Management of inguinal herniae in patients on continuous ambulatory peritoneal dialysis: an audit of current UK practice

G J Morris-Stiff, D J Bowrey, W A Jurewicz, R H H Lord

Summary
Patients receiving continuous ambulatory peritoneal dialysis are at increased risk for the development of inguinal herniae, with a reported prevalence of 14%. Elective hernia repair is indicated for these patients as strangulation is associated with a high mortality in this population. There are currently no national guidelines relating to the optimal peri-operative management of these patients, in particular the appropriate pre- and post-operative dialysis regimen. The aim of the current study was to evaluate current practice in the UK by means of a postal questionnaire sent to all centres undertaking renal transplantation. Replies were received from 34/37 centres. The principal study finding was the wide variation in surgical practice between different centres with regard to pre- and post-operative dialysis regimes. Only 44% of centres had an established protocol. Based upon the study findings we have devised a protocol that we hope to see implemented into UK practice. Following its introduction, a re-assessment will be performed and the audit cycle completed.

Keywords: inguinal hernia; dialysis; clinical audit

It is recognised that patients receiving continuous ambulatory peritoneal dialysis (CAPD) are at increased risk for the development of inguinal herniae, with a reported prevalence of 14%. Most authors would advocate elective hernia repair for these patients, as strangulation is associated with a high mortality in this population. The optimal peri-operative management of these patients is unclear as there are currently no national guidelines. In particular, there are no recommendations regarding amendments to the pre- and post-operative dialysis schedules. The aim of the current study was to evaluate current practice in the UK and, based upon this information, to formulate a management protocol.

Methods
All UK centres undertaking elective renal transplantation were identified from the UK Transplant Register and a postal questionnaire sent to the lead transplant surgeon at each institution. The questions covered the following: whether there was a unit policy regarding the management of CAPD patients with inguinal herniae; if and how patients’ dialysis regimes were altered prior to and following hernia repair; if imaging was undertaken pre-operatively; if prophylactic antibacterials were given peri-operatively and the type of hernia repair undertaken.

Results
Replies were received from 34 of the 37 UK transplant centres (table). Two centres had no experience with inguinal herniae arising in patients receiving CAPD and were thus excluded from the analysis. The median number of patients undergoing hernia repair at each centre was five per annum (range 1–20). Eleven centres (34%) altered patients’ dialysis schedule pre-operatively. Six centres converted patients to haemodialysis pre-operatively for a median of 2 days (range 1–14 days). Two of these centres routinely converted to haemodialysis and the other four centres converted to haemodialysis for those patients with unstable renal function. Three centres reduced the volume of dialysate exchanged, one centre converted patients to chronic cycling peritoneal dialysis and one centre increased the number of exchanges from four to five per day for the three pre-operative days. The remaining 21 centres made no alteration to their pre-operative dialysis routine except to ensure that patients had their peritoneal cavities free of dialysate at the time of surgery. Ten centres recommenced CAPD on the first post-operative day. The remaining 22 centres utilised a temporary haemodialysis line inserted per-operatively. For these patients, there was wide variation in the duration of haemodialysis before CAPD was reintroduced, the median time was 4 weeks (range 1 day to 8 weeks).

Discussion
The principal study finding is the wide variation in surgical practice between different UK centres with regard to the management of CAPD patients undergoing repair of inguinal herniae. Only 14 centres (44%) had an established protocol relating to the pre-operative and post-operative management of these patients.
The sustained increase in intra-abdominal pressure is believed to be the main aetiologic factor underlying the high frequency of inguinal herniae in CAPD patients. The processus vaginalis, patent at birth in 90% of male infants but patent in only 20% of adults is re-opened by the pressure generated by the dialysate during the dwell cycles of the exchange. The importance of this chronically raised intra-abdominal pressure was demonstrated by Twardowski et al, who recorded mean increases in intra-abdominal pressure of 2.0, 2.7 and 2.8 cm water per litre of dialysate infused in the supine, upright and sitting postures, respectively. Further, we have previously shown that amongst patients receiving CAPD, those with autosomal dominant polycystic kidney disease are the group most likely to be affected by abdominal wall herniae.

The management protocol for patients receiving CAPD undergoing inguinal hernia repair, based upon the consensus opinion of UK transplant surgeons, is shown in the box. Each recommendation is based upon the practice of at least two-thirds of UK transplant centres (range 66–100%).

We hope to see the proposed guidelines implemented into UK practice with view to a re-evaluation of national practices in one year’s time and a completion of the audit cycle.

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