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Editorial

Editorial Note on Umbilical Cord Problems

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EDITORIAL

There are a variety of medical issues that can limit umbilical cord function. These include the following:

Umbilical cord compression

Umbilical cord compression occurs when pressure prevents the flow of oxygenated blood through the umbilical cord. Minor, periodic compressions are normal during uterine contractions. However, if the cord is compressed more than is typical, the baby can become brain damaged from oxygen deprivation, receive inadequate nutrition, or experience fetal acidosis (caused by an accumulation of carbon dioxide in the baby's blood). A variety of complications can lead to cord compression, including nuchal cords, true knot and cord prolapse.

Nuchal cords

A nuchal cord is a complication that occurs when the umbilical cord wraps around the baby's neck one or more times. This is common and occurs in about 15 to 35 percent of pregnancies. Often, nuchal cords do not impact pregnancy outcomes. However, certain types of nuchal cords can pose a significant risk to the baby. Nuchal cords can interrupt normal blood, nutrient, and oxygen exchange. This can lead to a variety of birth injuries, including hypoxic-ischemic encephalopathy (HIE), a form of brain damage caused by oxygen deprivation around the time of birth.

True knots

When the umbilical cord forms a true knot, severe cord compression can occur, which can lead to serious birth injuries. Decreased fetal activity after 37 weeks of gestation is a common sign of a true knot. A nonreassuring heart rate will occur when the knot is serious enough to cause a lack of oxygen to the baby's brain.

Umbilical cord prolapse

An umbilical cord prolapse occurs when the cord begins to slip through the birth canal ahead of (overt cord prolapse) or alongside (occult cord prolapse) the baby. Cord prolapse is a very dangerous complication because it can lead to cord compression (when the cord is pressed between the baby's presenting part and the birth canal), birth asphyxia, and a variety of other serious birth injuries. Medical professionals should be alert to the possibility of a cord prolapse, and prepared to intervene quickly if needed. They should be especially cautious when managing a pregnancy involving a cord presentation in the third trimester. Cord presentation describes a situation in which the umbilical cord is positioned between the baby and the birth canal. If this occurs prior to 32 weeks, it may resolve on its own, but if it occurs in the third trimester, intervention will likely be necessary. Doctors should carefully monitor the baby's health and be prepared to perform an emergency C-section if the problem persists. With careful medical management, serious birth injuries and permanent disabilities can often be avoided.

Prevention of umbilical cord problems

When umbilical cord function is impaired, the baby wills likely exhibit signs of fetal distress (oxygen deprivation). These signs may be recognized through fetal heart rate monitoring (a "non-reassuring" heart tracing indicates distress) and a variety of other prenatal tests. If a baby is in distress, the medical team should intervene quickly. In many cases, an emergency C-section will be necessary. Physicians should always be prepared for this possibility.

Diagnosing umbilical cord problems before they cause birth injuries

Problems with a baby's umbilical cord can often be diagnosed during prenatal testing. It is the standard of care to perform ultrasound exams of the umbilical cord during the second trimester or earlier if the mother has certain risk factors. In addition, if there is a long-term (chronic) umbilical cord problem that is causing oxygen and nutrient deprivation, prenatal tests may show decreased fetal movement and intrauterine growth restriction (IUGR). Dangerous umbilical cord problems and evidence of poor fetal well-being are almost always indications for early delivery. Any signs of fetal distress (oxygen deprivation) should also be taken very seriously.

Treating injuries caused by umbilical cord problems

When umbilical cord complications cause hypoxic-ischemic encephalopathy (neonatal brain damage resulting from oxygen deprivation), doctors can treat the baby with therapeutic

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hypothermia (brain cooling). During therapeutic hypothermia, the baby's core body temperature is cooled to a few degrees below normal for 72 hours. Most guidelines dictate that this treatment must be given within six hours of the insult (usually birth asphyxia) that caused the HIE, which often means it must be given within six hours of birth. Research shows that therapeutic hypothermia halts almost every injurious process that starts to occur when the brain experiences a hypoxic-ischemic insult. It can prevent a baby with HIE from developing cerebral palsy, or it can reduce the severity of cerebral palsy.