

Original research article

Maternal and perinatal outcome in multiple gestation at VIMS, Ballari, a tertiary care hospital: A prospective study

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Abstract

Background: Multiple gestation is simultaneous development of more than one fetus in uterus. Multiple pregnancies are associated with significantly higher fetal morbidity and mortality, maternal morbidity and associated health care costs.

Materials and methods: Prospective study of the patients with multiple gestation admitted to labour room, in the Department of Obstetrics and Gynaecology, VIMS, Ballari, a tertiary health care centre, for a period of 1 year.

Results: During the period of 1 year, 65 cases were analyzed. During the period 62 were twins, 2 triplets and 1 quadruplets were reported. Incidence of multiple gestation at VIMS is 0.9%. Majority of the women were of younger age group of 21-25 years, accounting for 58.4%. And most of them were primiparas accounting to 40%. 52.3% of them had preterm labor and 40% had pre eclampsia. Anemia, premature rupture of membranes and PPH were other complications. Birth weight of majority of neonates was between 1500 ± 2000gm accounting for 41%. Some of the fetal complication were less, discordant twins were 13.8%, TRAP accounted for 1 twin gestation (rare). Hyaline membrane disease is the most common cause for neonatal mortality accounting 79.41% of neonatal deaths.

Conclusion: The risks of multiple pregnancies are significant. Proper management of multiple gestation at a tertiary care hospital with good obstetric and NICU facilities can reduce the complications such as HMD/RDS and improve the neonatal outcome.

Keywords: Perinatal outcome, multiple gestation, HMD/RDS

Introduction

Multiple pregnancy is simultaneous development of more than one fetus in uterus. Simultaneous development of two fetuses in uterus is called as twins and that of three is triplets and quadruplets, pentuplets and so on depending on the number of fetuses.

There are two types of twinning

- Dizygotic due to fertilization of two separate ova.
- Monozygotic from division of one fertilized ovum into two separate embryos.
- Triplets are derived from three separate ova from two ova, one of which gives rise to monozygotic twins or very rarely forms single ovum.

Multiple pregnancies are associated with significantly higher fetal morbidity and mortality, maternal morbidity and associated health care costs ^[2]. Women with multiple pregnancies are nearly 6 times more likely to be hospitalized with complications, including preeclampsia, preterm labor, preterm premature rupture of membranes, placental abruption and postpartum hemorrhage.

Vigilant antenatal and intrapartum care is needed. Success of treatment results from better understanding, early diagnosis, fetal surveillance, counseling, skill and timely intervention ^[3].

Aims and Objectives of the study

- To find the incidence of multiple pregnancies.
- To find the modes of delivery in multiple pregnancies.
- To study the maternal and perinatal outcome in multiple pregnancies.

Materials and Methods

Study setting and period

- Patients with multiple pregnancy (> 28 weeks of gestation) admitted in the labour room, in the Department of Obstetrics and Gynaecology, VIMS, Ballari, a tertiary health care centre were studied over a period of 1 year.

Study design

- Prospective analytical study.

Results

- Total no. of deliveries - 7201
- Total No of Multiple pregnancies -65
- Total No of Twin pregnancies -62
- Total No of Triplet pregnancies -02
- Total No of Quadruplet pregnancies - 01
- Incidence of multiple gestation at VIMS -0.9%
- Incidence of multiple gestation - 1.4-1.5%

Table 1: Age Wise Distribution of Multiple Pregnancies

AGE (years)	No. of Patients	% of Patients
18 – 20	5	7.6
21 – 25	38	58.4
26 – 30	19	29.2
31 – 35	3	4.6
Total	65	100

Table 2: Parity wise Distribution of Patients with Multiple Pregnancies

Parity	No of Patients(N=65)	% of Patients
Nullipara	22	33.84
Para 1	26	40
Para 2	13	20
>Para 3	4	6.15

Table 3: Gestational age

Gestational Age (weeks)	No of Patients	% of Patients
28 – 32	07(5+1+1)	10.76
33 – 36	29(28+1)	44.61
37 – 40	29	44.61

Table 4: Type of conception

Type of conception	No. of Patients	% of Patients
Spontaneous	56	86.15
Induction	09	13.84
Total	65	100

Table 5: Mode of Delivery in Twins

Mode of Delivery	TWIN 1		TWIN 2	
	Number	%	Number	%
Vaginal	42	67.74	41	66.13
LSCS	20	32.25	21	33.87
Total	62	100	62	100

Table 6: Mode of Delivery in Triplets

Mode of Delivery	Triplet 1	Triplet 2	Triplet 3
Vaginal delivery	1	0	0
LSCS	1	2	2
Total	2	2	2

Table 7: Indication for LSCS among Patients of Multiple Pregnancy

Indication	No. of Patients (N=24)	% of Patients
Malpresentations (breech)	11	41.66
Previous LSCS	07	29.16
Fetal Distress	06	25

Table 8: Birth Weight Distribution Chart in Twins

Weight (Grams)	Twin 1		Twin 2	
	N	%	N	%
<1000	01	1.61	02	3.22
1001-1500	09	14.51	12	19.35
1501-2000	24	38.70	29	46.77
2001-2500	18	29.03	15	24.19
>2500	10	16.12	04	6.45
Total	62	100	62	100

Table 9: Neonatal risk factors

Neonatal Risk Factors	Number (N=134)	%
Prematurity	66	49.25
RDS	27	20.14
Birth Asphyxia	15	11.19
Intra Uterine Fetal Demise	05	3.73
TTTS	01	0.74

Table 10: Maternal Risk factors

Maternal Risks	No of Patients (N=65)	% of Patients
Preterm	34	52.30
Pre eclampsia	26	40
Eclampsia	01	1.53
Anaemia	08	12.30
PPROM	04	6.15
PROM	03	4.61
PPH	01	1.53

- There were 65 multiple pregnancy deliveries amongst 7201 total deliveries in the specified time period out of which 62 were twin pregnancies and 2 were triplet pregnancies and 1 was quadruplet pregnancy. Twin pregnancy is the most commonest multiple pregnancy, incidence decreases with further higher order multiple pregnancies. The incidence of multiple pregnancies in our hospital is 0.9%.
- In our study, maximum number of patients were primipara who had first parity of multiple pregnancy (49.23%) followed by those with nulli para (33.84%) and second parity (20%) and least number of patients belonged to third para and above (6.15 %).
- Majority of the women were of younger age group of 21-25 years, accounting for 58.4 %, followed by 29.2% belonging to 26-30 years age group.
- Majority of multiple gestation were spontaneous conception(88.61%).
- 58.2% had vaginal delivery, of which 25.37% are full term vaginal delivery and 38.8% are preterm vaginal delivery.
- 52.3% of them had preterm labor and 40% had pre eclampsia. Anemia(12.3%), Preterm premature rupture of membranes(6.1%), premature rupture of membranes (4.6%)and PPH(1.5%) were other complications.
- Dichorionic diamniotic is the most common type of placentation(79%).22% of the patients have family history of multiple gestation.
- Birth weight of majority of neonates was between 1500 ± 2000gm accounting for 41%. Some of the fetal complication were less, discordant twins were 13.8%, TRAP accounted for 1 twin gestation (rare).
- Prematurity is the most common neonatal risk factor (49.2%). Hyaline membrane disease is the most common cause for neonatal mortality accounting 79.41% of neonatal deaths.

Discussion

Multiple pregnancies are associated with significantly higher maternal and neonatal morbidity and mortality. Women pregnant with multiples are nearly six times more likely to be hospitalized during pregnancy, more than twice as likely to be admitted to the adult intensive care unit and to die compared with women with singleton pregnancies.

In our hospital study out of 7201 deliveries 62 were twin pregnancies, 2 were triplet pregnancies, 1 was quadruplet pregnancy. In our study the twin, triplet and quadruplet pregnancy rates were 0.86%, 0.027%

and 0.01% respectively, the twin pregnancy rate is less than Katke RD *et al.* study^[4], who had twin pregnancy rate of 1.37%, while the triplet pregnancy rate of our study is comparable to the study by Erdemoglu *et al.*(0.29%)^[13].

In our study majority of the patients belonged to age group of 20-30 years (87.6%), which is comparable with Katke RD *et al.* Study^[4], which was 90.7% and Reddy MA *et al.*^[2].

In our study maximum number of patients had conceived as multiples in gravida 2, which is comparable with Deepthi HR *et al.*, where as in Katke RD *et al.*, twinning was highest in primigravida, and in Satija *et al.* study the twinning rate was highest at gravida 4 or higher^[2,6,9].

Most of the patients had conceived spontaneously (86.15%), which is comparable with Katke RD *et al.* study (95%) and Erdemoglu *et al.* (89.75%)^[4, 13].

According to the type of placentation, which was correlated with antenatal USG and inspection of placenta and membranes after birth. The dichorionic placentation were the majority (79%) in our study, which is comparable with C.Manju Yadav *et al.* study(65.7%) Among the triplet pregnancies both were dichorionic triamniotic. And quadruplet pregnancy was dichorionic quadriamniotic^[5].

The average weeks of gestation in our study is 35 weeks, which is comparable with Katke RD *et al.* 2015 (average weeks of gestation-35 weeks).but greater than Reddy MA *et al.* study (28-32wks)^[2,4].

The presentation of the fetuses during labour determined the route of delivery and operative interventions. In our study 58.2% had delivered vaginally is comparable with Katke RD *et al.* 2015 (51.5%) and sultana M *et al.* study.^[4, 8]

Vertex - vertex is the most common presentation (50%) that are comparable, with C.Manju Yadav *et al.* 2015.^[5]

The most common indications for LSCS in multiple pregnancy is Breech (41.66%) which is comparable with Reddy MA *et al.* and Katke RD *et al.* other studies.^[2,4]

The birth weight of twins in our study (1500 grams-2000grams) were comparable to the birth weights found by Deepthi HR *et al.* study and Erdemoglu *et al.* 2005 (1900grams - 2100 grams). There was significant difference between the birth weights of twin 1 and that of twin 2 in 13.8% similar to studies by Erdemoglu *et al.* 2005^[6, 13].

Our study clearly shows that premature delivery is the main cause of fetal complications, like NICU admissions is consistent with finding of other studies.

In our study most common neonatal complication is prematurity (49.25%), which is comparable with Katke RD *et al.*(49.6%) and Reddy MA *et al.* (43.3%).

In our study NICU admission were 42.5% and neonatal deaths were 25.3% more compared to Singh L *et al.* 2017 (NICU admissions 26% and neonatal deaths 18%) and others^[1, 2, 3, 7].

Multiple pregnancy is associated with an increase in obstetric complications such as preterm delivery, PROM, PPROM, anaemia, PIH, and postpartum bleeding which are similar to other studies. The most frequently seen obstetric problem was preterm delivery (52.3%), anaemia(12.3%) PPROM (6.1%), PPH (1.53%) are comparable with Katke RD *et al.* 2015 (preterm delivery 48.4%, anaemia 10.7%), Erdemoglu *et al.* 2005 (PPH 0.6%), while the incidence of PIH (41.53%) was more comparable to C.Manju Yadav *et al.* 2015 PIH (19.4%). And PROM (4.6%) was less comparable to Singh L *et al.* 2017 (10.6%)^[1,2, 4, 5, 10, 11, 13].

Conclusion

- Multiple pregnancy is a high risk pregnancy for both mother and the fetus, these risks are partly preventable, difficulty in timely recognition of multiple pregnancies at an early date is a main obstacle.
- There is an increase in the incidence of multiple pregnancy especially in the 21-25 years age group and primiparas due to the infertility management and resulting in maternal complications like preterm labour, hypertensive disorders, anemia being most common.
- Marked divergence from singleton growth among both twins and triplets appear to begin at approximately 28 weeks of gestation and then to widen progressively. Delivery must be at a level III hospital. As a general rule mode of delivery should be vaginal when both twins present as vertex and CS when I twin is Not Vx, for triplets the safest mode of delivery is CS. Active management of II twin with an optional time interval of 15 minutes improves perinatal outcome. Immediate neonatal intensive care contributes to improve perinatal and neonatal outcome.
- Our findings suggest that the maternal and neonatal outcomes associated with multiple pregnancy are significant, and there is an immediate need for efforts to reduce adverse perinatal outcomes. Because primary prevention for the risks associated with multiple pregnancy, such as prematurity, hypertension, low birth weight, and SGA are often unattainable, mothers with multiple gestations should seek increased obstetric care and be educated on the importance of timely intervention and developmental surveillance for optimal child growth and development. Enforcement for regular antenatal care and planned delivery in a well-equipped centre having emergency care and good NICU facilities.
- Perinatal morbidity and mortality is more with higher order pregnancies (Twin > Triplets > Quadruplets)
- Prematurity and Respiratory distress syndrome were the most important factors responsible for the neonatal deaths, can be tackled with routine use of antenatal steroids and good NICU facilities.

- With good antenatal care and better NICU facilities perinatal morbidity and mortality can be reduced.

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