Fast-Track Rehabilitation after Surgery

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Major surgery can lead to a series of profound physiological changes. Acute pain is only one of the triggers of the complex neurohumoral and immune response referred to as the 'injury response'. If severe and prolonged, this response can become counterproductive and adversely affect patient outcome.

Pioneered by Prof Henrik Kehlet in the 1990s, the concept of 'fast-track' surgery refers to a multimodal package of techniques aiming to attenuate the injury response and pain after surgery and, in turn, the risk of postoperative organ dysfunction and complications. 'Fast-tracking' requires implementation of an evidence-based (where possible), multimodal, multidisciplinary, procedure-specific perioperative patient rehabilitation/care program that reduces postoperative morbidity and time to discharge home.

Does fast-tracking work?

The majority of studies to date have looked at fast-track programs for colorectal surgery. There is good evidence that these lead to lower morbidity and shorter hospital stays, but no difference in readmission rates.

Components of fast-track surgery

Preparation for fast-track rehabilitation after surgery starts preoperatively. Components include:

Organisational	▪ Multidisciplinary teams with knowledge of roles	▪ Procedure-specific protocols
Preoperative	▪ Patient education ▪ Optimise organ function ▪ Minimal fasting	▪ No bowel preparation ▪ Carbohydrate loading
Intraoperative	▪ Minimally invasive surgery ▪ Fluid optimisation ▪ Short-acting anaesthetics ▪ Regional/local anaesthesia (when evidence-based) ▪ Reduce injury response	▪ Multimodal, opioid-sparing analgesia ▪ Minimise use of drains/ NGT ▪ Normothermia ▪ PONV prophylaxis
Postoperative	▪ Effective, multimodal, opioid-sparing analgesia ▪ Aggressive treatment of analgesia-related side effects ▪ Fluid optimisation	▪ Minimise use of catheters ▪ Early oral nutrition ▪ Early ambulation ▪ Defined clinical pathways and discharge criteria
Post- discharge	▪ Adequate pain relief	

Postoperative pain management

Good pain relief after surgery is just one component of a fast-track program. Management should be evidence-based – preferably procedure-specific, although evidence from other settings may be transferable and relevant – and facilitate other fast-track aims such as early postoperative oral intake (requires early return of bowel

function and no PONV) and ambulation (requires no motor block or postural hypotension with epidural analgesia).

For example, for patients undergoing colorectal surgery such evidence includes:

Procedure-specific evidence	▪ Epidural analgesia → – ↓ pain – opioid-sparing – earlier return GI function – but ↑ pruritus, urinary retention, hypotension ▪ Pre-peritoneal LA infusion → – ↓ pain – opioid-sparing – earlier return GI function ▪ Ketorolac → – opioid-sparing – earlier return GI function ▪ Lignocaine infusion → – opioid-sparing – earlier return GI function
Transferable evidence	▪ Thoracic cf lumbar epidural analgesia → – better recovery GI function – can ↓ surgical stress response ▪ Continuous LA wound infusions → – ↓ pain, PONV – opioid-sparing ▪ NSAIDs given in combination with opioids → – ↓ pain, PONV – opioid-sparing

References

ASERNIPS & RACS (2009) Brief review: fast-track surgery and enhance recovery after surgery (ERAS) programs http://www.surgeons.org/Content/NavigationMenu/Research/ASERNIPS/ASERNIPSPublications/Fast_track_surgery_a.htm

Gouvas N, Tan E, Windsor A et al (2009) Fast-track vs standard care in colorectal surgery: a meta-analysis update. *Int J Colorectal Dis* **24**:1119-31.

Kehlet H, Wilmore DW (2008) Evidence-based surgical care and the evolution of fast-track surgery *Ann Surg* **248**:189-98.

Macintyre PE, Schug SA, Scott DA, Visser EJ, Walker SM; APM:SE Working Group of the Australian and New Zealand College of Anaesthetists and Faculty of Pain Medicine (2010), *Acute Pain Management: Scientific Evidence* (3rd edition), ANZCA & FPM, Melbourne.

PROSPECT (2010) *Procedure specific postoperative pain management*. http://www.postoppain.org

White PF, Kehlet H, Neal J et al (2007) The role of the anaesthesiologist in fast-track surgery: from multimodal analgesia to perioperative medical care. *Anesth Analg* **104**:1380-96)