LETTER TO THE EDITOR

Maintenance Hemodialysis and COVID-19: Saving Lives With Caution, Care, and Courage

To the Editor:

The outbreak of coronavirus disease 2019 (COVID-19) first reported in Wuhan has become a global pandemic, posing a serious threat to human life and health, especially for those with pre-existing comorbid conditions, including kidney disease.[1-6] Hemodialysis (HD) patients comprise a distinct population in the COVID-19 outbreak: (1) there is a relatively large number of HD patients; (2) HD facilities are widespread, scattered across Wuhan; (3) HD patients are mobile, traveling from home to dialysis facilities and other health care settings, serving as potential vectors for infection; (4) HD patients receive lengthy treatments in close proximity to other patients and dialysis staff; and (5) HD patients have impaired immune function. Accordingly, attention to HD patient management is critical for mitigating the COVID-19 pandemic.

Our HD facility at Renmin Hospital, Wuhan University, had an outbreak of COVID-19, beginning with confirmation of the first case on January 14, 2020. We summarize our experiences with COVID-19 through February 17, 2020, the day the first round of screening was completed. Several of these findings have also been reported in medRxiv.[7]

First, we had 37 documented cases of COVID-19 among 230 (16.1%) HD patients and 4 cases among 33 (12.1%) staff. Second, it is our opinion that COVID-19 can be either prevented or controlled within an HD facility, and the key is to take effective measures early, including timely upgrading of personal protection measures and implementation of universal screening (Box 1), followed by quarantine and isolation as needed. We found that computed tomography of the chest was an appropriate screening test, given easy availability and high sensitivity. Third, we were surprised to find that although HD patients are susceptible to COVID-19 infection, most presented with either no symptoms or only mild clinical signs and symptoms. Although 7 HD patients died during the epidemic, including 6 with and 1 without COVID-19 infection, no patient died of severe pneumonia caused by COVID-19. Interestingly, the major cause of death was cardiovascular events, which seem to be related to insufficient dialysis due to patients missing HD sessions to avoid possible infection. In addition, we hypothesize that because of the chronic immune dysfunction seen in HD patients, SARS-Cov-2 infection did not trigger the inflammatory storm that appears to mediate clinical deterioration or death in many patients with COVID-19 infection.[8]

Box 1. Procedures for Screening for COVID-19 Infection in our HD Facility

First Step: General Screening
- Patients covered: all HD patients and staff
- Examination method: CT of the chest
- Classification and action
  a. Non–COVID-19 patients (CT negative detection) to continue regular HD
  b. COVID-19 suspects (CT positive detection) to undergo further evaluation

Second Step: Infection Evaluation
- Patients covered: COVID-19 suspects
- Examination method: CBC + NT + ST (optional)
- Classification and action
  a. Non–COVID-19 patients (all negative) to undergo isolated HD with monitoring
  b. COVID-19 clinically diagnosed (hematology abnormal but no pathogen evidence) transferred to designated hospital to receive isolated dialysis and monitoring
  c. COVID-19 confirmed diagnosis (with pathogen evidence) transferred to designated hospital

Note: Patients with relevant symptoms (fever, cough, etc) are not included because they will be transferred to fever clinics for comprehensive epidemic assessment.
Abbreviations: CBC, complete blood cell count; COVID-19, coronavirus disease 2019; CT, computed tomography; HD, hemodialysis; NT, nucleic acid test; ST, serologic test.

In conclusion, although we found at our center that COVID-19 poses a serious threat to both staff and patients, planning and screening procedures can help contain COVID-19 and failure to dialyze may be more risky than receiving dialysis in a rigorous and well-prepared dialysis facility, emphasizing that preparation should trump fear when addressing COVID-19.

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ARTICLE INFORMATION

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