

Chapter 6

Peritoneal Dialysis for the Elderly

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Introduction

The default dialysis choice for the elderly is usually haemodialysis in most European countries, Canada and the USA with relatively few patients starting on peritoneal dialysis (PD) compared to younger and fitter patients. This is actually quite surprising as a home-based treatment avoids the need for transport and peritoneal dialysis (PD) does not have the haemodynamic swings associated with haemodialysis (HD). There is no doubt that there are often challenges to enabling an elderly patient to have PD, but the development of assisted PD can surmount many of these. Indeed, in France where assisted PD has been available for many years, the PD population is predominantly elderly [1]. As discussed in Chap. 2, the BOLDE study has shown that PD patients have less illness and treatment intrusion than patients on HD [2], though the patients in the BOLDE study were mainly fitter older patients and none were on assisted PD.

Eligibility for PD

PD eligibility for older patients depends on factors related to the PD itself and on those more specifically related to ageing (see Table 16.1). Older patients are also more likely to be late presenters or “crashlanders”. Once started on HD, they are often unlikely to change to PD. With planning and appropriate education, many of the barriers can be surmounted. With appropriate education, over half of older patients would prefer to be on PD [3]. In this study of 134 older incident Canadian

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Table 6.1 Potential obstacles for PD in elderly patients

	Potential obstacle	Solution
PD related	Prior lower abdominal surgery	Consider surgically placed catheter, but PD may be contraindicated, particularly in presence of colostomy, previous pelvic radiotherapy, etc.
	Severe obesity	Consider surgically placed catheter but PD may be contraindicated
	Housing – no storage space	Can be a contraindication, but consider more frequent smaller deliveries of supplies
	Depression/anxiety	Can be a contraindication, but consider assisted PD
Age-related	Poor manual dexterity	Consider assisted PD
	Impaired physical activity with difficulty in lifting bags of fluid	Consider assisted PD
	Impaired vision	Consider assisted PD
	Impaired hearing	Use visual aids for training; consider assisted PD
	Cognitive dysfunction	Consider assisted PD. Can be contraindication if patient gets agitated, at risk of contaminating catheter or exit site
	General frailty	Consider assisted PD
	Late presentation (more common in elderly)	Consider acute start PD ± assisted PD

patients with a median age of 73 years, 25 % had visual problems, 20 % were considered immobile and 17 % had reduced hearing. In units with assisted PD available, 80 % patients were deemed eligible for PD as against 65 % when assistance was not available. In both groups, almost 60 % of those eligible chose PD. Oliver et al. [4] have also shown how important social support is for the eventual choice of PD; family support was associated with an increase in PD eligibility from 63 to 80 % and PD choice from 40 to 57 % in patients with barriers to self-care.

Benefits of PD for Older Patients

The advantages and disadvantages of PD compared to HD for older patients are discussed in Chap. 2. As shown in Table 16.2, the principal advantage of PD is being able to have treatment at home and thereby avoid the disruption and discomfort of visits to hospital in all weathers and regardless of how the patient is feeling. Furthermore, PD avoids the haemodynamic swings associated with HD and enables more freedom in terms of travel. This can be particularly important for older people who wish to visit family members in different parts of the world. Finally, and a point that is often not considered, there is the benefit of preservation of residual renal function enabling a relatively low dialysis prescription which minimises treatment burden and intrusion into lifestyle. It is well recognised that rate of decline in kidney function is lower with increasing age. Calculation of PD clearance includes residual

Table 6.2 Benefits of PD for older patients

Treatment is at home
Hospital visits restricted to outpatient reviews and emergency visits
Flexibility of treatment times round social activities (CAPD) or at night with daytime freedom (APD)
Preservation of residual renal function enabling 1–2 days “off”/week and slow incremental dose of treatment
No haemodynamic swings so stable blood pressure and no periods of feeling “washed out” (as compared to HD)
Simple procedure so can be done by family member or paid assistant with minimal training time

renal function, thereby enabling an incremental increase in the PD prescription as renal function declines; if there is little decline, dose of PD remains low. It is therefore not uncommon to find older patients still using only 3 CAPD exchanges some years after starting dialysis.

Assisted PD

Realistically, very few frail elderly patients will be able to perform their own PD. In some instances, family members will help, but usually, when this is not possible, patients are placed on HD with all its difficulties, and a few will opt for conservative care, i.e., no dialysis. Patients incapable of self-care PD, however, could be supported through assisted peritoneal dialysis (aPD) where trained staff provides daily dialysis assistance either in nursing homes or in patients’ homes. Assisted PD is available in many European countries, in parts of Canada and Australia using health-care workers and in many Asian and South American countries where domestic help is often relatively inexpensive. Assisted PD, however, is not reimbursed in the USA and so is not readily available unless provided by the patient and/or their family.

French Experience: Assisted CAPD

In France, aPD has been standard treatment for older patients for many years. A detailed analysis by the French REIN registry [5] of 3512 patients over 75 years starting dialysis between 2002 and 2005 showed that 18 % began with PD, with the proportion varying from 3 to 38 % depending on region; over half of these patients were on assisted PD. Interestingly, starting dialysis with PD was significantly associated with older age, congestive heart failure and severe behavioural disorders. The availability of assistance has enabled PD in France to be predominantly a treatment of the elderly, with ~55 % of patients on PD in January 2011 being >70 years of age

[1]. Non-disconnect CAPD with UV flash is the predominant method used as this greatly shortens the time needed for the nurse visit—the nurse phones the patient or a relative to start the drain procedure so when he/she arrives, they just have to remove the old bag and connect the new one, leaving the fluid to drain in and the patient to fold up the bag after their departure.

Assisted APD

In other European countries and in Canada, APD is used as the PD modality for assisted patients. Table 16.3 shows different models of how this is delivered.

Training of Assistants

Length of time taken to train assistants depends on healthcare experience of that individual. If a family member or a layperson provided by the patient or family, then training is no different to the standard training provided by the PD team for patients starting treatment. Nurses usually only require about half a day's training in the PD unit. In the UK system, assistants are mostly provided through a healthcare agency and require a longer period of training which is done either by the local PD unit or in a commercial PD training unit. In all programmes, the local PD team need to provide backup and be available for advice for the PD assistant.

Table 6.3 Models of delivering assisted APD

<i>Europe (non-UK), Canada</i>
Community nurses visit twice a day
Morning visit to disconnect patient from cyclor machine, remove used bags and set up machine with new bags for the evening
Shorter evening visit to connect patient to cyclor machine
This model is being developed in some European countries (Sweden, Denmark, Netherlands, Belgium, France) and Canada
Main disadvantage is cost of using nurses and providing 2 visits/day
<i>UK</i>
Daily visit from a healthcare assistant (individual with short basic training in healthcare)
Nursing qualification is not needed to perform PD (usually done by patients ± family support); salary of healthcare assistant is less than a nurse
One visit a day only – assistant takes used bags off cyclor machine and sets up machine with new bags and also checks blood pressure and weight of patient and can perform exit site dressings
Patient (with or without family support) still has to do their own connection to and disconnection from the cyclor machine. This limits the patient population suitable for assisted PD

Selection of Patients for Assisted PD

Patients starting on assisted PD come from various sources: existing PD patients who are no longer able to perform autonomous PD, predialysis patients starting dialysis electively, patients who have chosen PD but are difficult to train and HD patients who tolerate HD poorly. Assisted PD is also useful for patients who present late and are started on PD acutely (“acute-start PD”) while they wait for a training slot or to provide a transition period during which they can adjust to life on dialysis.

Not all elderly patients are suitable for aPD. Apart from the standard contraindications to PD, factors that make patients unsuitable for aPD include restlessness at night so unable to stay on machine, living alone and unable to be trained for eventuality of machine alarming overnight (if necessary, response can be just to switch off machine), unable to be trained to disconnect from machine in emergency, accommodation too small for cycling machine and fluid supplies and patient proves to be unreliable so frequently not at home when assistant calls.

Quality of Life

Anecdotally, patients can be very stable on aPD and those who have transferred from HD feel much better. There are currently no studies which report specifically on quality of life in patients on assisted PD.

Management of PD

Management of patients on PD includes initial assessment, catheter insertion, training and maintenance. The majority of the principles of care are the same as for younger patients, but there are features that need to be highlighted for older patients.

Assessment for PD

Apart from standard assessment for PD eligibility, older patients need to be assessed for their physical ability to carry out the various procedures required and for the ability to learn how to perform these techniques and how to troubleshoot if things go wrong. As already discussed, they are more likely to have poor hand dexterity, difficulty in lifting heavy bags, cognitive dysfunction (particularly impaired executive function), impaired vision and impaired hearing. All these factors will create difficulties in performing PD independently. Particularly when problems are

anticipated, the PD assessment should be carried out in the patient's home and with their family or carer support present. Potential barriers can then be identified and appropriate social support can be suggested to the family and/or put in place with community support. Some patients may benefit from creation of a microenvironment, enabling them to carry out PD independently. As well as identifying physical problems, it is also important to identify whether patients can carry over information and to obtain information from family or carers about potential memory or other cognitive problems. If it appears unlikely that the patient will be able to carry out their own PD, the possibility of assisted PD either by the family or a paid health-care worker should be discussed at this stage.

Catheter Insertion

There is no evidence of increased complications from catheter insertion such as hernia or fluid leak in older patients. In terms of actual insertion, as older patients are more likely to have cardiovascular comorbidities, it is important to assess suitability for general anaesthetic if this is going to be needed for catheter insertion.

Patient Training

If the patient has been assessed appropriately prior to PD catheter insertion, potential difficulties such as poor hand dexterity and impaired vision or hearing should have been identified. As many older patients do have impaired hearing and find learning more difficult, training should be done in a quiet environment and can take longer than for younger patients. Aids to learning, such as pictures, are often helpful. The most common problem in training older patients is previously undiagnosed cognitive impairment. This is much more common in patients with chronic kidney disease than in the general population, and executive function is often more severely affected than memory. It is hardly surprising, therefore, that such patients find it difficult to learn how to do their own PD. For a patient who appears difficult or impossible to train, the options are finding a family member to help, providing assistance at home or changing to haemodialysis.

Maintenance on PD

Maintaining any patient on PD is a multi-professional activity. For the elderly, holistic care is vitally important. As well as all the features of usual dialysis care, one needs to consider the management and progression of the associated comorbidities and impact of general ageing. A patient may be able to cope independently when

starting on PD but, with the development of cognitive impairment and/or worsening physical function, may need considerable support and/or be unable to carry out their own PD later on. Decisions then need to be made about social support at home, whether PD continues to be possible or not and whether changing to HD would be beneficial or not. Provision of assisted PD can often enable patients to remain on PD. Regular conversations are essential with patients and families to update on prognosis and determine wishes regarding future care, both regarding need for social support and assistance for PD and end of life planning. When discussing possible transfer to HD, it is important to be realistic about life on HD that such a transfer will not improve comorbidities or the effects of ageing. It is also important to be aware of the impact of PD on families, particularly if the patient is dependent on their spouse, who is most likely also going to be elderly with their own health problems. Temporary periods of assistance may well be needed during periods of illness of the spouse or to give the family a break; this may entail training another family member to do PD, providing paid assistance, or temporary intermittent PD in the hospital.

Complications of PD

There is no evidence of PD-related complications being more common in older patients. Although there has been concern that peritonitis is more frequent in the elderly, this has not been confirmed in most studies. Even with assisted PD in the frail elderly, the French experience shows very acceptable peritonitis rates of 1/36 patient months with nurse assistance and 1/48 patient months with family assistance [6]. There is no evidence of increased risk of hernias or leaks in older patients. There has been no comparison of rate of decline of residual renal function in older compared to younger patients on PD and therefore the risk of problems related to anuria. It is well recognised, though, that rate of decline of renal function is slower with increasing age. It is therefore not uncommon to find older patients continuing to pass urine and have significant residual renal function for up to many years on PD.

Length of Time on PD

Concerns about limiting length of time on PD for older patients should not be an issue. Even after 5 years on PD, the risk of encapsulating peritoneal sclerosis (EPS) is only 5%. Given the short survival of older patients on dialysis (median survival for patients >75 years old is only 22 months in the UK), if they survive for 5 years on dialysis, they have done well. Transferring to HD at some arbitrary time period would have a major impact on lifestyle and quality of life, could well be deleterious in terms of progression of cognitive dysfunction and physical function and actually increases the risk of developing EPS.

End of Life Management

Dialysis, of any sort, should be regarded as palliative treatment for older patients and particularly for the frail. Life expectancy is considerably shortened and death should not come as a surprise. A realistic prognosis should therefore be discussed with patients and families so that they can express their wishes and achieve end of life goals. Many patients choosing a home therapy would prefer to die at home. This will often require joint management with the palliative care team with care focused on symptom control rather than achieving ideal blood result targets. Withdrawal of dialysis is often less of an issue than for patients on HD as families/carers can be advised that missing an exchange or a night on cyclor is acceptable if the patient is drowsy or not well. This is less traumatic than deciding that dialysis is going to stop on a specific day. Care of PD patients requires community support and holistic care. The PD multidisciplinary team is therefore well placed to provide end of life support, interact with community care and palliative care and thereby maximise the quality of life at the end of life for their patients. At the end of life, supporting the patient with social care and symptom control is more important than achieving dialysis targets.

The complexity of caring for an elderly patient on PD is illustrated by the following case history.

Case History

Edith started PD at age 71 years. She had presented with vomiting and found to have end-stage kidney disease with an eGFR of 8 ml/min/1.73 m². Her only past history was a cerebellar stroke 10 years previously which had left her with impaired balance so that she walked with a roller zimmer frame. She greatly valued her independence, lived on her own and did all her own activities of daily living. She had never married and her only relative was a brother who lived some distance away; they phoned each other a couple of times a year but had not met for some time. She was maintained on CAPD 3 exchanges/day and did very well for the first 2 years. She continued to be independent, was always smart when coming to the clinic and had no episodes of peritonitis. She then started having falls when outside and in the house. Her walking improved after some physiotherapy and fortunately she had no fractures. After 3 years on PD, it was obvious that she was not coping so well. However she refused to have any help at home and soldiered on. Conversations were had about the future – she was always adamant that she did not want to change to HD and that she did not want a lingering death; she had seen her sister die from a brain tumour over many months and did not want the same for herself. The inevitable crisis happened when she came to the clinic fluid overloaded, anaemic and clearly not dialysing. She admitted to falling asleep and missing exchanges. She now agreed to change to assisted APD. At the community visit to set this up, it was obvious that she no longer cleaned her house and had not been eating. It proved impossible to train her how to turn alarms off on the cyclor machine and it became apparent that she was now

significantly cognitively impaired. After 1 week of assisted APD, she was reviewed in the clinic. She appeared dishevelled with food stains on her clothes; she had bruises on her face and abdomen but could not remember falling. Although her memory was clearly poor, she was still clear that she did not want HD, but she did not want to stop dialysis. As she retained the ability to do CAPD exchanges, the plan was changed to increasing social support at home with carers visiting regularly, meals on wheels were organised and she returned to do CAPD with the realisation that she would often miss an exchange. Community palliative care was also organised to provide nurse support at home and to enable her to transfer to a hospice when clinically indicated.

Key Points

1. Peritoneal dialysis should be considered for all older patients considering dialysis to enable treatment at home.
2. Assisted peritoneal dialysis is provided by many healthcare systems and enables older patients to have dialysis at home even when they cannot undertake treatment themselves.
3. No evidence of increased risk of PD-related complications, such as infection, for older patients.
4. Important to provide appropriate psychosocial support for ageing-related factors such as physical and cognitive function decline.
5. Important to discuss overall prognosis and end of life planning with patients and families.

References

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