

Is It Safe to Initiate Peritoneal Dialysis Treatment Immediately After Percutaneous Catheter Placement?

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In this retrospective study, the safety of initiating peritoneal dialysis (PD) immediately after percutaneous PD catheter insertion was evaluated. Patients who underwent peritoneal catheter insertion and then immediately began dialysis treatment were included in the study. Patient age, sex, treatment modalities, and method of catheter insertion were recorded.

Acute PD was performed in 33 patients (age: 57.7 ± 16.7 years; 21 men, 12 women). Catheters were inserted percutaneously in 28 patients and surgically in 5 patients. The PD modalities used were continuous ambulatory PD in 18 patients, automated PD in 11 patients, and both modalities in 4 patients. Acute PD was started within 24 hours of catheter insertion. Leaks occurred in 8 patients who had catheters inserted percutaneously (28.5%). Peritonitis occurred in 1 patient. No complications were observed in 24 patients. Leaks were fully resolved for patients kept in a supine position, with fill volumes reduced to 500 mL – 700 mL and the dwell period decreased to 60 minutes from 120 minutes. Leaks were not observed in the patients when the fill volume was increased by 200 mL and the dwell period was increased by 30 minutes every 2 days to reach 1300 mL and 180 minutes by the 7th day.

Immediate-start dialysis after percutaneous peritoneal catheter insertion seems safe when performed in a supine position with low-volume exchanges and short dwell times.

Key words

Percutaneous catheter placement, immediate dialysis initiation, safety

Introduction

Peritoneal dialysis (PD) as a treatment option for end-stage renal disease can begin when the PD catheter is inserted (1). Normally, dialysis starts 14 days after catheter placement (2). However, waiting that long isn't always possible. Sometimes, PD has to begin before that time (3). In the present study, the aim was to evaluate the safety of initiating PD immediately after percutaneous PD catheter insertion.

Methods

This retrospective study included patients who underwent percutaneous or surgical catheter insertion and began dialysis treatment on the same day (within 24 hours) at Dumlupinar University Nephrology Clinic between September 2013 and December 2015. All patients signed a consent form before PD catheter insertion, and the study received approval from Dumlupinar University Evliya Celebi Research and Hospital Institution. Patient age, sex, primary renal disease, treatment modalities, and method of catheter insertion were recorded. The statistical analysis was performed using the PASW Statistics software application (version 18.0: IBM, Armonk, NY, U.S.A.).

Results

Acute PD was performed in 33 patients (age: 57.7 ± 16.7 years; 21 men, 12 women). Catheters were inserted percutaneously in 28 patients and surgically in 5 patients (Table I). The PD modalities used were continuous ambulatory PD (CAPD) for 18 patients, automated PD (APD) for 11, and both modalities for 4 patients. Acute CAPD or APD was performed using 1000 mL exchanges and a 2-hour dwell time (4 – 5 exchanges over 8 – 9 hours for APD with 1.36% – 2.27% or 1.5% – 2.5% dialysate); manual CAPD exchanges were performed on the same schedule.

TABLE 1 Characteristics of the study population

<i>Characteristic</i>	<i>Value</i>
Mean age	57.7±16.7
Sex (men/women)	21/12
Catheter insertion	
Percutaneous	28
Surgical	5
PD modality	
CAPD	18
APD	11
CAPD+APD	4
Complications	
Dialysate leak	8
Peritonitis	1
Cause of ESRD	
Diabetes	10
Diabetes and hypertension	5
Hypertension	5
Others ^a	13

PD = peritoneal dialysis; CAPD = continuous ambulatory peritoneal dialysis; APD = automated peritoneal dialysis; ESRD = end-stage renal disease.

^aUnknown, glomerulonephritis, benign prostatic hypertrophy.

Leaks occurred in 8 patients whose catheters had been inserted percutaneously (28.6%), and peritonitis occurred in 1 patient; no complications were observed in the remaining 24 patients. The leaks were fully resolved by keeping the patients in a supine position, reducing the fill volume to 500 mL – 700 mL, and decreasing the dwell time to 60 minutes from 120 minutes. No further leaks in these patients were observed when the fill volume was increased by 200 mL and the dwell time by 30 minutes every 2 days to reach a 1300 mL exchange volume and a dwell time of 180 minutes by the day 7.

Discussion

Peritoneal dialysis is a reasonable option for the treatment of end-stage renal disease. The technique requires insertion of a PD catheter for access to the peritoneal cavity. Ideally, the PD catheter should be placed 2 weeks before the start of PD treatment. Sometimes, however, waiting is not possible (3,4).

A recent study showed a higher instance of leaks in patients who start dialysis 1 week after catheter placement compared with those who start 2 weeks after catheter placement (5). In that study, the rate of leaks at 1 week was 28.2%. In our study, the rate of leaks was found to be 28.5% in patients who started dialysis within 24 hours of insertion. Leaks were, however, fully resolved when exchanges with low volumes and short dwell times were used in patients kept in the supine position. Another study reported results similar to those in our study; however, that study gave patients a 24-hour break between dialysis sessions (6). Our study continued dialysis, with resolution of the leaks and no need for a break. Wang *et al.* (7) reported that dialysis could safely be started between 7 days and 1 month of catheter placement. Their study contrasts with ours, despite showing similar results. In our study, dialysis was started within 72 hours of catheter insertion, and even within 24 hours for most patients ($n = 21$, 64%), which is an approach different from that used in the study by Bitencourt Dias *et al.* (6).

Conclusions

Our results suggest that it seems to be safe to start dialysis immediately after percutaneous PD catheter insertion when dialysis is performed using low-volume exchanges and short dwell times with the patient in a supine position. Further studies in larger patient populations are necessary to confirm those findings.

Acknowledgments

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Disclosures

I understand that *Advances in Peritoneal Dialysis* requires disclosure of any conflicts of interest, and I declare that I have no conflicts to disclose.

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