

# A look at COVID-19 Antibodies and their Impact on Dialysis Patients

Minesh Khatri\*

Department of Palliative Care, New York University Winthrop Hospital, 200 Old Country Road, Suite 370, Mineola, New York, United States

## Introduction

SARS-CoV-2 (severe acute respiratory syndrome coronavirus 2) has caused a global pandemic with devastating effects. The elderly and those with previous health disorders [1], such as chronic kidney disease (CKD), which is a well-established risk factor for mortality and morbidity in the general population and in people with coronavirus disease 2019 (COVID-19), are at the highest risk for negative outcomes [2, 3]. Individuals with ESKD are at a higher risk of infection-related problems, therefore the likelihood of negative outcomes may be higher [4]. Furthermore, in-center patients on maintenance hemodialysis have more frequent interactions with the healthcare system, and at least one study has found that they are more likely to catch SARS-CoV-2 than those who receive hemodialysis at home [5].

The incidence of COVID-19 infections, risk factors, and outcomes in this particularly sensitive population are all unclear. COVID-19 has been found to have an incidence rate of 2%-30% among outpatient hemodialysis centres in China, Italy, and England, with mortality rates of up to 30% [5]. Clinical characteristics and/or positive quantitative, real-time, reverse-transcriptase PCR (RT-PCR) assays of nasopharyngeal swabs, which were usually performed on symptomatic patients, were used to identify cases in these studies. These PCR techniques are prone to false-negative results and asymptomatic SARS-CoV-2 transmission is also prevalent. As a result, the exact COVID-19 infection rate in this medically sensitive population is unknown. Serologic SARS-CoV-2 IgG antibody testing has been used to detect past infections, with some assays having reported sensitivity and specificity of nearly 100 percent, depending on the timing post infection. Antibody testing in outpatient hemodialysis units has been restricted, although it could aid with SARS-CoV-2 epidemiology evaluation.

A small paediatric group in Indiana had significant rates of asymptomatic seroconversion in both patients and healthcare professionals (44 percent). Serologic testing indicated rates of asymptomatic infection of 51 percent and 40 percent, respectively, in outpatient dialysis units in China and England [6,7]. Restricted demographics and comorbidities, data from community-based (rather than nursing home-based) dialysis units alone, and a lack of hospitalisation and death data have all limited these investigations. Understanding the amount of dissemination (both symptomatic and asymptomatic) inside a dialysis unit is critical, since it has significant implications for infection prevention and management. Furthermore, while risk factors for more serious COVID-19 effects have been identified in the general population, it is uncertain whether the same risk factors apply to in-center dialysis patients. Finally, the full amount of seroconversion in a moderately immunosuppressed ESKD cohort is unknown.

To date, no multiethnic cohort study has addressed all of these difficulties. We overcame this constraint by examining data from a variety of outpatient dialysis centers in the New York City area. Between March and May 2020, New York was the heart of the American COVID-19 pandemic, with substantial COVID-19 infection rates in dialysis centres. We were able to investigate asymptomatic transmission within these units, estimate rates of seroconversion, and

identify variables related with COVID-19 infection and hospitalization using near universal antibody testing.

## Conclusion

On the basis of serologic testing, it can be established that all dialysis patients mounted an antibody response to symptomatic infection, and there was a considerable incidence of asymptomatic spread in dialysis units. There were high rates of symptomatic patients being admitted to hospitals and eventual mortality, as well as significant racial/ethnic differences in this cohort. Antibodies' stability and efficacy must be proven in larger, lengthier investigations.

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\*Corresponding author: Minesh Khatri, Department of Palliative Care, New York University Winthrop Hospital, 200 Old Country Road, Suite 370, Mineola, New York, United States, E-mail: mineshkhatri@nyu.org

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