

EDITORIAL

COVID-19 Vaccines in the Transplant Population

As a completely new pathogen, the SARS-CoV-2 virus entered the scene and began quickly spreading globally in late 2019 and early 2020. It has been a challenging virus to study, and its impact has been particularly devastating on people with comorbidities and preexisting conditions. Three vaccines currently have emergency use authorization (EUA) in the United States. There is little data about how kidney transplant recipients will react to the vaccine, whether enough antibodies will form, and whether the vaccine would compromise the allograft.

The American Society of Transplantation (AST) published a vaccine FAQ sheet¹, with guidelines and information about giving the COVID-19 vaccine to transplant patients. The studies leading to the EUA reported efficacy data for healthy populations, but the most vulnerable populations were not studied in depth. No transplant recipients took part in the phase 3 studies for the Moderna, Pfizer or Johnson & Johnson vaccines.

What is known about COVID-19 vaccines and the transplant population

As a new platform using mRNA, side effects are a potential issue for the Moderna and Pfizer vaccines. The J&J vaccine relies on a previously used platform. Here is some preliminary data from transplant patients who received their first doses of either the Moderna or Pfizer vaccines.

Reactions to first doses by transplant patients:

The AST FAQ shared data from transplant patients who received the first dose of Moderna or Pfizer vaccines under the EUA, based on research conducted at Johns Hopkins University.² The FAQ noted that “based on their mechanism of action, expert opinion is that these vaccines are unlikely to trigger rejection episodes or have novel or more severe side effects in transplant recipients, but more data will be needed...” They shared preliminary data³ from 187 SOT (solid organ transplant) recipients receiving their first Pfizer or Moderna vaccine.

- **About half (52%)** of those studied were kidney transplant recipients.
- **Researchers reported** giving the Pfizer and Moderna vaccines to SOT patients in equal numbers, with no reported graft rejection.
- **Patients had** low levels of local side effects including 61% experiencing pain, 7% experiencing redness, and 16% with injection-site swelling.
- **Systemic side effects** include fever in 4%, chills in 9%, fatigue in 38%, headaches in 32%, and myalgias in 15%.

The AST shared preliminary data for another Johns Hopkins study⁴, which included 436 organ transplant patients.

- 48% were kidney transplant recipients.
- This study showed that after the first mRNA vaccine dose, 17% overall produced antibodies to the spike protein a median of 20 days after the first dose, including 14% of kidney transplant recipients.
- Of those producing antibodies, 41% were kidney transplant recipients.
- They do not have data following the second dose.

ANTIBODY, NO. (%)

TYPES OF ORGAN TRANSPLANT^h	DETECTABLE (N=76)	UNDETECTABLE (N=360)
Kidney	31 (41)	188 (53)
Liver	28 (37)	50 (14)
Heart	9 (12)	57 (16)
Lung	4 (5)	45 (13)
Pancreas	1 (1)	4 (1)
Other (multiorgan)	2 (3)	12 (3)

The AST recommends that based on prior vaccination guidelines for solid organ recipients:

- **All transplant candidates** and household members should receive a COVID-19 vaccination when available.
- **Transplant candidates** should be vaccinated while awaiting transplant, preferably at least 2 weeks before the procedure, or at least 1 month after transplantation.
- **Patients receiving** T- or B-cell ablative therapy (anti-thymocyte globulin or rituximab) at transplant time may want to wait 3 months.

REFERENCES

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