SUCCESS OF CHRONIC PERITONEAL DIALYSIS DEPENDS ON MAINTENANCE OF THE PERITONEAL CATHETER. THE INTRODUCTION OF A PERITONEAL CATHETER BY TENCKHOFF IN 1968 [1] ALLOWED THE USE OF CHRONIC PERITONEAL DIALYSIS FOR TREATING A LARGE NUMBER OF CHRONIC UREAEMIC PATIENTS. CLINICAL EXPERIENCE HAS, HOWEVER, SHOWN THAT THE MANAGEMENT OF THIS DEVICE IS SOMETIMES A DISCOURAGING PRACTICE.

'One-way' obstruction (the dialysate runs into peritoneal cavity, but it does not drain out) is a very common cause of the catheter failure. It may be due to the dislodgement of the catheter from the pelvis and/or wrapping by the omentum. Repositioning of the catheter by a stainless steel stylus is frequently unsuccessful, leading to the surgical removal of the catheter. Another common complication is the leakage of fluid around the catheter, causing swelling of the abdominal wall, scrotum and penis. Leakage may favour skin infection because of the high dextrose concentration of the dialysate. Finally, extrusion of the external cuff of the Tenckhoff catheter could present a serious problem, favouring infection of the subcutaneous tunnel and subsequent peritonitis.

To avoid dislodgement from the pelvis, Goldberger [2] designed a new catheter with an inflatable balloon in the middle of its intra-abdominal part. The balloon can be inflated with 20ml of saline which will maintain the catheter by gravity in the pelvis. Clinical results were, however, not as satisfactory as expected.

Oreopoulos [3] developed another permanent device with two distal silastic discs (initially he used three discs). Although this catheter represents a further step in the development of peritoneal dialysis technology, many problems are still to be solved. In an attempt to cope with these difficulties we have designed a new type of permanent catheter (see Figure 1).

Instead of the two cuffs of the Tenckhoff catheter, we use two discs made of Roderon at a distance along the catheter which may be changed during the surgical procedure depending on the thickness of the abdominal wall. Roderon is a highly biocompatible material which allows very good tissue ingrowth. This will reduce the risks of infection in the subcutaneous tunnel and will provide
integrity of the peritoneum which will significantly reduce the incidence of fluid leakage. The intra-abdominal part of the catheter (length and diameter of which are respectively 12 and 2.5cm) is made of two concentric chambers. The internal one is identical to the distal end of the Tenckhoff catheter. The external chamber has many holes of different diameter. The space between the two chambers is very small and their connection is achieved by four thin longitudinal silastic segments. This device will prevent wrapping of the internal chamber by omentum.

A clinical trial is now in progress but a large multicentre study is necessary to evaluate the real advantages of our device.
References

1 Tenckhoff H, Schechter H. *Trans ASAIO* 1968; **14**: 181
2 Goldberg EM, Hill W, Kabins S. *Dialysis Transplant* 1975; **June**: 50