

Immunocompromised dialysis patients could benefit from third doses of mRNA COVID-19 vaccine

August 13 2021



Credit: Unsplash/CC0 Public Domain

Patients receiving in-hospital dialysis treatment for kidney disease produce a larger neutralizing antibody response when given the Pfizer-

BioNTech COVID-19 vaccine, compared to the Oxford-AstraZeneca vaccine, according to laboratory findings published today (Thursday) as a Correspondence in *The Lancet*.

It is reported that immunocompromised patients will be prioritized to receive a third dose of [vaccine](#) in the autumn, so researchers have submitted their findings to the Joint Committee on Vaccination and Immunisation (JCVI) as evidence of how best to protect this vulnerable group.

Levels of antibodies alone do not predict vaccine effectiveness and researchers are confident that for most, a complete course of either vaccine will still protect against severe disease or death.

As part of the study, led by the Francis Crick Institute and Imperial College London, the research team examined blood samples from 178 patients receiving haemodialysis treatment.

Funded by Kidney Research UK, the National Kidney Federation, Kidney Wales, the PKD Charity and several Kidney Patient Associations, the project includes patients from across the UK and will, in time, report on over 1,000 haemodialysis patients.

The researchers used robust high throughput viral neutralization assays ([laboratory tests](#)), developed at the Crick, to test the ability of antibodies to block entry of the virus into cells, so called 'neutralizing antibodies', against different variants of SARS-CoV-2, including Delta.

In patients who had not been previously infected with SARS-CoV-2, those who had received the Pfizer-BioNTech mRNA vaccine had six-times higher levels of neutralizing antibodies against the Delta variant, compared to those vaccinated with the Oxford-AstraZeneca vaccine. The levels induced by the mRNA vaccine were comparable to those seen

in healthy controls after both vaccine doses.

In patients who had evidence of infection prior to vaccination, both vaccines induced detectable levels of neutralizing antibodies.

These findings suggest that patients who have not been infected with SARS-CoV-2 previously and received the Oxford-AstraZeneca vaccine, would likely benefit from an early third dose of an alternative mRNA vaccine.

Edward Carr, postdoctoral clinical fellow in the Crick's Cell Biology of Infection Laboratory, says that "unfortunately, the risk from COVID-19 has been much greater for dialysis patients as we've seen high rates of admissions and deaths in this group. The level of neutralizing antibody to Delta made by haemodialysis patients, who have not had a prior COVID infection and received the Oxford-AstraZeneca vaccine, might not be enough to prevent infection with Delta."

"Importantly, we've found that this group (without prior infection) respond well to mRNA vaccines and we can use this information to inform future vaccination strategies."

Dr. Aisling McMahon, Executive director of Research, Innovation and Policy at Kidney Research UK, which co-funded the study, said that "this is extremely timely research. We already know that many kidney patients respond less well to vaccines than the general population. The good news is that both these vaccine technologies are protecting people from serious illness. However, many dialysis patients still need to travel to hospital several times a week for life-saving treatment and so remain more at risk of catching Covid-19."

"These findings clearly indicate that dialysis patients (who have not previously had Covid-19) are unlikely to be adequately protected from

the delta variant if they received the AZ vaccine. We believe that this study provides strong evidence to support a third dose of an mRNA vaccine as standard treatment as soon as possible for all immunocompromised patients who potentially remain at risk."

Rupert Beale, head of the Crick's Cell Biology of Infection Laboratory, said that "the vaccination program in the UK has been a huge success, but the pandemic isn't over. As most people enjoy increased freedom, many [immunocompromised patients](#) remain vulnerable. Our data suggest that delivering a third dose of vaccine will be necessary to protect some patient groups."

Dr. Michelle Willicombe, Clinical Senior Lecturer at Imperial College London and Honorary Consultant Nephrologist at Imperial College Healthcare NHS Trust, and Dr. Stephen McAdoo, Honorary Clinical Senior Lecturer at Imperial College London and Consultant Nephrologist at Imperial College Healthcare NHS Trust, co-lead the UK Kidney Association vaccine efficacy group which awarded funding for the study.

Dr. Willicombe said that "the collaborative involvement from kidney health professionals and patients in this study demonstrates the need and common goal of trying to optimize protection for people with [kidney](#) disease, who have been disproportionately affected by COVID-19."

More information: Edward J Carr et al, Neutralising antibodies after COVID-19 vaccination in UK haemodialysis patients, *The Lancet* (2021). [DOI: 10.1016/S0140-6736\(21\)01854-7](https://doi.org/10.1016/S0140-6736(21)01854-7)

Provided by The Francis Crick Institute

Citation: Immunocompromised dialysis patients could benefit from third doses of mRNA COVID-19 vaccine (2021, August 13) retrieved 26 April 2024 from <https://medicalxpress.com/news/2021-08-immunocompromised-dialysis-patients-benefit-doses.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.