Can We Modify the Elevated Mortality Associated With Kidney Replacement Therapy Transitions With Integrated Care?

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There is a renewed interest in home dialysis since the announcement of the Advancing American Kidney Health Initiative, which aims to achieve 80% of incident patients with kidney failure receiving home-based therapy or a kidney transplant by 2025 in the United States. Home hemodialysis (HHD) (especially in the form of more frequent hemodialysis) has been associated with multiple clinical advantages such as regression of left ventricular hypertrophy, improvement in blood pressure, normalization of phosphate levels, and reduction in cardiovascular-related hospitalization. As we embark on increasing the number of patients undertaking home dialysis, the quality assurance of initiating and existing home-based therapy will become increasingly important. Prior published data have demonstrated that transitions from earlier stages of chronic kidney disease to initiation of dialysis and between kidney replacement therapies (eg, peritoneal dialysis to in-center hemodialysis) are associated with higher morbidity and mortality. The quantification of risk associated with HHD transitions has been relatively scarce.

To this aim, Semple et al aimed to address this data gap by examining the early (first 30 days and 30-90 days) and late (>90 days) mortality risk associated with HHD treatment failure necessitating return to in-center hemodialysis using the Australia and New Zealand Dialysis and Transplant Registry (ANZDATA). During the period from 2005 to 2015, 2,554 patients received HHD and 577 (23.5%) had treatment failure. Within this group of patients, 171 patients (29.6%) were able to resume HHD and 406 patients (70.4%) did not. HHD treatment failure was associated with an increase in mortality risk in the early (first 30 days), intermediate (30-90 days), and late (beyond 90 days) periods. Associated risk factors included age, late referral, smoking, cause of kidney failure, and presence of major comorbidities. Although no conclusion can be drawn about the mechanism underlying the increased risk of death, the present study highlights the heightened risk of HHD treatment failure and the underlying reasons for it.

In essence, the elevated risk of death associated with HHD treatment failure may be related to the patients’ demographic profile and medical status, the process of care, or both. Indeed, recent data by Perl et al have demonstrated that HHD technique failure has increased in Canada, most likely on the basis of expansion of patient recruitment to include older patients with higher comorbid burden. Similarly, using a quality assurance approach, an audit of HHD treatment failure in the Northern Alberta Renal Program demonstrated that patients who returned to in-center hemodialysis tended to have higher resource utilization, especially during the 6 months prior to returning to in-center hemodialysis. Of note, medical instability and caregiver burnout are associated with excess mortality during the vulnerable period of dialysis modality transition. Interestingly, similar trends are reflected in all dialysis transitions, especially from peritoneal dialysis to in-center hemodialysis. While the mechanisms of failure in the study from Semple et al are unknown, it is likely that medical instability and caregiver burnout play a role. Although it is not possible to modify patients’ comorbid conditions and medical stability, it is plausible to enhance the process of care surrounding dialysis transitions. Given the similarities in the nature of dialysis transitions, it is tempting to hypothesize that modifications in process of care to minimize fragmentation may be a reasonable approach to address the elevated risk during the vulnerable period of dialysis switch.

At its core, integrated care aims to deliver health care without fragmentation. Unfortunately, dialysis delivery is often organized in silos. Traditionally, in-center hemodialysis is focused mainly on the mechanics of kidney replacement therapy and care gaps will likely exist, especially in older and complex patients. Various approaches to integrated care have been used to organize health care in ambulatory older patients with complex needs. Several attempts in utilizing nurse navigators, remote pharmacist-led medications reconciliation, telephone-driven virtual wards, and remote clinical monitoring in patients of various stages of chronic kidney diseases have yielded promising clinical outcomes. Some of these benefits included increased patient satisfaction and knowledge awareness, notification of medication errors, identification of care gaps, and improvement in medication adherence and blood pressure control. Clearly, integrated care is not expected to alter patients’ medical burden. However, current emerging literature suggests that enhanced organized health care delivery will improve quality of care and avoid inefficient use of urgent hospitalization.

Home dialysis is going through a renaissance, with an unprecedented rate of patient growth and investment, especially in the field of HHD. As we continue to expand the inclusion of more patients undergoing complex medical care at home with or without caregiver assistance, the
standardization of process of care and the justification for value and quality will undoubtedly be under a higher degree of scrutiny. The nephrology community should lead the charge in reimagining the delivery of dialysis care and in demonstrating the importance of coordinated, seamless health care for the most vulnerable patients.

Article Information

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