Navigating COVID-19 in Renal Transplantation: From “Alpha” to “Omicron”; A Single-center Experience

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Two years on from its onset, COVID-19 continues to present challenges for end-stage kidney disease patients and kidney transplant recipients. Novel variants of the SARS-CoV-2 virus have emerged and rapidly gained dominance, the most recent being Omicron (B.1.1.529), first identified in the United Kingdom on November 27, 2021.

In the general population, Omicron has demonstrated high infectivity, but with lower hospitalization and intensive care unit admissions compared with previous variants. However, outcomes following infection in kidney transplant recipients remain uncertain, particularly in the early posttransplant period when immunosuppression is maximal. There is increasing evidence that Omicron infection may evade immunity conferred from previous SARS-CoV-2 infection and vaccination.

In previous COVID-19 surges, we encountered only a single case of nosocomial transmission of SARS-CoV-2 in a recently transplanted patient. With the emergence of Omicron, we were keen to review its impact on clinical outcomes in this cohort. To date, we are not aware of other reports of SARS-CoV-2 infection with Omicron genotype in the early posttransplant setting. We present 5 transplant recipients (out of 19 transplanted between December 15, 2021, and January 14, 2022) with Omicron infection in the first 10 days following transplantation.

The cases are summarized in Table 1. Organ donors were confirmed to be negative for SARS-CoV-2 RNA by reverse transcriptase–polymerase chain reaction. Patients reported minimal or no symptoms relating to COVID-19 infection, with oxygen therapy for fluid overload indicated in only 1. No COVID-19–related mortality or requirement of ventilatory support was seen. In contrast with previous experience, the clinical course of these patients is encouraging.

Over the course of the pandemic, the management of transplant recipients with COVID-19 has evolved based on studies in the general population. In line with evidence demonstrating a significant benefit in unvaccinated nonhospitalized patients, sotrovimab was recommended against Omicron for the treatment of patients with mild to moderate COVID-19 and at least 1 risk factor of developing severe disease. Therefore, transplant recipients in the hospital for non–COVID-19 reasons were deemed eligible for sotrovimab therapy within 5 days of a positive SARS-CoV-2 reverse transcriptase–polymerase chain reaction.

Vaccination appears to confer variable protection against COVID-19; however, even when initially effective, vaccine-induced protection wanes over time. Many patient groups develop a less robust response to vaccination despite an enhanced schedule, and this mirrors the findings in patients with functioning transplants. Neither testing for T-cell immunity nor measurement of antibody levels has been routinely available. Although patients may enter their incident transplantation episode with reduced protection against COVID-19 infection, with the range of adjunctive treatments currently available, this may not have a significant adverse effect on immediate outcomes.

Before the appearance of Omicron, the combination of vaccination and protective measures aided control of transmission to incident transplant patients. None of our patients were aware of having had previous SARS-CoV-2, and our single unvaccinated patient did not have SARS-CoV-2 S1/S2 immunoglobulin G (IgG). The remaining 4 patients, all vaccinated with varying regimens, had detectable SARS-CoV-2 S1/S2 IgG levels. Four of our 5 patients received sotrovimab. The development of Omicron, the presence of SARS-CoV-2 S1/S2 IgG levels and availability of monoclonal therapies are all possible combinatorial contributing factors to the mild clinical picture observed.

The goal of preventing infection, through lockdown and isolation measures, partially achievable in previous waves of the pandemic, has not been sustainable with Omicron. Omicron, particularly in the face of SARS-CoV-2 S1/S2 IgG and newly available treatments, may result in
a less severe disease phenotype than with previous variants, reducing the risk of severe COVID-19. Although we remain prudent, we cautiously suggest that kidney transplant programs should remain open during this phase of the pandemic with less likelihood of adverse effect on immediate patient outcomes and that patients continue to benefit from transplantation at this time.

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