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Postoperative Ileus, A Surgical Perspective

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Magnitude of the Problem

- Approximately 400,000 patients undergo small and large bowel resection each year\(^a\)
  - 90% open surgery, 10% laparoscopic\(^b\)
  - ALL of these patients experience POI of some degree
  - At least 10% to 15% require intervention or a change in hospital management due to unresolving POI
  - Prolonged POI CANNOT be reliably predicted before bowel resection surgery

\(^a\) Premier Inc. Procedural Data, 2006 Projections.
Definition and Clinical Signs

- Transient cessation of coordinated bowel motility after surgery preventing effective transit of intestinal contents and/or tolerance of oral intake\(^a\)

- No physiological benefit of POI

- Clinical signs
  - Nausea/vomiting
  - Absence of passage of flatus/stool
  - Bloating, abdominal pain, discomfort

Etiology

Surgical stress response
- Neurogenic\textsuperscript{a}
- Hormones and neuropeptides\textsuperscript{b}
- Inflammatory mediators\textsuperscript{c,d}

Surgical anesthesia
- Many impair GI motility\textsuperscript{e,f,g}
- Primary effect on colon\textsuperscript{f}

Etiology—
Opioid Analgesic Agents

- Bind to µ-opioid receptors within the enteric nervous system\(^a\)
- Block excitatory neurons innervating intestinal smooth muscle\(^b\)
- Inhibit GI motility\(^a,b,c\)

Patient-Controlled Analgesia (PCA)

- Opioid-based PCA standard care for pain management following bowel resection\(^a\),\(^b\)
  - More effective analgesia
  - Shorter hospital stay
  - Improved patient satisfaction

- Associated with higher incidence of “coded” POI\(^c\)

Gastrointestinal Recovery—How Long Is Too Long?

GI recovery after 5 days increases risk of:

- Prolonged hospital length of stay (LOS)\textsuperscript{a,b}
- Morbidity, including nosocomial infections\textsuperscript{c}
- Medical or surgical intervention

Gastrointestinal Recovery—How Long Is Too Long?

- For this reason, the primary clinical objective following BR is avoidance of POI.

- Most studies in the area of perioperative care protocols are powered based on a 1-day reduction in length of stay, by accelerating recovery of bowel function.
Patient Characterization
Overall Healthcare Burden Associated With POI\textsuperscript{a,b,c,d}

- Increased resource utilization
- Increased nursing time
- Beds occupied for more time
- Increased risk for nosocomial complications

Length of Hospital Stay and Associated Costs Increase With Coded POI
Premier’s Perspective Database

Mean duration of hospital stay, days

- No coded POI
- Coded POI

Mean hospital costs per patient × $1000

- No coded POI
- Coded POI

*p < 0.01 for coded POI vs no coded POI.
In-Hospital Mortality Associated With POI
Premier’s Perspective Database

* $p < 0.01$ for coded POI vs no coded POI.
POI—Current Treatment Options

- Multimodal accelerated care pathways
  - Intensive nursing and physician input
  - Early NG tube removal, diet advancement, ambulation
  - Opioid-sparing analgesia
  - Prokinetics—none approved for POI
  - Minimally invasive surgery

Prophylaxis of POI Versus DVT/Surgical Site Infection

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<tr>
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<th>NNT</th>
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<tbody>
<tr>
<td>DVT/surgical site infection(^a)</td>
<td>4 - 17</td>
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<tr>
<td>POI (discharge order written before Day 7)</td>
<td>5 - 9</td>
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POI—Current Unmet Need

- No approved drugs for management of POI
- Current management options limited and not consistently effective
- No reliable criteria to predict who will develop prolonged or severe POI
- POI should be managed proactively in patients undergoing bowel resection