Original Research Article

Foeto-maternal outcome in multiple gestation: a prospective study at tertiary care teaching hospital of Southern Rajasthan

Ankita Singh[1*], Sangeeta Gupta Prasad[2]

[1]Assistant Professor, Department of Obstetrics and Gynaecology, American International Institute of Medical Sciences, Udaipur, Rajasthan, India

[2]Associate Professor, Department of Obstetrics and Gynaecology, American International Institute of Medical Sciences, Udaipur, Rajasthan, India

Received: 02-11-2020 / Revised: 31-12-2021 / Accepted: 30-01-2021

Abstract

Background: Multiple pregnancies are associated with an increased risk of obstetric complications as well as perinatal morbidity and mortality especially in developing countries. The present study aimed to know the maternal and perinatal outcomes of multiple pregnancies.**Methods:** The present prospective observational study was conducted on 100 patients with multiple pregnancies attending the obstetrics and gynecology department of American International Institute of Medical Sciences, Udaipur from January 2018 to December 2019 only after approval from Institutional Ethical Committee. Antepartum, intrapartum, postpartum complications were noted. Maternal and perinatal morbidity and mortality were also noted.**Results:** Mean maternal age was 24.94±3.77 years. Multiple pregnancies were seen more in primigravida (45%). Preterm labor (42%), mal presentation (29%) and post partum hemorrhage (7%) were the most common complications in ante, intra and post-partum period respectively. Pre-term birth was the most common complication in the infants of both twin (39.58%) and triplet (100%) pregnancies. Total perinatal mortality in twin pregnancy was 19.27% and it was 66.67% in triplets.**Conclusions:** Good antenatal care, with increased rest and nutritional supplementation, early detection of foetal and maternal complications together with thorough intranatal and postnatal vigilance, can lower both maternal and foetal dangers**.**

Keywords: multiple gestation, maternal outcome, pre-term, perinatal.

Introduction

As recently as the early 1980s twin pregnancies and births was a relatively rare event and higher order multiples were of negligible consequence. Over the past two decades the number and rate of twins and other higher order multiple births have increased at an unprecedented pace[1]. This increase has been fueled largely by infertility therapy[2]. Between 1980 and 2001, the number of twin deliveries rose 77% and number of higher order multiple births soared 459%. Multiple pregnancies warrants a special attention because of higher rates of almost every potential complication of pregnancy, make a considerable contribution to the maternal / perinatal morbidity/mortality well in excess of that due to multiplication of singleton risk by fetal number. Overall complications occur in approximately 83% of twin pregnancies as compared to 25% in singleton pregnancies. Vigilant obstetric care not only decreases the maternal morbidity and mortality but also improves the fetal outcome[3].Very few studies were conducted to find out feto-maternal outcome in multiple gestations in this region. With the aim of assessing the complications in mother and fetus, the present study was carried out to estimate incidence of maternal and fetal complication and to suggest ways and means for improving obstetrical outcome.

**Correspondence*
Dr. Ankita Singh
Assistant Professor, Department of Obstetrics and Gynaecology, American International Institute of Medical Sciences, Udaipur, Rajasthan, India.
E-mail: ankita.singh2101@yahoo.com

Materials & Methods

The present prospective observational study was conducted on 100 patients with multiple pregnancies attending the obstetrics and gynecology department of American International Institute of Medical Sciences, Udaipur from January 2018 to December 2019 only after approval from Institutional Ethical Committee. Patients included in this study were from various socio-economic classes and they were having a different level of education. The obstetric behavior and labour outcome of these patients were studied.Detailed history of the patient including age, parity, menstrual history, obstetric history, past, family, personal history was recorded. The clinical, systemic and obstetric examination, with required investigation was done. The routine obstetric ultrasound was done in booked cases. During labor the presentation, position, fetal heart rate was determined, pelvic examination and cervical condition were assessed. The time interval between delivery of twins were recorded. The mode of delivery of first, second and third baby, the associated complications, type of interference were recorded. All cases were managed carefully during labour. Course of labour, mode of delivery and outcome of labour including foetal outcome was noted in detail. Date and time of delivery and duration of labour was also noted. Antepartum, intrapartum, postpartum complications were noted. Obstetric outcome of these patients was studied.Sex, Apgar score, birth weight, gestational age and congenital malformations of newborn were noted. Mother and newborn were followed till discharge from hospital. Maternal and perinatal morbidity and mortality were also noted.Data entries for all cases were done using Microsoft excel 2007. Data was recorded as number or percentage.

Results

Out of total 100 cases only 17 were emergency cases. Majority of the women were in the age group of 20-25 years (mean age 24.94±3.77 years). 45 women were primigravida followed by 29 women who were P1. Maximum twin pregnancies were a result of spontaneous conception without any significant history (76%). Two women in present study had previous history of multiple gestations. The most common type of placenta was diamniotic dichorionic (64%) followed by diamniotic monochorionic (27%) (Table 1)

Table 1: Demographic profile and other characteristics of all women

	Number
Age (years)	
<20	3
20-25	58
26-30	31
31-35	7
>35	1
Parity	
(Primigravida) Po	45
P1	29
P2	17
P3	5
P4	1
P5	3
Booking status	
Booked	83
Emergency	17
History	
History of multiple pregnancy	2
Treated for infertility	18
Family history of multiple pregnancy	4
No significant history	76
Type of placenta	
Diamniotic dichorionic	64
Diamniotic monochorionic	27
Monoamniotic monochorionic	5
Triamniotic dichorionic	3
Triamniotic monochorionic	1

Vertex-vertex presentation was found as the most common (36%), followed by vertex- breech presentation (33%). No transverse-breech presentation was seen in present study. In present study, total 158 (77.45%) babies delivered by vaginal delivery while in 46 cases (22.54%) caesarean section was required. Various maneuver needed during vaginal delivery are shown in table 2. Malpresentation and pregnancy-induced hypertension (56.52% and 13.04% respectively) were the most common indication for the caesarean section. (Table 2 and Table 3)

Table 2: Mode of delivery in patients with multiple pregnancy

Mode of delivery	Twins		Triplet			Total
	1st baby	2nd baby	1st baby	2nd baby	3rd baby	
Normal delivery	63	47	1	3	4	118 (57.84%)
Breech	8	20	1	1	0	30 (14.7%)
Face	0	2	0	0	0	2 (0.98%)
Forceps	2	0	2	0	0	4 (1.96%)
Caesarean	23	23	0	0	0	46 (22.54%)
IPV	0	4	0	0	0	4 (1.96%
Total	96	96	4	4	4	204

Table 3: Indication for caesarean section in multiple pregnancies

Indications	N (%)
Malpresentation	13 (56.52%)

Pregnancy-induced hypertension (PIH) with poor bishop score	3 (13.04%)
Non progress of labor (NPOL)	1 (4.35%)
Fetal distress	1 (4.35%)
Placenta previa	1 (4.35%)
Abruptio placentae	1 (4.35%)
Elective LSCS	1 (4.35%)
Deep transverse arrest (DTA)	1 (4.35%)
Interlocking of twin	1 (4.35%)
Total	**23 (100%)**

In present study antepartum complications were encountered in 82% of the patients, intrapartum complications occurred in 44% of the patients with most common complication being malpresentation. (Table 4)

Table 4: Complications in mothers with multiple gestations

Antepartum complications	**No.**	**Intrapartum complications**	**No.**	**Postpartum complications**	**No.**
Preterm labour	42	Malpresentation	29	Postpartum hemorrhage -Atonic Traumatic -Mixed	7 5 1 1
Pregnancy induced hypertension	18	Prolonged labour	5		
Anemia	15	Non progress of labor (NPOL)	3	Postpartum eclampsia	2
Antepartum hemorrhage - Placental abruption - Placenta previa	3 2 1	Hand prolapse	2	Viral hepatitis	1
Polyhydramnios	2	Cord presentation	2	Rectus sheath hematoma	1
Incompetent os	1	Shock	1	Retention of urine	1
Antepartum eclampsia	1	Interlocking twin	1	Vaginal hematoma	1
Uncomplicated	**18**	Deep transverse arrest (DTA)	1	Maternal mortality	1
		Uncomplicated	**56**	**Uncomplicated**	**86**

Of the total 204 babies, 192 were twins and 12 were triplet. Neonatal death occurred in 22 (11.46%) in twins and 8 (66.66%) in triplet. Pre-term birth was the most common complication in the infants of both twin (39.58%) and triplet (100%) pregnancies. (Table 5)

Table 5: Neonatal morbidity and mortality in twins and triplets

	Twins= 192		Triplet= 12	
	N	%	N	%
Preterm birth	76	39.58	12	100
Birth asphyxia	13	6.77	8	66.66
Discordant growth	40	20.8	3	25
Intrauterine death of one or more fetus	15	7.81	1	8.33
Twin transfusion syndrome	2	1.04	0	0
Interlocking of twins	2	1.04	0	0
Neonatal hyperbilirubinemia	4	2.08	3	25
Infections	6	3.12	0	0
Hypothermia	13	6.77	0	0
Fetal anomalies	2	1.04	0	0
Neonatal death	22	11.46	8	66.66

The perinatal mortality in 1st baby of twins was 17.70%, while in 2nd baby it was 20.83%. Total perinatal mortality in twin pregnancy was 19.27%. Out of 12 triplets, the perinatal mortality was occurred in 66.67% cases. Total 10 babies (10.41%) were still birth in twin pregnancy, while it was 8.33% in triplet. Most surviving babies were reported in the weight group 2500-2999 gms. (Table 6)

Table 6: Perinatal mortality (PNM) and still births (SB) according to birth weight

Type of Pregnancy	**Order of birth**	**Birth Weight (in gms)**						
		<1000	**1000-1499**	**1500-1999**	**2000-2499**	**2500-2999**	**≥ 3000**	**Total**

Twin Pregnancy	**1st**	**No.**	2 (2.08%)	12 (12.5%)	28 (29.16%)	32 (33.3%)	21(21.8%)	1 (1.04%)	96 (100%)
		PNM	2 (2.08%)	9 (9.37%)	4 (4.16%)	2 (2.08%)	0	0	17(17.7%)
		SB	0	3 (3.12%)	2 (2.08%)	1 (1.04%)	0	0	6 (6.25%)
	2nd	**No**	3 (3.12%)	12 (12.9%)	22 (22.91%)	38(39.58%)	20(20.8%)	1 (1.04%)	96 (100%)
		PNM	3 (3.12%)	11(11.45%)	3 (3.12%)	2 (2.08%)	1(1.04%)	0	20(20.8%)
		SB	0	0	2 (2.08%)	2 (2.08%)	0	0	4 (4.16%)
Triplet pregnancy	**1st**	**No**	1 (25%)	2 (50%)	0	1 (25%)	0	0	4 (100%)
		PNM	1 (25%)	2 (50%)	0	0	0	0	3 (75%)
		SB	0	0	0	0	0	0	0
	2nd	**No**	1 (25%)	2 (50%)	1 (25%)	0	0	0	4 (100%)
		PNM	1 (25%)	1 (25%)	1 (25%)	0	0	0	3 (75%)
		SB	0	1 (25%)	0	0	0	0	1 (25%)
	3rd	**No**	1 (25%)	1 (25%)	2 (50%)	0	0	0	4 (100%)
		PNM	1 (25%)	1 (25%)	0	0	0	0	2 (50%)
		SB	0	0	0	0	0	0	0

Discussion

Multiple pregnancies bear additional hazards both for the mother and the baby[4]. Though these hazards are partly preventable, difficulty in timely recognition of multiple pregnancies at an early date is a main obstacle. This present study showed that most of the females with multiple gestations were primigravida (45%). This was comparable to that reported by Irene et al[5] We did not find increased incidence of twin pregnancy with increasing parity similar to Pandole et al[6].In present study perinatal death (38.2%) was found more in emergency cases as compared to only 18.82% in booked cases. This was comparable to study done by Nayak et al who found that in emergency cases there was 46% perinatal deaths and among booked cases only 16.8% perinatal deaths were there[7]. Modi et al found perinatal mortality of 17.6% in registered booked cases as compared to 46.28% in emergency group[8] Chhabra et al also found perinatal mortality of 13.7% in emergency cases and 3.7% in registered case[9].In present study, commonest presentation was both vertex followed by 1st vertex and 2nd breech combination. This was comparable to the study done by Pandole et al [6] In present study incidence of breech was 22% and 49% in first and second foetuses respectively. Pandole et al found the incidence of breech to be 19.7% and 26.5% in first and second fetuses.In the review by Farooqui et al cephalic-cephalic (39.6%) was most common followed by cephalic-breech (27.7%) [10] When both twins are in cephalic presentation, there is consensus about the safety of a trial of labour at any gestational age. In cephalic-non-cephalic presentations, many allow the vaginal birth of the first twin followed by external version and vaginal birth or by vaginal breech delivery of the second twin. When this approach is followed, 71.2% of non-cephalic second twin can be delivered vaginally without problems. In almost 30% of the cases, the second baby does not convert to cephalic presentation and is necessary to perform a caesarean for the second twin.In present study 2% of females had a history of multiple pregnancies. This was comparable to study done by Rani et al who found 1.60% had earlier twin pregnancies[11]. In present study maximum number of babies were delivered as normal delivery (62.15%) followed by 24.65% babies delivered as breech, 1.04% babies delivered as face, forceps was applied in 2.77% babies and caesarean section was done in 9.02% babies. Pandole et al [6] found in their study, caesarean section was done in 27.65% babies, forceps applied in 2.65% babies, IPV was done in 2.12% babies(all in 2nd babies), 58.77% babies delivered normally and 18.35% babies delivered as breech[6]. Similar results were found in Nayak et al study[7].In present study, maximum 56.52% of LSCS were done for mal presentations. This was comparable to study done by Irene et al who found malpresentation to be the commonest indication of caesarean section in 71% of cases[3]. In present study antenatal complications were encountered in 82% of females. In study done by Rani et al[11] most common antenatal complication was anemia in 60-96% cases. The reason for such a high incidence of anemia in their study was because most of their patients (2/3rd) were non-booked and thus did not receive any antenatal care. However, the other complication in their study were as, 45.45% cases had preterm labour, PIH was present in 42.25%, hydramnios in 34.23%, abruption in 10.16% and placenta previa in 5.34% females, which were comparable to the present study.In present study most of the newborns had birth weight between 2000-2499 gms (33% of 1st baby and 39% of 2nd babies). Birth weight was found < 1000 gms in 3% of 1st babies and 4% of 2nd babies. This was comparable with study done by Pandole et al[6] who found the most common birth weight was between 1550-2000 gms seen in 35.63% of 1st babies and 39.39% of 2nd babies. Birth weight< 1000gms was seen in 5.85% of 1st babies and 5.31% of 2nd babies.In present study most common cause of perinatal morbidity was preterm birth in 39.58% babies followed by discordant growth in 20.8%, birth asphyxia in 6.77% and hypothermia in 6.77%. Intrauterine death of one or more fetus was seen in 7.81%. Twin-twin transfusion syndrome occurred in 1.04%, neonatal hyperbilirubinemia in 2.08% and infections in 3.125% babies. Among triplets, all babies were preterm. Death occurred in 19.27% twin newborns in present study. Similar results were observed by Bangal et al[12] in which 17.5% perinatal deaths in 100 twin pregnancies. Rest of neonatal morbidity was due to birth asphyxia in 66.66%, discordant growth in 25% and neonatal hyperbilir-ubinemia in 25% of newborns, 66.66% newborns died in neonatal period. This was also comparable with study done by Irene et al, who reported that excluding physiological jaundice, hyaline membrane disease was the sole distressing complication seen in these babies (15.1% of twins and 62.27% in triplets), and was the cause of death in majority of neonates. Birth asphyxia (11.39% of twins and 55.54% in triplets) and hyperbilurubinemia (2.85% of twins and 5.45% of triplets) were other neonatal complications seen in the study. Similar results are reported by Hatkar and Bhide[13]. All the complications were found to be more among the triplets than in the twins. In present study, in the first baby of twin or triplet, the perinatal loss was 100% for babies < 1kg, In case of the first baby of twin for the weight 1000-1499 gm the perinatal mortality was 75%. The perinatal death in case of baby weighing 1500-1999gm was 14.28% and for babies 2000-2499 gm it was 6.25%. In the second twin, perinatal death was registered for 5.26 % for babies 2000-2499 gm and 5% for babies 2500-2999 gm. Thus, we can see that perinatal mortality was confined to babies of low birth weight (LBW). Among triplet perinatal loss was 80% for babies 1000-1499 gm and 33.33% for babies 1500-1999 gm. This

was comparable to study of perinatal outcome in twin pregnancy done by Chhabra et al who found that in the first twin all deaths occurred in babies weighing less than 2 kg and of the second twin, all deaths occurred in babies weighing less than 2.5 kg[9]. The perinatal loss was 100% for babies less than 1 kg and 50% for babies weighing between 1-1.499 kg. In study done by Pandole et al they found perinatal loss of 85.72% in babies <1000 gms while loss is only 4.9% in babies >2000gms[6]. Similarly, Reddy et al found highest perinatal mortality in birth weight of 1-1.5 kg and highest survival in >2.5 kg weight[14].In present study, overall rate of still births among twins is 10.41%. All still born babies were < 2500 gm. Among triplets only one still birth was seen. The rate of still births among triplets was 8.33. This was comparable to study by Anahita et al who found that 4 of 188 babies of first of the twins were still born while 10 of the second of the twins were still born. The rate of still births was high amongst the fetuses weighing < 2000 gms.

Conclusion

The present study concluded that multiple pregnancies were associated with poor maternal and foetal outcome. In spite of improvements in the obstetric services perinatal mortality in multiple pregnancies is alarmingly high. Preterm birth and its consequences remain the important causes of perinatal mortality and morbidity. Diagnosis of twin pregnancy and determination of chorionicity is essential to anticipate abnormalities of monochorionicity. Antenatal care, with increased rest and nutritional supplementation, early detection of foetal and maternal complications together with thorough intranatal and postnatal vigilance, has much to its credit in lowering both maternal and foetal dangers. LBW mainly due to preterm labour and intra uterine growth retardation were the most important factors responsible for the neonatal deaths. Thus, proper antenatal care, planned delivery and better facilities for care of premature babies can bring about a reduction in perinatal mortality of twin pregnancies.

References

1. Singh L, Trivedi K. Study of maternal and fetal outcome in twin pregnancy. Int J Reprod Contracept Obstet Gynecol 2017;6:2272-8.
2. Conde-Agudelo A, Belizan JM, Lindmark G. Maternal morbidity and mortality associated with multiple gestation. Obstet Gynecol. 2000;95:899-904.
3. Yasmeen N, Aleem M, Iqbal N. Maternal and fetal complications in multiple pregnancies. Ann K Ed Med Coll. 2006;12:512-4.
4. Santana DS, Surita FG, Cecatti JG. Multiple pregnancy: epidemiology and association with maternal and perinatal morbidity. Rev Bras Ginecol Obstet 2018;40(09):554-62.
5. Irene YV, Kaur V. An Analytical study of pregnancy outcome in multifetal gestation. J ObstetGynaecol India. 2007;57(6):509-512
6. Pandole A, Swamy MSC, Sardeshpande N. Perinatal mortality in twin pregnancy - a retrospective analysis. J Obstet Gynecol. 2003; 53(2):138-139.
7. Nayak AH, Dalal AR. Perinatal mortality in twin pregnancy. J Obstet Gynecol Ind. 1990;484-487.
8. Modi K, Ganeslt K. The effect of antenatal care on foetal outcome in twin gestations. J Obstet. Gynec India.1984:34;51-7.
9. Chhabra S, Bhandari V, Aher K. Perinatal outcome in twin pregnancies. J Obstet and Gynaecol 1994; II:552-557.
10. Farooqui MO, Grossman J H. Reviewof twin pregnancy and perinatal mortality Obstet gynecol. Surv.1973;28;144.
11. Rani R, Kharoon S, Arora R, Raghavan S. Perinatal mortality in twin pregnancy - A retrospective study. J Obstet Gynecol Ind. 1995; 45:723-31
12. Bangal VB, Patel SM, Khairnar DN. Study of maternal and foetal outcome in twin gestation at tertiary care teaching hospital. IJBAR. 2012;3(10):758.
13. Hatkar PA, Bhide AG. Perinatal outcome of twins in relation to chorionicity. J of Postgrad Med. 1999;45(2):33-7
14. Reddy MA, Madhavi KSS, Niharica. A study on riskof twin pregnancy. IAIM. 2016;3(10):139-45.

Conflict of Interest: Nil
Source of support:Nil