## Meta-analyses and randomized controlled trials on perioperative management

<table>
<thead>
<tr>
<th>A. Bowel preparation</th>
<th>Title and author</th>
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<tbody>
<tr>
<td><strong>Meta-analyses</strong></td>
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<tr>
<td>Mechanical bowel preparation for elective colorectal surgery. Guenaga et al. 2005</td>
<td>9 trials / 1592 patients included. Bowel preparation is associated with increased rates of anastomotic leakage (6.3 vs. 3.2%; p=0.003) and wound complications (7.4 vs. 5.4, not significant).</td>
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<tr>
<td>Meta-analysis of randomized clinical trials of colorectal surgery with or without mechanical bowel preparation. Slim et al. 2004</td>
<td>7 trials / 1454 patients included. Significantly more anastomotic leakage after mechanical bowel preparation (5.6 vs. 3.2%; p=0.032). No significant difference was found for wound infection, other septic complications and non-septic complications.</td>
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<td><strong>RCTs</strong></td>
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<tr>
<td>Multicentre randomized clinical trial of mechanical bowel preparation in elective colonic resection. Jung et al. 2007</td>
<td>1505 patients enrolled. No significant differences in overall complications.</td>
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<tr>
<td>Mechanical bowel preparation for elective colorectal surgery with primary intraperitoneal anastomosis by a single surgeon: interim analysis of a prospective single-blinded randomized trial. Pena-Soria et al. 2007</td>
<td>97 patients included. Same or worse outcomes after mechanical bowel preparation (Anastomotic failure: 8.3 vs. 4.1, not significant).</td>
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<tr>
<td>Mechanical bowel preparation or not? Outcome of a multicenter, randomized trial in elective open colon surgery. Fa-Si-Oen et al. 2005</td>
<td>250 patients / centres included. No significant difference between groups.</td>
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<tr>
<td>Randomized clinical trial of mechanical bowel preparation versus no preparation before elective left-sided colorectal surgery. Bucher et al. 2005</td>
<td>135 patients included. No bowel preparation is associated with reduced postoperative morbidity (22 vs. 8%; p=0.028).</td>
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<td>B. Incision</td>
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<tr>
<td><strong>Meta-analyses</strong></td>
<td>Transverse versus midline incisions for abdominal surgery. Brown et al. 2005</td>
<td>No difference in complication rates and recovery times.</td>
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<tr>
<td><strong>RCTs</strong></td>
<td>Randomized clinical trial of vertical or transverse laparotomy for abdominal aortic aneurysm repair. Fassiadis et al. 2005</td>
<td>69 patients included. Incisional hernia is less frequent after transverse incision.</td>
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<th>C. Antibiotic prophylaxis</th>
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<tr>
<td><strong>Meta-analyses</strong></td>
<td>Antimicrobial prophylaxis in colorectal surgery: a systematic review of randomized controlled trials. Song et al. 1998</td>
<td>147 trials included. Antibiotic prophylaxis prevents surgical wound infection after colorectal surgery. Single-shot is as effective as long-term postoperative antibiotic prophylaxis.</td>
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<tr>
<td><strong>RCTs</strong></td>
<td>Randomized, multicenter trial of antibiotic prophylaxis in elective colorectal surgery: single dose vs 3 doses of a second-generation cephalosporin without metronidazole and oral antibiotics. Fujita et al. 2007</td>
<td>384 patients / 7 centres included. Antibiotic dose correlates to incidence of incisional surgical site infections.</td>
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<td>D. Abdominal drain</td>
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<td>Routine abdominal drainage for uncomplicated liver resection. Gurusamy et al. 2007</td>
<td>465 patients / 5 trials included. No significant difference between abdominal drainage vs. no drainage groups as far as mortality, intra-abdominal collections requiring re-operation, infected intra-abdominal collections, wound infection, ascitic leak, and hospital stay are concerned.</td>
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<tr>
<td>Evidence-based value of prophylactic drainage in gastrointestinal surgery: a systematic review and meta-analyses. Petrowsky et al. 2004</td>
<td>30 trials included. Prophylactic drainage is indicated after esophageal resection and total gastrectomy, but not after hepatic, rectal or colonic resection with primary anastomosis and appendectomy.</td>
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<td>Prospective randomized clinical trial of the value of intraperitoneal drainage after pancreatic resection. Conlon 2001</td>
<td>179 patients (40 patients receiving distal pancreatectomy) included. No reduction in complication or mortality. No reduced need for interventional drainages and surgical exploration after septic complications.</td>
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<tr>
<td>Randomized clinical trial of the effects of abdominal drainage after elective hepatectomy using the crushing clamp method. Sun et al. 2006</td>
<td>120 patients included. Cirrhosis and abdominal drainage independently correlate to development of postoperative wound complications. No difference in length of hospitalisation.</td>
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<td>E. Pain management</td>
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<tr>
<td>Meta-analysis of epidural analgesia versus parenteral opioid analgesia after colorectal surgery. Marret et al. 2007</td>
<td>16 trials included. No difference in length of hospitalisation.</td>
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<tr>
<td>Patient controlled intravenous opioid analgesia versus continuous epidural analgesia for pain after intra-abdominal surgery. Werawatganon et al. 2005</td>
<td>711 patients / 9 studies included. Continuous epidural analgesia is superior in relieving postoperative pain but associated with a higher incidence of pruritus.</td>
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<tr>
<td>Efficacy of postoperative patient-controlled and continuous infusion epidural analgesia versus intravenous patient-controlled analgesia with opioids: a meta-analysis. Wu et al. 2005</td>
<td>Continuous epidural infusion significantly is superior in relieving overall pain; higher incidence of nausea/vomiting and motor block but lower incidence of pruritus.</td>
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<tr>
<td>Epidural local anaesthetics versus opioid-based analgesic regimens on postoperative gastrointestinal paralysis, PONV and pain after abdominal surgery. Jørgensen et al. 2000</td>
<td>Local anaesthetics decrease gastrointestinal paralysis with comparable postoperative pain relief compared to regimens using opioids.</td>
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<td>Comparison of intravenous or epidural patient-controlled analgesia in the elderly after major abdominal surgery. Mann et al. 2000</td>
<td>70 patients included. Epidural patient controlled anaesthesia using local anaesthetics and an opioid provides better pain relief and improves mental status and bowel activity compared to intravenous application.</td>
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<td>F. Gastric tube</td>
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<td>Randomized clinical trial evaluating the need for routine nasogastric decompression after elective hepatic resection. Pesseaux et al. 2007</td>
<td>200 patients included. No advantage but increased risk of pulmonary complications in nasogastric tube group.</td>
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### G. Postoperative feeding

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<td><strong>Meta-analyses</strong></td>
<td>Early enteral nutrition within 24h of colorectal surgery versus later commencement of feeding for postoperative complications. Andersen et al. 2006</td>
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<td>1173 patients / 13 trials included. No significant advantage in keeping patients starved after gastrointestinal surgery.</td>
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<td><strong>RCTs</strong></td>
<td>Randomized clinical trial of the impact of early enteral feeding on postoperative ileus and recovery. Han-Geurts et al. 2007</td>
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<td>128 patients included. No significant difference between early (median 2) vs. conventional (median 5) return to oral diet.</td>
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### H. Patient mobilisation

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<td><strong>RCTs</strong></td>
<td>The quantity of early upright mobilisation performed following upper abdominal surgery is low: an observational study. Browning et al. 2007</td>
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<td>50 patients included. Increased early upright mobilisation may have positive effect on reduced length of hospitalisation.</td>
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<td>Randomised clinical trial of physiotherapy after open abdominal surgery in high risk patients. Mackay et al. 2005</td>
<td>56 patients included. In high risk patients, deep breathing and coughing exercises do not significantly decrease postoperative pulmonary complications.</td>
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<tr>
<td>Randomized controlled trial of prophylactic chest physiotherapy in major abdominal surgery. Fagevik et al. 1997</td>
<td>366 patients included. Preoperative chest physiotherapy significantly decreased postoperative pulmonary complications and improved mobilisation.</td>
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<td>I. Somatostatin</td>
<td>Title and author</td>
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| RCTs | Prospectively randomized trial using perioperative low-dose octreotide to prevent organ-related and general complications after pancreatic surgery and pancreatico-jejunostomy. Hesse et al. 2005 | 105 patients included. No significant difference in occurrence of pancreatic fistula and overall morbidity and mortality in somatostatin vs. no somatostatin group. |
| Effects of somatostatin prophylaxis after pylorus-preserving pancreaticoduodenectomy: increased delayed gastric emptying and reduced plasma motilin. Shan et al. 2005 | 23 patients included. Delayed gastric emptying more frequent after somatostatin prophylaxis. |
| Somatostatin analogues in the prevention of pancreas-related complications after pancreatic resection. Ramos-De la Medina et al. 2006 | 381 patients included. No benefit of perioperative somatostatin administration. |