



# Sustainability of enhanced recovery programs in colorectal surgery

Shunichiro Komatsu

Department of Gastroenterological Surgery, Aichi Medical University, Nagakute, Aichi, Japan

Correspondence to: Shunichiro Komatsu, MD. Department of Gastroenterological Surgery, Aichi Medical University, Yazakokarimata, Nagakute, Aichi 480-1195, Japan. Email: skomat2718@gmail.com.

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It is important but difficult to sustain the gains of an effective intervention after its implementation. Although many studies have shown the benefits obtained by implementing enhanced recovery programs (ERPs), sustainability of the program over time after its introduction remains to be elucidated. Herein, I would like to introduce an interesting study by Dr. Veiziant *et al.*, recently published in *The Surgeon* (1). They addressed the issue of whether the application of enhanced recovery surgical components (colonic preparation, surgical approach, nasogastric tube omission and absence of abdominal drainage) had been sustained for 2 years after initial implementation in colorectal surgery. That study retrospectively analyzed the sustainability of ERP in 2,565 patients from 63 colorectal centers using a prospectively maintained database. The results indicated that implementation of the surgical components in the ERP decreased over time.

Repeated audits are necessary to maintain adherence to the clinical pathway and to provide information for implementing further improvements. However, such follow-up activities for ERPs, which are challenging and exhausting, may require much effort from dedicated personnel. An important point of the Veiziant *et al.* study is that the author's group (the GRACE group) has developed an audit system for all participating centers. The GRACE-Audit software, with a dual function (a database and an audit tool), enables the group to build and maintain a large database for ERPs consisting of medical records from many institutions.

Rectal surgery is generally more challenging than colonic

surgery and characterized by higher morbidity rates. The occurrence of anastomotic leakage after total mesorectal excision (TME) is associated with high mortality, reoperation, and stoma formation (2). Therefore, some ERP components may be unsuitable for the rectal cancer patient and a separate specific set of items concerning colonic and rectal resections may need to be considered. As the authors describe in the Table, there is a discrepancy between the European (3) and the American guidelines (4) with regard to indications for colonic preparation and pelvic drainage in rectal surgery. The study discussed here followed the European guideline, which indicate the strength of evidence for the application of an ERP. The authors observed an increase in the number of rectal procedures included in the database over time, which can explain the decrease in laparoscopic approaches in their study. There is a possibility that the increase in rectal surgery may have affected the results of other components (colonic preparation and pelvic drainage), but it is not mentioned in the paper.

The main limitation of the study is a possible recruitment bias, as the authors state in the paper. The registry relies on submission from each participating institution and, therefore, the database was probably not comprehensive. This is an inherent problem potentially underlying many studies of ERPs. A correlation between the compliance with the ERP and short-term outcomes has been documented, including the duration of hospital stay. Nonetheless, it could be argued that any beneficial effects of the ERP were observed in selected groups of patients who could “tolerate” the program. Some recent studies address the

issue of whether ERP can be safely performed in high risk groups of patients (elderly, high body mass index, having comorbidities) (5,6) or in urgent/emergent settings (e.g., obstructive colorectal cancer) (7,8), resulting in better outcomes than conventional care. Reliability of the evidence for each component under difficult conditions may need to be reconsidered individually. A program could then be modified to achieve an optimal set of components which are determined depending on the clinical situations.

Decreases in implementation of surgical components over time were after initiation were partly attributed to under-compliance of the surgeons. Thus, it is important to clarify why the surgeons did not (or could not) follow the program guidelines and which parameters were problematic for them. Critical evaluation of ERPs is necessary to highlight areas that require modification. This would contribute to identifying the factors hampering their implementation and sustainability. In order to continually evolve the program, further efforts are needed to evaluate whether the positive effect of an ERP on patient outcomes is reproducible and sustainable in unselected patients and under a variety of clinical conditions.

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