

Improving Quality of Life and Outcomes

For Geriatric End-Stage Renal Disease Patients
Residing in a Skilled Nursing Home by Expanding
On-Site Home Hemodialysis Options

The Dialyze Direct Clinical Team



Introduction

The elderly population with End Stage Kidney Disease are the fastest growing demographic of dialysis patients. In spite of this, geriatric dialysis has never been considered a discipline distinct from the general dialysis population. In fact, geriatric dialysis has arguably been given short shrift with respect to care that takes in to account the special physiological, psychological and social needs of the geriatric population. Advanced home hemodialysis models of care utilizing a more frequent form of dialysis therapy has been developed since the early 2000's but has primarily been available only to younger and healthier individuals and not to the elderly and frail who, among all dialysis patients, stand to benefit the most from this more effective and gentler mode of therapy. The development of models of care that utilize the advanced models of hemodialysis can improve elderly patients' quality of life and medical outcomes, and at the same time, achieve these benefits with significant overall cost savings.

Elderly dominate the HD population and resource use

The elderly dialysis patient population is the fastest growing segment of incident (new) dialysis patients. As a consequence of the large number of aging individuals within the United States population, addressing the clinical needs and managing the resources needed to care for the geriatric dialysis population is a new clinical imperative. The census bureau estimates² that the number of American older than 65 will double from 52 million in 2018 to 95 million in 2060. The nursing home, long term care, and assisted living population will increase dramatically, and the country will require experts focused on the unique needs of these frail, elderly individuals

Dialysis patients utilize a disproportionate percentage of health care resources and elderly dialysis patients utilize a disproportionate percentage of dialysis resources. The elderly (age ≥ 65) currently make up 52% of all new cases of hemodialysis¹. Incident growth has been extraordinary with the geriatric hemodialysis incident rate growing 12.6 x its 1980 baseline, while the younger population (age < 65) grew only 4.9 x its baseline. In 2016 there was a virtual tsunami of new elderly dialysis patients – 56,694 people (Appendix A, Figure 1). This was the year in which the elderly incident rate first exceeded the younger population and they have not ceded this position since. The prevalence increase in elderly dialysis patients, that is the actual population of dialysis patients at any one time comprising new and old living patients, is even more striking with a 20-fold increase in elderly dialysis patients (over the last three and a half decades) compared to a 7.7 fold increase among the young. In 2016, there were 216,920 elderly patients receiving hemodialysis comprising 47% of the total hemodialysis national burden (Figure 2; Appendix B).

Unique challenges of elderly dialysis patients

Elderly patients suffer from many more comorbidities when compared to the general population. In the post-acute care period following a hospitalization, those who are discharged to the nursing home rather than to the private home are characterized by an even greater degree of medical complexity. And, those who remain in the nursing home for extended periods, unable to return home because of illness or frailty, suffer still greater illness.

Considering the unique challenges of caring for the geriatric dialysis patient population residing in skilled nursing facilities: When compared to the general dialysis population, the elderly and frail dialysis patients suffer the highest incidence of cardiovascular comorbidities and autonomic dysfunction. Physical and cognitive performance in elderly and frail hemodialysis patients often decreases after initiation of conventional dialysis. The elderly dialysis patient also has specialized nutritional and physical therapy needs as well as possessing hemodynamic sensitivity to the relatively rapid fluid removal during HD that results in, functional cardiovascular challenges not commonly found in the general dialysis population. When these numerous special needs are given short shrift, quality of life suffers, and medical resources are wasted.

Costs

The annual cost for care for a hemodialysis patient averages \$91,000⁵. Thirty eight percent (38%) of the annual cost for end stage renal failure patients is the cost is for acute hospital care⁶.

Hemodialysis patients experience 1.74 admissions per person year⁵ with a striking 38 percent all cause 30 day readmission rate⁵. ESRD patients 30-day readmission rates are double those of the general Medicare population⁶

In any given month 8.6% of the Medicare dialysis patients spend time in a Skilled Nursing Facility. For those age ≥ 75 the monthly percentage was 15%⁷. On-site dialysis care eliminates the cost and potential danger of transportation to a dialysis facility.

The OIG reported that in New York between 2002 and 2011, the percentage of nursing home ambulance transport to and from dialysis facilities, rose 281%⁸. Weinhandl reported that the per diem cost of ambulance service was 75% higher than the cost of a single hemodialysis treatment itself (\$235 in 2012).⁹

Patient-centered care

To effectively address the growing geriatric dialysis needs specifically designed to deliver more effective home hemodialysis therapy to dialysis patients residing in skilled nursing homes and assisted living facilities are urgently needed. This advanced hemodialysis technology is built around therapy delivered in shorter, more frequent (5 days per week) sessions. And therefore. Further, effective delivery of hemodialysis care requires a staff-assisted model of home dialysis care.

More frequent dialysis technology permits physiologically more gradual fluid removal is therefore inherently gentler. It reduces the number of hypotensive events per treatment that provides a long-term benefit by mitigating repeated hypotension-induced damage to the heart, brain and gut. More frequent dialysis improves hypertension control, reduces the number of anti-

hypertensive medications and improves cardiomyopathy; bringing left ventricular mass closer to normal (NIH FHN trial 2015)³. More frequent dialysis technology is associated with a more rapid recovery time (FREEDOM study 2010) permitting more on-site physical therapy, fewer missed meals and improved quality of life^{4,10}. This more effective and gentler form of therapy permits rapid recovery measured in hours⁴ instead of days following a dialysis session and permits participation in rehabilitation classes and social activities. Such on-site nursing home dialysis services eliminates expensive hours of travel, missed meals, and undignified waits in hallways for transportation to arrive.

Further, a continuous, on-site presence permitting a high degree of coordination of care and cooperation with the skilled nursing/assisted living facility staff is needed; something hard to achieve when such patients travel to a remote dialysis center. The sum total of these hemodynamic and coordination of care benefits is particularly relevant to the elderly and frail.

Professional care-givers – registered nurses and licensed practical nurses – need to be comprehensively trained by to ensure a thorough understanding of the technology and concepts necessary for a geriatric dialysis care model. Dialysis-specific dietitians and social workers are needed to coordinate care with their counterparts at the skilled nursing/assisted living facility. A Dialysis Program Medical Director champion needs to work with the skilled nursing/assisted living facility's Medical Director to promote seamless care among all medical staff, including the patient's primary care physician, nephrologist and other specialists.

Specific Solutions

Formerly, home hemodialysis therapies have generally been offered only to the most stable dialysis patients. In order to provide the intended quality of life benefits and care benefits for the elderly, dialysis population with more complex medical problems, advances in technology, refinements in the processes of care and coordination of care are critical to providing high-value dialysis care to the aging, rapidly growing, dialysis population. Unlike the patients usually afforded home hemodialysis with a mean age of 52¹², the nursing home "home hemodialysis population" has a mean age of 68 with more than 25% of the population older than 77(Figure 3; Appendix D).

The value of home dialysis care has recently been recognized by CMS and the federal government. The 2017 CMS State Operations Manual Appendix PP – Guidance to Surveyors for Long-Term Care Facilities (the "CMS Guidance") entitles nursing home dialysis patients to receive home dialysis in the nursing home in the event they desire it (the nursing home is required to either provide it directly, or arrange for a transfer to another nursing home that provides it)¹¹. And on July 10, 2019 a Presidential Executive order was signed with the stated goal of dramatically increasing home dialysis options for the End Stage Renal Disease population. (relevance here of this paragraph?)

The geriatric dialysis care model in the SNF must also be geared to facilitate the transition of dialysis care from in-patient (hospital) status to the skilled nursing facility, from the skilled nursing facility to an assisted living facility and, where appropriate, to transition back to a private residence status.

Elderly dialysis patients have been a relatively neglected group, who have been lost among the general dialysis population. Payers, including Medicaid and managed care plans, have not strategically addressed this group and have used a "one size fits all" reimbursement approach. The elderly dialysis patient has very specialized needs reflecting age-related to medical patho-physiology including cardiovascular, cognitive function and drug metabolism to name but a few broad medical disciplines.

The performance of geriatric dialysis care in the skilled nursing facility is a secret world that no one comprehensively understands. It is imperative to better understand how care is delivered to the elderly dialysis population who reside there. Therefore, it has become clear that it is necessary to actively develop a separate discipline, Geriatric Dialysis, where specific and highly relevant standards of care, and models for coordination of care, are developed for elderly dialysis patient population. The population of frail elderly patients ought to have our best care, but new advances in dialysis have not, historically, targeted the elderly. Frequent home hemodialysis technology has been reserved for the young in their private home. This needs to change especially in the nursing home. The best options for the elderly are needed. While in a nursing home, elderly hemodialysis patients should not suffer the disruptions of vital rehabilitation and of special programs caused by need for offsite transportation. Eliminating these disruptions is one of the keys to returning the patients to greater functioning and independence. Only the special benefits of more frequent dialysis technology can move the ball forward. In this geriatric group more frequent dialysis is not just a solid therapy with benefit, it's a critical therapy tool with even bigger benefit due to the very special challenges of dealing with multiple organ dysfunction.

Closing statement

The geriatric population with ESRD residing in SNFs is characterized by their advanced age, frailty, multiple comorbidities and disproportionate utilization of health care resources. The overarching goal of caring for this population is to improve the quality of life and medical outcomes of the patients that builds upon multidisciplinary coordination of care and new technology that is individualized and patient-centric so that the very specialized set of medical issues prevalent in this patient group can be addressed. The net benefit of such a comprehensive approach would be to deliver improved medical outcomes, enhance patient experience and quality of life and achieve all this while reducing the overall cost of care