A Comparison between Percutaneous and Surgical Placement Techniques of Permanent Peritoneal Dialysis Catheters

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Table 1. Complication rates and catheter longevity following percutaneous or surgical catheter placement techniques

Dear Sir,

Continuous ambulatory peritoneal dialysis (CAPD) has been established as an effective treatment of end-stage renal disease. The key to successful CAPD is permanent and safe access to the peritoneal cavity. Several implantation techniques for the peritoneal dialysis catheter, such as percutaneous, open surgical and laparoscopic procedures, have been described [1-4]. The type of catheter implantation technique may influence the success of the CAPD procedure [2, 5]. Some studies have suggested that the percutaneous placement technique has caused more catheter-related complications than the surgical procedure [6, 7]. However, the optimal approach to the implantation technique of the catheter is still a matter of debate. In this study, we carried out a retrospective analysis of all peritoneal dialysis catheters inserted by both percutaneous and surgical techniques, and compared complication rates and catheter survival.

A total of 284 patients with end-stage renal disease, 171 males and 113 females, were maintained on CAPD between March 1985 and December 1994. The mean age was 45.8 ± 13.6 years (15-76 years). In 219 cases catheters were placed percutaneously using the Tenckhoff Trocar technique, and in 65 cases catheters were placed surgically under general or spinal anaesthesia. Peritoneal dialysis was started between the 4th and 5 th days after placements using a 1-litre dialysate volume. The incidence of peritonitis,

exit-site/tunnel infection, drainage failure and other mechanical complications, such as cuff extrusion, dialysate leak, hernia, abdominal or genital edema, and the longevity of catheter were compared using Student's t test, χ^2 test or life table analysis as appropriate.

Age, sex, etiology of renal failure and catheter design were similar between both groups. The incidence of peritonitis and exit-site/tunnel infections were not significantly different between the 2 groups. Also, early and late drainage failure, and other mechanical complications were

similar for percutaneous and surgical placements (table 1). Bowel perforation as a life-threatening complication was seen in only 1 patient following percutaneous placement. Implantation of catheters for peritoneal access is a crucial procedure with a highly significant influence on the short- and long-term success of chronic peritoneal dialysis. Our results suggest that the percutaneous implantation technique is an effective and reliable access method for peritoneal dialysis. The open surgical technique requires operating room facilities and staff, a surgeon, and often the use of general anaesthesia. The wound is up to 10 cm in length, and a period of postoperative hospitalization is normally required. In contrast, the percutaneous technique can be performed by a nephrologist at the bedside under local anaesthesia, the wound is only 2 cm long, and the procedure is associated with minimal postoperative pain and discomfort.

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Tenckhoff H, Schecher H: A bacteriologically safe peritoneal access device. *Trans Am Soc Artif Intern Organs* 1966; 12:106-107.

Ash SR: Chronic peritoneal dialysis catheters: Effects of catheter design, material, and location. *Semin Dial* 1990;3:39-46.

Mellotte GJ, Ho CA, Morgan SH, et al: Peritoneal dialysis catheters: A comparison between percutaneous and conventional surgical placement techniques. *Nephrol Dial Transplant* 1993;8:626-630.

Ash S, Handt A, Bloch R: Peritoneoscopic placement of the Tenckhoff catheter: Further clinical experience. *Perit Dial Bull* 1983;3:8-12.

United States Renal Data System Annual Data Report: Catheter-related factors and peritonitis risk in CAPD patients. *Am J Kidney Dis* 1992; 20(suppl 2):48-54.

Khanna R, Twardowski ZJ: Peritoneal dialysis access; in Nolph KD (ed): *Peritoneal Dialysis*, ed 3. Boston, Nijhoff, 1989, pp 319-342.

Nicholson M, Donnelly P, Burton P, et al: Factors influencing peritoneal catheter survival in continuous ambulatory peritoneal dialysis. *Ann R Coll Surg Engl* 1990;72:368-372.

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