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Maternal and Perinatal Outcome in Multifetal Pregnancy: A Study at a Teaching Hospital

Mahendra Raj Pandey*, Bikash Jang Kshetri, Deepak Dhakal

Department of Obstetrics and Gynecology, MTH, Pokhara, Nepal
*Corresponding author: sarkar_mrp@yahoo.com

Abstract Multiple pregnancies are associated with adverse maternal and neonatal outcomes as compared to singleton pregnancy. This study was conducted to determine the maternal and perinatal outcomes in multifetal pregnancy at a teaching hospital in western region of Nepal. It was a prospective observational study. It was conducted in the department of obstetrics and gynecology, Manipal Teaching Hospital, Pokhara, from January 2012 to December 2014. This study included data on all women admitted between January 2012 to December 2014 with 28 completed weeks gestation having multifetal pregnancies in labor during the above mentioned period. The data was obtained from the hospital medical record department and the birth register. It included demographic details, complications of pregnancy and maternal and neonatal outcomes. The data was expressed as frequencies, percentages, and mean. There were a total of 144 multiple pregnancies who had delivered with the overall incidence of 1.9 per 1000 births during the study period. There were 5 triplet pregnancies among these. The main maternal adverse outcomes were preterm delivery (62.58%), anemia (8.6%), pregnancy induced hypertension (5%), and antepartum hemorrhage (2.2%). The mean gestational age at delivery was 34.6 weeks for twins and 33 weeks for triplets. The commonest mode of delivery was vaginal 54% of first twin and 52% of second twins whereas 3 triplets delivered by caesarean section and two delivered vaginally. The most common neonatal complication was low birth weight. The most common cause of neonatal death was prematurity with neonatal sepsis. So it was concluded that multiple pregnancy have high maternal and neonatal complications, mainly preterm delivery that increases the risk of neonatal morbidity and mortality.

Keywords: *multiple pregnancies, maternal and neonatal outcome*

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1. Introduction

Multiple births are more common today than they were in the past but there is significant variation among different countries and different populations. In USA in 2002 the incidence of twin pregnancies and pregnancies with three or more fetuses was 31.1 and 1.8 per 1000 live births, respectively [1]. Multiple pregnancies make a disproportionate contribution to maternal and perinatal morbidity and mortality well in excess of that due to multiplication of singleton risks by fetal number [2,3]. Multifetal pregnancies are responsible for 17% of all preterm births before 37 weeks of gestation, 23% of early preterm births before 32 weeks of gestation, and 24% of low birth weight infants [4].

The incidence of monozygotic twins is uniform throughout the world, 3.5 per 1000 live births. In contrast the incidence of dizygotic twins is affected by multiple factors and varies between 4 to 50 per 1000 live births. This wide variation in the incidence of dizygotic twins is due to multiple variables such as the use of artificial reproductive technology, ethnic differences, and maternal age [5,6]. The purpose of this article was to assess the outcomes in terms of maternal/fetal and neonatal complications due to the high risk nature of multifetal pregnancy.

2. Methodology

2.1. Study Design

The prospective observational study was done at labor room and maternity ward of Manipal Teaching Hospital, Pokhara, Nepal from January 2012 till December 2014.

The diagnosis of multiple pregnancy was established by transabdominal ultrasonographic imaging performed by trained radiologist and the last ultrasonographic examination before delivery was taken in the cohort.

2.2. Inclusion Criteria

All the women who had delivered multifetal pregnancies after 28weeks of gestation coming to the labor room.

2.3. Exclusion Criteria

Those multifetal pregnancies who were admitted for observation and discharged and didn't come for follow up.

The patients were received either from the outpatient department, emergency department or referred from other hospitals.

2.4. Data Collection and Analysis

Detailed analysis of the medical records of these cases, both for mother and neonates and interview of the women subject to their availability was entered on the proforma. The data included demographic details, past and present history, family history, antepartum, intrapartum and postpartum complications, neonatal outcomes and complications, and perinatal mortality. It was entered in the excel sheet and the data was analyzed using SPSS program and results were expressed as frequencies, percentages, and mean.

3. Results

The total number of deliveries between January 2012 to December 2014 were 7666. The number of twin pairs and triplets delivered during the same period was 144. This made an overall incidence of multiple pregnancies as 1.9 per 1000 births. Majority 126(87.5%) were unbooked cases. The mean maternal age at presentation was 26 years for both twins and triplets . Most of them were multipara 70(51%). Only 3 cases conceived by ovulation induction. The main maternal adverse outcomes were preterm delivery (62.58%), anemia (8.6%), pregnancy induced hypertension (5%), and antepartum hemorrhage (2.2%), respectively. Postpartum hemorrhage occurred in 12 cases whereas eclampsia, postpartum cardiomyopathy, vulval hematoma, and puerperal pyrexia occurred in 2 cases each, the cause of puerperal pyrexia was urinary tract infection. The average birth weight of first twin was 2100 grams and of second twin was 2040 grams. The average birth weight of the 1st, 2nd, and 3rd triplets was 1300 grams, 1630 grams, and 1460 grams, respectively. The commonest intrapartum fetal presentation was vertex-vertex 85(61%) cases, followed by vertex-breech 20 (14.3%)cases, breech-vertex 18 (13%)cases, breech-breech 11 (8%)cases, and vertex-transverse 5(3.5%) cases, respectively in twins. There were 93(67%) dichorionic twins and 46(33%) monochorionic twins. The average interval between delivery of the first and second twin was 16.3minutes, the longest being 198minutes and the average duration between delivery of the 1st and 2nd triplet was 25.6 minutes, the longest being 101 minutes and the interval between delivery of the 2nd and 3rd triplet was 2.6 minutes, the longest being 5 minutes. There was one case of locked twin which was delivered vaginally. Higher caesarean section rate was due to non-vertex presentation of the first twin (20.86%), preterm prelabor rupture of membranes with oligohydramnios(12%), fetal distress(4%), death of a co-twin(9.3%), previous caesarean section(2%), non-progress of labor(4%), and cord prolapse of second twin after delivery of the first twin(2%). Of the 5 triplets, two patients delivered vaginally as they had come in second stage of labor and one patient had delivered the first triplet at home and the other two were delivered at hospital. The placenta in all the triplets was trichorionic triamniotic.

Table 1 shows the mode of delivery among twins and triplets.

Table 1. Mode of Delivery

Mode of delivery	First twin No. (%)	Second twin No. (%)	Triplets no. (%)
Vaginal delivery	75(54%)	72(52%)	2(40%)
Caesarean section	64(46%)	67(48%)	3(60%)
Total	139(100%)	139(100%)	5(100%)

The higher caesarean section rate among second twin was due to fetal distress of the second twin and malpresentation of the second twin after the delivery of the first twin (Table 1).

Figure 1. Vaginal Delivery of Locked Twins

Table 2 shows maternal profiles of the multifetal pregnancies.

Table 2. Various Maternal Profiles Studied Among Twins and Triplets

Age Group	Frequency (Number)	Percentages (%)	Triplets Number (%)
<20 years	32	23	-
20-25 years	52	37.4	3(60%)
25-30 years	40	28.8	2(40%)
30-35 years	11	7.9	-
>35 years	4	2.9	-
Conception			
Induced	3	2.2	-
Spontaneous	136	97.8	5(100%)
Family History			
Yes	6	4.3	-
No	133	95.7	5(100%)
Antenatal Visits			
Booked	17	12.2	1(20%)
Unbooked	122	87.8	4(80%)
Placenta			
Monochorionic	46	33	-
Dichorionic	93	67	-
Trichorionic	-	-	5(100%)
Period of Gestation			
28-32 weeks	38	27.3	1(20%)
33-36 weeks and 6 days	49	35.3	4(80%)
>37 weeks	52	37.4	-

Table 3 shows the indications of neonatal admissions for multifetal pregnancies.

Table 3. Indications of Neonatal Admissions For Twins and Triplets

Indications of Admissions	First Twin (%) n=49	Second Twin (%) n=46	1st triplet(%) n=5	2nd triplet (%) n=5	3rd triplet (%) n=5
Low Birth Weight	26 (53)	2 (45.6)	4 (80)	4 (80)	4 (80)
Neonatal Jaundice	11 (22.4)	10 (21.7)	-	-	-
Neonatal Sepsis	7 (14.2)	6 (13)	1 (20)	-	-
Necrotizing Enterocolitis	1 (2)	1 (2)	-	-	1 (20)
Birth Asphyxia	2 (4)	1 (2)	-	1 (20)	-
Intracranial Hemorrhage	1 (2)	0 (0)	-	-	-
Congenital Anomaly	0 (0)	4 (8.6)	-	-	-
Intra Uterine Growth Restriction	1 (2)	1 (2)	-	-	-
Respiratory Distress Syndrome	0 (0)	2 (4.3)	-	-	-

There were 13 intra uterine fetal deaths, 4 being the leading fetus and 9 second twin. There were a total of 27(96.4 per 1000 births) perinatal deaths which included 22 neonatal deaths and 5 stillbirths. There were 9 neonatal deaths among the first twin and 10 neonatal deaths among the second twin whereas there were three neonatal deaths among the triplets delivered at 30 weeks of gestation. There was 1 stillbirth among the first twin and 4 stillbirths among the second twin.

4. Discussions

Multifetal pregnancy is associated with poor maternal and fetal/neonatal outcomes and possible long term developmental problems. This study found that the incidence of multiple deliveries was 1.9 per 1000 births. The main reason for this high incidence in our study seems to be due to the referral of all high risk cases, as ours being the tertiary care hospital of western region of Nepal. The rising incidence in multiple gestations, worldwide, has been attributed to the increasing use of ovulation inducing agents and in vitro fertilization techniques. The use of ovulation inducing agents in only 3(2.2%)cases could suggest multiple pregnancy due to child bearing at older maternal ages and the tendency to deliver more children [3,5].

The average gestation at which twin deliveries occur is 35 weeks and for triplets it is 33 weeks. Preterm delivery occurs in about one half of the twins and accounts for 10-12% of all preterm births [7,8,9]. The preterm delivery incidence of 62% was nearer to those reported from other series [5]. Seventy-five percent of twin pregnancies are delivered before 37 weeks of gestation. The gestational age at the time of birth decreases as the number of fetuses increases [10]. The risk of producing a child with cerebral palsy is eight times greater in twin pregnancy than in singleton pregnancy [11]. Other maternal complications like anemia, pregnancy induced hypertension, and premature rupture of membrane were mainly due to malnutrition, poor antenatal checkups and illiteracy [12]. The most common finding of vertex-vertex presentation and the higher caesarean section rates was similar to other studies [5,13]. Low birth weight was the most common indication for neonatal admission as shown by other studies. Perinatal mortality is four times higher in twins and six times higher in triplets as compared to singletons, due to the increased incidence of prematurity and intra uterine growth restriction [14,15]. There were 27 (96.4 per 1000 births) perinatal deaths among the multifetal pregnancies delivered. This was mainly due to more neonatal complications as most cases were unbooked, presented late in pregnancy and higher associated maternal antenatal complications. So, preterm birth was the main reason for the high neonatal deaths in multiple pregnancies.

5. Conclusion

Multiple pregnancies were associated with higher maternal and fetal/neonatal adverse outcomes. Early detection of high risk cases, timely referral, frequent antenatal visits and early hospitalization with good neonatal care set up are necessary to improve maternal and neonatal outcomes.

Declaration of Conflicting Interests

The authors declare that there is no potential conflicts of interest with respect to the research, authorship and /or publication of this article.

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