

# Postoperative ileus

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Gastrointestinal tract motility is transiently impaired following abdominal surgery and other injuries. The paralytic state usually lasts from a few hours to 24 hours in the small bowel, from 24 to 48 hours in the stomach, and from 48 to 72 hours in the colon.<sup>1–3</sup> The clinical consequences of postoperative paralytic ileus are profound, contributing to pain and discomfort, increased catabolism because of hindered oral nutrition, immobilisation, increased risk of pulmonary complications, and increased need for hospitalisation. The pathogenic mechanisms include sympathetic inhibitory reflexes, inhibitory mediators of the inflammatory response, humoral agents, and anaesthetic/analgesic effects.

Restoration of ileus is related to the magnitude of the inflammatory response in the bowel<sup>4</sup> (fig 1) but the relative role of the various mediators (prostanoids, nitric oxide, calcitonin gene related peptide, opioid agonists, vasoactive intestinal peptide, substance P, corticotrophin releasing factor, etc.) has yet to be established. Unimodal blockade of individual mediators has been demonstrated to reduce, but not eliminate, ileus in the experimental setting.<sup>5–9</sup> Inhibitory sympathetic neural reflexes, in both experimental and clinical studies, have been demonstrated to be an important mechanism in reducing gastrointestinal motility.<sup>10</sup> Consequently, several clinical randomised studies have shown continuous thoracic epidural local anaesthetic blockade to reduce ileus (fig 2).<sup>10–11</sup> Development of opioid free or opioid reduced analgesic regimens with non-steroidal anti-inflammatory drugs or other agents have similarly been demonstrated to reduce ileus. Another method of reducing ileus is endoscopic (laparoscopic) surgery.<sup>2</sup> Thus both experimental and clinical studies have shown reduced inflammatory response and motility dysfunction with this technique. The effect of various prokinetic drugs (cis-

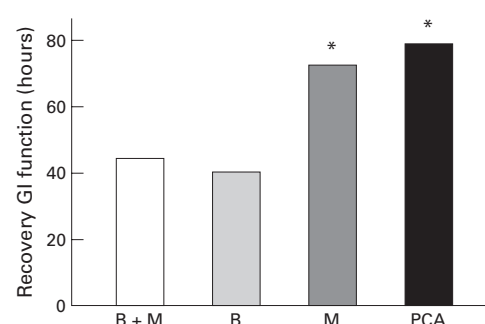


Figure 2 Recovery of gastrointestinal (GI) function after colonic surgery with epidural bupivacaine (B) 10 ml 0.1% combined with morphine (M) 0.3 mg/h (B+M), epidural bupivacaine (B) 0.15% 10 ml/h, epidural morphine 0.5 mg/h (M), or PCA morphine. \* $p < 0.05$ .

apride, ceruletide, erythromycin, somatostatin, etc.) is limited.<sup>12</sup>

As postoperative paralytic ileus may serve no useful purpose, all efforts should be made to enhance recovery of post-injury gastrointestinal tract integrity. This is further emphasised by the well demonstrated effect of early enteral nutrition to reduce infectious complications. As no single technique has been demonstrated to eliminate ileus, a logical approach at this stage seems to be multimodal intervention with combined continuous epidural local anaesthetics, opioid free or opioid reduced analgesia, and immediate enteral nutrition. Preliminary clinical studies after colonic surgery have shown normalisation of gastrointestinal function within 24–48 hours,<sup>13–14</sup> thereby shortening recovery and need for hospital stay by 2–5 days. The potential need for additional improvement with single or multi-mediator anti-inflammatory blockade remains to be established.

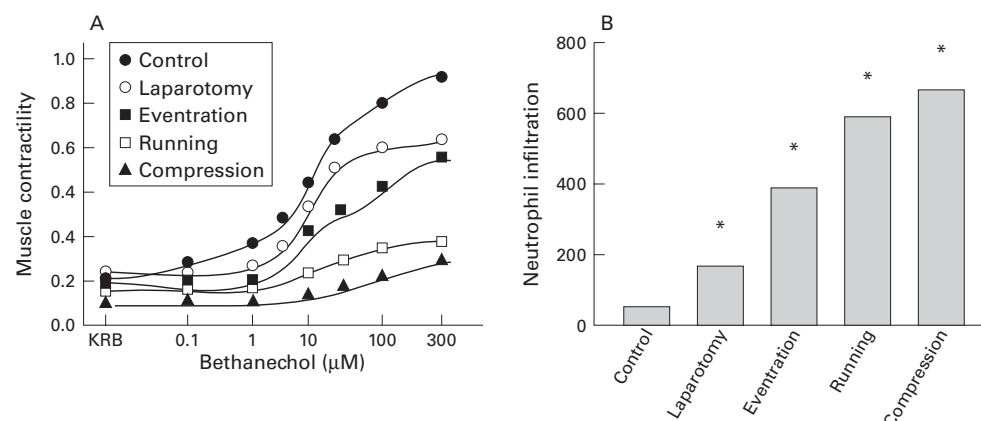


Figure 1 Effect of surgical manipulation on (A) muscle contractility–bethanechol stimulation and (B) neutrophil infiltration in muscularis. KRB, Krebs buffer. \* $p < 0.05$  compared with control.

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