

# Epidemiology and Diagnosis of Acute Nonvariceal Upper Gastrointestinal Bleeding



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## KEYWORDS

- Nonvariceal bleeding • Epidemiology • Diagnosis • Risk factors • Peptic ulcer
- Endoscopy • Timing

## KEY POINTS

- There is a trend toward a decrease in the overall incidence and hospitalization for nonvariceal upper gastrointestinal bleeding (UGIB) worldwide. Peptic ulcer is still the most common cause of hemorrhage.
- The changing epidemiology is characterized by an aging population, with multiple comorbidities and increased use of aspirin, nonsteroidal antiinflammatory drugs (NSAIDs), or other antiplatelets/anticoagulants.
- Mortality for UGIB is still approximately 5% and is usually related to multiorgan failure, cardiopulmonary conditions, and end-stage malignancy.
- Endoscopy is the mainstay in the management of UGIB, allowing for proper diagnosis, risk stratification, and treatment of the bleeding lesion.
- Unless contraindicated, endoscopy should be performed within 24 hours of patient presentation to maximize benefits and improve economic outcomes.

## EPIDEMIOLOGY OF ACUTE NONVARICEAL UPPER GASTROINTESTINAL BLEEDING

UGIB is predominantly nonvariceal in origin and remains one of the most common challenges faced by gastroenterologists and endoscopists in daily clinical practice. Despite major advances in the approach to the management of nonvariceal UGIB over the past 2 decades, including prevention of peptic ulcer bleeding, optimal use of endoscopic therapy, and adjuvant high-dose proton pump inhibitors (PPIs), it still carries considerable morbidity, mortality, and health economic burden.

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### ***Incidence of Acute Upper Gastrointestinal Bleeding***

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With more than 300,000 hospital admissions annually in the United States,<sup>1,2</sup> UGIB is one of the most common gastrointestinal (GI) emergencies. A 2012 update on the burden of GI disease in the United States reports that GI hemorrhage still ranked 7th among the principal GI discharge diagnoses from hospital admissions in 2009, with a 22% increase compared with year 2000, and 10th among causes of death from GI and liver diseases.<sup>3</sup>

The incidence rates of UGIB demonstrate a large geographic variation, ranging from 48 to 160 cases per 100,000 population per year, with consistent reports of higher incidences among men and the elderly.<sup>4–10</sup> Possible explanations for the reported geographic variations in incidence are differences in definition of UGIB in various studies, population characteristics, prevalence of gastroerosive medications, in particular aspirin and NSAIDs, and *Helicobacter pylori* prevalence.

Some but not all time-trend studies have reported a significant decline in incidence of all-cause acute UGIB, especially peptic ulcer bleeding, in recent years. In the Netherlands, the incidence of UGIB decreased from 61.7/100,000 in 1993/1994 to 47.7/100,000 persons annually in 2000, corresponding to a 23% decrease in incidence after age adjustment.<sup>6,7</sup> This was confirmed in a population-based study carried out in Northern Italy in which the overall incidence of UGIB decreased from 112.5 to 89.8/100,000 per year, which corresponds to a 35.5% decrease after adjustment for age.<sup>8</sup> Trends for incidence of hospitalization due to GI complications in the United States from 2001 to 2009 confirm decreases in UGIB (78.4–60.6/100,000) and peptic ulcer bleeding (48.7–32.1/100,000).<sup>11</sup> The reasons for the observed decrease in hospitalizations due to nonvariceal UGIB are not well defined, but it is reasonable to assume that the use of eradication therapy in patients with ulcer disease and the progressive increase in the implementation of preventive strategies in patients taking aspirin and NSAIDs may have played a role.<sup>12–14</sup>

Outcome data from multicenter observational registries of UGIB, originating from Italy,<sup>15</sup> Canada,<sup>16</sup> and the United Kingdom,<sup>17</sup> reported a mean age of bleeders over 60 years and a prevalence of UGIB in men. In-hospital bleeding (ie, GI hemorrhage that occurs in patients already hospitalized for another medical-surgical condition) occurs in 10% to 25%.<sup>7,18–20</sup>

### ***Causes of Acute Upper Gastrointestinal Bleeding***

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Peptic ulcer bleeding is still the most common cause of nonvariceal UGIB, responsible for approximately 31% to 67% of all cases, followed by erosive disease, esophagitis, malignancy, and Mallory-Weiss tears. In 2% to 8% of cases, uncommon causes, such as Dieulafoy lesion, hemobilia, angiodysplasia, vascular-enteric fistula, and gastric antral vascular ectasia are found (Table 1).<sup>6–9,15–17,21–26</sup>

In recent years, there has been an overall decrease in the incidence of UGIB related to bleeding peptic ulcers, at least in subjects under 70 years of age,<sup>8</sup> whereas its incidence is stable or even higher among patients of more advanced age.<sup>27</sup> A study from Australia on bleeding ulcers over a 10-year period (1997–2007) confirmed that the number of bleeding ulcers remained unchanged despite a decreased incidence of uncomplicated peptic ulcer.<sup>28</sup> Gastric ulcers increased significantly in both bleeding and nonbleeding patients whereas the proportion of duodenal ulcers fell significantly. The proportion of bleeding ulcers related to NSAIDs or aspirin increased significantly over 10 years, from 51% to 71%. Gastroduodenal ulcers are also the most frequent causes of nonvariceal bleeding in cirrhotic patients (48%–51%).<sup>29,30</sup>

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