Bowel Preparation for Colon Resection

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Historical Perspective

“During World War II, failure to treat penetrating colon injuries with diversion could result in court martial.”


- Primary resection and immediate anastomosis of perforated lesions of the colon
  - 85 cases from literature
  - 25 additional cases
  - 9.1% mortality
In a series of 72 consecutive elective and emergency colectomies with primary anastomosis, all pre- and perioperative mechanical preparation of the bowel was omitted and the patient covered only by a single peroperative intravenous dose of cefuroxime and metronidazole. No anastomotic dehiscence was clinically apparent and wound infection was noted in only 8.3 per cent of patients.

Editorial

• “The paper which challenges accepted surgical practice, is a veritable little bomb of a paper, brief, iconoclastic, and disrespectful of hallowed tradition in colorectal surgery.”
Is Mechanical Bowel Preparation Mandatory for Elective Colon Surgery?

Ram E, Sherman Y, Weil R, Vishne T, Kravarusic D, Dreznik Z.

Colon Resections

- Excluded low LAR and surgery for polypoid lesions
- Prophylactic antibiotics (1 hour preop, 48 hours post-op)
  - Ceftriaxone 1g
  - Metronidazol 500mg
- Group 1 – Soffodex
- Group 2 – No bowel prep
No statistically significant results

<table>
<thead>
<tr>
<th></th>
<th>Mechanical bowel prep (n = 164)</th>
<th>No preparation (n = 165)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mortality</td>
<td>1.2%</td>
<td>1.2%</td>
</tr>
<tr>
<td>Wound Infection</td>
<td>9.8%</td>
<td>6.1%</td>
</tr>
<tr>
<td>Anastomotic breakdown</td>
<td>0.6%</td>
<td>1.2%</td>
</tr>
<tr>
<td>Abdominal / pelvic collection</td>
<td>0.6%</td>
<td>0.6%</td>
</tr>
</tbody>
</table>
Randomized clinical trial of mechanical bowel preparation versus no preparation before elective left-sided colorectal surgery.

Infectious abdominal complications

<table>
<thead>
<tr>
<th></th>
<th>Mechanical bowel prep (n = 78)</th>
<th>No preparation (n = 75)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anast. leakage (p = 0.21)</td>
<td>6%</td>
<td>1%</td>
</tr>
<tr>
<td>Intra-abdominal abscess (p = 0.62)</td>
<td>1%</td>
<td>3%</td>
</tr>
<tr>
<td>Wound abscess (p = 0.07)</td>
<td>13%</td>
<td>4%</td>
</tr>
</tbody>
</table>
# Postoperative data

<table>
<thead>
<tr>
<th></th>
<th>Mechanical bowel prep (n = 78)</th>
<th>No preparation (n = 75)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NGT removal</td>
<td>2.8 days</td>
<td>1.9 days</td>
</tr>
<tr>
<td>(p = 0.007)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hospital stay</td>
<td>14.9 days</td>
<td>9.9 days</td>
</tr>
<tr>
<td>(p = 0.024)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hospital stay*</td>
<td>11.7 days</td>
<td>9.1 days</td>
</tr>
<tr>
<td>(p = 0.001)</td>
<td></td>
<td></td>
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</tbody>
</table>

* Patients without abdominal complication
Pre-operative mechanical bowel cleansing or not? An updated meta-analysis

Wille-Jørgensen P, Guenaga KF, Matos D, Castro AA.

1592 patients from 9 RCTs

<table>
<thead>
<tr>
<th></th>
<th>Mechanical bowel prep (n = 789)</th>
<th>No preparation (n = 803)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anast. leakage</td>
<td>6%</td>
<td>3.2%</td>
</tr>
<tr>
<td>(p = 0.003)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wound infection</td>
<td>7.4%</td>
<td>5.4%</td>
</tr>
<tr>
<td>(p = 0.07)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mortality (NS)</td>
<td>1%</td>
<td>0.6%</td>
</tr>
</tbody>
</table>
Multicentre randomized clinical trial of mechanical bowel preparation in elective colonic resection

Jung B, Påhlman L, Nyström PO, Nilsson E.
1505 patients randomized

- 1 German and 20 Swedish hospitals
- Cancer, adenoma, diverticular disease
- All patients had an anastomosis
- All patients received oral or IV prophylactic antibiotics
- Bowel preparations
  - Oral (polyethylene glycol or sodium phosphate)
  - Some patients had a rectal enema
Not statistically significant overall

<table>
<thead>
<tr>
<th></th>
<th>Mechanical bowel prep (n = 686)</th>
<th>No preparation (n = 657)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wound infection</td>
<td>7.9%</td>
<td>6.4%</td>
</tr>
<tr>
<td>Deep abscess</td>
<td>0.7%</td>
<td>1.7%</td>
</tr>
<tr>
<td>Anastomotic dehiscence</td>
<td>1.9%</td>
<td>2.6%</td>
</tr>
<tr>
<td>Postoperative stay</td>
<td>8.6 days</td>
<td>8.8 days</td>
</tr>
</tbody>
</table>
Preoperative Oral Antibiotics in Colorectal Surgery Increases the Rate of Clostridium difficile Colitis

Wren SM, Ahmed N, Jamal A, Safadi BY.

Retrospective case-controlled

- Elective operations
  - Resections with or without anastomosis
  - Colostomy formation
  - Colostomy takedown

- Exclusions
  - C. diff within 30 days prior to surgery
  - bowel obstruction
  - < 30 day follow-up (or survival)
Bowel Preparation

- All patients received mechanical bowel preparation
- All patients received prophylactic IV antibiotics
## Results

<table>
<thead>
<tr>
<th></th>
<th>Oral antibiotics (n = 107)</th>
<th>No oral antibiotics (n = 197)</th>
</tr>
</thead>
<tbody>
<tr>
<td>C. difficile colitis (p = 0.03)</td>
<td>7.4%</td>
<td>2.6%</td>
</tr>
<tr>
<td>Wound infection (p = 0.20)</td>
<td>14.9%</td>
<td>13.2%</td>
</tr>
</tbody>
</table>
Reasons to continue mechanical bowel preparation

- Need to palpate small tumors
- Need for intraoperative colonoscopy
- Easier to handle lightweight bowel laparoscopically
- Low pelvic anastomosis
Reasons NOT to continue mechanical bowel preparation

• Significant patient discomfort
• Causes electrolyte abnormalities
• Causes hypovolemic
• Associated with bacterial translocation through the bowel wall
• A poorly prepped bowel will allow easier spillage of stool than an unprepped bowel
The Association of Coloproctology of Great Britain and Ireland

• Guidelines for the Management of Colorectal Cancer (2007)

• “Bowel preparation should not be used routinely before colorectal cancer resection.” (Recommendation grade B)
Australian Cancer Network

- Colorectal Cancer Guidelines Revision Committee (2005)

- “Mechanical bowel preparation is not indicated in elective colorectal operations unless there are anticipated problems with faecal loading that might create technical difficulties with the procedure, e.g. laparoscopic surgery, low rectal cancers.”

Werner Forßmann
Ignaz Semmelweis