AJKD

Perspective

Urgent-Start Peritoneal Dialysis: A Chance for a New Beginning

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Peritoneal dialysis (PD) remains greatly underutilized in the United States despite the widespread preference of home modalities among nephrologists and patients. A hemodialysis-centric model of end-stage renal disease care has perpetuated for decades due to a complex set of factors, including late end-stage renal disease referrals and patients who present to the hospital requiring urgent renal replacement therapy. In such situations, PD rarely is a consideration and patients are dialyzed through a central venous catheter, a practice associated with high infection and mortality rates. Recently, the term urgent-start PD has gained momentum across the nephrology community and has begun to change this status quo. It allows for expedited placement of a PD catheter and initiation of PD therapy within days. Several published case reports, abstracts, and poster presentations at national meetings have documented the initial success of urgent-start PD programs. From a wide experiential base, we discuss the multifaceted issues related to urgent-start PD implementation, methods to overcome barriers to therapy, and the potential impact of this technique to change the existing dialysis paradigm.

Am J Kidney Dis. ■(■):■-■. © *2013 by the National Kidney Foundation, Inc.*

INDEX WORDS: Peritoneal dialysis; urgent peritoneal dialysis; urgent-start peritoneal dialysis; late end-stage renal disease (ESRD) referral; acute-start peritoneal dialysis; acute peritoneal dialysis.

INTRODUCTION

Peritoneal dialysis (PD) is greatly underutilized[1,2] as a treatment for end-stage renal disease (ESRD) despite many potential benefits, including lifestyle flexibility, preservation of kidney function,[3,4] and cost-savings compared with hemodialysis (HD).[5,6] Despite these advantages, 93% of patients who require dialysis are initiated on HD,[7] the majority (80%) with a central venous catheter (CVC). The latter incur a high risk of infection, hospitalization, and death in the first year of therapy, particularly when compared with a PD catheter.[7,8] Widespread efforts to minimize the use of CVCs have been blunted by continued reliance on HD to initiate ESRD therapy in those without permanent vascular access.

The HD-centric model of ESRD care, with all its disadvantages, has evolved in response to a complex set of factors, including economic conditions that favored HD and the industrialization of HD by dialysis providers.[1] Although the lack of pre-ESRD care clearly is linked to inadequate vascular access preparation and high use of CVCs for patients who require dialysis in an emergency, many patients require a catheter for an unanticipated dialysis therapy start, even under the watchful eye of a nephrologist.[9] More than 40% of patients receiving more than 12 months of nephrology care initiate dialysis therapy with a CVC and no permanent vascular access.[7] The ready availability of CVC placement facilitates relatively effortless initiation of HD versus PD therapy in most hospitals. Although these problems are well known, very little progress has been made in changing practice patterns. Many practicing nephrologists feel powerless to overcome these entrenched systematic issues, leading to frustration and maintenance of the status quo.[1]

Within the last decade, urgent-start PD has gained considerable interest in the nephrology community. Traditional PD consists of PD catheter placement and initiation of training after a 2- to 4-week healing period. This process requires synchronization among patient, nephrologist, operator, and dialysis center. The present infrastructure makes it difficult to accommodate patients who present unexpectedly for dialysis. Such logistical barriers are illustrated by the fact that many patients with adequate pre-ESRD education and preference for PD are started on HD therapy.[10] Urgent-start PD refers to an approach that involves initiation of PD therapy earlier than 2 weeks

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Received July 3, 2013. Accepted in revised form September 23, 2013.

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0272-6386/$36.00

http://dx.doi.org/10.1053/j.ajkd.2013.09.018

Table 1. Barriers to Urgent-Start PD Implementation

Barriers to Implementation	Solutions
	Nephrologist Level
Inexperience with urgent-start PD	Use PD expertise of nephrology colleagues, professional organizations
Appropriate patient selection	Consensus upon "urgent-start PD" definition to ensure medically appropriate referrals
Financial bias	Introspective evaluation of referral motive
	Operator Level
Inexperience placing PD catheter	Use formalized PD education for operators; evaluate literature regarding PD catheter placement techniques
Timely placement of PD catheter	Do not rely on a single operator, have alternative referral pathways
Agreement on perioperative care	Education on regional standardized care protocols
	Hospital Level
Buy-in from all departments that treat patients with ESRD	Educate staff on importance of urgent-start PD; collaborate on urgent-start PD protocols
Lack of adequate resources or supplies to provide urgent-start PD	Contract with outside acute dialysis provider
Discharge planning	Educate case manager and/or social worker, provide check-lists; provide verbal sign-out to outpatient PD center
	Dialysis Center Level
Dialysis staff buy-in	Engage staff in planning stages and patient selection process
Lack of staff education	Provide regular in-service education
Variability in physician practice patterns	Establish protocols in collaboration with referring physicians
Inadequate resources	Lobby dialysis administration to get more resources (ie, space, gurneys, recumbent chairs, nurses)
Potential for high complication rates	Periodic assessment of pre-established quality metrics and targeted quality improvement measures
	Patient Level
Lack of education	Dedicated time spent by nephrology team to educate patient and family
Unrealistic expectations of modality	Develop and provide dialysis modality education resources
Need for caretaker involvement	Coordinate support services provided by nephrologist, nurse, dietician, and social worker
Psychosocial stress	Early home visit to assess living situation

Abbreviations: ESRD, end-stage renal disease; PD, peritoneal dialysis.

after PD catheter insertion. Treatment is performed with low fill volumes in the supine position using a cycler to avoid pericatheter leak. Numerous clinical experiences with urgent-start PD have been published or discussed at scientific meetings[11-21] and promoted by the dialysis industry.[22] Treatment varies from thrice weekly to daily, typically occurring in the outpatient dialysis center for 6-8 hours per day until the patient is able to tolerate larger fill volumes and undergo traditional PD training. This attractive alternative to default HD therapy by a CVC is illustrated in the following vignette.

A 56-year-old woman was admitted for unexpectedly worsening chronic kidney disease. The patient was interested in PD therapy. The nephrologist contacted an experienced surgeon, who promptly inserted a PD catheter in the hospital. Low-volume supine dialysis was initiated postoperatively using a cycler. On postoperative day 2, she was discharged to an outpatient urgent-start PD program. Cycler fill volumes were increased gradually, and she began modified PD training. After 2 weeks, she tolerated normal fill volumes and was transitioned to home.

In response to a growing number of reports, particularly the Ghaffari[13] case series, urgent-start PD programs are rapidly appearing around the United States, with as many as 100 programs now in existence (S. Guest, personal communication, March 19, 2013). The authors of this commentary are passionate about PD and come from a diverse experiential base: community practice, academia, a health maintenance organization, and the dialysis industry. The group met in person and by teleconferences to discuss immediate and broader issues related to urgent-start PD therapy implementation (Table 1). The key elements for successful urgent-start PD were identified, with the nephrologist