



Perinatal Outcome in Twin Pregnancy

Authors

Dr R. Simi, Dr P.Lekshmi Ammal

Abstract

Background: Multiple pregnancy poses definite risks not only to the mother, but also to the fetuses. Despite improvement in obstetric and neonatal care, risk to the new born remains at least 3 times more than that of singletons. The main contributor to the increased incidence of perinatal mortality and morbidity in twins is prematurity. It is therefore not surprising that the increase in neonatal death in twins is proportionately greater than fetal death. Other problems are fetal mal presentations and the complication of shared fetal circulation in monizygotic twins.

Objectives: To determine the perinatal mortality of twin pregnancies

Materials and Methods: This is a descriptive study conducted in SUT Medical college Vattappara and SRMC Medical college for a period of one year. 200 cases of twin pregnancies beyond 28 weeks of gestation admitted during this period was included in the study group. Pregnancies with more than 2 fetuses were excluded from the study. The perinatal outcome of the babies were analyzed based on the gestational age, birth weight, Apgar scores at birth, NICU admission, still births, intrauterine deaths and neonatal deaths.

Results: Perinatal mortality in twin pregnancy in the present series is 11% and this was 3 to 4 times higher than that of singleton pregnancy.

Conclusion: Despite advances in Obstetrics and Gynaecology, the perinatal mortality of twins still remains high, three to four times higher than that of singleton. There is clearly a direct relationship between the morbidity and mortality of multiple gestations and the significantly high rate of preterm deliveries, as well as increased incidence of small for gestational age babies associated with these pregnancies.

Keywords: Twin pregnancy, Perinatal mortality, Prematurity.

Introduction

Twin pregnancies are a unique but common obstetrical occurrence that has attracted the attention of both the obstetrician and the common man since time immemorial. The number and rate of twin triplet and other higher order multiple births have increased in the United States at an unprecedented pace over the past two decades (Kogan and colleagues, 200; Martin and Park 1999). Advances in assisted reproduction and an increasing proportion of older mothers have contributed to a increase of 40% in twin pregnancies. 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. Multiple gestations currently accounts for 3% of all pregnancies (ACOG, 1998). Twins account for 94% of all multiple births each year. Communications on twins are abundant and reflect the multidisciplinary approach followed in the study of this biologic phenomenon. Therefore it is not surprising that serious efforts have been made to unify all kinds of contributions on twins into a new branch of science named germellology.

Multiple pregnancy poses definite risks not only to the mother but also to the fetuses. Complications may occur during antenatal, intrapartum and postpartum period. The complications are an increased incidence of hyperemesis gravidarum, gestational hypertension, polyhydramnios, preterm labour, abnormal presentations, uterine inertia and postpartum uterine atony. Despite advances in obstetrics and neonatology the perinatal mortality rate among twins still remains high, estimated as accounting for approximately 10% of all perinatal mortality. The higher preterm delivery rate in twins, either from spontaneous or induced labour, with its associated problems of prematurity remains the major cause of morbidity and mortality. Other factors which contribute to the higher perinatal mortality include fetal growth retardation, birth weight discordance, fetal anomalies and problems specific to monochorionic twin gestations like twin to twin transfusion syndrome. 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. Because of the increase in preterm birth, there is also an increase in the incidence of cerebral palsy in twins compared to singletons. The financial costs related to the care of low birth weight children continue long after neonatal intensive care. This study endeavors to evaluate the etiological patterns of twin pregnancies and the increased risks to the mother and twin fetuses and hopes to suggest remedial measures to improve the fetomaternal outcome.

Materials and Methods

Study Design: Descriptive

Setting: Department of Obstetrics and Gynaecology, SUTI, Medical College, Thiruvananthapuram and SRMC Medical college Varkala.

Methods of Data Collection

This study was conducted during the period from May 2016 to April 2017. 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 fetuses 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 all the three trimesters were noted. The number of cases of IUGR and discordancy detected prenatally by ultrasound were recorded. Chorionicity by ultrasound was also taken into consideration. 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 done.

In labour, patients were watched for progress. Once the first twin was 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. Apgar scores of babies were noted at 1' and 5'. The patients were discharged on the 3rd day after vaginal delivery. Only those who had undergone caesarean section or whose babies were in the NICU (Neonatal Intensive Care Unit) stayed back. The perinatal outcome of the babies was analysed based on the gestational age, birth weight, Apgar scores at birth, NICU admission and factors like number of

macerated births, still births, NND's etc. Outcome of 1st and 2nd twin were compared. Perinatal mortality with respect to chorionicity was calculated. The relationship of IUGR and discordancy with respect to chorionicity was also evaluated.

Statistics

Statistical analysis was performed using Chi – square test and the significance was assumed at p value of < 0.05.

Results

Twins constituted 1.9% (208 cases) of total number of deliveries during the study period. 43% of twins (86 cases) were in mothers of the age group 20 – 24 years. 49.5% cases were primigravida. History of ovulation induction was there in 31 cases (15.5%). Out of which 30 were induced with clomiphene citrate and one with gonadotropins.

Table 1 – Maternal Complications in twins

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
PPH – 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%).

Discordance was present in 10% cases by ultrasound and IUGR was identified in 9% cases. 55% were found to have dichorionic placenta by ultrasound.

Table 2 : Gestational age at the onset of labour

GA	Number	Percentage
28 – 31 wks	8	4
32 – 34 wks	26	13
35 – 37 wks	110	55
38 – 40 wks	56	28
Total	200	100

55% had gestational age between 35 – 37 weeks at the onset of labour. Most common presentation was vertex – vertex, amounting to 48% of the cases. 63.5% had normal vaginal delivery. 36.5% required caesarean section. 4 cases needed caesarian for the second of twin.

Table 3 Analysis according to birth weight of babies

Birth weight in Kg	1 st twin		2 nd twin	
	No	%	No	%
< 1kg	6	3.02	6	3.02
1 – 1.4 kg	12	6.03	21	10.5
1.5 – 1.9 kg	56	28.14	56	28.14
2 – 2.4 kg	78	39.00	80	40.00
2.5 – 2.9 kg	40	20.1	29	14.5
3 – 3.4kg	8	4.02	7	3.5
3.5 – 3.9 kg	0	0	1	0.5
Total	200		200	

The mean birth weight of first twin was 2.09kg and the second twin was 2.03kg.

Table 4 Congenital anomalies in twins

Type of congenital anomaly	Number
Congenital heart disease	3
Ambiguous genitalia	1
Cleft lip and cleft palate	2
Hypospadiasis and micropenis	2
Hydrops foetalis	2
Bilateral CTEV	1
Total	11

NICU admission was required in 28.5% of second twin and 23% of first twin. Most common indication of NICU admission was prematurity followed by IUGR, low birth weight and birth asphyxia.

Table 5 Indication of NICU admission

Indication	Number
Prematurity	35
Hypoglycemia	10
Preterm with HMD	10
Birth asphyxia	15
Meconium aspiration	5
Sepsis	9
Severe IUGR, LBW	15
Hyperbilirubinemia	4

Out of the 400 babies in the study 375 (93.5%) were live births, 21(5.5%) were Macerated births and 4 cases (1%) were still births.

Table 6 Perinatal mortality rate

No of babies	Macerated birth	Still birth	Neonatal death	Total PND	PMR / 1000 BIRTH
400	21	4	31	56	110/1000

Table 7: perinatal outcomes according to birth order of twins

Outcome	1 st twin		2 nd twin	
	Number	%	Number	%
Macerated birth	10	5	11	5.5
Fresh still birth	2	1	2	1
NND	12	6	19	9.5
Admission to NICU	46	23	57	28.5

Perinatal mortality of 2nd twin was 130/1000 births, compared to 90/1000 for the 1st twin. ($p < 0.025$).

Discussion

In our series, twins constituted 1.9% of the deliveries. 43% cases belonged to 20 – 24 years age group. This compares well with a retrospective analysis of 188 twin pregnancies by Anahita et al^[1]. 49.5% cases were primigravidas. The positive effects of increasing maternal age and parity were well demonstrated by water house. 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. 15% (31cases) gave history of ovulation induction. Mahmut et al in his retrospective analysis of 261 cases of twin pregnancies also gave history of ovulation induction in 10.25%^[2].

25% cases in the present series had gestational hypertension. 12.5% had severe pre Eclampsia. A large prospective trial by Sibai et al also confirmed a significantly increased risk (12.9%) for gestational hypertension and 12.7% for pre Eclampsia in twins compared to singleton^[3].

The most important complication in twin pregnancy leading to increased perinatal mortality and morbidity is preterm labour. Preterm labour complicated 10% of cases. Majority had onset between 35 – 36 weeks and 40% between 31 – 34 weeks. The general incidence varies in different studies between 20 – 75%. Mahmut et al reported the incidence of preterm labour as 23% and PROM as 8.8%^[2]. Preterm birth is the main reason for the poor perinatal outcome in twins. Incidence of preterm delivery in the present study was 45%. Houtton M reported the incidence of preterm birth as 50%^[4]. Yin Bin Cheung et al suggested that optimal gestational age to twins to be between 37 – 39 weeks; this is associated with minimum neonatal and infant mortality and morbidity^[5].

The average birth weight of 1st twin was 2.09 kg and the 2nd twin was 2.03kg. This may be explained by the increased incidence of IUSR and prematurity in twin. Anahita Pandole also reported the average weight of 1st twin as 2kg and 2nd twin as 1.7kg.^[1]

The incidence of congenital malformation in our study was 2.6%. mahmut et al reported congenital anomalies in 3.6% cases^[2].

NICU admission were more for 2nd twin (28.5%) compared to 23% for 1st twin. Most common cause of NICU admission was prematurity, low birth weight, IUSR and birth asphyxia. In our series there were 56 perinatal deaths in 400 fetuses. 31 cases were neonatal deaths. Important cause of NND were prematurity with respiratory distress and hyaline membrane disease. Anahita et al reported 64 perinatal death in 376 fetuses^[1]. The perinatal mortality in our series was 11%. High perinatal mortality of 17.02%, 11.5% and 17.4% were reported by Anahita et al, Chabra et al and Rani et al respectively in various studies conducted in our country^[1,6,7].

Perinatal mortality of 2nd twin was 143/1000 compared to 99.7/1000 for 1st twin. This is comparable to report by Anthony Armson et al [8]. This excess risk was evident independent of presentation, chorionicity or sex of the infant, but was associated with vaginal delivery, birth weight discordance and prolonged inter delivery interval.

Conclusion

Despite advances in Obstetrics and Gynaecology, the perinatal mortality in twins still remain high, 3 – 4 times higher than that of singletons. There is clearly a direct relationship between the morbidity and mortality of multiple gestations and the significantly high rate of preterm deliveries, as well as increased incidence of small for gestational age babies associated with these pregnancies.

Furthermore there is an increased risk of maternal complications such as gestational hypertension, anemia, antepartum hemorrhage, postpartum hemorrhage, PROM, preterm labour in twins.

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