

COVID-19-vaccinated kidney transplant recipients are especially vulnerable to emerging SARS-CoV-2 variants

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Kidney transplant recipients tend to mount impaired antibody responses against emerging SARS-CoV-2 variants after standard two-dose

COVID-19 vaccination, according to new research published in *CJASN*. This is true even for transplant recipients with detectable antibody responses against the original SARS-CoV-2 strain in commercially available assays.

Because [kidney transplant recipients](#) are at high risk for SARS-CoV-2 infection and more severe COVID-19 disease, SARS-CoV-2 vaccination is strongly recommended in these patients. Studies indicate that kidney transplant recipients mount lower antibody responses following SARS-CoV-2 vaccination compared with healthy individuals, however. As most of these studies were performed when SARS-CoV-2 wildtype and B.1.1.7 (alpha) strains were the predominant variants, it's unclear whether the findings translate to the current situation with the emerging variants of concern B.1.351 (beta) and B.1.617.2 (delta).

To investigate, a team led by Claudius Speer, MD (Heidelberg University Hospital, in Germany) conducted a prospective two-center study of 173 kidney transplant recipients and 166 healthy controls with different SARS-CoV-2 vaccination schedules between December 2020 and June 2021.

Following vaccination, fewer kidney transplant recipients developed neutralizing [antibodies](#) against SARS-CoV-2 than healthy controls. After the second [vaccine](#) dose, anti-S1, anti-receptor-binding domain, and surrogate neutralizing antibodies—all different types of antibodies against various aspects of SARS-CoV-2—were detectable in 30%, 27%, and 24% of kidney transplant recipients, respectively. This compared with 100%, 96%, and 100% in healthy controls.

Neutralization against B.1.1.7 (alpha) was detectable in all 36 of 173 kidney transplant recipients who mounted antibody responses against the original SARS-CoV-2 strain. However, when these 36 kidney transplant recipients were tested for their [antibody responses](#) to emerging variants

after vaccination, only 64% and 67% showed neutralization against B.1.351 (beta) and B.1.617.2 (delta), respectively. Neutralization against different variants was significantly higher in healthy controls, with all individuals showing neutralization against all tested variants.

"We discovered that a large proportion of kidney transplant recipients is not adequately protected against the emerging variants B.1.351 (beta) and B.1.617.2 (delta) with the standard vaccination regimens currently used in the healthy general population," said Dr. Speer. "Additional vaccinations appear to be required in kidney transplant recipients to maintain high levels of neutralizing antibodies, especially when B.1.617.2 (delta) or other variants with partial escape from neutralizing antibodies are prevalent."

An accompanying editorial notes that additional strategies beyond booster shots are needed to protect kidney transplant recipients who do not respond to the standard 2-dose vaccine regimen. "In the absence of seroconversion, the use of anti SARS-CoV-2 monoclonal antibodies might be the solution to protect this fragile population against the emergence of variants of concern," the authors wrote.

An accompanying Patient Voice editorial provides the perspective of a patient who has been living with a kidney [transplant](#) for 25 years.

More information: "Neutralization of SARS-CoV-2 Variants of Concern in Kidney Transplant Recipients after Standard COVID-19 Vaccination," *CJASN*, [DOI: 10.2215/CJN.11820921](https://doi.org/10.2215/CJN.11820921)

"Protection Against SARS-CoV-2 Variants with COVID-19 Vaccination in Kidney Transplant Recipients," *CJASN*, [DOI: 10.2215/CJN.14881121](https://doi.org/10.2215/CJN.14881121)

"An Honorable and Ongoing Fight—Protecting Organ Transplant Recipients against COVID-19 in the Age of Disinformation," *CJASN*,

[DOI: 10.2215/CJN.15071121](https://doi.org/10.2215/CJN.15071121)

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