Catheter placement by the nephrologist: a safe and effective method for improving access to peritoneal dialysis

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Background

Peritoneal dialysis (PD) is as effective as hemodialysis and provides a better quality of life. However, it remains underused, particularly in our country, for several reasons, especially the unavailability of surgeons with the necessary skills to insert catheters. The aim of our study was to evaluate the impact of catheter placement by the nephrologist on the incidence of peritoneal dialysis patients, compare the success rates and assess the short- and long-term complications between surgical and nephrologist placements. The ultimate goal was to identify and promote the most effective method with the fewest complications.

Methods

Retrospective study of 69 patients with PD from January 2008 to December 2022.

Results

28 patients received PD catheter placement by nephrologists (group A), while 41 underwent the procedure performed by urologists (group B). The incidence of patients placed on PD has shown a significant increase since the initiation of catheter placement by nephrologists, with a growth rate of over 100% every two years.

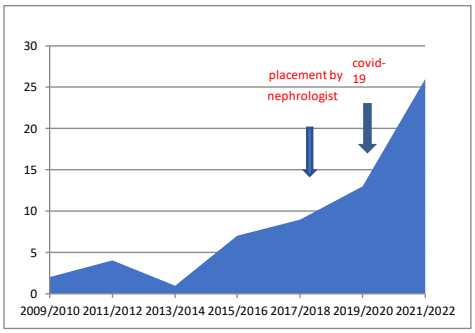

Figure I: Number of incident PD patients every two years

No significant difference was observed in the incidence of short-term mechanical and infectious complications between the two groups. However, the group B experienced a higher occurrence of long-term mechanical and infectious complications compared to the group A.

Table 1: Outcomes comparison between percutaneous catheter insertion by nephrologist (group A) and by coelioscopy (group B)

Variable	Group A, N=	Group B, N=	P value
Early mechanical complications	**7 (30.4%)**	**10 (25%)**	**0.64 +**
Early infectious complications	**5 (21.7%)**	**9 (22.5 %)**	**0.944 ++**
Late mechanical complications	**4 (17,4 %)**	**18 (45 %)**	**0.027+**
Catheter migration	0	12 (30.8 %)	**0.002++**
Hernia	1 (4.3%)	4 (10.3%)	0.643 ++
Omentum wrapping	1 (4.3%)	10 (25.6%)	**0.042 ++**
Clotting	0	7 (17.9 %)	**0.019 ++**
Late infectious complications	**9 (39.1 %)**	**19 (47.5 %)**	**0.52 +**
Peritonitis	9 (39.1 %)	16 (41 %)	0.883 +
Tunnelitis	0	8 (20,5%)	**0.021 ++**
Exit site infection	1 (4.3%)	7 (17.4 %)	0.239 ++

+: Chi-2
++: Fisher exact test

The waiting time before catheter placement was significantly shorter in group A (5 days vs. 20 days; p<0.001). The success rate of peritoneal dialysis catheter placement in group A was 92.85%, while it was 97.56% in group B. There was no significant difference in catheter survival at 1 year between the two groups. However, the mean catheter survival was significantly longer in group B (17 months vs. 11 months, p=0.026).

Discussion and conclusion

Several studies have demonstrated the benefits of percutaneous placement of the PD catheter compared to surgical placement. A meta-analysis by Thawatchai Tullavardhana and his team of 10 studies (2 randomized controlled studies (RCTs) and 8 retrospective studies) demonstrated that the incidence of overall infectious (OR = 0.26, 95% CI = 0.11-0.64, P = 0.003) and overall mechanical complications (OR = 0.32, 95% CI=0.15-0.68, P = 0.003) were significantly lower in the percutaneous groups than the surgical groups[1].

In our study, the placement of the PD catheter by nephrologists has demonstrated effectiveness and safety. However, it is crucial to investigate and address the factors contributing to the shorter mean catheter survival. By identifying and correcting these factors, we can improve the longevity of catheters and enhance the overall success of PD procedures.

[1] Thawatchai Tullavardhana , Prinya Akranurakkul, Withoon Ungkitphaiboon, Dolrudee Songtish. Surgical versus percutaneous techniques for peritoneal dialysis catheter placement: A meta-analysis of the outcomes. Annals of Medicine and Surgery 10 (2016) 11-18.