Macrosomia

Macrosomia is a term used in obstetrics and gynecology to describe large fetuses/infants. There is great debate over what constitutes a macrosomic fetus, and the significance of this is directly related to adverse fetal and maternal outcomes in pregnancy. There are wide variations in birth weight across the world, but the incidence of macrosomic fetuses appears to be fairly small. While the incidence of greater than 4000 gram (approximately 8 pound infants) is approximately 5%, the incidence of greater than 4500 gram infants (approximately 9 pound infants) is approximately 0.5 to 1%.

Q. What is macrosomia?

A. Macrosomia is a general term used to describe a pregnancy in which the fetus/infant is large. The difficulty with the term macrosomia involves the difficulty in defining a large infant. After much debate the American College of Obstetrics and Gynecology has defined macrosomia as any fetus who weighs 4500 grams or greater at birth.

Q. Who is at risk of macrosomia?

A. There are several factors that may put you at increased risk of having a macrosomic infant. Although most women with these risk factors have normal weight infants, this is something to consider if you fall into one of these categories.

- Postdates pregnancy - this is a pregnancy that goes beyond 42 weeks gestation. You must keep in mind, however, that most women with postdates pregnancies do not have macrosomic infants, and only about 10% of macrosomic infants can be attributed to postdatism.
- Obesity - large women have been shown to consistently have large infants. For example, women who weigh 300 pounds prior to pregnancy have approximately a 30% risk of giving birth to a macrosomic infant.
- Macrosomia in the past - women who have given birth to macrosomic infants in the past are at significantly higher risk of subsequent large infants. If you have delivered an infant weighing more than 4000 grams in the past, you will be at significant risk of delivering a large or larger baby again.
- Multiparity (having delivered more than one baby) - multiparity has been associated with macrosomic infants.
- Male infant -Male infants have a significantly higher risk of being macrosomic as compared with female infants. When looking at all macrosomic infants, well over half have been male.
- Gestational diabetes - Gestational diabetes is one of the risk factors for macrosomia most widely recognized both by the medical community and by patients. Your physician will screen for gestational diabetes at approximately 26

to 30 weeks into your pregnancy. This test is done by giving you a bottle of liquid (similar to a soda) that you will be asked to drink in 5 minutes. This bottle has 50 grams of sugar in it. Your doctor will measure your blood sugar level one hour after you drink the liquid. If your blood sugar value is greater than 140, you will be asked to take a more specific and detailed test. If the values on this test are still high, you will be classified as having gestational diabetes. Because of your abnormal metabolism of sugar, more sugar will be available to your infant, and therefore you will be at risk of having a large infant.

Complications of Macrosomia

Macrosomia can cause potential complications for both the mother and the infant. The most significant for the mother is the risk associated with cesarean section. Mothers of macrosomic infants are at higher risk of having abnormal labor patterns, with subsequent inability to adequately dilate their cervix, and therefore an increased risk of cesarean section. Risks associated with cesarean section include infection, bleeding, and damage to nearby organs, including the bowel, bladder, and the ureters (organs that carry urine from the kidneys to the bladder).

Potential risks for macrosomic infants include direct injuries at birth and injuries related to asphyxia. The most common direct injury to the macrosomic infant at birth is called a brachial plexus injury. This type of injury occurs when excessive pressure is placed on the nerves in the axillary (shoulder and armpit) region. Injury to the brachial plexus causes inability to move the arm. Most injuries to the brachial plexus resolve by about 1 year. About 5% of infants with shoulder dystocia related to macrosomia end up with permanent brachial plexus injury. Other injuries that can occur at the time of birth include clavicle fracture (part of the collar bone) and fractures of the humerus (a large bone in the upper arm). Neither of these injuries usually results in permanent damage.

Asphyxial injuries related to macrosomia remain debatable. Macrosomic infants generally have lower Apgar scores, presumably because there is often a long delay in delivering macrosomic infants.

Prevention of Shoulder Dystocia/Fetal Injuries

The biggest risk associated with macrosomia is shoulder dystocia (difficulty delivering the infant's shoulders after the head has already been delivered) with resultant fetal injury. Therefore, if you are at risk of having a macrosomic infant, your physician may take several precautionary measures to decrease the chance of injury to you or your infant. Initially, your physician may discuss the possible benefit of cesarean section to prevent potential birth injury from a vaginal delivery. Several factors will weigh into this decision including the estimated weight of your infant and whether you have diabetes in pregnancy.

If shoulder dystocia does occur, your physician may perform several maneuvers to facilitate safe delivery of your infant. First, he or she will have you raise your thighs to your chest in what is called the McRobert's maneuver. This opens the size of the pelvic outlet, therefore making delivery of your infant easier. If your physician still has trouble delivering your infant, he or she will ask an assistant for suprapubic pressure. This involves the assistant pushing downward with a fist just above your pubic bone. This will help push a wedged fetal shoulder down and out. At this point

if your physician is still having difficulty delivering the baby he or she may ask for further assistance from another obstetrician in the hospital. Several additional maneuvers may then be performed by your physician including cutting a large episiotomy to help deliver your baby. Even with the above described maneuvers, your infant may still suffer injury.

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