

Identical twin kidney transplants warrant gene sequencing, researchers say

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Using U.S. transplant registry data, clinical researchers at the University of Pittsburgh School of Medicine found that kidney transplants between identical twins have high success rates, but also high rates of immunosuppressant use.

Among 143 patients who received a [kidney](#) from their identical twin in the U.S. from 2001 to 2017, about half were on [immunosuppressant drugs](#) a year after the operation. Yet, [survival rates](#) were about the same regardless of whether patients were on immunosuppressants or not. The researchers propose guidelines for genetic testing and continued management of identical twin transplants. The final version of the paper was published today in the *American Journal of Transplantation*.

"Once you confirm that the organ donor and recipient are identical, that's really a best-case scenario," said lead author Dana Jorgensen, Ph.D., M.P.H., an epidemiologist at UPMC. "It's almost like getting a transplant from yourself because the tissue would be almost identical."

Twin transplants have a long history. In the 1950s, before the age of immunosuppressants, doctors tried [kidney transplantation](#) first with [identical twins](#) because the odds of rejection are close to zero.

Back then, doctors would graft a piece of skin from one twin to another to see whether the twins were, indeed, a perfect match before attempting to transplant a whole organ. Today, gene sequencing allows physicians to say with near certainty whether a pair of twins is identical or not, and the

researchers recommend using this test when preparing a transplant between suspected identical twins.

Although the researchers were surprised to see such a high rate of immunosuppressant use among the twins sampled for this study, Jorgensen pointed out that in many of these cases the physician may not have been confident that the twins were actually identical.

"One of the big things we noticed in researching this is that the patient will think they're an identical twin, but they've never been tested, so they don't know for sure," Jorgensen said. "Maybe doctors put these patients on immunosuppressants just in case."

Doctors also tend to use immunosuppressants for patients with glomerulonephritis—inflammation of the kidneys' tiny filters—due to fears that the disease would recur in the transplanted kidney. Transplanted kidneys did tend to fare slightly worse in patients with glomerulonephritis, the study showed, but there were not enough cases to draw conclusions about the benefits of immunosuppression for these patients.

Long-term [immunosuppressant](#) use leaves patients vulnerable to infections, cancer, diabetes and [high blood pressure](#), so it's best to avoid them for identical twin transplants if possible, said Sundaram Hariharan, M.D., medical director of kidney and pancreas transplant at UPMC, and senior author on the study.

"If you ask me, I'm very comfortable withholding immunosuppressants from a patient who receives a kidney from their identical twin," said Hariharan, who also is a professor of medicine and Robert J. Corry Chair of Surgery at Pitt. "Every [transplant](#) patient will have surveillance to quickly detect potential organ rejection. They can be put on immunosuppressants later if the need arises."

More information: Dana R Jorgensen et al, Epidemiology of End Stage Renal Failure among Twins; and Diagnosis, Management and Current Outcomes of Kidney Transplantation Between Identical Twins, *American Journal of Transplantation* (2019). [DOI: 10.1111/ajt.15638](https://doi.org/10.1111/ajt.15638)

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