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Original Research Article

Obstetric and neonatal outcome in multiple pregnancy in rural India: a prospective study

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ABSTRACT

Background: The objective is to study the obstetric and perinatal outcome in multiple pregnancy.

Methods: A prospective study of 100 cases of multiple pregnancy was conducted between October 2013 to July 2016. Incidence of relevant factors, complications, characteristic of multiple pregnancy and sequelae of these complications on obstetric and perinatal outcome were analyzed.

Results: Incidence of multiple pregnancy was 2%, anaemia was 22%, preterm labour in 62%, severe preeclampsia in 34%, postpartum haemorrhage in 16%, PPROM in 14%, abortion in 8%, eclampsia in 2%. Incidence of perinatal mortality rate was 240 per 1000 live births and maternal mortality rates was 2000/ 1 lakh live births which was 10 times more compared to singleton pregnancy.

Conclusions: Regular antenatal care, prolonging period of gestation near to term, early admission and care will go a long way in reducing maternal and perinatal mortality.

Keywords: Maternal mortality, Multiple pregnancy, Perinatal mortality, Preterm

INTRODUCTION

Over the last 2 decades, the incidence of multiple pregnancy has increased due to assisted reproductive technologies (ART). Increased placental mass has contributed to profound increase in physiological response. These exaggerated physiological changes and mechanical stress in multiple pregnancies could be associated with an increase in adverse maternal outcomes such as pulmonary edema due to decreased cardiac reserve, venous thromboembolism and even death.¹ Complications like preeclampsia, gestational diabetes mellitus, anaemia, abortions, malpresentations, antepartum haemorrhage, UTI, varicosities, haemorrhoids could be more frequent and more severe in multiple pregnancy compared to singleton pregnancy. This is mainly due to exaggerated physiological changes, excess mechanical stress, which could lead to increased obstetrical interventions, increased morbidity and

mortality.^{2,3} Multiple pregnancy due to over distension of uterus could have a higher rate of preterm delivery than singleton pregnancies and a substantially higher perinatal morbidity and mortality.⁴

The chance of fetal growth restriction is increased in multiple pregnancy due to an increase in fetal metabolic demands, placental and cord abnormalities, increased incidence of maternal complications and increased fetal crowding.⁵ There is a risk of significant reduction in the uterine volume following the delivery of the first baby that might precipitate the partial separation of the placenta and reduction in uterine perfusion and placental circulation thus jeopardising the subsequent fetuses, with increase in perinatal morbidity and mortality. So, multiple pregnancy is a high-risk pregnancy which could adversely affect both the mother and the fetus. Moreover, delivery of the multiple fetuses may present physiologic, social and economic problems.⁶

METHODS

This study was performed on 100 women with multiple gestation who attended our department between October 2013 and July 2016. The exclusion criteria were pre-existing hypertension, overt diabetes, cardiac disorder, renal disease or collagen vascular disease etc. These medical complications would have likely increased their risk of pregnancy complications. Informed consent and ethical committee approval were obtained. This prospective study was done during antenatal, labour and post-natal period till the patients were discharged. Detailed obstetric history was taken including family history and history of intake of ovulation induction drugs and infertility treatment. Examination was done to note any associated complications. Vaginal delivery was allowed if the first twin was longitudinal and there was no obstetrical indication for caesarean section. After delivery of the first twin, the longitudinal, if no haemorrhage or fetal distress, waited for spontaneous resumption of contractions for stage was prolonged. In breech presentation, with an adequate maternal pelvis, average fetal size, good uterine contractions and a completely dilated and effaced cervix, assisted breech delivery was conducted. If second twin was transverse, it was corrected by external version into a longitudinal lie to vertex or breech presentation. If external version fails or membranes rupture internal podalic version is done under general anaesthesia followed by breech extraction. After delivery of babies, APGAR was evaluated. Active management of 3rd stage was done by prophylactic oxytocics to reduce postpartum haemorrhage. Placental examination was done to study the chorionicity and zygosity. Postpartum endometritis, DVT, neonatal complications, if any, were noted.

RESULTS

Table 1: Combinations of presentations in multifetal gestation, the commonest being both vertex presentation.

Combination of presentations	No. of cases	Percentage
Vertex + vertex	34	34
Vertex + breech	22	22
Breech + vertex	6	6
Vertex + transverse	14	14
Breech + breech	6	6
Transverse + breech	4	4
Transverse + transverse	4	4
Breech + transverse	2	2
Variable	8	8
Total	100	100

Incidence of multiple pregnancy was 2%, anaemia was 22%, preterm labour (<37 weeks) is 62%, severe

preeclampsia in 34%, postpartum haemorrhage in 16%, PPROM in 14%, abortion in 8%, eclampsia in 2%. Seventy percent of the patients belonged to age group between 20 and 30 years. 52% multigravida and 48% primigravida.

Family history of multiple gestation was present only in 26% cases. 88% had conceived spontaneously and 12% after ART. Table 1 shows different types of presentations of multiple pregnancy the commonest being vertex and vertex followed by vertex and breech.

Table 2: Antepartum complication in multifetal gestation and its incidences, the commonest complication being preterm labour.

Complication	No. of cases	Percentage
Abortion	8	8
Preterm labour (<37 weeks)	62	62
Severe preeclampsia	34	34
Anaemia	22	22
Antepartum haemorrhage	2	2
PPROM	14	14
Eclampsia	2	2
Renal failure	2	2
Maternal mortality	2	2

Abbreviations: PPROM-preterm premature rupture of membranes.

The commonest complication in multiple pregnancy is preterm labor followed by severe preeclampsia and anemia (Table 2). In the present study, maternal mortality was due to acute renal failure secondary to eclampsia.

Caesarean rate was 34%. Postpartum haemorrhage in 16% of patients and all of them were controlled with medical line of management. In the present study, 34 cases (34%) were dichorionic-diamniotic, 16 cases (16%) were monochorionic-diamniotic, 48 (48%) were monochorionic-monoamniotic.

Table 3: Comparative analysis of preterm labour.

Authors	Year	Incidence %
Holceberg ⁶	1982	97
Luke B ⁷	1994	47.9
Khushla Pathania ⁸	2001	60
Itzkowic ⁹	1979	78
Present study		62

50 cases (27.1%) needed NICU admission in both first and second twin. The various reasons for NICU admission were LBW, preterm birth, IUGR and birth asphyxia 24 (24%) perinatal deaths occurred in the study giving a perinatal mortality rate of 240 per 1000 live births.

Table 4: Perinatal mortality in relation to birth weight showing better outcome for babies with more birth weight.

Birth weight (grams)	First fetus (n=100)		Second fetus (n=100)	
	No. of cases	No. of babies died	No. of cases	No. of babies died
1050-1500	26	8	32	8
1550-2000	36	2	32	2
2050-2500	32	2	28	2
>2500	6	-	8	-

Table 5: Various causes for perinatal mortality in the present study, the commonest being preterm birth.

Causes	No. of cases	No. of perinatal deaths
Preterm (<37 weeks)	124	14
IUGR	16	2
Aspiration syndrome	2	2
Colloidon syndrome	2	2
Maternal renal failure secondary to antepartum eclampsia caused by hypoxia	2	4

Perinatal mortality was 12 (12%) for first fetus, 12 (12%) for second fetus.

There were no perinatal deaths for foetuses weighing more than 2500gm in any of the foetuses as depicted in Table 4. The causes for perinatal mortality as shown in Table 5, the commonest being preterm birth.

Perinatal mortality was 100% if gestation age was less than 28 weeks in present study (Table 6).

Table 6: Influence of gestational age on perinatal mortality.

1 st fetus (n=100)				2 nd fetus (n=100)			
Gestational age (weeks)	No. of cases	No. of deaths	%	Gestational age (weeks)	No. of cases	No. of deaths	%
<28	8	8	100	<28	8	8	100
28-37	8	4	50	28-37	8	4	50
37 and above	32	0	0	37 and above	32	0	0

DISCUSSION

The explosion of multiple pregnancy in the last three decades is mainly due to delayed fertility and the use of assisted reproductive technology multiple pregnancy is a high-risk pregnancy, it has more maternal and fetal complications as compared to singleton pregnancy. Thus, multifetal gestation needs more ANC, institutional care and delivery than singleton pregnancy. Determining exact gestational age and chorionicity, screening for anomalies and looking for unique complications of multiple pregnancy necessitates more frequent antenatal checkups.¹⁰ Preterm labour is the most common complication among all other complications in multiple pregnancy. It is the leading cause of perinatal mortality in multiple pregnancy. Hence all efforts must be taken to prolong pregnancy risks of multiple pregnancy should be explained clearly to all mothers with multiple pregnancy. Majority of the complications can be prevented by intensive approach and protocols during antenatal period and labour, especially correction of anaemia, treatment of infections and early admission in the presence of threatened preterm labour and thus arresting preterm labour. Adequate tocolysis should be instituted until adequate lung maturity of the fetus is achieved. At

relatively early stages before 32 weeks lecithin /sphingomyelin ratio should be obtained for both the amniotic sacs to ensure accurate assessment of fetal lung maturity in twin pregnancy.¹¹ Lung maturity should be achieved by administering corticosteroids at the right time and thus preventing perinatal mortality secondary to preterm birth accelerated maturity of multiple gestation was evident in the present study as most of the low birth weight babies survived without NICU care. Perinatal mortality was similar for either of the twins for that period of gestation and birth weight thus suggesting that period of gestation and birth weight was an important factor for good perinatal outcome. High rate of perinatal mortality can be reduced by decreasing the incidence of low birth weight infants rather than increasing the rate of caesarean section and by regular antenatal check-ups, early detection and prevention of preterm labour.

CONCLUSION

Obstetric and perinatal outcome can be improved by optimum care of mother and fetus in the antenatal period and prolonging the duration of gestational age as far as possible till fetal lung maturity is attained. Both maternal and perinatal mortality can also be reduced by appropriate

management protocols directed towards counselling, regular antenatal check-ups proper care during intrapartum and postpartum period and early admission of mothers to prevent complications.

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Ethical approval: The study was approved by the Institutional Ethics Committee

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