

Urgent-Start Peritoneal Dialysis: A Multicenter Clinical Trial

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Introduction

Patients who present with advanced chronic kidney disease (CKD) in need of urgent dialysis are usually started on hemodialysis (HD), most commonly via a central venous catheter (CVC). Very few patients are given the option of peritoneal dialysis (PD) in this situation despite its proven efficacy and safety. The reasons are many, including nephrologists' unease and inexperience in urgently starting PD in unplanned, late-presenting patients.

The Urgent-Start PD pilot, a protocol-driven management program, was introduced to patients at a large dialysis organization (LDO) to:

- Avoid central venous catheters, thereby
- Improving early survival
- Minimizing hospitalizations and hospital length of stay
- Decreasing number of access procedures
- Make PD an option for all patients

Objective

To demonstrate that urgent-start PD can be safely applied in a protocol-driven, outpatient model.

Methods

We worked with clinic staff at the LDO to identify facilities and patients eligible for urgent-start PD.

Education for Staff

LDO staff were trained on urgent-start PD, including efficacy, safety, and urgent-start protocols.

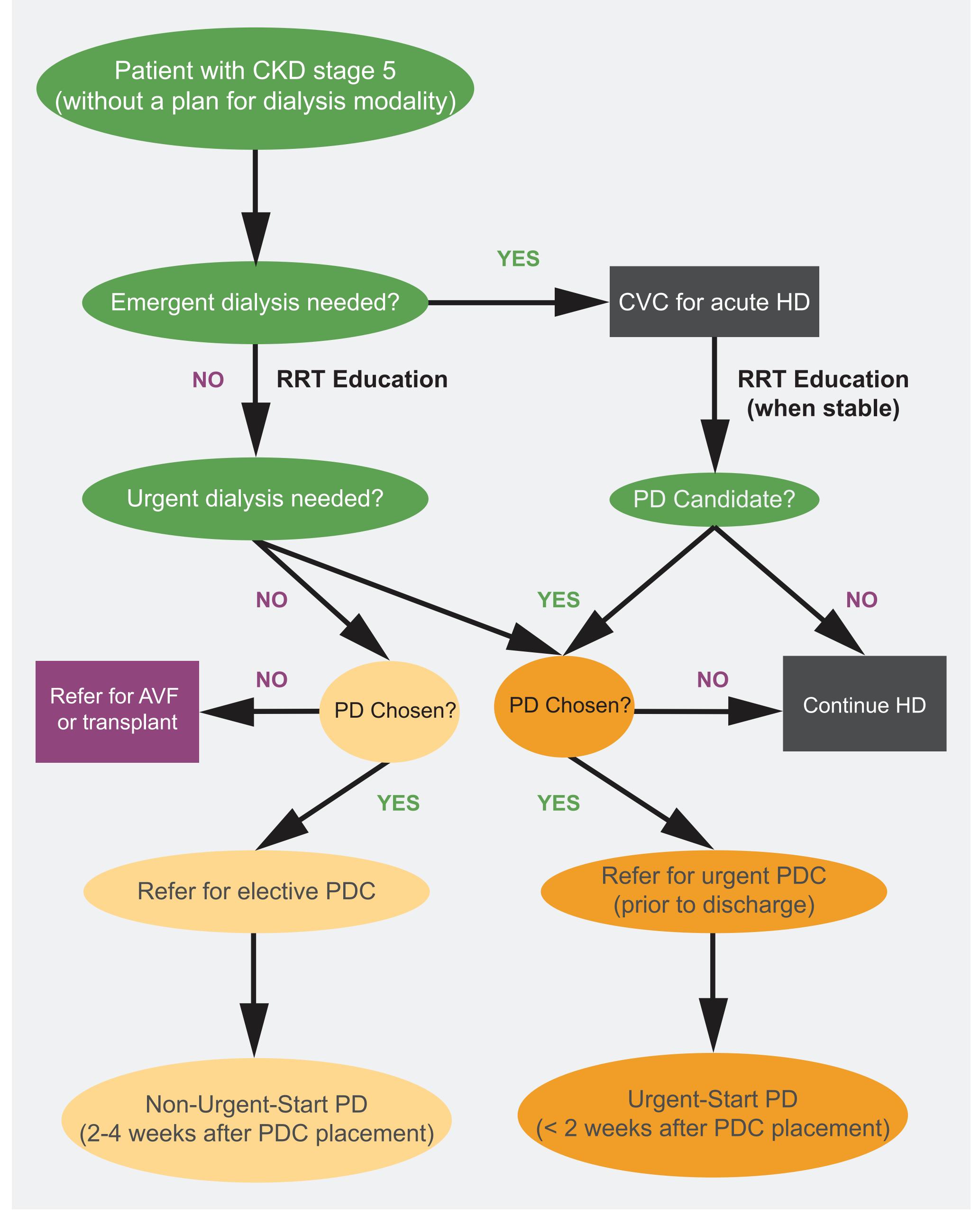
Protocols

Protocols, based on those used by Ghaffari² and shown in Figure 1, were developed to standardize patient selection and management in the urgent-start period and included:

- Patients presenting with CKD were evaluated to determine emergent dialysis status
- Non-emergent dialysis status
- Given renal replacement therapy (RRT) education
- If a candidate for PD, referred for PD catheter placement

- Patients received small-volume, in-center, supine PD 3 times a week, beginning less than 2 weeks after PD catheter placement
- Emergent dialysis status
- Temporary HD catheter placed and HD therapy begun
- When stable, offered RRT and then followed steps as for nonemergent patients

Figure 1. Patient-Selection Protocol for Urgent Start Peritoneal Dialysis*



Abbreviations: AVF, arteriovenous fistula; CKD, chronic kidney disease; CVC, central venous catheter; HD, hemodialysis; PD, peritoneal dialysis; PDC, peritoneal dialysis catheter; RRT, renal replacment therapy.

* Adapted from Ghaffari A. Urgent-start peritoneal dialysis: a quality improvement report. Am J Kidney Dis. Mar 2012;59(3):400-408.

Results

Table 1. Urgent-Start Baseline Patient Characteristics

Characteristics	N = 174
Age (years)	54 + 16 years
Sex (% Male)	55.0%
Diabetes (%)	49.4%
Prior renal care (%)	62.5%

Table 2. Avoidance Rates of Central Venous Catheter Placement

	Rate
Required HD (n, %)	52 (30%)
CVC (n, %)	54 (31%)

Table 3. Outcomes After 11.3 Months of Follow Up for Urgent Start PD Patients

Outcome	N = 174
Follow-up (mean)	11.3 months
Deaths	12 (7.0%)
Transfer to HD	24 (13.8%)
Non-compliance	2 (1.1%)
PD catheter issues	4 (2.3%)
Could not be trained for PD	1 (0.6%)
Unknown reasons for transfer to HD	4 (2.3%)
Peritonitis	2 (1.1%)
Lack of family support	1 (0.6%)
Patient choice	6 (3.4%)
Cerebrovascular accident	1 (0.6%)
Inadequate PD	2 (1.1%)
Rectal prolapse	1 (0.6%)
Remaining on PD	138 (79.3%)

Table 4. Causes of Death

Cause of Death	N = 12
Sudden death	7 (4.0%)
Discontinued dialysis	2 (1.0%)
Sepsis (unrelated to PD)	1 (0.5%)
Myocardial infarction	1 (0.5%)
Hepatic cancer	1 (0.5%)

- 184 patients (55.0% male, mean age 54 ± 16 years, 49.4% diabetic) started PD urgently at 36 facilities (Table 1).
- 10 patients did not start PD within 14 days and were excluded from analysis
- 174 patients were therefore included in the analysis
- 62.5% had received prior nephrology care.
- On average, PD was started in the outpatient facility 5.0 ± 3.2 days after PD catheter placement.
- -52 (30%) had 1 or more HD treatments (Table 2)
- -54 (31%) had a CVC placed
- With a mean follow-up of 11.3 months (Table 3 and 4):
- 138 (79%) patients remain alive and on PD
- -24 (14%) patients transferred to in-center HD (6 patient choice, 4 PD catheter issues, 1 could not be trained, 2 peritonitis, 2 inadequate PD, 2 noncompliance, 1 CVA, 1 lack of family support, 1 rectal prolapse, 4 unknown causes)
- 12 patients (7%) died (7 sudden cardiac deaths, 1 myocardial infarction, 1 sepsis [unrelated], 1 liver cancer, and 2 withdrew from dialysis)

Conclusions

This multicenter study demonstrated urgent-start PD can be broadly and successfully used in patients with advanced CKD in urgent need of dialysis in a structured program. This management strategy allowed patients the opportunity to choose PD as a modality. Major benefits were the avoidance of CVC use in the majority of patients and their rapid removal because of early PD.

References

- 1. Perl J, Wald R, McFarlane P, et al. Hemodialysis Vascular Access Modifies the Association between Dialysis Modality and Survival. J Am Soc Nephrol. Jun 2011;22(6):1113-1121.
- 2. Ghaffari A. Urgent-start peritoneal dialysis: a quality improvement report. Am J Kidney Dis. Mar 2012;59(3):400-408.

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