MATERNAL AND PERINATAL OUTCOME IN MULTIFOETAL GESTATIONSonal Jain¹, Vaishali Jain², Laxmi Maru³¹Assistant Professor, Department of Obstetrics and Gynaecology, PCMS and RC, Bhopal, Madhya Pradesh.²Consultant, Department of Obstetrics and Gynaecology, Mahaveer Hospital, Indore, Madhya Pradesh.³Ex-HOD, Department of Obstetrics and Gynaecology, MGMMC, Indore, Madhya Pradesh.**ABSTRACT****BACKGROUND**

Recently, the rate of multiple-gestation pregnancies has grown over the last few decades due to increased use of in-vitro fertilisation and ovulation induction techniques. Multiple pregnancy is considered as high risk due to associated high maternal morbidity and perinatal mortality in comparison with singleton pregnancies. Multiple pregnancies pose a number of unique challenges such as discordant growth abnormalities, intrauterine demise, preterm premature rupture of membranes or premature delivery of one or both twins. All adverse outcomes of pregnancy including mortality are more likely in multiples compared with singleton pregnancies, and associated risks increase in higher order multiples. Hence, this study was done to study maternal and perinatal outcome in multifoetal gestation.

MATERIALS AND METHODS

The study was carried out in the Department of Obstetrics and Gynaecology, Mahatma Gandhi Memorial Medical College and Maharaja Yashwant Rao Hospital, Indore from January 2013 to December 2013. This is a case series, which comprises a total of 142 cases of multiple foetal pregnancies. All multifoetal pregnancy with gestational age of more than 20 weeks were included in the study, either twins, triplets or quadruplets. The cases with singleton pregnancy or twins with foetal reduction were excluded in the study.

RESULTS

Incidence of multifoetal gestation was about 1.38%. Most (88%) of the patients were in the age group of 20 - 30 yrs. Correlation with ovulation induction was found in 15.5% of the patients. 78.87% were dichorionic-diamniotic, 13.38% were monochorionic-diamniotic and 4.9% were monochorionic-monoamniotic. Incidence of moderate PIH was 14.08% and severe PIH was 10.56% in multifoetal pregnancies in our study. Three patients (2.11%) had eclampsia and 18 (12.67%) were pre-eclamptic. Incidence of severe anaemia (haemoglobin < 7 gm%) was 4.92%, moderate anaemia (haemoglobin 7 - 9 gm%) was 19.71%, mild anaemia (haemoglobin 9 - 11 gm%) was 50% in our study. In our study, the distribution of presentation of first and second twins were as follows: 54.93% were cephalic-cephalic, 13.38% were cephalic-breech, 11.97% were breech-cephalic, 12.68% were breech-breech and 7.04% were presentation other than mentioned above. The incidence of caesarean section being 30.28% for first and 31.69% for second twin. 60.56% of first and 52.11% of second twin had cephalic vaginal delivery and 9.15% and 15.49% of first and second twin respectively had assisted breech delivery. 3 patients required section for second foetuses for obstructed labour after delivery of first foetus. In our study 4.22% delivered at less than 28 weeks of gestation, 19.72% delivered between 28 and 34 weeks, 19.01% were in gestational age from 34 to 37 weeks and 37.30% were 37 weeks or more. Total preterm birth rate being 51% (less than 37 weeks). The incidence of PROM is 13.38%. Low birth weight and low APGAR score were more common in higher order births as all 4 foetuses in quadruplets required NICU admissions, while most of foetuses born out of triplets were underweight. In our study, 40.14% of first and 44.37% of second twin had an APGAR score of less than seven at one minute and 13.38% of first and 23.94% of second foetus had an APGAR score of less than seven at five minutes (including stillbirths). 15.22% of first and 17.65% of second foetus required admission to NICU. Total incidence of NICU admissions among multifoetal gestation in our study is 33.9%. In our study 6.34% of first, 13.38% of second, 25% of third foetuses were stillborn. Incidence of PPH (7.04%) is high, but could be prevented with active alert and vigorous management. The incidence of APH in our study was 3.52%.

CONCLUSION

In mothers, there is increased risk of hypertension anaemia. They are more prone to malpresentation and increased rate of caesarean sections. Women with multifoetal gestation are more prone to PPH and PROM. Since women with more than one foetus deliver at early gestational age, babies born are preterm and low birth weight, low APGAR require more admissions to NICU.

KEYWORDS

Multifoetal Gestation, Maternal Outcome, Perinatal Outcome, LBW (Low Birth Weight), APGAR, NICU.

HOW TO CITE THIS ARTICLE: Jain S, Jain V, Maru L. Maternal and perinatal outcome in multifoetal gestation. J. Evolution Med. Dent. Sci. 2018;7(18):2281-2284, DOI: 10.14260/jemds/2018/512

'Financial or Other Competing Interest': None.

Submission 19-03-2018, Peer Review 14-04-2018,

Acceptance 20-04-2018, Published 30-04-2018.

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DOI: 10.14260/jemds/2018/512

BACKGROUND

As the multifoetal gestation is associated with increased maternal, perinatal and neonatal complication, thus this study is undertaken to evaluate the maternal and perinatal outcome in multifoetal gestation, so that the results of the study can be further utilised to continue the expansion for vision of the future.

MATERIALS AND METHODS

This is a case series, which comprises a total of 142 cases of multiple foetal pregnancies. All multifoetal pregnancy with gestational age of more than 20 weeks were included in the study, either twins, triplets or quadruplets. The cases with singleton pregnancy or twins with foetal reduction were excluded in the study. New-borns weighing less than 2500 g were classified as low birth weight and those weighing less than 1500 g as very low birth weight.

RESULTS

Incidence of multifoetal gestation was about 1.38%. Most of multifoetal pregnancies occurred in primigravida (53.5%). Most (88%) of the patients were in the age group of 20-30 yrs. Correlation with ovulation induction was found in 15.5% of the patients (Table No. 1).

	Age (Years)				Parity		H/O Ovulation Induction	
	20	20-24	25-29	> 30	Primi-para	Multi-para	Yes	No
Number (142)	4	78	48	12	76	66	19	123
% (100%)	2.81%	54.9%	33.8%	8.4%	53.5%	46.5%	13.4%	86.6%

Table 1. Distribution of Multifoetal Gestation in Diff Age GRP and Parity

78.87% were dichorionic-diamniotic, 13.38% were monochorionic-diamniotic and 4.9% were monochorionic-monoamniotic.

Incidence of severe anaemia (Haemoglobin < 7 gm%) was 4.92%, moderate anaemia (Haemoglobin 7 – 9 gm%) was 19.71%, mild anaemia (Haemoglobin 9 - 11 gm%) was 50% in our study. Incidence of severe Gestational HTN was 7.75% and mild Gestational HTN was 10.56% in our study. 2.11% had eclampsia and 12.67% were pre-eclamptic. 4.22% delivered at less than 28 weeks of gestation, 19.72% delivered between 28 and 34 weeks, 19.01% were in gestational age from 34 to 37 weeks. The incidence of PROM was 13.38%. Incidence of PPH was (7.04%). The incidence of APH in our study was 3.52% (Table No. 2).

Maternal Complications	Number	%
Mild anaemia	71	50%
Moderate anaemia	28	19.71%
Severe anaemia	7	4.92%
Mild Gest. HTN	15	10.56%
Severe Gest. HTN	11	7.75%
Preeclampsia	18	12.67%
Eclampsia	3	2.11%
Less than 28 weeks	6	4.22%
Early preterm (28 – 34 wks)	28	19.72%
Late preterm (34 - 37 wks)	27	19.01%
PROM	19	13.38%
Oligohydramnios	10	7.04%
Polyhydramnios	5	3.52%
APH	5	3.52%
PPH	10	7.04%

Table 2. Maternal Complications

54.93% were cephalic-cephalic, 13.38% were cephalic-breech, 11.97% were breech-cephalic, 12.68% were breech-breech and 7.04% were presentation other than above. The incidence of caesarean section being 30.28% for first and 31.69% for second twin. 69.71% of first and 68.30% of second foetus were delivered vaginally. 3 patients required section for second foetuses for obstructed labour after delivery of first foetus (Table No. 3).

	Presentation			Mode of Delivery	
	Cephalic	Breech	Others	Vaginal	LSCS
Foetus 1 (142)	104 73.23%	37 26.05%	1 0.7%	99 69.71%	43 30.28%
Foetus 2 (142)	98 69.01%	38 26.76%	6 4.22%	97 68.30%	45 31.69%
Foetus 3 (4)	2 50%	2 50%	-	3 75%	1 25%
Foetus 4 (1)	-	-	1 100%	-	1 100%

Table 3. Presentation and Mode of Delivery

67.12% of foetuses had birth weight between 2.5 and 1.5 kg (low birth weight). 18.34% had birth weight between 1.5 - 1 kg and a total of 8.65% had birth weight less than 1 kg. The average birth weight of first and second foetus in our study was 1.85 and 1.71 kg respectively (Table No. 4).

Birth Weight	First Foetus		Second Foetus		Third Foetus		Total Number of Foetuses	
> 2.5 kg	12	2.91%	5	3.52%	-	-	17	5.88%
2.5 - 1.5 kg	101	71.12%	93	65.49%	4	100%	194	67.12%
1.5 - 1 kg	19	13.38%	29	20.42%	-	-	53	18.34%
Less Than 1 kg	10	7.04%	15	10.56%	-	-	25	8.65%

Table 4. Birth Weight

13.38% of first and 23.94% of second foetus had an APGAR score of less than seven at five minutes (including stillbirths). All third and fourth foetuses had APGAR less than 7 at 5 minutes. 15.22% of first and 17.65% of second foetus required admission to NICU. Total incidence of NICU admissions among multifoetal gestation in our study is 33.9%.

In our study 6.34% of first, 13.38% of second, 25% of third foetuses were stillborn. Overall, incidence of stillbirth was 10.03% (Table No. 5).

APGAR less than 7 at 5 Mins	Foetus 1	Foetus 2	Foetus 3
Number	19	34	2
Percentage	13.38%	23.94%	100%

Table 5. APGAR Scores

15.22% of first and 17.65% of second foetus required admission to NICU. Total incidence of NICU admissions among multifoetal gestation in our study is 33.9% (Table No. 6).

	No. of NICU Admission	NICU Admission	Stillbirth
Number	162	98	29
Percentage	56.05%	33.91%	10.03%

Table 6. NICU Admissions

DISCUSSION

Singh et al reported an incidence of 1.81%. Mean maternal age was 25.25 ± 4.5 years for twin pregnancies. Twins were seen more in multigravida (70.7%) as compared to primigravida (29.3%) in their study.

Mahendra RP found the incidence of multiple deliveries was 1.9 per 1000 births.

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 in their study.

Gundu V et al reported 3% incidence of twins. The incidence of twin gestation in the age group of 18-22 years was 41%, between 23-25 years was 32% and between 26-29 years was 21%. Twin gestation cases reported in age group 30 years and above are 6%. This shows maximum cases were in the age group of 18-20 years and next were between age group of 23-25 years.

Katke RD reported twin and triplet pregnancy rates were 1.355% and 0.02% respectively. Had the maximum number of patients in the age group of 20 - 30 years (90.76), maximum number of patients were primipara (49.23%) followed by second parity (35.38 %) and third parity (14.61%).

Most of the patients had conceived spontaneously (94.62%).

RN Su et al showed a rate of 1.7% of multiple pregnancies.

Hanumaiah et al reported maximum incidence (42%) of twinning in the age group of 21 - 25 years.

In Sheela's series, 52% patients with multiple gestations were multigravida and 48% were primigravida.

Vogel et al reported 87.3% of women with multifetal pregnancy were in the age group of 18 - 35 yrs., whereas 10.3% of age group of more than 35 yrs.

In our study the incidence of multifetal gestation is 1.38%, i.e. 142 pregnancies were multifetal gestation out of overall 10,277 pregnancies occurring in a year in accordance with other known studies, out of which 97.18% were twins (137 twins or 174 twin babies), 2.11% were triplets (3 or 9 triplet babies) and 0.70% (1 or 4 quadruplet babies) were quadruplets. In our study 54.9% were in the age group of 20 to 25 years, 33.8% were in the age group of 25 to 29 years. Thus 88% were between 20 to 30 years, which is similar to other studies and 53.5% were primigravidas. 13.4% conceived with ovulation induction.

Singh L¹- The incidence of preterm labour was 74.7%. Anaemia was found in 33 twin pregnancies (44%). Gestational hypertension comprised 7%, preeclampsia 11% and eclampsia 6% of patients. In this study, no difference was seen in the incidence of APH between the two study groups (1.33% in both the groups). Incidence of PROM in this study was 10.67% in twin pregnancies. Hydramnios has been recorded in 8 twin pregnancies (10.67%). Incidence of PPH among twin gestation was 10 (13.33%).

Gundu V² reported incidence of anaemia was 40%, preeclampsia was 22%, gestational HTN was 10%, eclampsia 1%, hydramnios 5%, placenta previa 1% and preterm labour was 30%.

Katke RD³ reported preterm labour in 48.461% and 14.615% developed PIH, 11.538% patients had PROM, Polyhydramnios in 3.846% patients, 1.538% patients had abruption and 1.538% patients had PPH.

Hanumaiah et al⁴ found 73.8% of twins delivered before 37 weeks.

As per Vogel incidence of early preterm birth (> 32 weeks) was 6.1%, moderate preterm birth (32 - 33 weeks) was 5.8% and late preterm birth (34 - 37 weeks) was 23.2%. Total incidence of preterm birth < 37 weeks was 35.2%. Incidence of severe anaemia with Hb < 7 gm% was 2.1%.

Sheela et al⁵ reported the rate of preterm labour less than 37 weeks to be 62%, severe preeclampsia to be 34%, eclampsia to be 2% and the incidence of anaemia was 22% in multifetal gestation. Among multifetal gestation, 16% cases had PPH and 14% had PROM.

In our study 19.72% delivered between 28 and 34 weeks, 19.01% were in gestational age from 34 to 37 weeks. The incidence of PROM was 13.38%. Only 25.35% had a haemoglobin of more than 11 gm%. Further 14.08% had mild gestational HTN, 10.56% had severe gestational HTN. 2.11% had eclampsia and 12.67% were preeclamptic. Incidence of PPH was 7.04%.

Singh L et al¹ found the most common presentation was vertex for both the twins (48%) followed by 1st breech second vertex (20%). Next in order was 1st vertex and 2nd breech (13.33%) and both breech (8%). Most of twins were diamniotic-dichorionic (65%). Spontaneous vaginal delivery was seen in 62.67% of twins.

Mahendra RP⁶ reported the commonest intrapartum foetal 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. There were 93 (67%) dichorionic twins and 46 (33%) monochorionic twins. 54% and 52% of first and second twins were delivered vaginally. 46% of first and 48% of second twins were delivered by caesarean section respectively.

Most common combination of presentation of twins in a study by Gundu V (2017)² was Vertex-Vertex (65%) followed by Vertex-Breech (17%), Breech-Breech (7%) and Breech-Vertex (5%). 60% delivered vaginally and 40% required caesarean section.

Katke RD³ reported vertex-vertex were the most common presentation (57.812%), vertex-breech and breech-vertex being the second most common, both occurring with equal frequency accounting for 4.687%. 53.125% of twin 1 and 50% of twin 2 delivered vaginally, and LSCS was required for 46.875% of twin 1 and 50% of twin 2. Among the triplets, both sets required LSCS.

Sheela et al⁵ found vertex-vertex 34%, vertex-breech 22%, breech-vertex 6% and breech-breech 6%. Their study had a caesarean section rate of 34%. In our study, 73.24% of first and 69.01% of second twin had cephalic presentation, respectively. 26.05% and 26.76% of first and second twin were breech, respectively. The distribution of foetal presentations among multifetal gestation was as cephalic-cephalic 54.93%, cephalic-breech 13.38%, breech-cephalic 11.97%, breech-breech 12.68% and others 7.04%. In our study, 60.56% of first and 52.11% of second twin had normal cephalic vaginal delivery, 9.15% of first and 15.49% of second twin had assisted breech delivery. Rate of caesarean section was 30.28% and 31.69% for first and second twin respectively. 25% of third foetus were delivered by cephalic vaginal delivery, 25% by assisted breech and 50% by caesarean section.

There was no increased risk of congenital malformations in the studies by RN Su, et al.⁷ Katke RD³ found the percentage of congenital anomalies was found to be 1.562% in their study. In our study, the incidence of congenital malformations was 0.1%.

Singh et al¹- LBW was seen in 78.67% twins. NICU admissions were required for 34.67% of twins. First baby of twin required NICU admission 29.33% and second baby in 40%. Most common cause of NICU admissions was prematurity and LBW.

Mahendra RP⁶ reported the average birth weight of first twin was 2100 grams and of second twin was 2040 grams. There were a total of 27 (96.4 per 1000 births) perinatal deaths, which included 22 neonatal deaths and 5 stillbirths.

Gundu V² in their study, 12.5% babies were with birth weights above 2.6 kg, 30% babies were weighing between 2.1 and 2.5 kg, 31% babies were weight between 1.6 kg and 2 kg, 23% babies were weighing between 1 and 1.5 kg. Less than 1 kg babies were 6.5%. Perinatal mortality was 100% in babies weighing less than 1 kg.

Katke RD³- The mean weight for twin 1 being 1929 grams with SD 0.4897 and for twin 2 being 1868 grams. The twin 2 (28.22%) has greater percentage of NICU admission versus the twin 1 (25%).

Mean birth weight of fetuses in multifoetal twin gestation was 2.35 kg, whereas mean birth weight by Vogel.⁸ He observed 5 minutes APGAR < 7 in 10.9% twin pregnancy. The incidence of admission to NICU was 28.9% and rate of stillbirth among twins was 4%. Sheela et al⁵ reported 27.17% of fetuses of multifoetal gestation needing NICU admission.

In our study, only 2.91% of first twin and 3.52% of second twin had birth weight of 2.5 kg or more. All the third and fourth fetuses had birth weight between 1 - 1.5 kg.

34.60% and 32.52% of the total born babies had birth weight between 2 - 2.5 kg and 1.5 - 2 kg respectively. 18.34% had birth weight between 1.5 - 1 kg and a total of 8.65% had birth weight less than 1 kg.

In our study, 13.38% of first and 23.94% of second fetus had an APGAR score of less than seven at five minutes (including stillbirths). 15.22% of first and 17.65% of second fetus required admission to NICU. Total incidence of NICU admissions among multifoetal gestation in our study was 33.9%. The incidence of stillbirth was 10.03%.

Narongwat et al⁹ found incidence of TTTS to be 2% for first and 2% for second fetus and 4% of total babies affected.

In our group, there were 3 discordant twins and one pregnancy had evident TTTS.

CONCLUSION

Multifoetal gestations are at a higher risk for both maternal and perinatal adverse outcomes like preterm labour, gestational hypertension, anaemia, premature rupture of membranes, malpositions, low birth weight, low APGAR scores and more incidence of postpartum haemorrhage. So, multifoetal pregnancies require more antenatal care, early detection of the complications and their treatment and neonatal care facilities.

REFERENCES

- [1] Singh L, Trivedi K. Study of maternal and fetal outcome in twin pregnancy. *Int J Reprod Contracept Obstet Gynecol* 2017;6(6):2272-8.
- [2] Gundu V, Polumuru UD, Hemalatha D, et al. Maternal and perinatal outcome in twin gestation in a referral hospital at Visakhapatnam. *IAIM* 2017;4(12):153-7.
- [3] Katke RD, Thakre NN. Multifetal pregnancy: maternal and neonatal outcome. *Obstet Gynecol Int J* 2015;3(1):00068. doi: 10.15406/ogij.2015.03.00068.
- [4] Hanumaiah I, Shivanand DR, Visweshwaraiah KG, et al. Perinatal outcome of twin pregnancies at a tertiary care centre, south India. *Int J Biol Med Res* 2013;4(1):2683-5.
- [5] Sheela SR, LakshmiKantha G, Shivaleela A. A prospective study of maternal and perinatal outcome in multifetal gestation in rural India. *JEMDS: Journal of Evolution of Medical and Dental Sciences* 2013;2(6):607-12.
- [6] Mahendra RP, Bikash JK, Deepak D. Maternal and perinatal outcome in multifetal pregnancy: a study at a teaching hospital. *American Journal of Public Health Research* 2015;3(5A):135-8. doi: 10.12691/ajphr-3-5A-29.
- [7] Su RN, Zhu WW, Wei YM, et al. Maternal and neonatal outcomes in multiple pregnancy: a multicentre study in the Beijing population. *Chronic Diseases and Translational Medicine* 2015;1(4):197-202.
- [8] Vogel JP, Torloni MR, Seuc A, et al. Maternal and perinatal outcomes of twin pregnancy in 23 low and middle-income countries. *PLoS One* 2013;8(8):e70549. doi:10.1371/journal.pone.0070549.
- [9] Narongwat S, Prapap Y. Pregnancy and perinatal outcomes of twin pregnancies in Prapokklao hospital. *Thai Journal of Obs Gyn* 2010;18:165-71.