Patient Safety in Home Dialysis

April 28, 2021
Morfín JA, Fitall E, Hall KK, et al. Patient Safety in Home Dialysis. PSNet [internet]. 2021.
https://psnet.ahrq.gov/perspective/patient-safety-home-dialysis

Dialysis Care and Patient Safety Concerns

In patients with chronic kidney disease, kidney function declines over time. When kidney damage becomes severe enough, patients may be diagnosed with end-stage kidney disease (ESKD) and require either dialysis or a kidney transplant.[1] For the majority of these patients, dialysis is a life-sustaining treatment that serves the function of the damaged kidneys, removing waste products, salt, and extra water from the body.[2] Patients may receive dialysis at a dedicated facility under the care of a nurse or technician, or they may opt to self-administer at home, sometimes with the support of a care partner. Less than 12% of patients opt to receive home dialysis,[3] despite the fact that it offers patients greater flexibility and sense of control over their treatment. Some studies indicate that it can lead to better outcomes, including better quality of life.[3,4,5]

There are inherent patient safety risks when receiving dialysis, whether in a facility or at home. Examples include infections, hypotension, electrolyte disturbances, blood loss, adverse drug effects, and patient falls.[6,7] The different treatment modalities (i.e., peritoneal vs. hemodialysis) may also have different risks associated with the complexity of the procedure. When transitioning to home dialysis, a patient and their care partner may feel apprehensive about assuming the responsibility for performing the dialysis procedure and the potential need to manage treatment adjustments and corrections.[7] However, despite these concerns, serious adverse events are uncommon. Typically, home dialysis programs have in place appropriate safeguard procedures to prevent, mitigate, and manage potential adverse events. Critical safeguard procedures that help to reduce the risk of patient error include comprehensive training and ongoing communication between the patient and the care team.[7]

Mitigating Safety Risks in End-Stage Renal Disease (ESRD) Home Care

Regardless of the treatment modality, there are several key components to supporting a safe patient transition home and ensuring that the patient feels supported and able to manage his or her own care on a daily basis.

Training of Patients and Care Partners

Training is a key component in preventing harms during home dialysis.[7] Appropriate training allows patients to feel confident in their ability to perform their dialysis, modify their treatment as necessary, and respond to alarms from the machines, should a potential error occur.[7,8] Training may be delivered by a multidisciplinary team, including a nurse education specialist and the nephrologist; should be tailored to the patient's unique needs; and should continue until the patient can demonstrate competency.[9] Initiatives such as transitional dialysis units may provide an incremental step in patient preparedness for home dialysis, and simulation approaches can allow patients to practice troubleshooting errors under nursing supervision.[3] For some modalities, the role of the care partner is essential to support task management and patient monitoring. If a care partner role is identified, procedural and care responsibilities should be clearly delineated between the partner and patient. The training that each receives should align with those responsibilities.[7]

Ongoing Open Communication between the Clinic and Patient

Clear communication provides a critical role in the prevention of harms, both during patient training and once the patient transitions home.[7] This is of particular importance when the patient is receiving home dialysis. Given the complexity of care and the potential for infection, maintaining a regular communication protocol is critical. Regular communication between the dialysis program and the patient/care partner ensures the care team is receiving important physiological data, facilitates patient support, and can increase adherence to dialyzing schedules.[9] Communication may include regular follow-up visits and check-ins via email and telephone.[7,9] Should an event or a near miss occur, an existing practice of open communication can support patient disclosure of what may have contributed to the error, particularly if the patient feels reassured that he or she will not be criticized or blamed, and can allow for mitigation to avoid the error being repeated.[7]

The use of Bluetooth-enabled devices can help to support ongoing communication between the patient and care team and facilitate remote patient management. These devices can also lessen the data collection and reporting burden on patients and enable the care team to more seamlessly access treatment and physiological data on a regular basis.[10,11]

Future of ESRD Home Care

A Presidential Executive Order, signed in July of 2019, launched the Advancing American Kidney Health Initiative. The objective of this initiative is to improve the lives of patients with kidney disease, increase their options for care, and reduce costs. As a component of this initiative, financial incentives will be introduced via a new payment model that is designed to encourage home dialysis by making payment adjustments to ESRD facilities and clinicians who work with beneficiaries and caregivers in their choice of treatment modality and provide resources to support utilization of home dialysis. One of the primary goals of the initiative is that by 2025, 80% of new ESKD patients will either receive dialysis at home or receive a kidney transplant.[12] Current programs have demonstrated that home dialysis is a safe approach for patients. Additionally, many more patients are being exposed to telehealth and remote care services in other clinical settings,[13] perhaps increasing patient willingness to transition from in-center care to home dialysis. However, as the scale and scope of these programs increase, it will be critical to ensure that patients still have access to the dedicated training and ongoing communication with the care team that has been so instrumental in ensuring that they are equipped to confidently manage any treatment safety challenges they may face at home.

Authors

In his professional role, Dr. Morfín serves as the Medical Director for Satellite Health Care and as a member of the Medical Advisory Board for Nx Stage Medical.

José A. Morfín, MD, FASN
Health Sciences Clinical Professor
UC Davis School of Medicine
Sacramento, CA

Eleanor Fitall, MPH
Senior Research Associate, IMPAQ Health
IMPAQ International
Washington, DC

Kendall K. Hall, MD, MS
Managing Director, IMPAQ Health
IMPAQ International
Columbia, MD

Kate R. Hough, MA
Editor, IMPAQ Health
IMPAQ International
Columbia, MD

References

1 Chronic kidney disease in the United States, 2019. Centers for Disease Control and Prevention. Reviewed March 11, 2019. Accessed February 13, 2020. https://www.cdc.gov/kidneydisease/publications-resources/2019-national-facts.html

2 Dialysis. National Kidney Foundation. 2015. Accessed February 13, 2020. https://www.kidney.org/atoz/content/dialysisinfo

3 Morfin JA, Yang A, Wang E, Schiller B. Transitional dialysis care units: a new approach to increase home dialysis modality uptake and patient outcomes. *Semin Dial*. 2018;31(1):82-87. doi:10.1111/sdi.12651 [PubMed]

4 Choosing dialysis: which type is right for me? National Kidney Foundation. Accessed February 13, 2020. https://www.kidney.org/atoz/content/choosing-dialysis-which-type-right-me

5 Kansal SK, Morfin JA, Weinhandl ED. Survival and kidney transplant incidence on home versus in-center hemodialysis, following peritoneal dialysis technique failure. *Perit Dial Int.* 2019;39(1):25-34. doi:10.3747/pdi.2017.00207 [PubMed]

6 Kliger AS. Maintaining safety in the dialysis facility. *Clin J Am Soc Nephrol*. 2015;10(4):688-695. doi:10.2215/CJN.08960914 [PubMed]

7 Pauly RP, Eastwood DO, Marshall MR. Patient safety in home hemodialysis: quality assurance and serious adverse events in the home setting. *Hemodial Int*. 2015;19 Suppl 1:S59-70. doi:10.1111/hdi.12248 [PubMed]

8 Virtanen H, Tuominen R, Kiukainen S, et al. Experiences of safety among patients receiving home dialysis therapies. *J Ren Care.* 2019;45(4):223-231. doi:10.1111/jorc.12298 [PubMed]

9 Chatoth D. How to help a patient succeed at home dialysis. Fresenius Medical Care. September 20, 2017. Accessed February 13, 2020. https://fmcna.com/insights/articles/how-to-help-a-patient-succeed-at-home-dialysis/

[10] Wallace EL, Rosner MH, Alscher MD, et al. Remote patient management for home dialysis patients. *Kidney Int. Rep.* 2017;2(6):1009-1017. doi:10.1016/j.ekir.2017.07.010 [PubMed]

[11] Whitlow M, Wallace E. Remote patient management in home dialysis: planning considerations for the future. *Contrib Nephrol.* 2019;197:154-162. doi: 10.1159/000496308 [Link]

[12] HHS launches President Trump's 'Advancing Kidney Health' initiative. US Department of Health & Human Services (HHS) website. July 10, 2019. Accessed February 13, 2020. https://www.hhs.gov/about/news/2019/07/10/hhs-launches-president-trump-advancing-american-kidney-health-initiative.html

[13] ASPE Issue Brief: Medicare beneficiary use of telehealth visits: Early data from the start of the COVID-19 pandemic. U.S. Department of Health & Human Services. Released July 28, 2020. Accessed March 5, 2021. https://aspe.hhs.gov/pdf-report/medicare-beneficiary-use-telehealth.