

Gut Motility Issues in Critical Illness



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KEYWORDS

- Acute gastrointestinal injury • Gastrointestinal symptoms
- Prevalence of acute gastrointestinal injury • Ileus • Gastrointestinal dysmotility
- Intra-abdominal hypertension

KEY POINTS

- Acute gastrointestinal injury (AGI), including delayed gastric emptying, abnormal intestinal motility patterns, and impaired intestinal barrier integrity, is common in critically ill patients.
- Acute AGI may lead to increased morbidity and mortality in critically ill patients.
- This disorder is associated with a wide variety of signs and symptoms and may be difficult to detect, therefore a high index of suspicion is warranted.
- Defects in gastrointestinal motor function, gastrointestinal barrier function, neuroendocrine function, and immune function occur.
- AGI secondary to critical illness may impair the patient's ability to absorb needed nutrients and lead to malnutrition and decreased immune competence.

INTRODUCTION

Acute gastrointestinal injury (AGI) is both common and potentially deadly.^{1–3} The presence of AGI may be occult and its severity may not be immediately apparent to the clinician.

AGI is often manifest by impaired:

- Gastric emptying
- Intestinal motility
- Absorption of fluids, electrolytes, and nutrients
- Mucosal barrier integrity
- Endocrine function
- Immunologic function
- Gut regulatory function

Disclosures: None.

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A variety of definitions have been used to describe AGI. This variety has led to clinical confusion and hampered comparison of research across institutions. An international working group of the European Society of Intensive Care Medicine (ESICM) was convened to standardize definitions for AGI and provide current evidence-based understanding of the pathophysiology and management. The results of this working group were published in 2012 and are addressed later.¹

GUT COMPONENTS

Gut components include:

- Intestinal epithelium
- Mucosal immune system
- Enteric nervous system
- Gut microflora

Dysfunction or failure of any of these components leads to AGI. The dysfunction may be isolated to 1 area of the gastrointestinal (GI) tract or it may be generalized.

SIGNS AND SYMPTOMS OF ACUTE GASTROINTESTINAL INJURY

Signs and symptoms associated with AGI are common³⁻⁵ and include:

- Nausea and vomiting
- Absent or abnormal bowel sounds
- Abdominal distention
- Diarrhea
- Constipation
- Inability to enterally feed patients
- GI hemorrhage

GASTROINTESTINAL BLEEDING

GI bleeding to at least some extent is commonly seen in critically ill patients, with most showing endoscopic evidence of mucosal erosion secondary to mucosal stress.⁶ This condition most commonly presents as:

- Hematemesis
- Coffee ground emesis
- Blood in nasogastric tube
- Melena

Although less common, hemodynamically significant GI hemorrhage presenting as bright red blood from the upper or lower GI tract has potentially lethal consequences and occurs often enough in critically ill patients to warrant careful attention.

ISCHEMIA-REPERFUSION INJURY

Resuscitation of circulatory shock may lead to an enterocyte villous ischemia-reperfusion injury characterized by^{7,8}:

- Epithelial cell disruption
- Diminished villous height
- Mucosal cell necrosis
- Accelerated apoptosis
- Increased enterocyte shedding

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