Original Research Article

Perinatal and neonatal outcome in multiple gestations

Jeevan S Nair

Assistant Professor, Department of Paediatrics, Mount Zion Medical college, Chayalode ,Ezhamkulam, Adoor.
Email: jeevansnair80@gmail.com

Abstract

Fetal growth is independent of the number of fetuses until approximately 30 weeks' gestation, after which growth of multiple gradually falls of compared with singletons (see Fig 7.2). IUGR is defined as an estimated fetal weight (EFW) less than third percentile for gestational age or an EFW<10th percentile for gestational age in addition to evidence of fetal compromise. The mechanisms are likely uterine crowding, limitation of placental perfusion, and anomalous umbilical cord insertion. Monochrrionic twins are more likely to the IUGR compared with dichorionic twins and have higher perinatal mortality. Neonatal mortality was more in vaginal delivery 90% that may be due to the increased preterm and low birth weight in this group. Natal complications were more in vaginal delivery. Out of the variables studied, significant influence on neonatal mortality was seen only with discordant twins.

Key Word: Fetal growth, Neonatal mortality, Natal complications

Address for Correspondence:
Dr. Jeevan S Nair, Assistant Professor, Department of Paediatrics, Mount Zion Medical college, Chayalode ,Ezhamkulam, Adoor.
Email: jeevansnair80@gmail.com
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INTRODUCTION

Gestational diabetes has been shown in some studies to be more common in twin pregnancies. Spontaneous abortion occurs in 8% to 36% of multiples pregnancies with reduction to a singleton pregnancy by the end of the first trimester ("vanishing twin"). Possible causes include abnormal implantation, early cardiovascular developmental defects, and chromosomal abnormalities. Before fetal viability, the management of the surviving cotwin in a dichorionic pregnancy includes expectant management until term or close to term, in addition to close surveillance for preterm labor, fetal well-being, and fetal growth, The management of a single fetal demise in a monochorionic twin pregnancy is more complicated. The surviving cotwin is at high risk for ischemic multiorgan and neurological injury that is thought to be secondary to hypotension or thromboembolic events. Fetal imaging by ultrasonography or magnetic resonance imaging (MRI) may be useful in detecting neurological injury. Termination of pregnancy may be offered as an option when single fetal demise occurs ina prevailedmonochorionic twin pregnancy.[1] Incompetent cervix occurs in up to 14% of multiple gestations. Placental abruption risk rises as the number if fetuses per pregnancy increases. In a large retrospective cohort study, the incidence of placental abruption was 6.2, 12.2, and 15.6 per 1,000 pregnancies in singletons, twins, and triplets, respectively. Preterm premature rupture membrane complicates 7% to 10% of twin pregnancies compared with 2% to 4% of singleton pregnancies. Preterm labor and birth occur in approximately 57% twin pregnancies and in 76% to 90% of higher-order multiple gestations. Pregnancy-induced hypertensions (PIH) and preeclampsia are 2.5 times more common in multifetal pregnancies compared with singleton pregnancies.[2] Approximately 66% of patients with twins and 91% of patients with triplets have cesarean delivery. Breech positions of one or more fetuses, cord prolapsed, and placenta! Abruption are factor that account for the increased frequency of cesarean deliveries for twin and multiple gestations.[3] The average duration of gestation is

shorter in multifetal pregnancies, and further shortens as the number of fetuses increased. The mean gestational age at birth is 36, 33, and 29 ½ weeks, respectively, for twins, triplets, and quadruplets. In developed countries, the incidence of preterm birth in twins was 53% in1997, compared with 9% to 10% in singletons. Although most of this increased incidence is due to mild prematurity, multifetal pregnancy increases the risk of severe prematurity and very low birth weight (VLBW). The likelihood of a birth weight <1,500 g is 8 and 33 times greater in twins and triplets or higher-order multiples, respectively, compared with singletons. In two multicenter surveys, multiples occurred in 21% to 24% of births <1,500 g and in 30% of births <1,500g and in 30% of births <1,000g.[4] Fetal growth is independent of the number of fetuses until approximately 30 weeks' gestation, after which growth of multiple gradually falls of compared with singletons (see Fig 7.2). IUGR is defined as an estimated fetal weight (EFW) less than third percentile for gestational age or an EFW<10th percentile for gestational age in addition to evidence of fetal compromise. The mechanisms are likely uterine crowding, limitation of placental perfusion, and anomalous umbilical cord insertion. Monochrrionic twins are more likely to the IUGR compared with dichorionic twins and have higher perinatal mortality. Neonatal morbidities that are seen in 50% of neonates with IUGR that complicate management of these infants include hypoglycemia, polycythemia, and pulmonary hemorrhage.[5,6] Percentage of the larger twin's weight and can be mild (<15%) moderate (15%-30%, or severe (>30%). Risk factor for discordant growth include monochorionic Placentation associated with valamentous cord insertion, placental dysfunction, oreclampsia, antepartum bleeding, twin-to twin transfusion syndrome (TTTS), fetal infection, and fetal structural and chromosomal abnormalities. The smaller twin has an increased risk of fetal demise, perinatal death, and preterm birth. Five percent to 15% of twins and 30% of triplets will have fetal growth discordance that is associated with a six fold increase in perinatal morbidity and mortality.[7] Intrauterine fetal demise (IUFD) refers to fetal demise after 20 weeks' gestation but before delivery and can be confirmed by ultrasonography evidence of absent fetal cardiac activity. The death of one twin, which occurs in 9%of multiple pregnancies, is less common in the second and third trimesters. The risk of IUFD is 5 to 6 times greater in MZ pregnancies. Since almost all MZ twins have placental vascular connections with resulting shared circulation, there is a significant risk (20%-40%) of neurological injury (multicysticencephalomalacia) to the surviving cotwin as a result of associated severe hypotension or thromoboembolic events upon death of the cotwin. Owing to the lack of a shared circulation, the death of one DZ twin usually has minimal adverse effect on the surviving cotwin. In this case, the cotwin is either completely resorbed if death occurs in the first trimester or is compressed between the amniotic sac of its cotwin an the uterine wall (fetus papyraceous). Other complications involving the surviving cotwin include antepartum stillbirth, preterm birth, placental abruption, and chorioamnionitis. In the event of a demise of one monocliprionic twin, immediate delivery of the surviving cotwin should be considered after fetal viability. However, this does not seem to change the outcome as neurologic injury is thought to occur at the time of death of the cotwin. Disseminated intravascular coagulopathy is a complication seen in 20% to 25% of women who retain a dead fetus for >3 weeks.[8]

METHODOLOGY

All mothers with multiple gestationconsidered to this study

- History of any drug intake or assisted reproductive techniques are also taken
- Findings in USG are followed up.
- Cord blood for hemoglobin PVC and blood grouping are sent.
- After delivery placenta is examined to know about chrorinicity.
- Immediate outcome is assessed in neonates such as
- Birth weight
- Chromosomal anomalies
- Deformations

INCLUSION CRITERIA

All multiple deliveries in Hospital

EXCLUSION CRITERIA

Twins and Triplets in OBGie. newborns brought from other hospitals.

RESULTS

Table 1: Percentage Distribution Of The Sample According To Iud

IDU	Count	Percentage
Yes	6	3.7
No	157	96.3

Table-2: Percentage Distribution Of The Sample According To Type Of Delivery

Type of delivery	Count	Percentage
NVD	55	68.8
LSCS	19	23.8
Forceps	6	7.5

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Table-3: Percentage Distribution Of The Sample According To Gestational Maturity

MATURATION	Count	Percentage
Yes	10	12.5
No	70	87.5

Table 4: Percentage Distribution Of The Sample According To Major And Minor Anomalies

Anomalies	Count	Percentage
Yes	2	1.2
No	161	98.8

Table 5: Percentage Distribution Of The Sample According To Tts

TTS	Count	Percentage
Yes	2	2.5
No	78	97.5

Table-6: percentage distribution of the sample according to nicu admission

NICU	Count	Percentage
Yes	55	33.7
No	108	66.3

Table 7: Percentage Distribution Of The Sample According To Weight

Weight	Count	Percentage
AGA	72	44.2
SGA	91	55.8

Table 8: Percentage Distributio Of The Sample According To Discordance

Discordance	Count	Percentage
Yes	29	36.3
No	51	63.8

Table 9: Distribution Of Nm Based On Placenta

Placenta	Neonatal mortality: No Count	No Percent	Yes Count	Yes Percent	X^2	P
Monochorionic	7	14%	5	16.6%	1.31	P>0.05
Dichorionic	43	86%	25	83.4%		

Table 10: Distribution Of Nm Based On Number Of Fetus

No.of Fetus	Neonatal mortality: No Count	No Percent	Yes Count	Yes Percent	X^2	P
Twins	49	98.0	28	93.3	1.13	P>0.05
Triplets	1	2.0	2	6.7		

Table 11: Distribution Of Nm Based On Types Of Delivery

Type of Delivery	Neonatal mortality: No Count	No Percent	Yes Count	Yes Percent	X^2	P
VD	28	56.0	27	90.0	10.16	P>0.01
LSCS	17	34.0	2	6.7		
Forceps	5	10.0	1	3.3		

Table 12: Distribution Of Nm Based On Nicu Admission

NICU Admission	Neonatal mortality: No Count	No Percent	Yes Count	Yes Percent	X^2	P
Yes	37	74.0	29	96.7	6.67	P>0.01
No	13	26.0	1	3.3		

Table 13: Distribution Of Nm Based On Nm Based On Tts

TTS	Neonatal mortality: No Count	No Percent	Yes Count	Yes Percent	X^2	P
Yes	1	2.0	1	3.3	0.14	P>0.05
No	49	98.0	29	96.7		

Table 14: Distribution Of Nm Based On Discordance

Discordance	Neonatal mortality: No Count	No Percent	Yes Count	Yes Percent	X^2	P
No	40	80.0	11	36.7	15.24	P>0.01
Yes	10	20.0	19	63.3		

In this study neonatal mortality was more in dichorionic gestation, most of the deliveries was dichorionicand most of them were preterms. That may be the cause for increased mortality in the same. Most common type of delivery was vaginal delivery (68%) followed by LSCS (23%). Neonatal mortality was more in vaginal delivery 90% that may be due to the increased preterm and low birth weight in this group. Natal complications were more in vaginal delivery. Out of the variables studied, significant influence on neonatal mortality was seen only with discordant twins.

DISCUSSION

Rates of neonatal mortality are gestational age specific and are similar for singletons, twins, and triplets. Prematurity and low birth weight are the predominating factors that increase the rate of mortality and morbidity for multiple births. Assisted reproduction has contributed to the increased incidence of mlutifetal pregnancies and preterm birth is strongly correlated with the number of fetuses. Therefore, techniques that limit the number of implanted eggs or transferred embryos, or selective reduction of higher-order multiples may improve the likelihood of a successful outcome. Morbidity Prematurity and growth restriction are associated with an increased risk of morbidities such as bronchopulmonary dysplasia, necrotizing enterocolitis, retinopathy of prematurity, and intraventricular hemorrhage.[9] Long-term morbidity such as CP and other neurological handicaps affects more twins and multiple than singletons. There is a5 – to 10 fold increased risk of CP in multiples

compared with singleton gestation. Twins account for 5% to 10% of all cases of CP in the United States. The prevalence of CP in twins is 7.4%, compared with 1% in singletons. This is related to a number of factors including increased risk of prematurity an low birth weight in multiple births and high risk for cerebral in twins with monochorionic Placentation and in those with TT.[10] Hospital stays for mothers and babies are typically longer for multiple gestations. One study showed that, compared with singletons, average hospital costs were estimated to be 3 and 6 times higher for twins and triplets, respectively; total family costs were 4 and 11 times higher, respectively. The increase in multiple births due to the use of assisted reproductive technologies has made an impact on overall medical costs. Thirty-five precent of twins and 75% of triplets resulted from assisted reproduction techniques. In another study, medical costs from induction of IVF pregnancy until the end of the neonatal period for a twin pregnancy were found to be more than 5 times higher than in a singleton pregnancy.[11] Caring for twins or higher-order multiples contributes to increased marital strain, financial stress, parental anxiety, and depression, and has a greater influence on the professional and social life of mothers of these infants, particularly first-time mother, compared with mother of singletons. In one study, IVF twin parents were found to have a lower risk (7.3%) of divorce. Separation compared with parents of control twins (13.3%) suggesting that IVF twin parents were able to better cope with the increased stress of twins.[12] Multiples are more likely to have medical complications (i.e., prematurity, congential defects, IUGR) that result in prolonged hospital stays that contribute further to a family's emotional and financial stress. Social services, lactation support, and assistance from additional caregivers and family members can help parents cope with the increased amount of care required by multiples. Organization of parents of multiples can provide advice and emotional that can further help new parents of multiples cope.

CONCLUSION

Dichorionic twins accounted for 85% of twins. Preterm deliveries constituted 87.5% of all deliveries. Discordance was present in 56.8% of all deliveries out of which 65.5% had neonatal mortality. Assisted reproductive techniques were used by 12.5% of couples. TTS was found I 2 gestations out of which one baby required transfusions.

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