Counterpoint: Twice-Weekly Hemodialysis Should Be an Approach of Last Resort Even in Times of Dialysis Unit Stress

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On February 28, 2020, the first patient was reported to have died from severe acute respiratory syndrome coronavirus 2; this individual was a resident of Washington state who had kidney failure and had been undergoing long-term hemodialysis.[1] This drew attention early on in the pandemic to this vulnerable patient population that is unable to "stay at home" because of the need for thrice-weekly treatments. The early engagement from the Centers for Disease Control and Prevention (CDC) led to the development of thoughtful algorithms to ensure the safety of both patients and health care workers.[1,2]

Notwithstanding the institution of guidelines and screening algorithms early on, the pandemic has rightfully generated considerable anxiety, and several other approaches are being advocated to reduce the risk to patients and health care workers and to conserve personal protective equipment. One such approach, as outlined in the perspective by Meyer *et al.*,[3] is to switch most patients to twice-weekly hemodialysis. I respectfully submit that this approach could be counterproductive and could result in increasing risk to the health and welfare of patients with resultant increasing—rather than decreasing—health care utilization. As such, I think it would be prudent for us to exhaust other alternatives before considering twice-weekly hemodialysis.

The data comparing outcomes with twice- and thrice-weekly hemodialysis are extremely limited, and they are simply insufficient to conclude that the two regimens are equivalent. The evidence and data are derived from observational studies from the United States and China.[4,5] In the United States, twice-weekly hemodialysis is used by <5% of patients, and it is often reserved for otherwise healthy individuals with significant residual kidney function.[6] In China, economic reasons are the primary drivers for the use of twice-weekly hemodialysis, and the patient population in that country is younger with a much lower prevalence of coexisting illnesses, such as diabetes mellitus.[5] Given these considerations, the studies comparing twice-weekly with thrice-weekly hemodialysis have a high risk for residual confounding and confounding by indication and have quite limited external validity. As importantly, the authors of the perspective[3] base their assessment on the achieved dose of dialysis and not the ability of the two regimens to control hypervolemia that often accompanies kidney failure. Thrice-weekly hemodialysis is insufficient for the management of hypervolemia, and patients are at a high risk for cardiovascular events and death during the long interdialytic period.[7] Transitioning a large population of patients with multimorbidity to twice-weekly hemodialysis is likely to amplify the risk of cardiovascular events in the longer interdialytic period, which in turn, will result in an undesirable increase in health care and personal protective equipment utilization.

There are also several alternatives that can achieve the stated goals of reducing the risk to patients and health care workers. The algorithms and protocols developed by the CDC to screen every patient prior to every treatment followed by appropriate testing and cohorting is the approach that allows us to provide the same level of care to our patients as prior while keeping them safe.[1,2] This approach has been used by Northwest Kidney Centers for the month of March and to date; there has been no known transmission of severe acute respiratory syndrome coronavirus 2 to either patients or health care workers in hemodialysis facilities (E. McNamara, personal communication). It is too early for us to say that this is the optimal approach. Alternatively, dialysis treatments could be shortened to 2.5–3.5 hours per treatment while maintaining thrice-weekly treatment frequency. The next step would be to selectively transfer patients with significant residual kidney function to twice-weekly treatments while continuing thrice-weekly dialysis for most of the other patients.

As a very last resort, one could consider transferring most patients to twice-weekly hemodialysis. However, this change in treatment frequency will necessarily need to be coupled with intensive dietary counseling for restricting salt and potassium, diuretics in those with significant residual kidney function to limit hypervolemia, more frequent monitoring for hyperkalemia than the current once-monthly testing, and use of K binders if needed. Finally yet importantly, without any changes from the Centers for Medicare and Medicaid Services, a change to twice-weekly hemodialysis will result in 33% reduction in revenue of dialysis facilities and its attendant consequences on employment and staffing of dialysis facilities.

In conclusion, patients undergoing long-term in-center hemodialysis are highly vulnerable in this pandemic given kidney failure, multimorbidity, and the need for frequent visits to a health

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care facility. These unprecedented times require us to consider all options for their care to ensure the safety of both patients and health care workers while conserving precious resources. Hence, we should retain twice-weekly hemodialysis as an option but only as an option of last resort, and it should be implemented with substantial boosting of clinical and biochemical monitoring and supportive care to minimize harm to patients.

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See related editorial, "Twice-Weekly Hemodialysis Is an Option for Many Patients in Times of Dialysis Unit Stress," on pages XXX–XXX.

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