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Peritoneal dialysis in the days of COVID-19

The global outbreak of coronavirus disease 2019 (COVID-19) has posed a threat to all populations. Patients with chronic kidney disease requiring dialysis are especially at high risk for severe illness and death. As such, physicians are forced to swiftly adopt and refine existing models of patient care. Peritoneal dialysis (PD) is a home-based kidney replacement therapy that has declined in recent years, despite offering several advantages such as preservation of residual renal function, patient independence, and low cost. Underutilization of PD is influenced by the increased number and joint ownership of hemodialysis (HD) units, financial incentives, transplantation, suboptimal training, lack of PD-dedicated units, and predialysis patient education programs. Ideally, patients should receive unbiased information about their options and physicians should support the choice of the well-informed patient. There is a strong relationship between the offering and selection of PD as chronic treatment modality. Unfortunately, nearly half of patients report they were not given a choice and another third were not told about alternative modalities.[1]

In the face of the pandemic, PD has several definite advantages.[2] The risk of COVID-19 exposure is less than HD since it is performed at home, which alleviates the risk of transmission both during travel time and time spent within the health facility. Treatment is uninterrupted as physicians continue to conduct telemedicine consultations and prescriptions. Close contact with health care workers, another potential COVID-19 source, is also reduced. Indeed, initial reports confirm the incidence of COVID-19 is much lower in PD patients.[3,4]

We are a university hospital with a dedicated PD unit including a predialysis patient education program. During the pandemic, we were one of the few hospitals which continued to provide care for non-COVID-19 nephrology patients. Interestingly we observed a substantial increase in patients opting for PD at a time when COVID-19 was at its peak. We analyzed the number of

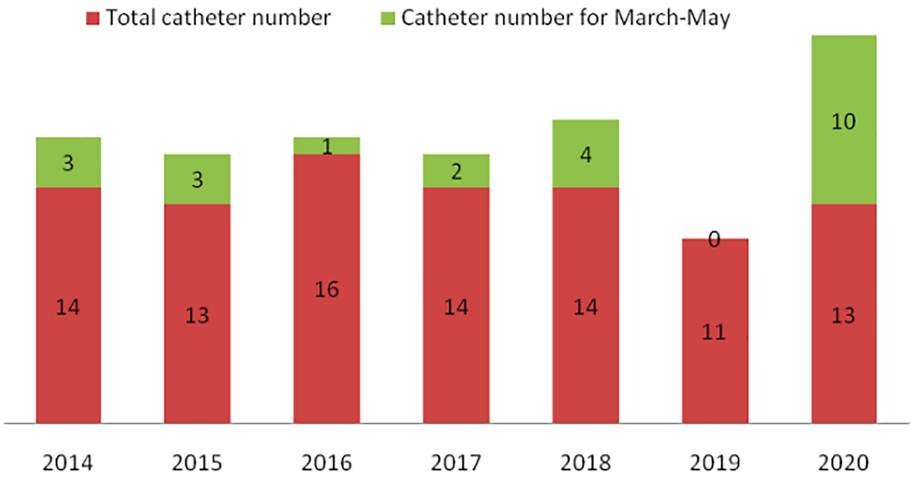

FIGURE 1 The number of peritoneal dialysis catheter insertions [Color figure can be viewed at wileyonlinelibrary.com]

catheters implanted in the last 7 years and specifically looked at the 3-month pandemic period, March through May. Patients with COVID-19 or requiring an acute start were excluded. The increase in PD rates was evident (Figure 1). This can be explained by several factors. First, surgeries including transplantation were canceled; however, none of the patients had an eligible donor. Second, a home-based therapy appealed to patients for obvious reasons during the pandemic. Last is the fact that the majority of patients were referred from other clinics in the area; they were all included in our predialysis education program and given information about different modalities. We believe the patients made the right choice for themselves when given the option.

We, physicians and patients alike, are living through extraordinary times while facing many challenges all at once and the need to adapt is crucial. It has taken COVID-19 to emphasize the advantages of PD and this may be the trend of the future where more patients prefer home-based therapies. We are all responsible for providing the best care for our patients and the time has come once again to step up to the task.

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Rapidly rising methemoglobinemia in a patient with severe COVID-19 treated successfully with red cell exchange transfusion

Dear Editor,

The clinical features of coronavirus disease 2019 (COVID-19) are diverse, causing multiple organ failure, cytokine storm, coagulopathy, and still more to be fully characterized. A cluster of methemoglobinemia cases was identified among COVID-19 patients.[1] Methemoglobin cannot bind and release oxygen reversibly and results in decreased oxygen delivery leading to hypoxia.[2] Severe methemoglobinemia can have life-threatening potential and will be further deleterious when compounded by the coexistent cardiopulmonary dysfunction in COVID-19 patients. In this report, red cell exchange (REX) transfusion by apheresis is shown to be an effective treatment of dangerously rising methemoglobinemia that was refractory to other conventional treatments in a patient with severe COVID-19.

A 52-year-old African American male with hypertension, type 2 diabetes mellitus, and morbid obesity (148 kg) was admitted with acute hypoxic respiratory failure. Nasopharyngeal swabs were positive for SARS-CoV-2 by real-time reverse transcription-polymerase chain reaction assay. On hospital day 2 (D2), he was placed on mechanical ventilation and norepinephrine was started. On D3, uncontrolled hyperglycemia required insulin drip, and hemodialysis was initiated for acute kidney injury. He completed a trial of hydroxychloroquine and azithromycin treatment over D3 to D7.

Methemoglobinemia was rising rapidly from his baseline of <1% (normal range 0%-1.5%) to 16.8% on D6, and continued to rise to 25.3% on D7 (Figure 1). Treatments of methylene blue (MB) and ascorbic acid were given on D7 and D8. MB was administered safely without causing hemolysis after confirming that the patient did not have