Paralytic ileus

September 14, 2020 by Josh Farkas

Ileus is used in this chapter to refer to functional hypomotility of the small intestine (also known as "paralytic ileus" or "adynamic ileus"). This is not due to an anatomic obstruction of the small intestine (which is referred to as "small bowel obstruction").
- Nausea, vomiting
- Distension
- Abdominal pain (usually mild, may have a colicky quality)
- High gastric residual volumes
- Absence of bowel movements for 3 days or more (30294835)

### differential diagnosis
- [Anatomic] small bowel obstruction
- Colonic pseudo-obstruction (similar to ileus, but involves marked dilation of the colon)
- Bowel perforation

### investigations
- **abdominal X-ray**
  - Distended, gas-filled loops of bowel are seen.
  - Features differentiating ileus from small bowel obstruction are listed above.

- **CT scan**
  - CT scan provides definitive imaging of the abdomen and pelvis.
  - This is indicated if there is persistent uncertainty about the diagnosis.

### causes
- **sepsis**
- **medications**
  - Opioids and anti-diarrheals (e.g., loperamide)
  - Calcium channel blockers
  - Clonidine
  - Alpha-adrenergic medications
  - Medications with anticholinergic properties, for example:
    - Antipsychotics, tricyclics
    - Antihistamines
    - Muscle relaxants (e.g., baclofen, cyclobenzaprine, tizanidine)
    - Parkinson's disease medications

- **electrolyte or metabolic abnormalities**

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https://emcrit.org/ibcc/ileus/
- Hypokalemia, hyponatremia, hypomagnesemia
- Hypothyroidism
- Hyperglycemia
- Uremia

**abdominal pathology**
- Recent surgery
- Peritonitis, appendicitis, cholecystitis, pancreatitis
- Intestinal ischemia

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**treatment – general**

**general measures**
- Avoid other causative medications as able (see list above).
  - If the patient is on opioids, these should be minimized and effects on the gut may be specifically counteracted (see section below on this).
- Aggressive mobilization if possible.
- Treat any electrolytic abnormalities.

**continuation of feeding?**
- Feeding will generally need to be held temporarily. (However, if ileus is noted incidentally on X-ray and the patient is clinically tolerating feeding clinically, then feeding should probably be cautiously continued with careful monitoring.)
- Once some time has passed and underlying factors have been addressed, feeding re-challenge may be attempted (often starting with liquids).
- Prolonged periods without enteral nutrition may promote ileus, so an overly conservative strategy to enteral nutrition could be counterproductive.

**nasogastric tube drainage**
- Nasogastric drainage is not generally needed, nor evidence-based.
- Drainage may be used to palliate symptoms (e.g., intractable vomiting or uncomfortable distension).
- Avoidance of nasogastric tube drainage is one component of some protocols designed to facilitate early recovery after surgery (ERAS), with a goal of avoiding ileus. ([28818187](https://pubmed.ncbi.nlm.nih.gov/28818187/)) There isn’t high-level evidence here, but it’s important to note that nasogastric drainage may not promote normal gut functioning.

**pro-motility agents**
- These are generally ineffective for ileus and not recommended.
  - Erythromycin may tend to slow, rather than accelerate, transit through the small intestine! ([30294835](https://pubmed.ncbi.nlm.nih.gov/30294835/))
- If there is marked dilation of the colon (i.e., ileus plus colonic pseudo-obstruction), then neostigmine may be considered (see chapter on colonic pseudo-obstruction).

**opioid antagonists**

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**#1: limitation of opioids**
- Reduce the dose of opioids as much as possible. This should involve the use of a multi-modal analgesia strategy that maximizes non-opioid analgesics (e.g., acetaminophen and pain-dose ketamine infusions).
- It may be impossible to eliminate opioids altogether, but even a reduction in dose may be helpful.
#2: enteral naloxone

- Enteral naloxone (i.e., naloxone delivered via feeding tube) acts predominantly on the gut. First-pass metabolism should generally minimize systemic effects, in the absence of liver disease. (22541841)
  This usually doesn't cause worsening pain or opioid withdrawal, but some increase in pain can occur at higher doses.

- Nuts and bolts:
  - Give 4-8 mg enteral naloxone per feeding tube, every six hours if needed (not intravenously). (12626983)
  - The intravenous formulation of naloxone may simply be administered via feeding tube. It might be reasonable to start at 4 mg and then increase the dose to 8 mg if needed. (8800821)
  - Observe the patient following naloxone administration. If an increase in pain does occur, this may be treated with a non-opioid analgesic (e.g., pain-dose ketamine).
  - Make absolutely sure NOT to administer the naloxone intravenously. A bolus of 4-8 mg intravenous naloxone could induce withdrawal and severe pain.

  Evidentiary basis: Oral naloxone 8 mg q6hr has been demonstrated to improve tube feed tolerance, improve motility, and reduce the risk of aspiration pneumonia in an ICU setting. (12626983) This is only one study, but it's somewhat unique in that the drug was validated to work in critically ill patients and also improved a patient-centered endpoint.

  **(methylnaltrexone is currently not supported by evidence)**

  - Methylnaltrexone is an opioid antagonist which functions peripherally, but does not cross the blood-brain barrier. As such, it may antagonize the effect of opioids on the gut, without increasing pain.
  - Drawbacks of methylnaltrexone include high cost and lack of evidentiary basis among critically ill patients.
  - Evidentiary basis: Methylnaltrexone was ineffective in the MOTION trial, a double-blind RCT evaluating whether it could improve constipation among critically ill patients. Some trends actually seemed to suggest increased bowel motility in the control group. Mortality was higher within the methylnaltrexone group. (32016532)

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**prevention**

- Early feeding: Early initiation of enteral nutrition and avoidance of long interruptions may reduce the risk of ileus.
- Aggressive mobilization.
- Balanced pain control, with avoidance of excessive opioids.
- Optimization of fluid balance and electrolytes.

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**questions & discussion**

To keep this page small and fast, questions & discussion about this post can be found on another page here.
Don't assume that a nasogastric tube should be placed for any patient with ileus. If possible, it may be preferable to avoid nasogastric drainage.

Avoid holding nutrition for long periods of time unnecessarily, as this may promote ileus development.

References


