Life After Aortic Dissection: Pregnancy and Family Planning

Dr. Melissa Russo discusses contributing factors, an approach to diagnosing aortic dissection in the pregnant patient, an algorithm for management, common misconceptions, and counseling and surveillance of patients with known heritable thoracic disease.

What contributing factors lead to an increased risk of aortic dissection (AD) during pregnancy?

During pregnancy and the postpartum period, women are thought to be at higher risk for AD. This is secondary to hormonal and cardiovascular changes that occur during pregnancy.

Symptoms of AD can be nonspecific and can mimic those of pregnancy. What is your approach to diagnosis of AD in the pregnant patient, and what imaging modalities are recommended to confirm the diagnosis?

There is overlap in symptoms of pregnancy and symptoms of an AD, including abdominal pain, chest pain, and back pain; however, if a person has a feeling of a sense of doom, altered mental status, weakness, or trouble breathing, AD should be considered. In addition, if pain is persistent and does not resolve, imaging should be considered to look for a rarer cause of pain, including AD.

If there is a high concern for AD, CT scan is the fastest imaging modality to evaluate for AD, and the dose of radiation from one CT scan is below the threshold of risk to the fetus. It is important to diagnose and treat ADs as soon as possible, as delays in diagnosis and treatment can be the difference between life and death. The mortality rate for untreated proximal AD increases 1% to 3% per hour following presentation.

Once diagnosed, what does the algorithm for management look like?

In terms of diagnosis of AD in pregnancy, management depends on the type of AD and how far along someone is in the pregnancy. Type A dissection is managed surgically, whereas type B dissection is usually managed with medications and tight blood pressure control. If a pregnant woman has type A dissection before 28 to 30 weeks of gestation, the baby remains in utero for the aortic surgical repair given the high risks of long-term complications from the prematurity of delivering the baby early. However, at > 28 to 30 weeks of gestation, the baby is usually delivered and the patient's aorta subsequently repaired. The decision to leave the baby in utero versus delivering the baby early is made by carefully weighing risks of prematurity versus risks of complications to the baby during maternal aortic surgery.

What are common misconceptions about pregnancy and heritable thoracic aortic disease?

A common misconception is that once someone has had aortic root repair, they are no longer at risk for aortic problems. Persons who have had type A dissection or prophylactic aortic root replacement are at higher risk for type B dissection in the future, and we have seen this happen in subsequent pregnancies. Some patients and physicians are not aware of this risk factor.

Another misconception is that all pregnant persons with heritable thoracic aortic disease need to have cesarean sections. Current guidelines for pregnancy recommend cesarean section for the highest-risk persons with these conditions; however, we have never really proven that cesarean section is safer than vaginal delivery. The safest method for delivery needs to be determined in collaboration with the high-risk obstetrician (maternal-fetal medicine specialist) and is based on a person's medical history and their heritable thoracic aortic disease. I have cared for many patients with these conditions who were able to have vaginal deliveries. We usually assist these deliveries with forceps or vacuum to decrease time pushing in labor.

For those with a history of AD or at risk due to heritable thoracic aortic disease, how do you counsel about future family planning? Are there nuances of genetic and preconception counseling that should be conveyed?

It is important for a person who has had AD or those at risk to meet with a maternal-fetal medicine specialist and their cardiologist/cardiovascular surgeons to talk about potential risks of pregnancy before trying to conceive.

Ultimately, it is the choice of the individual to become pregnant, but we want to ensure we have optimized their health prior to a pregnancy. With some heritable thoracic aortic diseases, there is a 50% chance of passing the disease on to each child, and therefore, it is important that inheritance risks are conveyed and understood prior to conception as well as the options for genetic testing at the embryo stage, during pregnancy, or after delivery.

For patients with known heritable thoracic aortic disease, what is your protocol for surveillance when they become pregnant? Who is involved in the multidisciplinary care team, and how do you optimize communication between team members?

We know that during pregnancy the aorta tends to grow a little bit, and we want to watch this closely during a pregnancy. We usually want to have either a CT scan or MRA within 1 year before they become pregnant. Then, echocardiography is usually performed each trimester, and MRA is sometimes performed during pregnancy without contrast, as that is safe during pregnancy. We also want to obtain imaging with either CT or MRA 3 to 6 months after a pregnancy.

The multidisciplinary team includes high-risk obstetrics (maternal-fetal medicine), cardiology, genetics/genetic counseling, anesthesia, cardiovascular surgery, and neonatology. The members of these teams should have close communication with the high-risk obstetrician who is "driving the ship" for decisions during the pregnancy.

What considerations should be given to mental health and well-being after pregnancy-associated AD?

This is a very important part of care because many who have survived an AD during or after pregnancy have trauma from the event. We have now started to incorporate mental health support and care for any persons who have experienced an AD, not just those who had depression or anxiety prior to diagnosis. Mental health support and check-ins are important for those who have had AD during pregnancy. ■

Melissa Russo, MD
Assistant Professor of Obstetrics and Gynecology
Division of Maternal-Fetal Medicine
Women & Infants Hospital
Director of Prenatal Genetics
Women & Infants' Prenatal Diagnosis Center
Providence, Rhode Island
mlrusso@wihri.org
Disclosures: Member of the professional advisory board for Marfan Foundation.