

Complications and Management of Triplet Pregnancy

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Abstract

Triplet pregnancies are associated with an increased risk of maternal and neonatal complications. Preterm delivery is the most significant complication of triplet gestation. The major cause of increased incidence of triplet pregnancies is the increasing use of fertility treatments. Common complications include preeclampsia, preterm premature rupture of membrane, fetal growth restriction and non-reassuring fetal cardiotocograph tracing.

Despite the improving survival of triplets, effective measure to prevent significant proportion of potential neurological morbidity in triplet babies should be taken into account

Keywords: Pregnancy, preterm, triplet

Introduction

Triplet pregnancies are associated with an increased risk of maternal and neonatal complications. Preterm delivery is the most significant complication of triplet gestation: 75 to 100 % of triplets are born prematurely. The major cause of increased incidence of pregnancies is the increasing use fertility treatments. Common etiologies include preeclampsia, preterm premature rupture of membrane, fetal growth restriction and non-reassuring fetal heart tracing.

Antepartum interventions for prevention of preterm birth

Bed rest and hospitalization: Bed rest is the traditional management for many obstetrical complications. Retrospective analyses have not clearly demonstrated the benefit of bed rest for prevention of preterm delivery. There is no consensus regarding bed rest and hospitalization for women carrying triplets.

Cerclage : The elective use of cervical cerclage in triplet pregnancy is not recommended because supporting data is not yet available.

Prophylactic tocolysis : There are no randomized controlled trials of prophylactic tocolysis

Cervical examination: Most protocols for the outpatient management of triplets include digital examination of the cervix on a weekly basis starting at 20 to 24 weeks of gestation. Detection of cervical change should lead to evaluation for occult contractions and tocolytic therapy, if appropriate. No intervention has been shown to improve outcome when cervical change is not accompanied by uterine contractions.

Antenatal corticosteroids: It is difficult to point out a time to start antenatal corticosteroid administration for fetus at risk for preterm birth because of increasing evidence suggestive of potential ill effects from multiple courses of steroids. So administration is to be considered until there is clear evidence of preterm labor

Ultrasound assessment of cervical length: The mean cervical length in case of triplet gestations is less than that of singletons². In one study, triplet gestation delivering prior to 33 weeks had shorter cervixes at 28, 30 & 32 weeks than those delivering after 33 weeks². It has been suggested that a cervical length less than 25 mm at 23 to 24 weeks of gestation indicates pregnancies at highest risk. Sonography may help to identify patients at high risk for preterm delivery.

Eclampsia : Preeclampsia complicates 20 to 46 percent of triplet gestations compared to 5 percent of singleton pregnancies³. Prenatal visits are scheduled more frequently for women carrying triplets, to monitor for the development of hypertension and proteinuria.

Preterm premature rupture of membranes: PPRM is another cause of prematurity. In reviewing the literature, the incidence of this complication appeared to be approximately 15 to 30 percent in three series including 300 triplet pregnancies⁴.

Fetal growth restriction: In one series of 57 triplet pregnancies, severe growth restriction was listed as the primary indication for delivery in 3.5 percent⁵.

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Antepartum monitoring: Weekly fetal surveillance with nonstress tests or biophysical profiles is generally initiated at 32 weeks⁶. But in the presence of intrauterine growth restriction, it should be started earlier.

Fetal growth: Intrauterine growth restriction and related complications (eg. oligohydramnios, nonreassuring fetal heart rate) are more common in triplets than in singletons⁷. For this reason, most management protocols include serial sonography for evaluation of fetal growth every three to four weeks. It is likely that disparity in growth reflects placental dysfunction⁸. Therefore, sonographic evidence of significant fetal weight discordance warrants close fetal monitoring and possible early delivery.

Velamentous insertion of the umbilical cord is common in triplet gestations. Furthermore, a triplet perfused via a cord with a velamentous insertion is at increased risk for poor fetal growth⁹.

Cholestasis of pregnancy: Intrahepatic cholestasis is observed more commonly in multiple gestations. Management includes supportive care for the mother and antepartum fetal monitoring because of the increased risk of stillbirth.

Gestational Anemia : Anemia has been reported in 20 to 70 percent. Iron requirements for triplets have not been determined. The current recommendation for singleton pregnancy is to increase iron consumption by 15 mg/day.

Gestational diabetes : The prevalence of gestational diabetes mellitus appears increased in triplet compared to singleton pregnancies, although this has not been a consistent finding in all studies¹⁰.

Problems unique to multiple gestation: Premature delivery or death of one fetus with surviving co-fetuses in-utero are complications unique to multiple gestation.

Intervention for one compromised fetus : In multiple gestations, an ethical issue arises when one fetus is in jeopardy, but the others are not. Delivery before 26 weeks of gestation places all the three fetuses at risk of mortality. Therefore, intervention prior to 26 weeks should rarely be considered¹¹. The risk of morbidity at or beyond 32 weeks of gestation is low. So intervention is nearly always appropriate. Hence decision should be made after counseling the parents.

Late death of one triplet: Death of one fetus may increase the risk of morbidity and mortality in a surviving co-triplet. The degree of risk is not well defined but appears to be limited to fetuses with

monochorionic placentation, as in twin pregnancies¹². A study of 5356 triplet pregnancies found that survival of the remaining triplets after the death of one was inversely related to the time the death occurred¹³. Mortality was higher when the demise occurred later in gestation. Delivery is recommended when demise is noted and the pregnancy is at least 37 weeks of gestation.

If the pregnancy is trichorionic or dichorionic with the demised triplet being the one not sharing its chorion, there is no reason to deliver the other triplets. For case of a demised triplet that is one of a monochorionic pair, delivery is probably appropriate close to term since potential harmful effects to the survivor likely occur from hypotension at the time of the demise¹⁴. For gestations at 32 weeks or beyond, administering steroids to enhance fetal maturity and delivery 48 hours later is an option; however, it is not clear whether this is beneficial to the survivor, as it is possible that the damage occurs to the healthy twin/triplet less than 48 hours after the demise of the other one. Below 32 weeks, it is probably best to allow the pregnancy to continue.

Delivery: A recent large epidemiologic analysis found that only 16 percent of triplets remain undelivered at 36 weeks of gestation¹⁵. This study also noted that the prospective risk of fetal death began to exceed neonatal mortality at 36 weeks of gestation. So delivery is considered at this time.

Route of delivery: The majority of triplet fetus is delivered by cesarean section. This approach is largely based upon historical data suggesting an increased risk to the fetus from vaginal delivery. However, this concept has recently been challenged¹⁶. A retrospective series compared the perinatal outcome of 30 triplet pregnancies with planned abdominal delivery (24 actually delivered by cesarean section) to 39 triplet gestations planning for vaginal birth (34 actually delivered vaginally) (16). Planned abdominal delivery was associated with higher perinatal mortality and neonatal complication rates, primarily due to more respiratory distress syndrome (16). Three other studies reported equivalent neonatal outcomes with vaginal and abdominal birth¹⁷. Vaginal delivery may be safely offered to a selected population of triplet pregnancies, although the majority will require cesarean birth for the usual obstetrical indications (eg. malpresentation, nonreassuring fetal heart rate testing, and extreme prematurity with an unfavorable cervix). The minimal criteria for allowing a trial of labor are :

- Vertex presentation of the presenting (1st) triplet

- Ability to continuously monitor all three triplets during labor
- Lack of any contraindications to vaginal delivery.

These three criteria are based upon the published studies, which generally did not put limits on either gestational age or fetal weight.

Technique: Vaginal delivery should only be attempted by experienced who can perform intrauterine manipulation, and operative delivery. All fetuses should be monitored continuously prior to their delivery due to the possibility of nonreassuring fetal heart rates from abruption or cord prolapse after the birth of the first or second infant. An anesthesiologist should be present at the time of delivery and prepared for an emergency cesarean birth or any manipulation. The delivery should be performed only in places where cesarean delivery is possible.

The four most common presentations of triplet pregnancy are vertex-breech-breech (18 percent), vertex- vertex-breech (16 percent), Vertex- vertex-vertex (15 percent), and breech-breech-breech (13 percent).

Following the vertex delivery of the first triplet, breech extraction can be performed for rest of the two fetuses presenting as breech. This reduces the possibility of complications.

Cesarean delivery may be approached by either a transverse or longitudinal uterine incision¹⁸. The incision should be adequate to allow atraumatic delivery of the infants.

Postpartum hemorrhage: The incidence of postpartum hemorrhage after a triplet delivery is 10 to 35 percent¹⁹. Thus, one must be ready to manage this problem.

Infant outcome : The infant mortality rate of triplets born in the United States from 1995 to 1997 was approximately 71 per 1000 births, which was higher than the rate for twins or singletons (32 and 6.6 per 1000 births, respectively)²⁰. The major reason for this higher rate is the large proportion of LBW, and especially VLBW. However, more recent studies have shown improvements in triplet outcomes²¹. One series of 51 triplet gestations reported 96 percent survival at discharge²². Triplet infants, have similar outcomes as twins and singletons when stratified by gestational age²³. The risk of death is not affected by birth order²⁴.

These tiny neonates often develop significant problems related to their prematurity. Long-term risk includes cerebral palsy²⁵.

Conclusion

Despite the improving survival of triplets, effective measures to prevent a significant proportion of potential neurological morbidity in triplet babies should be taken in to account.

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