



Maternal Outcome in Twin Pregnancy-Study at a Tertiary Care Centre in South India

Authors

Dr Roshni R¹, Dr Rani Lakshmi S²

¹Assistant Professor Department of Obstetrics and Gynaecology, Govt. Medical College Hospital, Kottayam, Kerala, India

Email: drroshnir@gmail.com

²Assistant Professor, Department of Obstetrics and Gynaecology, Govt. Medical College Hospital, Kottayam, Kerala, India

Email: ranilprem75@gmail.com

Abstract

Background: *Twin pregnancy is considered as a high risk pregnancy with many complications to the mother and the foetus. This study aims to assess the maternal outcome in twins*

Materials and Methods: *A prospective study was conducted in a tertiary centre in south India over a period of one year. A total of 200 cases of twin pregnancies was followed up from the antenatal period upto their admission to ward and labour room.*

Results: *Incidence of twin pregnancy was 1.6%. 76% were in the age group of 20 to 29 years and primigravidae contributed 49.5% of the total. Maternal complications noted were anemia in 43(21.5%) gestational hypertension in 50(25%) preterm labour in 36(18%) PROM in 63(31.5%) hyperemesis in 25(12.5%) antepartum haemorrhage in 12(6%) Gestational diabetes mellitus in 16(8%). Among postpartum complications postpartum hemorrhage contributed 34 (17%). No maternal mortality occurred in the study population. Vaginal delivery was possible in 63.5% and the rest underwent LSCS. The commonest indication for caesarian section was non vertex first baby (36.5%).*

Conclusion: *This study brings to light the complications associated with twin pregnancy. Regular and frequent antenatal checks are required for the prompt diagnosis of maternal complications and to prevent maternal mortality and morbidity. Proper counseling regarding the mode of delivery is required. The need to deliver them in hospitals with facilities for maternal and neonatal intensive care is essential.*

Keywords: *Maternal Outcome, Twin Pregnancy, maternal complication.*

Introduction

Multiple births are much more common today than they were in the past due to the dramatic increase in the use of ovulation inducing agents, assisted reproductive technologies and a shift towards elderly primigravida and grand multiparity, where multiple gestations are more likely to occur

naturally¹ Twin gestation is considered as a high risk pregnancy. In India, twinning occurs in approximately 1% of all pregnancies and has been reported to be responsible for 10% of perinatal mortality² This extraordinary increase in multiple births is a public health concern because these infants are less likely to survive and more likely to suffer lifelong disability due to preterm delivery.

Twins account for 94% of all multiple births each year

Multiple pregnancies poses definite risks not only to the mother but also to the foetuses. Complications may occur during antenatal, intrapartum and postpartum period. The complications are an increased incidence of hyperemesis gravidarum, pregnancy induced hypertension, polyhydramnios, preterm labour, abnormal presentations, uterine inertia and postpartum uterine atony. Most grave and common complication of twin pregnancy is preterm birth that increases the short and long term perinatal morbidity and mortality. In addition to the traditional indicators of perinatal morbidity and mortality, twin pregnancies are associated with a number of financial, personal and social costs for their families and twins themselves. This study endeavors to evaluate the increased risks to the mother and hopes to suggest remedial measures to improve the maternal outcome

Materials & Methods

A prospective study was conducted at. Department of Obstetrics and Gynaecology, Institute of Maternal and Child Health, Calicut. 200 cases of twin pregnancies beyond 28 weeks of gestation admitted during this period were taken as the study group. Pregnancies with more than 2 children were excluded from the study. 200 cases of twin pregnancies more than 28 weeks were followed from the antenatal period upon their admission to the antenatal ward and the labour room. Detailed history was taken. Age of the patient, parity and history of having taken any ovulation induction drugs were noted. Family history of twinning was asked. History of any antenatal complications in the 3 trimesters was noted. The mode of onset of labour whether spontaneous or induced and mode of delivery whether abdominal or vaginal were evaluated. Presentation of fetuses were noted at the time of delivery. The usual investigations were done in all cases and special investigation (like PIH profile, FBS, PPBS, Doppler ultrasound) etc were done whenever necessary. Antenatal corticosteroids were given routinely in all cases presenting with

preterm labour and in complicated cases needing early termination. Induction was required in some cases for various obstetrical indications. Detailed clinical examination, local examination and per vaginal examination was also recorded. In labour, patients were watched for progress. Once the first twin delivered, per abdominal examination and a per vaginal examination was repeated and delivery of the second twin was facilitated. Blood was arranged in almost all cases and active management of third stage of labour was practiced. Chorionicity of placenta was noted after delivery of both the babies. Time interval between the delivery of the twins was noted. The study was approved by institutional ethical committee. Statistical analysis was performed using Chi-square test and the significance was assumed at p value of <0.05.

Results

Total number of deliveries during the study period was 21,718. Twins constitute 347 deliveries [1.6%]. 200 cases of twin pregnancies during the study period were studied in detail and taken for analysis. Twinning has a maximum incidence between 20-24 yrs [table-1] it is seen that out of the 200 cases 99 cases ie 49.5% are primigravida. 66 cases [33%] were second gravida, 25 cases ie 12.5% are third gravida. Gravida 5 and above constitutes only 2.5%. [table 2]

Table 1 Maternal age distribution

Age	Case	Percentage
15 – 19 yrs	23	11.5
20 – 24 yrs	86	43
25 – 29 yrs	66	33
30 – 34 yrs	20	10
≥ 35 yrs	5	2.5
Total	200	100

Table 2: Incidence in relation to gravidity

Gravidity	Number	Percentage
Primi	99	49.5
G₂	66	33
G ₃	25	12.5
G ₄	5	2.5
G ₅ and above	5	2.5
Total	200	100

History of ovulation induction was there in 31 cases ie 15.5%. 30 of them were induced with

clomiphene for an average duration of 3 cycles. One lady had gonadotropin injection. 28 cases gave family history of twinning, majority from the maternal side. Incidence of maternal complications were listed in Table-3

Table 3: Analysis of maternal complications

Maternal complications	Number	Percentage
Threatened abortion	7	3.5
Hyperemesis	25	12.5
Gestational hypertension	50	25
Mild preeclampsia	22	11
Severe preeclampsia	25	12.5
Eclampsia	1	0.5
HELLP	2	1
Anemia	43	21.5
Gestational Diabetes Mellitus	16	8
Hydramnios	9	4.5
Abruption placentae	6	3
Placenta previa	6	3
Preterm labour	36	18
PROM	63	31.5
PPH – Mild	21	10.5
Severe	13	6.5

There was PROM in 63 cases [31.5%]. 30 cases [47.6%] had onset of PROM between 35- 37 weeks. Preterm labour was detected in 36 cases (18%). Among the study population 47 percent had onset between 35-37 wks and 39 percent presented between 32- 34 weeks. 90 cases had preterm deliveries [45%]. 31 cases were induced for various reasons. Main reasons for induction are pregnancy induced hypertension and its complications, intrauterine growth restriction, PROM, unfavorable cervix and early cases of single fetal demise. Majority of cases ie 55% had gestational age between 35-37 wks at the onset of labour. 28% had onset between 38 and 40 wks. Most common presentation was vertex- vertex amounting to 48% of the cases. Next common is vertex-breech (22%). Breech-breech presentation (10.5%) and breech-vertex (14%). 3 cases had vertex- transverse presentation.[Table-4]

Table: 4 Analysis of the frequency of presentation

Presentation	Number	%
Vertex – vertex	96	48
Vertex-breech	44	22
Breech-breech	21	10.5
Breech-vertex	28	14
Vertex-transverse	3	1.5
Others	8	4
Total	200	100

63.5 % had normal vaginal delivery. 36.5% required caesarian section .4 cases needed caesarian for the second baby after delivery of the first twin. 40 cases had assisted breech delivery of the second twin.[Table-5&6] Among the indications of caesarean section 36.8% were for 1st baby nonvertex, 14.5% for pregnancy induced hypertension and its complications. 4 cases were done for 2nd of twin, 1 case for foetal distress, and remaining 3 cases for failed internal podalic version for the 2nd baby having transverse lie[Table 7]

Table: 5 Analysis according to mode of delivery

Mode of delivery	First twin		Second twin	
	Number	%	Number	%
Vaginal delivery (Vx)	103	51.5	81	40.5
Assisted breech delivery	19	9.5	40	20
Vacuum	6	3	3	1.5
Forceps	1	0.5	1	0.5
Elective CS	16	8	16	8
Emergency CS	55	27.5	59	29.5
Total	200	100	200	100

Table : 6 Mode of delivery

Vaginal	254	63.5%
Abdominal	146	36.5%
Combined vagino abdominal	4	1%

Table: 7 Indication for caesarean section

Indications	Number	%
First baby non vertex	28	36.8
Previous caesarean section	7	9.2
PIH and its complications	11	14.57
PROM, failed induction	3	3.9
Dysfunctional labour	6	7.8
Placenta previa	2	2.6
Foetal distress	3	3.9
Monoamniotic	1	1.3
2 nd twin	4	5.3
Cord prolapsed	2	2.6
Others	9	11.8

Discussion

Table 1 shows the maternal age distribution in twins. 43% belonged to 20 – 24 age group. 33% belonged to 25-29yrs of age. Mothers older than 35yrs amounted to only 2.5%. This compares well with a retrospective analysis of 188 twin pregnancies conducted at LTMG Hospital, Mumbai by Anahita et al, where also the maximum incidence was between 21 – 25 years of age³. 49.5% were primigravidas. Grand multi constituted only 2.5%. The positive effects of increasing maternal age and parity on twinning were well demonstrated by Waterhouse. The reason for the reduction in the incidence of pregnancies in grand multi may be due to implementation of effective family planning methods. Increased incidence in primigravida may be because they account for the largest percentage in the study population and 15% conceived after treatment for infertility. This was similar to the study by Dubey et al⁴ & PyrbotJE et al⁵. 31 cases gave history of ovulation induction (15%) (Table 3), 30 cases took clomiphene and 1 case had gonadotropin as the mode of induction. Mahmut et al in a retrospective analysis of 261 cases of twin pregnancies reported ovulation induction in 10.25%⁶. Table 4 shows the incidence of maternal complications in twin pregnancies. In this study 25% had gestational hypertension. 12.5% had severe preeclampsia. There was 1 case of eclampsia and 2 cases of Hellp syndrome. A recent, large, prospective trial by Sibai et al also confirmed a significantly increased risk (12.9%) for gestational hypertension and 12.7% for preeclampsia in twins compared to singletons⁷. Women with a twin gestation complicated by gestational hypertension or preeclampsia are more likely to have a pregnancy that results in preterm delivery, a low birth weight infant or caesarean birth in comparison to women with a singleton pregnancy. The association between twins & hypertension was also supported by Walker et al 2004 & Gyamfi 2005.^{8,9} Anemia is a common complication of twin pregnancy. The present study shows the incidence to be 21.5%. The incidence of anaemia varies in different studies. Increased incidence in our population may be

because the majority of the study population belongs to a low socioeconomic status. The cutoff for defining anaemia may be different in various studies. In our study it was taken as 11gm%. Higher rates of anemia is in line with previous reports [Qaizi 2011¹⁰] Other complications encountered were diabetics in 8% cases, hydramnios in 4.5% of cases and APH in 6.5% (6 cases of abruption, 6 cases of placenta previa) The risk of PPH is higher in multiple pregnancies because of the increased placental site, uterine over distention and greater tendency to uterine atony. Postpartum hemorrhage was there in 17% cases, 18 cases having severe PPH requiring blood transfusion. One case ended up in hysterectomy as the patient went into DIC. This shows the importance of anticipating all these complications when dealing with a case of twin pregnancy. Another most important complication found more frequently in twin pregnancies leading to an increased morbidity and mortality is preterm labour. Preterm labour complicated 18% of the cases. Among them the majority had onset between 35-36wks, 40% between 31-34 wks, adding to the bulk of perinatal morbidity. The general incidence varies in different studies between 20-75%. In a retrospective of analysis of 261 twin pairs Mahmut et al reported the incidence of preterm labour as 23% and PROM as 8.8%. In the present study premature rupture of membranes was identified in 31.5%, 46% had onset between 35-37 weeks. Preterm birth is the main reason for the poor perinatal outcome in multiple pregnancy. Incidence of preterm delivery in the present study was 45%. 84.5% of twins had spontaneous onset of labour, but in 15.5% (31 cases) labour was induced for obstetrical indications like PIH and its complications, intrauterine growth restriction, PROM and unfavourable cervix and for cases of single fetal demise. Majority of cases ie 55% had delivery between 35 and 37 weeks and 28% delivered between 38 and 40 wks. 13% delivered between 32- 34 weeks. This shows that the average gestational age in twins is 2-3 weeks prior to singleton pregnancy. Yin Bin Cheung et al¹¹ suggested the optimal gestational age to twins to be

between 37 – 39 weeks; this is associated with minimum neonatal and infant morbidity and mortality. There is a high incidence of malpresentation at the time of delivery in twin gestation. The most common presentation in the present study was vertex- vertex (48%). Next common is vertex-breech in 44cases This was comparable to the study by Chowdhary et al¹² In our study 49 cases (24.5%) had breech as presentation for the first baby. 57% of these cases were delivered by caesarean section. This substantiates that malpresentations are more in twin pregnancy. In this study 63.5% (254babies) delivered vaginally, when compared to 36.5% [146 babies] delivered by caesarean section. The incidence of caesarean section was definitely more in twin pregnancy when compared to singletons. 27.5% had required emergency caesarean section and 8% delivered by elective caesarean section. This was comparable to various other studies as shown in the table below. In our study 4 cases had reported caesarean section done for the delivery of the 2nd twin. In 3 of them lie of the 2nd baby was transverse. After delivery of 1st twin. internalpodalic version was tried in these cases, but failed and they ended in caesarean section. In one case indication for section for 2nd baby was foetal distress. In 40 cases 2nd twin was delivered by assisted breech delivery. In other studies the cs rate was even higher 52% by Pyrbot et al&68% by Shelly et al¹³ There is an increasing trend in cs rate in twins over the decade. Most women wanted cs due to apprehension. Also obstetricians anxiety and their concern while managing infertility may increase the cs rate in these patients, although studies have suggested that the outcomes are not improved by cs¹⁴ So, the common indication for CS was noncephalic first twin, in which caesarean delivery is often preferred and advised, although no series suggests that vaginal birth is inappropriate. Most common indication was similar to study by Yasmeen s¹⁵

Conclusion

Twin pregnancy carries an increased risk of maternal complications such as gestational hypertension, anemia, antepartum hemorrhage, postpartum hemorrhage, PROM, preterm labour in twins Timely detection of antenatal risk factors and appropriate management will improve outcome. Twins pregnancies are associated with increased incidence of malpresentations and hence increased operative deliveries, which was 36.5% in the present study. Strict intrapartum monitoring, experienced obstetricians to conduct delivery, liberal use of LSCS along with good neonatal intensive care especially for premature babies, will lead to better outcome.

Acknowledgement

We are extremely thankful to Prof. Dr.Sreedevi N.S, and Dr.Vinayachandran, Department of Obsterics and Gynecology, IMCH, Calicut for the valuable suggestions and guidance.

We also express our sincere thanks to all the patients who participated in our study.

Above all, we are grateful to Almighty God for his blessings that have led to the completion of this study.

References

1. American society of reproductive medicine. Multiple pregnancy and birth, considering infertility treatment: twin, triplets & higher order multiples;2004.
2. Vidyadhar B.Bangal., Shruti m Patel, Devendra N Khairnar."Study of maternal& fetal outcome in twin gestation at tertiary teaching hospital", International journal of Biomedical & Advanced Research, 2012:03[10]
3. Anahita Pandole, M.S.C. Swamy, Nagendra Sardesh Pande, Anjali Mishra, Shailesh J Kore, VR Ambiye. J Obstet Gynecol Ind. Vol 53: No.2: March/April 2003 pg 138 – 139
4. Dubey et al.Int J Reprod Contracept Obstet Gynecol 2018 Sep;7(9):3753-3757

5. Pyrbot JE, Agarwal M Twin pregnancy-maternal & fetal complications& its association with mode of delivery a study in a tertiary centre (Int J Reprod Contracept Obstet Gynecol 2017;6 5089-94)
6. Mahmut Erdemoolu, Ahmet Kale, Nurten Akdeniz, Abmet Yalynkaya, Yylmazozcan, Murat Yayla. Perinatal Journal 2005; 13(4): 213 – 217.
7. Sibai B, Hauth J, Caritis S et al. Hypertensive disorders in twin versus single ton gestations. Am J ObstetGynaecol 2000; 182: 938- 942.
8. Walker, M.C., Murphy, K.E, Pan, S,Yang, Q., Wen, S.W.2004. Adverse maternal outcomes in Multifetal pregnancies. BJOG;111:1294e1296..
9. Gyamfi, C., Stone, J.,Eddleman, K.A. 2005. Maternal complications of multifetal pregnancy. Clin Perinatol;32:431e442
10. Qazi, G.2011. Obstetric perinatal outcome of multiple pregnancy. J Coll Physicians Surg Pak;21(3):142-145
11. Yin Bun Cheung, Paul Yip. Mortality of twins and singletons by gestational age. American Journal of Epidemiology, Vol.152, No.12:1107-1116
12. Chowdhary, S., Hussain, M.A.2011. Maternal complications in twin pregnancies. Mymensingh Med J.,20(1):83-7
13. Shelly MB et al.Int J Reprod Contracept Obstet Gynecol.2016 Jan;5(1):217-219
14. Ganchimeg T, et al Mode& timing of twin delivery and perinatal outcomes in low and middle income countries: a secondary analysis of the WHO Multi country Survey on Maternal and newborn Health. BJOG.2014;121(1):89-100
15. Rather S.Y. Studying pregnancy outcome in twin gestation in developing world. IOSR JDMS 2014;13(5):2279-0853.