Enhanced Recovery After Surgery (ERAS) protocol in patients undergoing radical cystectomy for bladder cancer – a prospective controlled study of surgical outcomes

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Introduction

Multimodal perioperative optimization of patients undergoing major abdominal surgery using the ERAS protocol has become established in general surgery, resulting in a multitude of benefits, including reduction in peri-operative morbidity, rapid recovery of bowel function and shorter hospital stay. We assessed its benefits in patients undergoing radical cystectomy.

Patients and Methods

ERAS protocol, consisting of carbohydrate loading, limited bowel preparation and peri-operative feeding (Figure 1) was introduced into one consultant’s (PM) practice in May 2007. Prospectively collected, pro-forma based peri-operative data from these patients (ERAS group) were compared with similar parameters, prospectively accumulated from a pre-ERAS cohort (control group). All other aspects of peri-operative care were similar (including thoracic epidural and early mobilization). Patients were all operated on by the same surgeon (PM). Only patients undergoing open radical cystectomies with infra-umbilical incisions and ileal conduits were included in the analysis. The Mann-Whitney U test was used to compare the mean hospital stay, blood loss and operative time between the cohorts. Cox proportional hazards ratio was used to compare the time to development of bowel sounds, passage of flatus, bowel movement, consumption of three full meals and discontinuation of IV fluids.

Results

Of the 94 operations carried out over a 2 year period, 63 (32 pre-ERAS and 31 ERAS) were eligible for analysis.

- Patient and tumour demographics were similar in both groups (Table 1).
- The mean surgical time, blood loss (Table 1) and hospital stay (Figure 2) were also similar.
- There were significant differences in the time to:
  (a) development of bowel sounds (Fig. 3)
  (b) passage of flatus (Fig. 4)
  (c) bowel movement (Fig. 5)
  (d) ability to tolerate a full diet (Fig. 6) and
  (e) discontinuation of IV fluids (Fig. 7).
- The mean time taken to achieve full mobility and time to achieve independent stoma care were not significantly different between the cohorts.

Conclusion

From this comparison study, the ERAS protocol appears to enhance the recovery of bowel function following radical cystectomy and urinary diversion. The duration of hospital stay, however, remains unaltered.