



PRESS RELEASE

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COVID-19 VACCINATION PROTECTS ADULTS ON DIALYSIS AGAINST INFECTION AND SEVERE DISEASE

Despite lower antibody responses in these individuals, vaccination protected against COVID-19–related hospitalizations and deaths.

Highlights

- Compared with individuals on dialysis who were not vaccinated against COVID-19, those who had received 2 mRNA vaccine doses were 69% and 83% less likely to become infected or experience severe disease, respectively.
- There were no significant differences in vaccine effectiveness among age groups, mode of dialysis, or vaccine type.

Washington, DC (March 9, 2022) — Multiple studies have shown that individuals with kidney failure who are undergoing dialysis mount weaker antibody responses after COVID-19 vaccination than people in the general population, but new research indicates that these individuals' immune responses are still capable of protecting against SARS-CoV-2 infection and severe COVID-19. The findings are published in *JASN*.

For the study, Matthew Oliver, MD, MHS (Sunnybrook Health Science Centre, University of Toronto, Ontario Health) and his colleagues analyzed health records for 13,759 individuals receiving maintenance dialysis between December 21, 2020 and June 30, 2021—17% of whom were unvaccinated and 83% of whom had received at least 1 mRNA COVID-19 vaccine dose.

The study was conducted in the entire maintenance dialysis population of Ontario, Canada's most populous province. The population was multicultural and included patients receiving both home dialysis and in-center hemodialysis.

"Patients on maintenance dialysis often have suppressed immune systems and many are unable to isolate because they must attend dialysis treatments 3 times per week in a dialysis center. Reducing hospitalizations and deaths is very important in this population because approximately two-thirds of these patients were hospitalized and 1 in 4 died when infected by SARS-CoV-2 early in the pandemic," said Dr. Oliver.

Dr. Oliver and his team found that there were 663 SARS-CoV-2 infections along with 323 hospitalizations and 94 deaths during the study period. Compared with individuals who were unvaccinated, those who had received 1 COVID-19 vaccine dose were 41% less likely to become infected with SARS-CoV-2 and 46% less likely to develop severe COVID-19 that required hospitalization or resulted in death, and those who had received 2 doses were 69% and 83% less likely to become infected or experience severe disease, respectively. The risk of hospitalization in the unvaccinated group was 52% and the mortality rate was 16%, whereas the risk of hospitalization in the 2-dose group was 30% and the mortality rate was 10%.

There were no significant differences in vaccine effectiveness among age groups, mode of dialysis, or vaccine type (Pfizer-BioNTech or Moderna).

“Governments and health care providers prioritized patients on maintenance dialysis for early COVID-19 vaccination in many countries, including the U.S and Canada. This strategy was correct and important because our results show that 2 doses of an mRNA vaccine significantly protected this population, preventing many hospitalizations and deaths and reducing the burdens on patients, families, and the health care system,” said Dr. Oliver. “The effectiveness of the vaccines was less than that seen in studies in the general population but still provided substantial protection.” It is now recommended that all adults and teenagers, especially those who are immunocompromised, receive a third dose of COVID-19 vaccine to ensure an optimal immune response.

Study authors include Matthew J. Oliver, MD, MHS, Doneal Thomas, M.Phil, MSc, Shabnam Balamchi, PhD, Jane Ip, BSc, Kyla Naylor, PhD, Stephanie N. Dixon, BSc, MSc, PhD, Eric McArthur, BSc, MSc, Jeff Kwong, MD, PhD, Jeffrey Perl, MD, Mohammad Atiquzzaman, PhD, Joel Singer, PhD, Angie Yeung, BHSc, MBA, Michelle Hladunewich, MD, BSc, MSc, Kevin Yau, MD, Amit Garg, MD, PhD, Jerome A. Leis, MD, MSc, Adeera Levin, MD, Mel Krajden, MD, BSc, and Peter G. Blake, MB, MSc.

Disclosures: The study was funded by the Government of Canada through its COVID-19 Immunity Task Force. Matthew Oliver is a contracted Medical Lead at Ontario Renal Network, Ontario Health. He is the owner of Oliver Medical Management Inc., which licenses Dialysis Management Analysis and Reporting System software. He has received honoraria for speaking from Baxter Healthcare and participated on Advisory Boards for Janssen and Amgen. Doneal Thomas, Shabnam Balamchi, Jane Ip, and Angie Yeung are salaried employees of Ontario Health. Jeffrey Perl reports grants from the Agency for Healthcare Research and Quality during the conduct of the study; personal fees from AstraZeneca Canada, Baxter Healthcare, DaVita Healthcare Partners, DCI, Fresenius Medical Care, LiberDi, Otsuka, and US Renal Care; research funding and salary support from Arbor Research Collaborative for Health and Agency for Health Research and Quality; speaker bureau for Baxter Healthcare and Fresenius Medical Care; and

is on the advisory board for Liberdi, outside of the submitted work. Mel Krajden has received contracts/grants paid to his institution from Roche, Siemens and Hologic, unrelated to this work. Mel Krajden has received contracts/grants paid to his institution from Roche, Siemens and Hologic, unrelated to this work. Peter G Blake is a contracted Medical Lead at Ontario Renal Network, Ontario Health. He has received honoraria from Baxter Global for speaking engagements.

The article, titled “Vaccine effectiveness against SARS-CoV-2 infection and severe outcomes in the maintenance dialysis population in Ontario, Canada,” will appear online at <http://jasn.asnjournals.org/> on March 9, 2022; doi: 10.1681/ASN.2021091262.

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