

Study: Black kidney transplant patients exhibit faster clearance rates of key immunosuppressive medicine tacrolimus

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Kidney transplant survival is shorter, on average, in Black recipients compared to white recipients receiving similar treatment. Although Black people make up only 13% of the population, they represent 35% of patients with kidney failure in the United States, according to the

National Institute of Diabetes and Digestive and Kidney Diseases.

A variety of factors influence kidney transplant survival in Black recipients, including socioeconomics, genomics and attaining adequate blood concentrations of prescribed [immunosuppressive medications](#).

Black kidney transplant recipients have a faster clearance rate of the immunosuppressive drug tacrolimus than white recipients, according to a new study led by Kathleen Tornatore, PharmD, professor of pharmacy practice in the University at Buffalo School of Pharmacy and Pharmaceutical Sciences. The study, published earlier this year in *Pharmacotherapy*, is one of the first to examine how both race and sex influence tacrolimus pharmacokinetics (the study of how drugs move throughout the body).

Tacrolimus is an important drug for organ transplant survival that suppresses the [immune system](#), preventing [white blood cells](#) from attacking the transplanted organ. Most transplant recipients receive a combination of immunosuppressive drugs that consist of tacrolimus and mycophenolic acid, says Tornatore. To achieve recommended concentrations of tacrolimus in the body, clinicians often prescribe to Black kidney transplant patients higher doses of the drug than white recipients, she says.

Despite the difference in dosing, the long-term impact of race combined with sex on individualized tacrolimus dosing regimens has been understudied in people of color and women, says Tornatore.

"These study findings may guide individualized approaches to long-term tacrolimus dosing with consideration of both sex and race. These types of precision dosing regimens that consider race with sex may reduce adverse effects and enhance kidney transplant outcomes," says Tornatore.

The study examined 65 stable kidney transplant recipients—including men and women, and Black and white people—receiving tacrolimus for more than six months after transplant surgery. Black recipients received nearly 55% higher tacrolimus doses post-transplant than white recipients. Black patients also exhibited a more rapid tacrolimus clearance rate, which was two times faster in [black women](#).

Tacrolimus-related adverse effects were more evident in female recipients and were most prominent in Black women.

Future investigations will evaluate the [immune response](#) in kidney transplant recipients receiving long-term immunosuppressive medicines to prevent rejection, and the implications of age on the rates of clearance of these medications.

More information: Kathleen M. Tornatore et al, Race and sex associations with tacrolimus pharmacokinetics in stable kidney transplant recipients, *Pharmacotherapy: The Journal of Human Pharmacology and Drug Therapy* (2022). [DOI: 10.1002/phar.2656](https://doi.org/10.1002/phar.2656)

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