WCHOB Fetal Care Center is First Facility in the World to Use Doxycycline to Treat Fetal Chylothorax

The Fetal Care Center at Women & Children’s Hospital of Buffalo became the first facility in the world to use doxycycline, a type of antibiotic, to treat a fetus diagnosed with a rare congenital abnormality called chylothorax.

The procedure occurred late last week at the hospital. The patient, Jamie Reid, who is 32 weeks pregnant and due October 3 with her second son, is doing well.

Reid was at a regularly scheduled sonogram when her obstetrician noticed some abnormalities on the sonogram and referred her to the Fetal Care Center. “My husband and I were both very scared. We didn’t know what was causing it or what the outcomes would be. We really didn’t know too much until we got to the Fetal Care Center,” Reid said.

Initially diagnosed with excess amniotic fluid (polyhydramnios) and bilateral pleural effusions (an abnormal amount of fluid around the fetus’s lungs), maternal-fetal medicine specialists at the Fetal Care Center immediately performed a tap of the baby’s chest to remove the fluid. Biochemical testing on the fluid confirmed that the baby was suffering from chylothorax, a congenital abnormality of the thoracic duct which causes lymphatic drainage from the gastrointestinal tract in the lower half of the body to drain into the chest, compressing the lungs and causing the heart to shift.

“The diagnosis is quite rare. We only see one case every three to five years,” said Jeffrey Johnson, MD, Chief of Maternal-Fetal Medicine at the University at Buffalo and Medical Director of the Perinatal Center of Western New York and Co-Director of the Fetal Care Center at Women & Children’s Hospital of Buffalo.

In the past, chylothorax would typically be treated by placing a shunt into the fetal chest using a metal trocar to pierce the chest and thread a plastic catheter through the center of a tube and into the chest. One end of the catheter would sit in the chest and the other end would sit in the amniotic fluid to create a permanent drain for the fluid out of the chest.

“It’s a fairly morbid procedure because of the tools used and the risk of infection. It’s also common for the fetus to pull the drainage tube out prior to delivery,” explained Dr. Johnson.

Jody Lomeo, President and CEO of Kaleida Health said, “We are so proud of Dr. Johnson and the team at the Fetal Care Center. Today’s announcement is yet another example of the tremendous work that the physicians, nurses, and staff do every day at Women & Children’s Hospital. The beneficiary of their work is our community.”

Through a literature search of the latest and greatest treatments for chylothorax, Dr. Johnson learned that doctors in Europe and Australia are using a therapy that involves injecting a medication called OK-432 into the space once they drain the fluid off to create a scar between the surface of the lung and the thoracic cavity. Unfortunately, OK-432 is not FDA approved and therefore cannot be used in the United States.

After consulting with the Fetal Care Center’s team of pediatric surgeons on their treatment of newborns with chylothorax, it was determined that doxycycline, an antibiotic used to treat bacterial infections, would produce the same results as OK-432.

On Friday, August 7, under ultrasound guidance, Dr. Johnson placed Reid under conscious sedation and inserted a needle into one side of the fetal chest to drain the fluid, and then inject the doxycycline. “We had a premeasured dose that was calculated to use the minimal amount of fluid possible,” said Dr. Johnson. “After we injected the doxycycline into the first side, we pulled the needle out and performed a separate procedure on the other side of the fetal chest.”
A second injection was repeated on August 10 to ensure the fluid does not return.

“The long-term outcome looks pretty good at this point,” said Dr. Johnson. “The lungs have remained expanded and the heart is back in its normal place within the chest and is no longer displaced. Babies with chylothorax can sometimes have breathing difficulties through the first month or two of life in the Neonatal ICU, but beyond that they usually do pretty well.”

Allegra Jaros, President of Women & Children's Hospital of Buffalo said, "We are so lucky to be one of 43 communities in the country to have a standalone Children's Hospital; and the only standalone children's hospital in New York State. It is a privilege and it gives us the ability to recruit world class physicians like Dr. Johnson, which in turn, benefits the women and children of Western New York."

Reid and her husband are hopeful and confident that their son will grow up to live a healthy life. "I never worried about what doctor I would have or if they could do the job. Everyone in the Fetal Care Center just jumped right in, and they cared about me from the very start," Reid said. "They did what they had to do, and I was very confident right from the beginning. Dr. Johnson is a pretty smart guy. We feel very lucky."

The Fetal Care Center at WCHOB provides comprehensive, multidisciplinary care for women and families whose pregnancy is complicated by fetal abnormalities. As the regional quaternary referral center for complicated pregnancies in Western New York, our specialists provide coordination of care within a single site to ease the burden to families.

For more information on Maternal-Fetal Medicine at Women & Children's Hospital visit www.buffalobaby.org.