Multiple Gestations

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There are two things in life for which we are never fully prepared: twins.

—Josh Billings

Learning Objectives:
1. Describe the theories behind the changing epidemiology of multiple births in the US
2. Discuss the specific medical and developmental risks facing infants from multiple gestations
3. Provide anticipatory guidance about developmental struggles and strategies for children of multiple births
4. Anticipate and intervene in cases of post-partum depression for parents of multiples

Primary Reference:
   http://pedsinreview.aappublications.org/content/28/3/e9

CASE ONE:

You are meeting a new family today for a “meet and greet” prenatal visit. The Multy-Paris couple is seeking a primary care provider for their unborn twins. Mrs. Multy-Paris is currently 22 weeks pregnant with the couple’s first children, a twin gestation. You start off by congratulating them and welcoming them to your practice, and then you ask about the pregnancy thus far. Mrs. Multy-Paris replies “they are both boys, but one is significantly bigger than the other one. Otherwise my doctors think they might be identical because they have the same placenta.” Mr. Multy-Paris chimes in “That big guy will be my linebacker.” You pause for a moment as you recall your OB rotation, recalling that size discrepancy might not be such a joking matter.

1. What are some of the specific antenatal and perinatal risks of twin gestation pregnancies for both the mother and fetuses?

Multiple gestations have long since fascinated mankind and twins or higher order multiples are often the subject of folklore and literature. However, the reality of multiple gestation pregnancies is often more difficult than parents expect. Some women with multiple gestation pregnancies suffer more significant physical symptoms of pregnancy, including excessive fatigue, nausea, and significant weight gain. They are also at increased risk for gestational diabetes and pre-eclampsia, the latter being implicated in many cases of preterm birth for multiple gestations.

Preterm birth is much more common in multiple gestations compared with singleton pregnancies, so much so that the majority of twin gestations are born before 37 weeks of gestational age. A general rule of thumb is to subtract 3-4 weeks of gestation for every additional fetus carried by a woman (so a woman bearing twins would expect to deliver at 36-37 weeks, triplets at 32-34 weeks, etc.). Aside from the increased risk of pre-eclampsia necessitating induction, this preterm labor is mostly postulated to be secondary to stretching of the uterus in accommodating additional infants. Because of prematurity, approximately 25% of twins, 75% of triplets, and 100% of higher order multiples require admission to the neonatal intensive care unit (NICU). Women with multiple gestations are also at risk for maternal peri-partum and post-partum complications at a rate of 6 times that for singleton pregnancies (e.g., pre-eclampsia, urgent C-section, hemorrhage).

Monochorionic/monoamnionic twins are at much higher risk for multiple life-threatening intrauterine complications including twin-twin transfusion syndrome, umbilical cord entanglements, and intrauterine growth restriction (IUGR) related to some of the vascular complications noted above. Twin-twin transfusion occurs when bridging vessels form between fetuses allowing for abnormal blood
flow between the two. This can result in unequal growth as well as severe vascular events for both donor and recipient twin.

Birth is also much riskier for multiple gestations: it is estimated that 4/1000 vaginal twin births result in a significant anoxic event for the second twin born (compared with 1/1000 singleton births in resource-rich countries), often because of movement into the transverse or breech position after twin A has been delivered. However, there is no consensus recommending cesarean births for all twin gestations, and typically a model of shared decision-making is employed.

CASE continued:

After ensuring that the Multy-Paris couple has an experienced obstetrician, they begin to ask you about your experience in caring for families with "multiplets." Mr. Multy-Paris states, "It feels like all my friends know people with twins these days, so I'm sure you've got plenty of experience."

2. How common are twin and other multiple gestation pregnancies? Why are increased rates occurring?

The striking trend of increasing multiple births in the United States is more than just a feature of increased visibility. Between 1980 and 2009, the U.S. twin birth rate rose by 76% (from 1.9% to 3.3% of all births). Similar trends are also noted in many European countries. Rates of triplet and other higher order multiples have risen even more sharply; between the mid-1970s and 1998, the rate of higher order multiple births rose 696%. The major drivers of this increase include advanced maternal age (women between ages 40-44 are more than twice as likely to have twins as women between ages 20-24) and the rise of infertility treatments (with potentially a 10-fold increase in risk). These increases are all in the rate of dizygotic twin pregnancies, as monozygotic twinning is considered a random event without the clear influence of heritability or environmental factors. Given the maternal and fetal risks associated with multiple gestation pregnancies, many view this increase as a significant public health concern and the American Congress of Obstetricians and Gynecologists (ACOG) has specific policy statements encouraging strategies to reduce multiple gestation pregnancies (particularly higher order multiples) during in-vitro fertilization (IVF) therapy. IVF therapy currently results in multiple gestation pregnancies in approximately 25% of all successful implantations.

CASE TWO:

Later that day, you enter the room for a 2-month well child check for the Fussing twins – Nevah and Constance. Their mother looks frazzled when you enter the room as she tries to offer a bottle to a crying Constance while rocking a sleeping Nevah back and forth in the car seat with her foot. Mrs. Fussing tears up as soon as you walk in. The girls’ father is out of town for work, and she admits to feeling quite overwhelmed. She states that “no matter what, something seems to not be going right with these two.”

3. What are some of the unique challenges of twin infancies? How do rates of stress, depression, and anxiety in parents of multiple gestations compare to those of singletons?

Many of the unique challenges of caring for infants from multiple gestation pregnancies are predictable. Given the high rates of prematurity, many twins and triplets spend time in the NICU which can affect parental bonding, particularly if one infant is able to return home sooner than her sibling(s). Additionally, concerns around finances for supplies and childcare can be quite burdensome to families of multiple infants, and the stress of caring for more than one neonate at a time certainly can take its toll. Feeding can be a source of tremendous angst for new moms, particularly if there was concern for IUGR and prematurity. Though the AAP recommends exclusive breastfeeding, this is particularly challenging for twin moms. Tandem feeding (in which both infants are latched at once) is quite physically demanding on the mother, and many women do not attain adequate milk production for twin infants. For these reasons, exclusive breastfeeding is much less common in twin and higher order gestations (some studies estimate a ten-fold reduction in rates), though many women choose to
partially breastfeed their multiple infants. There is a robust online community for twin and other multiple parents, often with a heavy emphasis on strategies for full or partial breastfeeding, but the difficulties of breastfeeding multiples can be exceptionally stressful.

One study comparing parental stress patterns of twins with single infants found that nearly 25% of twin parents report severe parental stress (compared with 5% of single gestation families), and there are higher rates of divorce, spousal abuse, domestic violence and child abuse in families with twins or higher order multiples.

Both mothers and fathers of multiple gestations suffer depression in the post-partum and early childhood years (ages 0-5). Rates of depression and anxiety in the post-partum period differ, but multiple studies have estimated rates to be 18-25% in mothers of multiples, 2-3 times the rate for singleton pregnancies. Fathers also experience more depression, stress, and anxiety than their peers from single gestation pregnancies, but in most studies their psychiatric symptoms are less pronounced than those of the mother.

CASE continued:

Mrs. Fussing goes on to confess that she is worried that she is not providing a good developmental environment for her twins. She feels that she doesn’t have time to read to them or talk to them individually as much as her cousin reads and talks to her only son. She is worried that Nevah and Constance won’t do as well in school and beyond because of the limitations of the time she can spend with them now.

4. What specific developmental challenges do twins face?

Undeniably there are higher rates of cognitive disability and autism spectrum disorder (ASD) in children from multiple gestations, but much of this effect is attributable to the higher rates of preterm birth and perinatal health issues. In studies that have only examined very-low birth weight (VLBW) infants (<1250g), the effect magnitude of twinning on troublesome developmental outcomes is far less significant and these infants have similar rates and severity of cognitive impairment to their singleton peers. This finding argues against an intrauterine process leading to cognitive impact. The data are conflicting in studies of infants born at term or near term, often using a singleton sibling of twins as a control; when an effect has been found, the magnitude is relatively small (2-6 IQ points). Regarding ASD, there are yet to be any studies that control either for prematurity or for increased parental age, each of which are known risk factors for both multiple gestations and ASD.

The data about subtler developmental and behavior challenges for twins is similarly conflicting. Some studies have shown a small language delay, particularly for male-male twin pairs. These same studies have also demonstrated that twin children have fewer direct interactions with their parents than age matched controls. Other studies have failed to show any difference between twin children and their peers in language and cognitive development. One struggle in this research is the untangling the effect of twinning from the effect of prematurity, NICU stays, and parental mental health. When these confounders are adequately controlled for, most studies find minimal if any effect of twinning alone on language development or early childhood behavior.

Many families and pediatric providers may reference the concept of “the twin secret language” as an explanation for delayed language development. There is a phenomenon of a temporary “language,” typically in the second year of life, characterized by reinforced immature speech patterns that are traded between the twin siblings. Persistence of a twin “secret language” beyond age 3 is very rare and typically associated with significant developmental or cognitive impairments. Twins with exposure to other young children (either older siblings or daycare classmates) are less likely to develop this shared immature speech pattern, but its presence or absence is not cause for concern in the otherwise normally developing twin toddlers.

Parents may also be concerned that their twins may suffer social and emotional ill-effects related to problems of individual identity development and self-esteem in later childhood. In fact, many school systems and recreational sports groups have rigid regulations about placement of the twins into separate environments, likely believing that twins will thrive more if not placed in situations where
they are compared to one another. The reality of twins’ social and emotional development is much more complex, however. Much observational data show that twin siblings who are in separate classrooms have lower reading scores and emotional challenges than those who are in the same classroom. Though these studies have obvious residual confounding, they serve to argue against regulations regarding separation of twin siblings in schools and other environments. Interestingly, many social science studies also imply that twinship may confer a social advantage later in life. Peers have rated adolescent twins as being more socially adapted than singleton children, possibly because of an earlier demand for pro-social behavior in twin childhoods.

5. Aside from the issues discussed above, what other anticipatory guidance might you provide to parents of multiples?

There are a few practical concerns that will often arise in well child visits for multiple children. Sleep can be a source of tremendous strife, and desperate parents will often ask about strategies to help their infants sleep through the night. One popular myth is that placing the infants in the same crib will increase their emotional self-regulation and allow for easier self-comforting. This has actually been studied in NICU settings and no physiologic evidence of benefit was noted. Placing two infants in one crib is also counter to safe-sleep practices, as the risk of sudden unexplained infant death, including SIDS, is increased in any co-sleeping situation (including with a twin or other sibling child). The recommendations for safe sleep dictate a separate sleep environment for both infants.

Parents will also often ask about schedules, and whether it is beneficial to attempt to place the infants on the same schedule for sleeping, eating, and so on. There is no evidence of benefit or harm to this practice, and each family can make their own decisions depending on their priorities and available resources. Like “sleep training,” the strategy that works for twin sleep patterns varies between families, and parents should feel comfortable knowing that there is no known correct approach.

As with all siblings, the recommendation to make time for each child individually is generally recommended from infancy and beyond. This can help with bonding, as well as emotional regulation and feelings of individuality for each child. Twin children, as with all children, develop at their own pace, and the development of their preferences, personalities and identities is informed by their environment. The presence of a twin sibling is a unique feature of that environment which brings with it both benefits and challenges (as is the case of all siblings). Parents should be encouraged to nurture their children’s individuality, as well as the bond between siblings, as both are important to the long term emotional health of children, whether they are the product of a multiple gestation or not.

Additional References:

Resources:
1. Information for parents of multiples, including links to support groups.  
   http://www.multiplesofamerica.org/