EDITORIAL COMMENT

Long-term effect of COVID-19 infection on hemodialysis patients: Should we follow hemodialysis patients more closely?

Atalay Demiray, Asiye Kanbay and Mehmet Kanbay

ABSTRACT

During the coronavirus disease 2019 (COVID-19) pandemic, hemodialysis patients constitute one of the most vulnerable patient populations as they have more significant comorbidities and need to visit healthcare settings frequently even under pandemic conditions. It was also largely demonstrated that hemodialysis patients have high mortality rates with severe to fatal disease due to COVID-19 during their initial hospitalization. Even though the functional decline and fatigue after severe infections are not a novel entity, some long-term effects of COVID-19 have drawn attention with their prolonged effects even after discharge. A recent prospective, observational study by Carriazo et al. provided the first evidence to compare long-term mortality rates of hemodialysis patients with and without COVID-19. Carriazo et al. stated a hazard ratio of 3.00 for the mortality rates of hemodialysis patients over a 1-year follow-up period after their COVID-19 diagnosis. They emphasized that the high mortality rates of hemodialysis patients with COVID-19 are not limited to the initial hospitalization period but also continue after discharge, especially in the first 3 months. In light of this study, it can be recommended that hemodialysis patients with COVID-19 should be monitored closely and continuously, and hemodialysis patients should be prioritized for vaccination against COVID-19 with close follow-up for their antibody levels.

Keywords: anti-SARS-CoV-2 antibodies, COVID-19, hemodialysis, mortality, outcomes
Several studies have demonstrated prolonged effects of COVID-19, especially after discharge from the post-COVID syndrome. However, it is difficult to distinguish this functional limitation from the rehabilitation phase after discharge from the post-COVID syndrome. Several studies have demonstrated prolonged effects of COVID-19, and some indicated post-COVID-19 syndrome [11]. Even though the long-term effects of COVID-19 on CKD patients have not been clearly demonstrated, the need for special rehabilitation programs and monitoring after discharge is recommended [12].

In the light of the current study, we can speculate that the long-term consequences of COVID-19 on hemodialysis patients may not be just temporary post-infection fatigue, but a more severe entity that needs to be elucidated to explain significantly high mortality rates even after discharge.

The second important issue of COVID-19 for hemodialysis patients is the rapid decline of SARS-CoV-2 antibodies compared with the general population. It is not novel that hemodialysis patients receiving immunosuppression therapies have suppressed immune responses against infections and vaccinations. Additionally, immune responses and antibody formation in hemodialysis patients not on immunosuppressants were lower than in the general population, so they are more prone to re-infection and faster loss of protection following vaccination. According to the study by Carriazo et al., only 30.6% of all COVID-19 survivor hemodialysis patients had anti-SARS-CoV-2 IgG after the 1-year follow-up. A decline in antibody levels against COVID-19 was observed between 6 and 12 months, while some patients experienced re-infection and some never developed positive antibodies even after the vaccination.

Besides comorbidities and altered immune responses, hemodialysis patients need to visit hemodialysis centers for their life-saving treatment three times a week, and each visit can be a potential source for the transmission of COVID-19. Because these concerning aspects are specific to hemodialysis patients, it was broadly suggested that hemodialysis patients should be prioritized for vaccination and need to receive their COVID-19 vaccine as soon as possible [13]. Hemodialysis patients should be followed more closely for their immune status, serological response and possible re-infection. The study of Carriazo et al. [1] pointed out that the presence of anti-SARS-CoV-2 immunoglobulin G in hemodialysis patients decreased from 36/49 (73.4%) initially to 27/44 (61.3%) at 6 months and 14/36 (38.8%) at 12 months. These findings made us question the immunity and antibody protection of hemodialysis patients with COVID-19 infection or vaccination. Therefore, possible COVID-19 re-infection should be kept in mind for hemodialysis patients even following vaccination.

There are some limitations of the study that could be addressed in the future. Carriazo et al. study presented a single-center experience with a limited sample size. Multi-center data with bigger samples could validate and enlighten more about the long-term consequences of COVID-19 on hemodialysis patients. Even though the study presented clear data indicating high mortality rates even after initial hospitalization, more associations such as re-infections, hospitalizations due to other causes with longer follow-up periods should be assessed better for differentiating post-COVID syndrome (or effects) from general post-infection fatigue (or functional limitations).

In short, COVID-19 seems to have long-term consequences on hemodialysis patients with higher mortality rates not limited to the initial hospitalization period but also 1 year after the diagnosis. All infections tend to present more severely in hemodialysis patients due to comorbidities, drug regimens and vulnerability than in other patient populations, and COVID-19 is not an exception. COVID-19 is not the first pandemic, and it will not be the last one. Future pandemics will also be threats to the well-being of hemodialysis patients. It should be kept in mind that hemodialysis patients always constitute a more vulnerable population in pandemics, epidemics and infectious disease in...
general. Considering an increasing number of hemodialysis patients worldwide, their management in the case of COVID-19 and possible future infections should be well-tailored and closely followed.

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CONFLICT OF INTEREST STATEMENT

M.K. is member of the CKJ editorial board. The other authors declare that they have no conflict of interest.

ETHICAL APPROVAL

This article does not contain any studies with human participants or animals performed by any of the authors.

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