

Selecting candidates for early discharge after radical cystectomy for bladder cancer

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As part of reducing health care costs, there is growing interest in shortening postoperative hospital length of stay (LOS). For both non-oncological and oncological surgical procedures shortening of LOS has been found to be feasible and safe (1,2). However, data on impact of early discharge after major surgery such as radical cystectomy (RC) are scarce.

Xia *et al.* assessed whether discharging patients early after RC is associated with an increased risk of readmission and post-discharge complications (3). Based on a retrospective analysis of the National Surgical Quality Improvement Program database they concluded that early discharge can be performed safely in a subgroup of patients after RC. Although the authors should be commended for their work, this paper includes some limitations that need to be addressed and some critical questions remain unanswered.

Shortening of the hospital LOS is only acceptable if it does not occur at the expense of increased readmission or complication rates and therefore a proper patient selection is crucial. The authors identified several risk factors relevant for selecting optimal candidates for early discharge after RC. Patients most suited for early discharge are patients with normal BMI, lower comorbidity score, non-continent diversion, shorter operation time and no/fewer pre-discharge complications (3). However, other important risk factors, such as functional status (4,5), cardiorespiratory fitness (6), nutritional deficiency (4) and mental health (7) also play an important role in the risk of morbidity following RC and were not assessed in this study (3).

Enhanced recovery after surgery (ERAS) protocols have been developed in order to improve the outcome of patients with accelerated recovery after surgery and reduced healthcare costs. ERAS protocols involve a multimodal approach including interventions at all stages of care (e.g., preoperative counselling, optimization of nutrition, standardized analgesic and anesthetic regimens, early mobilization). Meta-analyses of randomized trials in colo-rectal surgery have reported decreased LOS with ERAS compared with traditional care, emphasizing the importance of optimising perioperative care pathways (8). A more recent meta-analysis performed by Lau *et al.*, including randomised trials assessing the use of ERAS in different types of surgical patients, concluded that the implementation of ERAS protocols resulted in a significant reduction of LOS, total complication rate and total costs across all types of surgeries (9). Unfortunately, this meta-analysis did not include papers on RC patients. Despite available evidence favouring the use of ERAS protocols in a variety of surgical procedures, including RC (10), prospective data on impact of implementing ERAS protocols for patients undergoing a RC are limited. One randomised trial compared early recovery after surgery with a conservative regimen in 101 patients treated with RC (11). The primary endpoint was patient's quality of life (QoL), which appeared to be positively affected by an early recovery program (11). Two small randomized pilot studies compared the use of an ERAS protocol versus a standard

protocol, in 23 (12) and 27 (13) patients. These pilot studies showed that ERAS reduced LOS, as well as time to first bowel movement and time to flatulence (12,13). Subjective outcomes such as pain control, bowel symptoms, and QoL were also positively affected by ERAS (13).

Finally, a meta-analysis based on data from observational studies with mainly historical controls evaluated the effect of enhanced recovery pathways versus standard of care after RC. The conclusion was that the use of ERAS protocols for patients treated with a RC resulted in a reduced time-to-bowel function and decreased incidence of mainly low-grade complications (Clavien-Dindo Grade I or II) after RC. The estimated mean difference between both groups for LOS was approximately 5.4 days again in favour of the ERAS group (14).

So far it is unclear which ERAS protocol to apply (15). No standardised ERAS protocol is available and consequently perioperative care differs significantly between countries and hospitals. In the publication by Xia *et al.*, detailed information about the perioperative care programs applied in the participating hospitals is lacking (3).

Besides dietary advice, anaesthetic protocols, use of analgesics and surgical recommendations ERAS protocols also recommend the implementation of both preoperative exercise advices as well as early mobilization (15). Evaluation of the impact of more elaborated pre- and post-operative rehabilitation programs on outcome after RC is therefore of interest. A systematic review of exercise and psychological rehabilitation interventions to improve health-related outcomes in patients undergoing RC illustrated that evidence is very limited and no clear guidelines can be formulated nowadays. Moreover adherence to most programs seemed to be poor (16). Further research on how to develop a care pathway to deliver optimal supportive care to bladder cancer patients undergoing RC to optimize their preoperative condition and postoperative recovery is essential. Supportive care aims to meet patients' physical, informational, emotional, psychological, social, spiritual, and practical needs during their diagnosis and treatment trajectory (17). Previous research showed that routinely screening and addressing patient's needs led to significant improvements in function, physical and psychological health-related QoL, reduced disability, and even lower direct and indirect healthcare costs (18). Supportive care could therefore be an important part of ERAS protocols.

Furthermore, subgroup analysis in the publication by Xia *et al.* (3) revealed that the odds of readmission after early discharge were the same for all subsets of patients

except for patients aged ≥ 85 years. Although the impact of age on outcome is of importance it needs to be emphasized that these data should be interpreted with caution, as only 89 patients included in the analysis were aged ≥ 85 years of whom 20 patients were discharged early. A systematic review evaluating the outcome of elderly patients after curative treatment for muscle invasive bladder cancer demonstrated that the outcome of elderly patients is not dismal and aggressive therapy should therefore not be denied (19). In general, the risk of developing complications is comparable between properly selected elderly and younger patients (19). However, despite improvements in perioperative care, perioperative mortality is more prevalent in septuagenarians with a 2–6-fold increased risk compared to patients < 70 years old (19). As elderly patients are more vulnerable of dying of their intervention, the importance of referring these patients to high-volume centres where perioperative care is well organised must be underlined. The positive impact of high volume surgical centres on clinical outcome including reduced in-hospital mortality is well recognised (20). This is specifically the case for an older population.

LOS is also decreased in higher volume centres. The potential impact of volume of hospital or surgeon on LOS was not examined in the paper by Xia *et al.* (3).

In addition to volume of hospital, other shortcomings such as surgical access method, information on outcomes beyond 30 days and socioeconomic status were also indicated by Xia *et al.* as important aspects that need further consideration. In the paper by Xia *et al.* (3), the authors were unable to address the effect of surgical access method [open versus laparoscopic (pure or robot-assisted) RC] between groups on post-discharge outcomes. Minimal invasive surgery is generally regarded as an essential step in an ERAS protocol and in particular for RC, robot-assisted surgery is hypothesized to result in shorter LOS and lower complication rate (21), although this has not (yet) been confirmed by randomized trials.

Although recognised by the authors, the lack of information beyond 30 days is an important limitation of the study by Xia *et al.* (3). Contrary to the current publication by Xia *et al.* (5), Osawa *et al.* published an increased risk of outpatient complications after early discharge in RC patients (22). Xia *et al.* suggested that the implementation of ERAS protocols in their study might have influenced the LOS and is a possible explanation for their observation that early discharge is safe (5). However, Osawa *et al.* (22) looked at the incidence of major complications (Clavien-Dindo grade 3–5) occurring within 90-day after discharge instead

of 30-day in the publication by Xia *et al.* (3). Interestingly, in the meta-analysis by Tyson *et al.*, stratified analysis revealed that 30-day readmission rates favoured ERAS whereas 90-day readmission rates favoured the standard of care group, but not significantly (14).

Socioeconomic differences between the early and routine discharge group in the paper by Xia *et al.* could neither be analysed. This might have been interesting since research in other populations show a strong association between lower socioeconomic status and higher readmission risk (23).

Additionally to the shortcomings already recognised by Xia *et al.*, other important aspects were not considered. Gastro-intestinal (GI) complications are among the most common complications observed after RC. Again enhanced recovery protocols seem to lower the incidence of GI toxicity, specifically postoperative ileus (24). Despite reported incidence of GI toxicity in up to 30% of patients after RC, detailed information on GI toxicity lacks in the paper by Xia *et al.* (3). Also, a RC combined with neo-adjuvant chemotherapy is standard of care for patients with muscle invasive bladder cancer. Although neo-adjuvant chemotherapy is not associated with a significant increased risk of postoperative complications (25), significantly shorter LOS was observed for patients not receiving neo-adjuvant chemotherapy in the paper by Osawa *et al.* (22). Although being of importance this was not considered by the authors of the current paper.

In conclusion, this study adds to the growing evidence that early discharge does not lead to increased complications after RC in properly selected patients. However, since potential confounders such as use of ERAS protocols, operation technique and volume of RC were not properly examined in the paper by Xia *et al.*, we must be very careful in generalizing these data. The low rate of early-readmission and early morbidity after early discharge might be a reflection of optimal perioperative care and patient selection and future studies should focus on identifying these pathways and patient characteristics.

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Footnote

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