Dialysis in the nursing home: Caring for patients with ESRD

With an ageing population, the number of residents in nursing homes is rising accordingly; as is the incidence of end-stage renal disease (ESRD). Nursing home residents make up 4.8% of the ESRD population, and may also have comorbidities. In this article, Osasuyi Iyasere, Lina Johansson and Edwina A Brown outline and discuss the options available for dialysis in the nursing home.

■ haemodialysis ■ nursing home ■ peritoneal dialysis ■ conservative care ■ end of life

In 2008, 77% of supported residents in residential and nursing care in England were over 65 years of age (Niblett et al, 2008). This age group also has the highest incidence rates for dialysis, according to UK Renal Registry data (Gilg et al, 2013). Consequently, there is an increasing number of care home residents with end-stage renal disease (ESRD) requiring renal replacement therapy.

A national survey of nursing home residents in the USA reported a 0.3% prevalence of ESRD, with nursing home residents accounting for 4.8% of ESRD patients overall in the USA in 2009 (Collins et al, 2005). In the UK, an 80% prevalence of chronic kidney disease (CKD) was reported in a cohort of 250 care home residents (Carter et al, 2008). However, there is insufficient data on the prevalence of ESRD in UK nursing homes.

Gordon et al (2014) described the characteristics of care home residents in the UK (*Table 1*). Multiple comorbidity, cognitive impairment and malnutrition are also prevalent in older patients with ESRD (Qureshi et al, 1998; Murray et al, 2006).

A large UK cohort study of nursing home residents reported a 1-year mortality rate of 30% overall (Shah et al, 2013). This is a similar figure to that of older dialysis patients, which approaches 35% at 1 year (Kurella Tamura et al, 2009). Survival rates among nursing home residents with ESRD are similarly poor, ranging from 37% (Anderson, 1997) to 66% (Reddy et al, 2007) at 1 year. The authors were unable to find studies comparing survival outcomes in nursing home residents on haemodialysis (HD) and peritoneal dialysis (PD). Inferences can, however, be made from older dialysis patients, who have similar characteristics. Dialysis modality does not influence mortality in the older population. The North Thames Dialysis study reported no survival difference between HD and PD in patients over 70 years of age who were not nursing home residents (Harris et al, 2002).

Quality of life is important in patients with ESRD. Patients in long-term care have poor quality of life compared to the general population (Drageset et al, 2008). They also experience a sharp decline in functional status, a key determinant of quality of life, after initiating dialysis (Kurella Tamura et al, 2009). In the Broadening Options for Long term Dialysis in the Elderly (BOLDE) study, the SF-12 physical composite scores (PCS) were lower than the values for the general population (Brown et al,

Abstract

As the population ages, the incidence of end-stage renal disease (ESRD) in older people is rising. Nursing home residents are predominantly older and account for up to 4.8% of the ESRD population. This group of patients are frail and comorbid with multiple symptoms and cognitive impairment. Survival is poor in the older patient with ESRD, with the 1-year mortality rate approaching 35%. Therefore, managing such patients can be particularly challenging. The debate continues as to how best approach the management of ESRD in this high-risk group. This article discusses the dialysis options for nursing home residents, highlighting the potential advantages and disadvantages of each. It advocates conservative care as a valid alternative in this population. It also discusses the need for a multidisciplinary approach to medical care and advance care planning for end of life.

Osasuyi Iyasere
■ Clinical Research Fellow, Imperial College Renal and Transplant Centre, Hammersmith Hospital, London

Lina Johansson
■ National Institute for Health Research Clinical Lecturer/Renal Dietetic Lead, ImperialCollege Renal and Transplant Centre, Hammersmith Hospital, London

Edwina A Brown
■ Professor of Renal Medicine, Imperial College Renal and Transplant Centre, Hammersmith Hospital, London ■ e.a.brown@imperial.ac.uk

RIGHTSLINK
Journal of Renal Nursing. Downloaded from magonlinelibrary.com by 137.189.170.231 on October 26, 2015. For personal use only. No other uses without permission. . All rights reserved

2010). Illness intrusiveness was higher in the HD group compared to PD, with no other significant differences (Brown et al, 2010).

Managing ESRD in these patients is challenging because of the associated frailty and comorbidities. This review article will discuss the management options (including dialysis) available to nursing home residents with ESRD, emphasising the role of supportive care and advance care planning.

Dialysis options in nursing homes

Haemodialysis

Hospital HD is the most common treatment for frail older patients with ESRD in the UK. In 2011, 65% of patients over 65 years and 90% over 85 years were on HD (Shaw et al, 2013). However, HD is often poorly tolerated by older patients, and transporting a nursing home resident to the dialysis centre often requires extra resources. Apart from the financial implications, there is an impact on the time available for other activities such as physical therapy (Tong and Nissenson, 2002)

Home HD obviates the transportation problems associated with hospital HD. It has also been suggested that intensive frequent HD may prevent the functional decline that occurs when initiating dialysis in older patients (Cornelis et al, 2012). Staff-assisted home HD has been used in US nursing homes, with the HD carried out by trained staff. Survival rates (66% at 1 year), assessed from the initiation of chronic dialysis, were no different from those of their non-residential counterparts; 37% of these patients were subsequently discharged from the nursing home (Reddy et al, 2007).

Peritoneal dialysis

PD often eliminates the transportation problems associated with hospital HD, limiting the impact on quality of life and allowing time for other activities for nursing home residents. Comorbidity, cognitive impairment, sensory disturbance and frailty in the older population are, however, thought to affect their ability to carry out such treatment (Brown and Johansson, 2011).

Assisted PD, where exchanges are carried out with the support of a trained health professional, is an emerging option for frail dependent patients. There are several models by which it is being delivered.

Assisted automated peritoneal dialysis (APD) is an emerging model of care in the UK, which involves a daily visit from a trained paid carer with the patient or family member connecting and disconnecting from the PD machine (Brown, 2011). Continuous ambulatory peritoneal dialysis (CAPD) has been used in nursing home residents in the US and Canada (Anderson, 1997; Taskapan et al, 2010).

Table 1: Health characteristics of UK care home residents

Health characteristics	Prevalence
Dependency	36.1 to 93.8%
Cognitive impairment	75%
Frequent behavioural symptoms	66%
Malnutrition	30%
Use of NHS resources	86.6%
Medications	8 (median number)
Comorbidities	6.2 (mean number)

Gordon et al, 2014

Table 2: Risk factors associated with peritonitis in nursing home

Poor mobility
Poor nutrition
Cognitive impairment
Urinary incontinence
Poor immune system
Tendency to intestinal disease

Taskapan et al, 2010

In one such programme, the PD nurse carries out twice-daily exchanges for the patient, with trained nursing home staff carrying out the night time and weekend exchanges. In France, where assisted CAPD is the preferred modality for the older patient, a non-disconnect system with ultraviolet (UV) flash is commonly used. The nurse assists with the connections and disconnections, while the patient is responsible for the drain phase of the process. The time spent per visit is thus minimised (Lobbedez et al, 2006).

Anderson (1997), Carey et al (2001) and Wang et al (2002) have all reported higher peritonitis rates in PD patients from nursing homes compared to those living at home. Carey et al (2001) reported a rate of 1 in 9.6 patient months in nursing home residents, compared to the lower rate of 1 in 13.5 patient months in community PD patients. Taskapan et al (2010) highlighted the risk factors associated with peritonitis in nursing homes (*Table 2*). The technique survival at 1 year, in the French series, was 58% (Lobbedez et al, 2006).

Conservative kidney management—a valid alternative

It is important not to discount the role of active non-dialytic care in nursing home patients with ESRD. This involves actively treating symptoms and complications associated with ESRD without dialysis. After adjusting for comorbidities, the survival benefit of dialysis over active conservative kidney

RIGHTSLINK
Journal of Renal Nursing. Downloaded from magonlinelibrary.com by 137.189.170.231 on October 26, 2015. For personal use only. No other uses without permission. . All rights reserved

care in older patients significantly diminishes. Da Silva-Gane et al (2012) reported a 13-month deficit in median survival for older patients on conservative care compared with those on HD. However, 10 of those months accounted for days on which dialysis took place (Da Silva-Gane et al, 2012).

Limited evidence from small studies suggests there is no difference in quality of life between older patients on dialysis and those receiving conservative kidney care (O'Connor and Kumar, 2012; Seow et al, 2013).

Dialysis withdrawal in the nursing home

The decision to dialyse a nursing home patient should be regularly reviewed. Nursing home residency is an independent risk factor for dialysis withdrawal (Fissell et al, 2005). As frailty ensues, the benefits of dialysis may become outweighed by its burden. Dementia, common in the nursing home, is one such circumstance where dialysis initiation, and indeed withdrawal, warrants careful consideration. Patients with advanced dementia often have behavioural problems which potentially render dialysis unsafe. They may also be unable to report distressing symptoms during dialysis (Ying et al, 2013). At this stage, multidisciplinary discussions about the value of continuing dialysis should be initiated. These should run parallel to end-of-life care discussions and transition to palliative care.

A multidisciplinary approach

One cap does not fit all when managing ESRD in the nursing home. Therefore, it is important that unbiased information is provided about renal replacement options as well as conservative management, allowing patient and relatives to make informed choices.

Regardless of the chosen management pathway, non-dialysis issues, such as functional decline and malnutrition, are more likely to influence outcomes in ESRD patients from nursing homes. Collaborative care between renal, nursing home and primary care staff is therefore required to ensure these issues are dealt with. Some of them are discussed below (*Figure 1*).

Rehabilitation

Functional decline is prevalent in advanced kidney disease, especially in the older population. Exercise has been shown to slow the rate of functional decline in CKD and is also recommended in dialysis patients. For the frail older patient, this is not always possible. The role of rehabilitation in a geriatric dialysis programme has been highlighted by Jassal et al (2008). More than 70% of patients in such programmes reached their rehabilitation goals and were discharged (Jassal et al, 2008). In selected cases, this may be of value for nursing home residents.

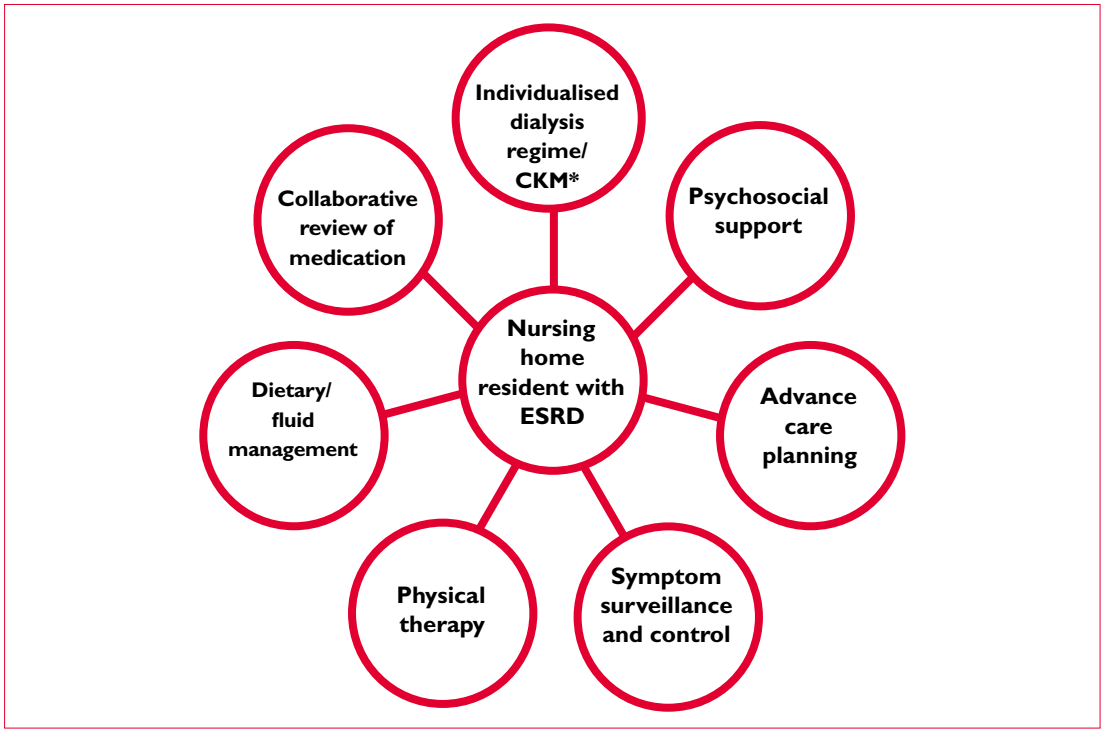

Figure 1: Model of care for nursing home residents with end-stage renal disease
*CKM: Conservative kidney management

RIGHTSLINK
Journal of Renal Nursing. Downloaded from magonlinelibrary.com by 137.189.170.231 on October 26, 2015. For personal use only. No other uses without permission. . All rights reserved

Nutrition

Protein-energy wasting (PEW) is characterised by the presence of inadequate nutrient intake relative to nutrient demand, leading to a progressive loss of lean body mass and body fat. PEW in older people has a negative impact on outcomes such as mortality, morbidity, physical function and quality of life. In the UK, 21% of older people living in institutions were found to be malnourished (Margetts et al, 2003). Older people on dialysis have an even higher prevalence of malnutrition with estimates as high as 68% (Qureshi et al, 1998) indicating that dialysis poses an additional stress on older people's nutritional status.

Some nutrition interventions have been shown to be effective in improving nutritional status in nursing home residents. This was demonstrated in a German randomised controlled trial of 77 residents (Stange et al, 2013). Both weight and upper arm circumference increased with the use of low volume, nutrient dense oral nutritional supplementation over 12 weeks (when compared to the control group). No comparable studies, however, have been done in nursing home residents who are on dialysis.

Symptom management

Older patients with ESRD have a high symptom burden. According to the systematic review by Murtagh et al (2007), pain, fatigue, constipation and pruritus were present in more than 50% of dialysis patients. More importantly, these symptoms contribute to poor quality of life. Regular surveillance is required to ensure these symptoms are recognised early. The palliative care team should be involved early to assist with symptom management.

Advance care planning

Nursing home residence is associated with high odds (odds ratio (OR)–2.34) for a do not resuscitate order and higher risk for dialysis withdrawal (relative risk (RR)–2.38) in the Dialysis Outcomes and Practice Patterns Study (DOPPS) (Fissell et al, 2005). With this in mind, it is important that there are early discussions with the nursing home resident and family members about prognosis, resuscitation and end-of-life care. These discussions will help establish an agreed level and preferred place of care at the end of life.

Conclusion

The nursing home patient with ESRD is likely to be older and thus burdened with multiple comorbidities, frailty, high mortality and poor quality of life. HD and PD are available to such patients. Current evidence suggests that there is no significant difference in outcomes between one dialysis modality and the other. Conservative kidney management is a valid alternative in this high risk group with outcomes that are similar to dialysis after adjusting for comorbidities. It is therefore important that patients and family members are allowed to make informed choices about renal replacement after adequate counselling. Regardless of choice, a multidisciplinary approach is required to manage these patients. Advance care planning is essential to ensure good quality of life at the end of life. JRN

References

Anderson JE (1997) Ten years experience with CAPD in a nursing home setting. *Perit Dial Int* **17**(3): 255–61

Brown EA ,Johansson L, Farrington K et al (2010) Broadening Options for Long-term Dialysis in the Elderly (BOLDE): Differences in quality of life on peritoneal dialysis compared to haemodialysis for older patients. *Nephrol Dial Transplant* **25**(11): 3755–63. doi: 10.1093/ndt/gfq212

Brown EA (2011) How to address barriers to peritoneal dialysis in the elderly. *Perit Dial Int* **31**(Supplement 2): S83–5. doi: 10.3747/pdi.2009.00160.

Brown EA, Johansson L (2011) Dialysis options for end-stage renal disease in older people. *Nephron Clin Pract* **119**(Supplement 1): c10–3. doi: 10.1159/000328019

Carey HB, Chorney W, Pherson K et al (2001) Continuous peritoneal dialysis and the extended care facility. *Am J Kidney Dis* **37**(3): 580–7

Carter JL, O'Riordan SE, Eaglestone GL et al (2008) Chronic kidney disease prevalence in a UK residential care home population. *Nephrol Dial Transplant* **23**(4): 1257–64

Collins AJ, Kasiske B, Herzog C et al (2005) Excerpts from the United States Renal Data System 2004 annual data report: atlas of end-stage renal disease in the United States. *Am J Kidney Dis* **45**(1 Supplement 1): A5–7, S1–280

Cornelis T, Kotanko P, Goffin E et al (2012) Intensive hemodialysis in the (nursing) home: The bright side of geriatric ESRD care? *Semin Dial* **25**(6): 605–10. doi: 10.1111/sdi.12011

Da Silva-Gane M, Wellsted D et al (2012) Quality of life and survival in patients with advanced kidney failure managed conservatively or by dialysis. *Clin J Am Soc Nephro* **7**(12): 2002–9. doi: 10.2215/CJN.01130112

Drageset J, Natvig GK, Eide GE et al (2008) Differences in health-related quality of life between older nursing home residents without cognitive impairment and the general population of Norway. *J Clin Nurs* **17**(9): 1227–36. doi: 10.1111/j.1365-2702.2007.02132.x

Fissell RB, Bragg-Gresham JL, Lopes AA et al (2005) Factors associated with 'do not resuscitate' order and rates of withdrawal from hemodialysis in the international DOPPS. *Kidney Int* **68**(3):1282–8

Gordon AL, Franklin M, Bradshaw L, Logan P, Elliott R, Gladman JRF (2014) Health status of UK care home residents: A cohort study. *Age Ageing* **43**(1): 97–103. doi: 10.1093/ageing/aft077

Gilg J, Rao A, Fogarty D (2013) UK Renal Registry 15th annual report: Chapter 1 UK RRT incidence in 2011: National and centre-specific analyses. *Nephron Clin Pract* **123**(Supplement 1): 1–28. doi: 10.1159/000353320

Harris SA, Lamping DL, Brown EA, Constantinovici N (2002) Clinical outcomes and quality of life in elderly patients on peritoneal dialysis versus hemodialysis. *Perit Dial Int* **22**(4): 463–70

Jassal SV, Chiu E, Li M (2008) Geriatric hemodialysis rehabilitation care. *Adv Chronic Kidney Dis* **15**(2): 115–22. doi: 10.1053/j.ackd.2008.01.008

Kurella Tamura M, Covinsky KE, Chertow GM et al (2009) Functional

RIGHTSLINK

Journal of Renal Nursing. Downloaded from magonlinelibrary.com by 137.189.170.231 on October 26, 2015. For personal use only. No other uses without permission. . All rights reserved

status of elderly adults before and after initiation of dialysis. *N Engl J Med* **361**(16): 1539–47. doi: 10.1056/NEJMoa0904655

Lobbedez T, Moldovan R, Lecame M et al (2006) Assisted peritoneal dialysis. Experience in a French renal department. *Perit Dial Int* **26**(6): 671–6

Margetts BM, Thompson RL, Elia M, Jackson AA (2003) Prevalence of risk of undernutrition is associated with poor health status in older people in the UK. *Eur J Clin Nutr* **57**(1): 69–74

Murray AM, Tupper DE, Knopman DS et al (2006) Cognitive impairment in hemodialysis patients is common. *Neurology* **67**(2): 216–23

Murtagh FE, Addington-Hall J, Higginson IJ (2007) The prevalence of symptoms in end-stage renal disease: A systematic review. *Adv Chronic Kidney Dis* **14**(1): 82–99

Niblett P, Corbet E, Thompson C (2008) *Community Care Statistics 2008. Supported Residents (Adults), England*. www.hscic.gov.uk/catalogue/PUB02224/comm-care-stat-supp-resi-adul-eng-2008-rep.pdf (accessed 28 April 2014)

O'Connor NR, Kumar P (2012) Conservative management of end-stage renal disease without dialysis: A systematic review. *J Palliat Med* **15**(2): 228–35. doi: 10.1089/jpm.2011.0207

Qureshi AR, Alvestrand A, Danielsson A et al (1998) Factors predicting malnutrition in hemodialysis patients: A cross-sectional study. *Kidney Int* **53**(3): 773–82

Reddy NC, Korbet SM, Wozniak JA et al (2007) Staff-assisted nursing home haemodialysis: Patient characteristics and outcomes. *Nephrol Dial Transplant* **22**(5): 1399–406

Seow YY, Cheung YB, Qu LM, Yee AC (2013) Trajectory of quality of life for poor prognosis stage 5D chronic kidney disease with and without dialysis. *Am J Nephrol* **37**(3): 231–8. doi: 10.1159/000347220

Shah SM, Carey IM, Harris T et al (2013) Mortality in older care home residents in England and Wales. *Age Ageing* **42**(2): 209–215. doi: 10.1093/ageing/afs174

Shaw C, Pruthi R, Pitcher D, Fogarty D (2013) UK Renal Registry 15th annual report: Chapter 2 UK RRT prevalence in 2011: National and centre-specific analyses. *Nephron Clin Pract* **123**(Supplement 1): 29–54. doi: 10.1159/000353321

Stange I, Bartram M, Liao Y et al (2013) Effects of a low-volume, nutrient- and energy-dense oral nutritional supplement on nutritional and functional status: A randomized, controlled trial in nursing home residents. *J Am Med Dir Assoc* **14**(8): 628. e1–628.e8. doi: 10.1016/j.jamda.2013.05.011

Taskapan H, Tam P, Leblanc D et al (2010) Peritoneal dialysis in the nursing home. *Int Urol Nephrol* **42**(2): 545–51. doi: 10.1007/s11255-010-9714-y

Tong EM, Nissenson AR (2002) Dialysis in nursing homes. *Semin Dial* **15**(2): 103–6

Wang T, Izatt S, Dalglish C et al (2002) Peritoneal dialysis in the nursing home. *Int Urol Nephrol* **34**(3): 405–8

Ying I, Levitt Z, Jassal SV (2013) Should an Elderly patient with Stage V CKD and Dementia Be Started on dialysis? *Clin J Am Soc Nephrol* [Epub ahead of print: doi: 10.2215/CJN.05870513]

RIGHTSLINK

Journal of Renal Nursing. Downloaded from magonlinelibrary.com by 137.189.170.231 on October 26, 2015. For personal use only. No other uses without permission. . All rights reserved