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Attitudes of patients and care providers to enhanced recovery after surgery programs after major abdominal surgery

Michael Hughes, MRCS,^{a,*} Marielle M.E. Coolson, MD,^b
Eirik K. Aahlin, MD,^c Ewen M. Harrison, PhD,^a Stephen J. McNally, PhD,^a
C.H.C. Dejong, PhD,^b Kristoffer Lassen, PhD,^c and Stephen J. Wigmore, MD^a

^a Department of Clinical Surgery, Royal Infirmary of Edinburgh, Edinburgh, Scotland, United Kingdom

^b Department of Surgery, University Hospital Maastricht, Maastricht, The Netherlands

^c Department of Gastrointestinal Surgery, University Hospital Northern Norway and Institute of Clinical Medicine, University of Tromsø, Tromsø, Norway

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ABSTRACT

Background: Enhanced recovery after surgery (ERAS) is a well-established pathway of perioperative care in surgery in an increasing number of specialties. To implement protocols and maintain high levels of compliance, continued support from care providers and patients is vital. This survey aimed to assess the perceptions of care providers and patients of the relevance and importance of the ERAS targets and strategies.

Materials and methods: Pre- and post-operative surveys were completed by patients who underwent major hepatic, colorectal, or oesophagogastric surgery in three major centers in Scotland, Norway, and The Netherlands. Anonymous web-based and article surveys were also sent to surgeons, anesthetists, and nurses experienced in delivering enhanced recovery protocols. Each questionnaire asked the responder to rate a selection of enhanced recovery targets and strategies in terms of perceived importance.

Results: One hundred nine patients and 57 care providers completed the preoperative survey. Overall, both patients and care providers rated the majority of items as important and supported ERAS principles. Freedom from nausea (median, 10; interquartile range [IQR], 8–10) and pain at rest (median, 10; IQR, 8–10) were the care components rated the highest by both patients and care providers. Early return of bowel function (median, 7; IQR, 5–8) and avoiding preanesthetic sedation (median, 6; IQR, 3.75–8) were scored the lowest by care providers.

Conclusions: ERAS principles are supported by both patients and care providers. This is important when attempting to implement and maintain an ERAS program. Controversies still remain regarding the relative importance of individual ERAS components.

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1. Introduction

Enhanced recovery after surgery (ERAS) protocols have become established practice in patients undergoing major

resectional surgery [1]. The original success in colorectal cancer resections has been followed by its application in other fields including surgery for primary and secondary liver cancer [2], breast [3] and oesophagogastric cancer [4].

* Corresponding author. Department of Clinical Surgery, Royal Infirmary of Edinburgh, 51 Little France Crescent, EH16 4SA, Scotland, United Kingdom. fax: +44 1312423617.

E-mail address: michaelh@doctors.net.uk (M. Hughes).

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The main measurements of success of enhanced recovery programs have been the reduced perioperative morbidity and mortality and reduced postoperative length of hospital stay [1]. However, deviation from ERAS protocols is commonly reported and this is associated with prolonged length of stay [5]. As well as, barriers to implementing fast track protocols are commonly encountered [6], with reluctance by care providers to accept care strategies that differ from personally preferred practice being a major factor [7].

Patient acceptance is vital when attempting to achieve successful results with enhanced recovery approaches. Moreover, care provider support for enhanced recovery care components is critical to successfully implement postoperative care pathways relying on multidisciplinary team input [7]. It is therefore necessary to explore the views of both patients and care providers regarding their personal priorities pertaining to recovery and the favored strategies used to achieve these aims. This information is crucial to determine whether enhanced recovery programs have the correct patient-centered approach to postoperative recovery and the appropriate support of care providers to optimize implementation.

In an attempt to investigate this issue, a survey of patients and health care professionals was performed to investigate these views and provide clarification of patient and clinician care priorities.

2. Materials and methods

After satisfying the requirements of the respective institutional review boards, a survey was carried out by the investigators across three Northern European centers—Edinburgh (United Kingdom), Tromsø (Norway), and Maastricht (The Netherlands). These institutions were selected as they represent the home institutions of the collaborating authors. They are high-volume tertiary referral centers experienced in delivering ERAS protocols in hepatic, colorectal, and oesophagogastric surgeries.

The authors developed a questionnaire for the purpose of this survey. The questionnaire aimed to quantify the responder's perception of the importance of individual enhanced recovery outcomes and strategies.

The questionnaire was divided into two sections. The first assessed individual targets to be achieved during recovery after abdominal surgery (questions 1–8). These incorporated the major domains of ERAS principles [8]—pain control, gut restitution, mobility, overall function, and hospital discharge. These items were identical for questionnaires given to care providers and patients. The second section assessed strategies on how to achieve the recovery targets specified in Section 1. The items chosen reflected common strategies used in enhanced recovery protocols as advocated by the best available evidence [8]. The patients were given four questions and the care providers were given 13 different questions relating to strategy (Appendices 1 and 2).

The questions were formulated in English and then translated into Dutch and Norwegian. A further separate translation of the questions back into English was performed to ensure accurate translation. The questionnaire was trialed locally to ensure satisfactory comprehension by responders.

Responders in each institution were given a standardized verbal explanation as to what the survey entailed and advice regarding how to complete the survey. They were asked to rate each component from 0–10 on an 11-point Likert scale, depending on how important they believed each component was. The scale used indicator statements of “not important” and “very important” at the relevant extremes of the scale to assist with scoring. An example was performed by the investigator with each responder to ensure comprehension and then the patient was left to complete the questionnaire unaided.

The survey was conducted between November 2012 and November 2013. Consecutive patients scheduled for hepatic, colorectal, or oesophagogastric surgery were approached and asked to complete a questionnaire on the morning of their operation or during out-patient workup before surgery. This was repeated after surgery when the patient returned to the out-patient clinic 2–4 wk later. Because of the exploratory nature of this survey, a sample size calculation was not performed. However, it was determined that each center would recruit a minimum of 35 patients to complete the questionnaire before and after surgery. The exclusion criteria were an inability to comprehend the survey or unwillingness to participate.

A random sample of senior surgeons, anesthetists, and nurses working in the centers involved in the care of these patient groups were also surveyed. This questionnaire was administered using an Internet-based tool (Survey Monkey, Palo Alto, CA; for Tromsø: Questback) or an identical paper-based version depending on convenience.

Results were collated and analyzed with Excel 2010 (Microsoft Corp, Seattle, WA) and presented as median and interquartile range (IQR). Statistical analysis was performed with R (R Foundation for Statistical Computing, version 2.9.0, Vienna, Austria). Discrete variables were compared with Fisher exact or chi-square tests where appropriate. Continuous data were assessed with Mann–Whitney *U* test. Scores between care-provider specialties were compared with the Kruskal–Wallis test. Statistically significant differences between pre- and post-operative patient scores were assessed by the Wilcoxon signed-rank test. Significance tests were adjusted for multiple comparisons using the Bonferroni correction.

As we had devised a novel questionnaire, we undertook validation of the instrument. High internal consistency would be expected if responders scored items within the two sections (outcomes and strategies) similarly. Internal consistency of questionnaire components was determined with Cronbach alpha including 95% bootstrapped confidence intervals. Cronbach alpha increases with greater intercorrelation of questionnaire components and can be interpreted as an overall measure of internal consistency.

Exploratory factor analysis was performed to assess the underlying structure of the questionnaire. The questionnaire had two sections, “attitudes to outcomes” and “attitudes to strategies.” It might be expected that answers to questions assessing each of these domains would be correlated. The factor analysis examines whether questions might cluster into alternative groupings representing different underlying concepts. Principal component analysis was performed and eigenvalues generated (representing the proportion of the variance explained by each additional new factor). Eigenvalues were plotted on a scree plot and a cut-off determined.

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