Enhanced recovery: pathways to better care

Enhanced recovery after surgery comprises clinical pathways which aim to improve the quality of perioperative care and accelerate recovery. Benefits of enhanced recovery after surgery include reduced postoperative morbidity (Greco et al, 2014) and shorter length of stay, leading to reduced costs, greater throughput of patients and greater patient satisfaction. The underlying principles are reducing the surgical stress response and maintaining normal postoperative physiological functions. Strict adherence to the entire pathway produces better aggregate outcomes than implementing individual components (Gustafsson et al, 2011).

Enhanced recovery pathways have been widely used in the UK since the early 2000s and have preoperative, intraoperative and postoperative components.

Preoperative factors

Preoperative care begins pre-admission with assessment and risk stratification. Up to 80% of postoperative mortality comes from a relatively small high-risk group of patients, so identifying these patients allows preoperative optimization of comorbidities. Preoperative education and counselling also increase patient motivation and alleviate anxiety, which is the most common predictor for postoperative pain (Feldheiser et al, 2016).

Following admission, components of enhanced recovery pathways include adherence to preoperative fasting guidelines and carbohydrate loading. These are associated with greater patient comfort and decreased insulin resistance and catabolism postoperatively (Feldheiser et al, 2016).

Dr Aoife Hegarty, Perioperative Fellow, Department of Anaesthesia, St George's Hospital, London SW17 0QT

Dr Nirav Shah, Consultant in Anaesthesia and Intensive Care Medicine, Department of Anaesthesia, St George's Hospital, London

Correspondence to: Dr A Hegarty (aoifehegarty1@gmail.com)

Intraoperative factors

Enhanced recovery pathways encompass anaesthetic and surgical recommendations.

The ideal anaesthetic depth prevents awareness, minimizes anaesthetic side effects and facilitates rapid awakening; it should be targeted to a minimum alveolar concentration of 0.7–1.3 or a bispectral index of 40–60 (Feldheiser et al, 2016). Depth of neuromuscular blockade is controversial. Deep neuromuscular blockade may improve surgical conditions, leading to a shorter surgical time and reducing surgical stress, but residual neuromuscular blockade at emergence is detrimental to patient recovery.

All patients should be risk stratified for postoperative nausea and vomiting and an aggressive prevention and treatment protocol used. A large evidence base supports multimodal prevention of postoperative nausea and vomiting in high-risk patients (Gan et al, 2014). Intraoperative hypothermia increases rates of wound infections, bleeding and cardiac complications. Active warming should be used for any procedure longer than 30 minutes. Blood glucose concentrations increase perioperatively and hyperglycaemia is associated with adverse outcomes. Blood glucose levels >10 mmol/litre should be treated, without causing hypoglycaemia. Adherence to other enhanced recovery components will reduce insulin resistance and perioperative hyperglycaemia. Perioperative goal-directed fluid therapy reduces postoperative morbidity and mortality (Feldheiser et al, 2016), although the benefits seem greater in high-risk patients.

Intraoperative surgical factors include use of minimally invasive surgical techniques and avoidance of routine nasogastric decompression (Feldheiser et al, 2016).

Postoperative factors

Postoperative analgesia should be multimodal and opiate-sparing to achieve patient comfort and facilitate early mobilization and early enteral feeding. Avoidance of sedatives, deep anaesthesia and prolonged fasting reduces the incidence of postoperative delirium, which is under-recognized. Routine screening increases detection of delirium, allowing prompt treatment with an associated reduction in mortality (Feldheiser et al, 2016).

Postoperative ileus is associated with increased length of stay and complications. Opiate-sparing analgesia, early mobilization, early enteral feeding and avoidance of routine nasogastric tubes help to minimize ileus. Early postoperative mobilization is integral to enhanced recovery, helping to maintain muscle strength and reduce complications of prolonged immobility (Feldheiser et al, 2016).

Conclusions

Enhanced recovery after surgery protocols have changed the multidisciplinary approach to patients undergoing major surgery and decreased postoperative length of stay and morbidity. The evidence base for enhanced recovery protocols in different types of surgery is increasing. There is a lot of interest in how anaesthesia and analgesia may affect not only surgical outcomes, but long-term cancer outcomes, through immunomodulation of the stress response. As further evidence becomes available, the focus may move from enhanced recovery to enhanced survival. **BJHM**

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