



# PRESS RELEASE

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## STUDY EXAMINES IMMUNE RESPONSES IN PATIENTS WITH KIDNEY FAILURE AFTER RECEIVING DIFFERENT COVID-19 VACCINES

*Results may help improve vaccination strategies in vulnerable patients.*

### Highlights

- Individuals with kidney failure who were on dialysis had an incomplete and delayed antibody response and a blunted cellular immune response following COVID-19 vaccination, compared with people with normal kidney function.
- Immune responses were substantially stronger with the Moderna mRNA-1273 vaccine than with the PfizerBioNTech BNT162b2 vaccine. A variety of other characteristics also predicted the strength of patients' immune responses following vaccination

**Washington, DC (November 23, 2021)** — Death rates from COVID-19 are especially high in individuals with kidney failure who are on dialysis, making SARS-CoV-2 vaccination in this population a high priority. A recent study compared the immune responses of patients with and without kidney failure following immunization with different COVID-19 vaccines. The findings, which are published in *JASN*, may help improve vaccination strategies in vulnerable patients.

Individuals on dialysis typically have an impaired response to vaccination. To better understand the predictors and dynamics of their antibody and cellular immune responses to different SARS-CoV-2 vaccines, a team led by An S. De Vriese, MD, PhD (AZ Sint-Jan Brugge, in Belgium) prospectively evaluated responses at 4 or 5 weeks and again at 8 or 9 weeks after immunization with the Pfizer-BioNTech (BNT162b2) and Moderna (mRNA-1273) mRNA vaccines in 543 patients on hemodialysis and 75 individuals with normal kidney function.

In the multicenter study, the researchers found an incomplete and delayed antibody response and a blunted cellular immune response to vaccination in patients on hemodialysis. However, responses were substantially stronger with the mRNA-1273 vaccine than with the BNT162b2 vaccine (in both individuals with kidney failure and those

with normal kidney function). The researchers believe that this may be due to the higher mRNA dose in the mRNA-1273 vaccine than in the BNT162b2 vaccine. “These differences in immune response may translate into differences in vaccine effectiveness in vulnerable populations in the long-term, when protective immunity is waning and in the battle against the Delta variant,” said Dr. De Vriese.

In addition, patients on hemodialysis who had a prior COVID-19 infection, did not take immunosuppressive drugs, had higher serum albumin levels and lymphocyte counts, had previously responded to hepatitis B vaccination, and were on dialysis for only a short amount of time had higher antibody and cellular immune responses.

“We believe that a high-dose vaccine may be a valid strategy to improve SARS-CoV-2 vaccine effectiveness in hemodialysis patients. The most vulnerable patients—those who are using immunosuppressive drugs, have a low serum albumin, a low lymphocyte count, are hepatitis B vaccine non-responders, or have a high dialysis vintage—may be good candidates for a third vaccine dose,” said Dr. De Vriese.

Study co-authors include Jens Van Praet MD, PhD, Marijke Reynders, MD, Dirk De Bacquer, PhD, Liesbeth Viaene, MD, PhD, Melanie K. Schoutteten, MD, Rogier Caluwé, MD, PhD, Peter Doubel, MD, Line Heylen, MD, PhD, Annelies V. De Bel, MPharm, Deborah Steensels, PharmD, PhD, and Bruno Van Vlem, MD, PhD.

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The article, titled “Predictors and dynamics of the humoral and cellular immune response to SARS-CoV-2 vaccination in hemodialysis patients: a multicenter observational study,” will appear online at <http://jasn.asnjournals.org/> on November 23, 2021.

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