

DR. RODRIGO RUANO: Hello. My name is Rodrigo Ruano, and I'm the chair of the maternal fetal medicine division at Mayo Clinic in Rochester, Minnesota. Today, I'm going to talk about the prenatal therapy for twin to twin transfusion syndrome. Monochorionic diamniotic between pregnancies when we have one placenta and two amniotic sacs account for 20% of spontaneous twin pregnancies and almost 5% of medically assisted twin pregnancies.

20% of monochorionic diamniotic between pregnancies are complicated by twin to twin transfusion syndrome. The definition of twin to twin transfusion syndrome is based on increased amount of fluid in one sac that we call polyhydramnios and reduced amount of amniotic fluid in the other sac that we call oligohydramnios. In all monochorionic twin pregnancies, there are vascular connections on the placental surface between the two twins.

Usually, those connections are balanced. When those connections become imbalanced, there is blood flow preferentially to one of the twins. The twin who receives more blood is called the recipient twin. The other twin who receives less blood is called the donor twin. The recipient twin will have increased amounts of blood and volume inside the vessels.

Therefore, this fetus will urinate more to eliminate the excess volume causing the polyhydramnios. If the situation progresses, there is increased risk for cardiac failure and cerebral bleeding as well as demise. The donor twin on the other hand, has decreased amount of blood and volume inside the vessels. This twin will then reduce or stop urinating in order to preserve their volume inside the body.

Therefore, we will observe reduced amount amniotic fluid that we call oligohydramnios. If the situation progresses, this twin will have ischemic events in the heart and brain which might lead to death. The twin to twin transfusion syndrome is a severe situation with risk of pregnancy loss in approximately 80% if no prenatal treatment is performed.

There are different stages of the diseases, including stage 1, when we have polyhydramnios and oligohydramnios with a present bladder in the donor. Stage 2, when we have absent bladder in the donor. Stage 3, abnormal doppler studies. Stage 4, hydrops in one of the twins. And stage 5, we have death of one twin. A fetoscopic laser ablation is the treatment of choice for stage 2, 3, and 4 twin to twin transfusion syndrome.

We perform this procedure under local maternal anesthesia scheme, and we introduce a very tiny telescope called fetoscope inside the amniotic cavity of the recipient twin. Through direct visualization, we eventually find and ablate the anastomosis using diode laser.

By performing this procedure with adequate technique, nowadays, we are able to increase the chance of having two live babies in approximately 70%, 80%. For more information, please visit www.mayoclinic.org.