



APEC Guidelines Twin Pregnancy

Twin pregnancies have increased 76% since 1980 as a result of advanced maternal age, the enhanced use of ovulation induction agents, and assisted reproductive technology. Multifetal pregnancies are at higher risk of maternal and fetal complications with perinatal morbidity and mortality rates 3-4 times greater than in singleton pregnancies. The increased maternal and perinatal morbidity and mortality rates are associated with pregnancy complications including gestational diabetes, preeclampsia, preterm labor, preterm PROM, placental abruption, pyelonephritis, preterm delivery, intrauterine growth restriction (IUGR), postpartum hemorrhage, congenital anomalies, and cerebral palsy. To minimize risks, patients with multiples require close monitoring and frequent follow up. (ACOG, 2014)

Pathophysiology

Twin gestations can be **monozygotic**, a single fertilized ovum that splits into 2 fetuses, or **dizygotic**, two separate fertilized ova. In the US, two-thirds of twins are dizygotic and one-third monozygotic. (Cunningham et al., 2010) Dizygotic pregnancies are genetically dissimilar, dichorionic diamniotic, and are associated with infertility treatments and advanced maternal age. Monozygotic gestations are genetically identical, and can be dichorionic diamniotic, monochorionic diamniotic, or monochorionic monoamniotic depending on the time at which the division of the fertilized ovum occurs. Monochorionic diamniotic twin gestations are at risk for twin-twin transfusion syndrome and monochorionic monoamniotic gestations are at risk for conjoining or cord entanglement. (Cunningham et al., 2010)

Diagnosis

With the common utilization of ultrasound in modern obstetrics, the diagnosis of twins is frequently made at the time of the first ultrasound. Chorionicity must be established in all twin gestations and can be most effectively determined at the first sonogram done early in the pregnancy; the optimal timing for determination of chorionicity is late first trimester or early second. Findings that indicate dichorionic twins include visualization of two placental disks, dividing membrane that is >2mm thick or has 3-4 layers, visualization of the twin peak or lambda sign (triangular projection of the placenta between the layers of the dividing membrane), and discordant genders. (Cunningham et al.,

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2010) Monochorionic twins should be referred to a Maternal Fetal Medicine specialist for consultation and management.

Management

Prenatal care provided to women with twin pregnancies should follow APEC Guidelines for Routine Prenatal Care with the incorporation of the specific management and interpretation guidelines listed below.

Frequency of visits

- Dichorionic twin gestations should be seen every 3-4 weeks for routine care beginning at 16 weeks; in the absence of pregnancy complications, conduct ultrasound surveillance of growth at 4-6 week intervals beginning at 18-20 weeks.
- Monochorionic twin gestations should be followed at 2 week intervals; conduct ultrasound surveillance of growth at 2 week intervals beginning by 16 weeks with careful attention to signs of twin-twin transfusion syndrome.

Prenatal diagnosis

First and second trimester markers for aneuploidy screening are approximately twice as high in twin pregnancies as in singleton pregnancies, making it difficult to determine which fetus is responsible for an abnormal analyte concentration, however, serum screening can be performed to estimate risk. Nuchal translucency measurement of each fetus is a reasonable alternative for aneuploidy screening in multiple gestations. (D'Alton M. E. , 2010)

Maternal serum alpha-fetoprotein levels are approximately double in twins compared to singletons. A level greater than 4.0 MoM should be referred for a targeted scan to assess for neural tube and ventral wall defects. (D'Alton M. E. , 2010) Since monochorionic twins have an increased risk of congenital anomalies, a targeted ultrasound is recommended regardless of any other screening test results.

Medications and nutritional requirements

Women with multiple gestations have additional requirements for calories, protein, minerals, vitamins, and essential fatty acids. Consumption of energy sources should in general be 3000 Kcal/day.

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Weight gain recommendations for twin pregnancies are based on pre-pregnancy BMI as listed in the table below. (Luke B., 2011)

Pre-pregnancy BMI	Overall weight gain at 20 weeks (lbs)	Overall weight gain at 28 weeks (lbs)	Overall weight gain at 38 weeks (lbs)
≤19	25-35	37-51	50-66
20-24	20-30	30-46	40-56
25-29	20-25	28-37	38-47
≥30	15-20	23-28	31-36

Given the increased risk for severe anemia due to Fe and Folate deficiency, supplementation with 60-100 mg/day of elemental iron (ferrous sulfate 325 mg/day) and 1 mg/day of folic acid is recommended with potentially greater amounts of Fe with documented anemia. (Luke B., 2011)

Preterm birth prevention

Fifty percent of twin gestations are associated with preterm birth < 37 weeks gestation with an average gestational age at delivery of 35.3 weeks. A transvaginal ultrasound cervical length of <25 mm at 24 weeks is associated with an increased risk of preterm delivery before 32 weeks, however, there is no evidence that prophylactic cervical cerclage, prophylactic pessary, routine hospitalization, bed rest, outpatient uterine monitoring, or long term use of prophylactic tocolytic agents is effective in preventing preterm labor or prolonging pregnancy in multiple gestations and should not be used. (ACOG, 2014) Similarly, IM progesterone does not reduce the incidence of preterm birth in twin gestation and is not recommended. (ACOG, 2014; Rouse et al., 2007) There is no role for prophylactic use of any tocolytic agent in women with multifetal gestations, including the prolonged use of betamimetics for this indication. In the setting of acute preterm labor, a brief course of tocolysis may be considered for up to 48 hours to allow for corticosteroids and transport to a tertiary care facility. (ACOG, 2014) Given the lack of effective interventions for preterm birth prevention, routine cervical length screening is currently NOT recommended, but can be considered depending on the individual patient history. Magnesium sulfate reduces the severity and risk of cerebral palsy in surviving infants if administered when birth is anticipated before 32 weeks of gestation, regardless of fetal number. (ACOG, 2014) Women at risk for delivery between 24 and 34 weeks of gestation, should receive one course of antenatal corticosteroids unless a contraindication exists. (ACOG, 2014)

Preeclampsia

The incidence of preeclampsia is 2.6 times higher in twin gestations than singletons, therefore each clinic visit should include screening for signs and symptoms of hypertensive disease. If severe preeclampsia or HELLP syndrome develops before term, consider transfer to a tertiary care center.

Recommendations

- For monochorionic twin gestations, due to the increased risk of twin-twin transfusion syndrome, serial ultrasounds for fluid and growth should be started by no later than 16 weeks gestation and be repeated every 2 weeks. In addition, a targeted ultrasound and consultation with a MFM specialist should be obtained. In any case in which a monochorionic monoamniotic gestations is suspected, MFM consultation should be sought as soon as possible.
- For uncomplicated dichorionic diamniotic twins, serial ultrasounds should be performed at 4-6 week intervals beginning at 18-20 weeks to assess for IUGR and discordance in twin pairs. Estimated fetal weights that differ >20% are likely to be discordant and may require management adjustment and consultation with a MFM specialist.
- There is no role for the prophylactic use of any tocolytic agent in women with multifetal gestations, including the prolonged use of betamimetics for this indication. In the setting of acute preterm labor, a brief course of tocolysis may be considered for up to 48 hours to allow for corticosteroids and transport to a tertiary care facility. (ACOG, 2014)
- Interventions, such as prophylactic cerclage, prophylactic pessary, routine hospitalization, and bedrest have not been proven to decrease neonatal morbidity or mortality and should not be used in women with multifetal gestations. (ACOG, 2014)
- Women at risk for delivery between 24 and 34 weeks of gestation, should receive one course of antenatal corticosteroids unless a contraindication exists. (ACOG, 2014)
- Magnesium sulfate reduces the severity and risk of cerebral palsy in surviving infants if administered when birth is anticipated before 32 weeks of gestation, regardless of fetal number. (ACOG, 2014)
- Women with one previous low transverse cesarean delivery, who are otherwise appropriate candidates for twin vaginal delivery, may be considered candidates for a trial of labor after cesarean delivery. (ACOG, 2014)

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- Provide nutrition education for 3000 Kcal/day and supplement diet with 60-100 mg/day of elemental iron (ferrous sulfate 325 mg/day) and 1 mg/day of folic acid.
- Since several studies have noted an increased stillbirth rate in twin pairs in the third trimester, antenatal testing should be initiated for all twins by 32 weeks or earlier for discordant growth or other conditions (IUGR).

Delivery

Due to the increased risk of perinatal mortality, delivery at 38 weeks (no later than 39 weeks) in dichorionic twins should be considered as long as the pregnancy remains uncomplicated.

Uncomplicated monochorionic twins should be delivered at 37-38 weeks. Delivery plans should be individualized for those with complicated twin pregnancy.

Several factors should be considered when determining the route of delivery for a patient with a twin pregnancy including gestational age, EFW, fetal presentation, and availability of an obstetric provider skilled in breech delivery. For twins that are vertex/vertex, it is reasonable to plan for a vaginal delivery. Vertex/non-vertex route of delivery should be determined by EFW and provider experience. If the first twin is presenting vertex, it is reasonable to offer a trial of vaginal birth. If the second twin is non-vertex, a breech extraction can be considered if:

- A provider experienced in breech delivery is present
- EFW is ≥ 1500 grams
- Inter-twin EFW discordance is $< 20\%$

Non-vertex/vertex or non-vertex/non-vertex should be delivered by cesarean section.

Decision to offer cesarean delivery should be individualized.

Quality Indicators/Benchmarks

- Delivery at appropriate facility
- Antenatal corticosteroids preterm if labor < 34 weeks

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