

BroadcastMed | Lowering Rejection Risk in Organ Transplants - Mayo Clinic

SPEAKER: For 12 years, this is the routine that Pete Giannaris has had to accept, kidney dialysis three times a week. As vital as it is, he admits it can wear a guy down.

PETE I mean, even myself, I knew that, man, you know, it's taken a toll on my body.

GIANNARIS:

SPEAKER: Pete has dealt with kidney disease most of his life, even receiving kidney transplants before. But this time was different. He was told he would almost certainly reject any donor organ.

PETE Not many people understand. Oh, you need a kidney, you get on the list. Two years later, you get your kidney,

GIANNARIS: you're fine. You know, that's not the story for everybody.

MARK STEGALL, MD: About 80% of people who've had a previous transplant have, actually, antibodies against other tissue types. They also could have been exposed to the foreign tissue types by a blood transfusion or even pregnancy.

ANISSA I was devastated, shocked, didn't really see it coming.

SWANIGAN:

SPEAKER: Pregnancy delivered a double blow to Anissa Swanigan. After giving birth a second time, her weakened heart condition advanced to heart failure. And complications scarred her liver so badly it was failing, too. Doctors told her she needed a double organ transplant.

ANISSA That's the only way you're going to survive.

SWANIGAN:

SPEAKER: She had two big reasons to survive, her two little boys. But again, high levels of antibodies made her a very poor transplant candidate. Antibodies are a good thing when they help us fight disease. Vaccines, for example, trigger our immune systems to create antibodies.

But for some of those waiting to receive lifesaving organs, Mayo Clinic transplant surgeon and immunology researcher, Mark Stegall, says antibodies become the enemy.

MARK STEGALL, MD: It's a big problem. There are about 9,000 people on the kidney transplant list in the United States right now who have really high levels of antibody to the point that they can't really get a transplant.

SPEAKER: Pete's in that category called the highly sensitized. So Dr. Stegall and his team did a variety of things in advance to tip the odds in his favor. They carefully selected a living donor for which Pete would have the fewest antibodies. Also, drug research has found a way to reduce antibody caused rejection rates from 40% to less than 10%.

MARK STEGALL, MD: One of the drugs that we were the first to use is a drug called eculizumab. If we give this drug, the antibody binds the kidney, but it doesn't cause the damage.

SPEAKER: He'd also went through numerous rounds of an antibody filtering process called a plasma exchange. Then, to try to halt the production of new antibodies in his bone marrow, Dr. Stegall turned to an FDA approved clinical trial at Mayo Clinic using a powerful drug.

MARK STEGALL, A drug called velcade, which is actually used in the treatment of cancers of these antibody secreting cells, but of course these are not cancer cells. These are normal cells.

SPEAKER: Anissa also underwent drug and plasma exchange therapies. But her antibody levels were so high, doctors worried her body might still reject the donor organs.

RICHARD DALY, By the time the liver went in, the heart would already be irreversibly damaged by the antibodies. So we reversed the process and did the liver transplant first.

SPEAKER: Why? Surgical Director of Heart and Lung Transplantation at Mayo Clinic, Dr. Richard Daly, says the liver filters antibodies. In combined kidney-liver or heart-liver transplants, his team had observed a reduction in antibodies to that donor.

However, in multiple organ transplants, hearts generally have to go in first, because their tissues are more time sensitive. How does the Mayo team get around that?

RICHARD DALY, Choreograph the whole process. We have to have the donor close enough by. We have to have the procurement done, and be really completely ready for the organs when they arrive.

ANISSA SWANIGAN: It seemed brilliant. [LAUGHS] Brilliant minds, that they collaborated, and they got together, and figured to how to do this thing.

PETE GIANNARIS: I took a chance. I didn't have anything else to lose. So either I stay on dialysis or a miracle happens and I get this kidney.

SPEAKER: Innovation that makes a world of difference, one patient at a time.