

# Le Bulletin de la Dialyse à Domicile

## PERITONEAL DIALYSIS IN THE ELDERLY

William White, Edwina A Brown

Imperial College Renal and Transplant Centre, Hammersmith Hospital, London

*Note : ce texte a été soumis initialement en anglais sa traduction française est disponible à l'url : <https://doi.org/10.25796/bdd.v1i1.29>*

### Résumé

La dialyse péritonéale (DP) peut apporter une meilleure qualité de vie que l'hémodialyse (HD) en centre chez les sujets âgés qui nécessitent une épuration extra rénale (EER). La fragilité chez le sujet âgé suscite des difficultés qui peuvent trouver leur solution avec une dialyse péritonéale assistée, en collaboration avec les services gériatriques et de soins palliatifs. L'objectif de la DP chez le sujet âgé devrait être, tout en répondant aux attentes du patient, de contrôler les symptômes, maintenir l'équilibre volémique ainsi que la fonction rénale résiduelle.

Mots clés : dialyse péritonéale, vieillesse, sujet âgé, autonomie

Correspondance :

Professor Edwina Brown  
Hammersmith Hospital  
Du Cane Road  
London  
W12 0HS  
UNITED KINGDOM

Email: [e.a.brown@imperial.ac.uk](mailto:e.a.brown@imperial.ac.uk)

### Abstract

Peritoneal dialysis (PD) can provide an improved quality of life to older patients requiring renal replacement therapy (RRT) compared to in-centre haemodialysis (HD). Frailty in the elderly poses challenges to PD, which may be met by assisted PD, and integration with geriatric and palliative services. The focus of PD care in the elderly should be on meeting patients' goals, controlling symptoms, maintaining fluid balance and maintaining residual renal function

Keywords : peritoneal dialysis, elderly, frailty, assisted peritoneal dialysis

## INTRODUCTION

The management of older people receiving renal replacement therapy (RRT) is often driven by clinical trials from which they are largely excluded, and by guidelines which rarely acknowledge ‘problems’ such as life expectancy and frailty or recognise outcomes such as independent living and quality of life. Moreover, at no time in life are a patient’s health perspectives and expectations likely to diverge from that of the practitioner’s as they are in old age. Whilst clinicians may obsess over achieving dialysis adequacy targets, the older patient is likely to be primarily concerned with feeling as well as possible and avoiding hospital admission.

PD is delivered in the community and therefore has several advantages over in-centre HD as a means of providing RRT. However, healthcare workers delivering PD to older patients must be aware of the needs and challenges for this patient population, and tailor their therapy accordingly.

## AVANTAGES OF PD IN ELDERLY PATIENTS

In most healthcare systems, the vast majority of elderly patients receiving RRT do so via in-centre HD: in the UK only 11.3% of prevalent dialysis patients 75 years of age and older are on PD compared with 21.1% younger than 55<sup>1</sup>. This is despite the well-recognized practical and physiological burdens it places on older patients. The BOLDE (Broadening Options for Long Term Dialysis in the Elderly) study assessed quality of life in 140 dialysis patients 65 years of age and older: PD patients demonstrated significantly lower illness intrusion compared to those on HD<sup>2</sup>. With appropriate education, more than half of older patients would prefer to be on PD<sup>3</sup>.

PD facilitates patient independence far more than HD. PD enables home-based treatment, can be designed to fit around social activities, requires fewer hospital visits,

and permits travel and holidays. From the clinician’s perspective, the gentler ultrafiltration (UF) in PD avoids the haemodynamic disturbance frequently seen in elderly patients on HD, which is a cause of significant hospitalization and mortality. Patients on PD demonstrate prolonged residual renal function compared to those on HD, potentially allowing for ‘days off’<sup>4</sup>. From a utilitarian perspective, a home-based therapy such as PD avoids the massive organisational and financial costs of transporting elderly patients to and from in-centre HD.

## CHALLENGES TO PD IN ELDERLY PATIENTS

Elderly patients mostly have a number of comorbid conditions, high prevalence of frailty and cognitive impairment, and reduced life expectancy: thus, it is the state of ‘old age’ that determines the nature and length of an older person’s PD career, rather than PD itself. Frailty, a syndrome partly defined by weight loss, muscle weakness and fatigue, is more prevalent amongst chronic kidney disease (CKD) patients independent of age, and is associated with adverse outcomes<sup>5</sup>. The Frail Elderly Patient Outcomes on Dialysis (FEPOD) study showed that frailty is the predominant factor associated with worse quality of life scores for patients on dialysis regardless of modality (assisted PD or HD)<sup>6</sup>.

Frailty may translate into difficulty lifting bags, and impaired vision and poor manual dexterity causing difficulties with connecting and disconnecting. Cognitive impairment, which is more common in ESRD, can mean that patients may need longer training times, or may not be able to learn how to do their own PD. The risk of peritoneal dialysis is not increased in older patients, though those in whom peritonitis develops have a higher short-term mortality<sup>7</sup>. One of the advantages of PD over HD is that family members and care givers can provide assistance, though this can impose a significant burden on them<sup>4</sup>.

Additionally, a troublingly large portion of the elderly population live in poor conditions in inadequate housing, which precludes the storage of PD materials and the safe performance of exchanges.

Table 1: Patient and healthcare professional perspectives on peritoneal dialysis goals

Patient perspective	Healthcare professional perspective
Feel as well as possible Achieve lifestyle goals: <ul style="list-style-type: none"> <li>- Daily activities</li> <li>- Social life</li> <li>- Work</li> </ul> Avoidance of infection Tedium of repetitive technique Fear of transfer to HD Awareness of shortened life expectancy	Achieve dialysis adequacy targets Avoidance of infection Feasibility of PD in anuria Volume status Peritoneal membrane changes with time Planning ahead: <ul style="list-style-type: none"> <li>- Transfer to HD</li> <li>- End of life care</li> </ul>

### Tailoring PD to the needs of older patients

When looking after any older patient it is important to bear in mind that, whilst best-practice guidelines should be referred to, challenges specific to the elderly population should be addressed, functional outcomes considered, and, above all, the patient's and their family's views and wishes given primacy. These may be different to (but not irreconcilable with) those of the healthcare professional (Table 1).

Delivering PD for this population also needs to be patient-centred and should focus on optimising the quality of life for the patient, i.e. maintaining independence, minimising symptoms and achieving the quality of life he/she wants at the end of their life – usually this means avoiding transfer to HD. The key ways that PD can be adapted to achieve these are summarised in Table 2.

**Assisted PD** (in which trained staff or family members assist with all or part of the dialysis procedure) can provide medical and social support to elderly people unable to perform their own PD, allowing them to choose or continue with a home-based therapy rather than in-centre HD. Experience in Denmark and France suggests that the cost of assisted PD is equal to that of hospital-based HD<sup>8</sup>. Data from the French Peritoneal Dialysis Registry (RDPLF) has shown that the median survival for over 75 year-olds requiring assistance is 24 months, similar to that of all comers (90% of whom would be on HD) in the UK renal registry<sup>9</sup>.

Given that elderly patients are likely to remain on dialysis for the remainder of their lives<sup>10</sup>, preservation of renal function is important. Minimising exposure to nephrotoxic agents, adjusting dialysis dosage to residual function and using neutral pH and low glucose degradation product (GDP) dialysate may assist in this. Fluid balance control is key in symptom minimisation, striking a balance between achieving adequate UF to control oedema whilst avoiding symptomatic hypotension. Polypharmacy should be avoided if at all

possible. Glycaemic load can be reduced with the use of icodextrin dialysate, which has been shown to safely increase UF. In those with low ultrafiltration volumes, introducing a second icodextrin exchange can avert the necessity for transfer to HD<sup>11</sup>.

Services for older people, in the community and secondary care, should be integrated into the dialysis management plan. These include access to rehabilitation facilities, social support and rapid discharge planning in the event of hospital admission. Healthcare professionals providing PD to older patients need to develop close working relationships with the geriatric team. There is a clear role for a specialist renal elderly care nurse, who not only provides regular support and follow-up of older patients on PD, but attends case conferences and best interest meetings, and refers patients for memory/cognition testing, falls clinics, mobility assessments and physiotherapy.

End-of life planning care and planning should be considered at an early stage for all elderly patients on dialysis, and high-quality palliative care implemented as soon as it is required.

### CONCLUSION

PD delivery to the elderly should not be directed by dialysis targets established for the general adult population, but by the need to maximise quality of life and enable patient goals. Frailty, not dialysis, is the major determinant of patient outcomes. Integration with community and secondary care geriatric and palliative services is important in maximising patient independence and well-being, and avoiding transfer to HD or hospital admission.

### Disclosure

*No conflict of interest.*

Table 2: Key features focusing on quality of life for older patients on PD

Dialysis related	Supportive care
Tailor PD to residual renal function <ul style="list-style-type: none"> <li><input type="checkbox"/> Days off (1-2/week)</li> <li><input type="checkbox"/> Reduce CAPD exchanges (can be 2-3)</li> <li><input type="checkbox"/> Low exchange CAPD can be simpler than APD</li> </ul> Assisted PD (can be APD or CAPD) <ul style="list-style-type: none"> <li><input type="checkbox"/> From start of PD</li> <li><input type="checkbox"/> During maintenance if patient becomes frail, family support changes</li> <li><input type="checkbox"/> Poor ultrafiltration</li> <li><input type="checkbox"/> Introduce 2<sup>nd</sup> icodextrin exchange (daytime on CAPD and APD)</li> </ul>	Treat symptoms Geriatric assessment and support Social service support Rehabilitation Advance care planning for end of life care

## REFERENCES

1. MacNeill SJ, Casula A, Shaw C, Castledine C. UK Renal Registry 18th Annual Report: Chapter 2 UK Renal Replacement Therapy Prevalence in 2014: National and Centre-specific Analyses. Available at: [https://www.renalreg.org/wp-content/uploads/2015/12/Chapter-02\\_v3.pdf](https://www.renalreg.org/wp-content/uploads/2015/12/Chapter-02_v3.pdf)
2. Brown, E. A. et al. 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, 3755–3763 (2010).
3. Manns, B. J. et al. The impact of education on chronic kidney disease patients' plans to initiate dialysis with self-care dialysis: A randomized trial. *Kidney Int.* 68, 1777–1783 (2005).
4. Brown E.A. et al. Peritoneal or hemodialysis for the frail elderly patient, the choice of 2 evils? *Kidney Int.* 91, 294–303 (2017).
5. Fried, L. P. et al. Frailty in older adults: evidence for a phenotype. *J. Gerontol. A. Biol. Sci. Med. Sci.* 56, M146–M156 (2001).
6. Iyasere, O. U. et al. Quality of Life and Physical Function in Older Patients on Dialysis: A Comparison of Assisted Peritoneal Dialysis with Hemodialysis. *Clin. J. Am. Soc. Nephrol.* 11, 423–430 (2016).
7. Szeto, C. C. Peritoneal dialysis-related infection in the older population. *Peritoneal Dialysis International* 35, 659–662 (2015).
8. Bechade, C., Lobbedez, T., Ivarsen, P. & Povlsen, J. V. Assisted peritoneal dialysis for older people with end-stage renal disease: The french and danish experience. *Peritoneal Dialysis International* 35, 663–666 (2015).
9. Gilg J, Caskey F, Fogarty D: UK Renal Registry 18th Annual Report: Chapter 1 UK Renal Replacement Therapy Incidence in 2014: National and Centre-Specific Analyses. Available at: [https://www.renalreg.org/wp-content/uploads/2015/12/Chapter-01\\_v3.pdf](https://www.renalreg.org/wp-content/uploads/2015/12/Chapter-01_v3.pdf).
10. Brown E.A., Wilkie M. Assisted Peritoneal Dialysis as an Alternative to In-Center Hemodialysis. *CJASN* 11, 1522–1524 (2016).
11. Imtiaz MD et al, EuroPD 2015 – poster.

Received 2018/06/11, accepted on 2018/06/12 published 2018/06/13

*Open Access This article is licensed under a Creative Commons Attribution 4.0 International License, which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license, and indicate if changes were made. The images or other third party material in this article are included in the article's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the article's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this license, visit <http://creativecommons.org/licenses/by/4.0/>.*