



Upper Gastrointestinal Bleeding in the Emergency: Etiologies and Outcomes

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ABSTRACT

Acute upper gastrointestinal bleeding (UGIB) is a common emergency and can be a serious condition that requires hospitalization, rapid evaluation and management. The usual presentation is hematemesis (vomiting of blood or coffee ground-like material) and/or melena (black, tarry stools). UGIB occurs more commonly in men and older subjects. Peptic ulcers are the most common cause of UGIB. Esophago-Gastro-Duodenoscopy (EGD) is a primary diagnostic and therapeutic modality in the setting of UGIB. This study aims to evaluate causes and outcomes of UGIB in the emergency. A monocentric study conducted from January 2019 to January 2024. We included all patients hospitalized by our Unit for a UGIB as : hematemesis and/or melena and/or hematochezia with severe anemia or hemodynamic instability. All patients had an oesophagoduodenoscopy (EGD) to find the cause of bleeding and for a therapeutic approach when possible. A total of 737 individuals underwent UGE for UGIB during the study period. Mean age was 56,3 years and 58,7% of patients were male. Among all patients, 17,3% reported consumption of NSAIDs and 21,4% were taking anti-thrombotics. The most frequent presenting symptom was isolated melena in 37,8% followed by melena associated with hematemesis in 31,4%, isolated hematemesis in 27,4% and abundant hematochezia in 3,4%. Hemodynamic instability was seen in 24,5% of patients. Ulcers were the most common cause of bleeding seen in 36,9% : duodenal in 23% of the patients and gastric in 13,9%. 59% of those ulcers were classified Forrest III. Esophageal and fundal varices were found in 19,8% of the cases. The other causes of bleeding were : oesophagitis in 12,2% of the patients, gastritis (including gastric erosions) in 10%, gastric or duodenal neoplasm in 9,3%, vascular anomaly in 2,2% and postoperative in 1,6%. The oesophagoduodenoscopy was normal in 8% of the patients. Regarding therapeutic interventions, 41,5% had undergone therapeutic endoscopy. UGIB is a frequent cause of hospitalization in the emergency. EGD has a diagnostic as well as therapeutic role in UGIB. In this study endoscopy provided diagnosis in 92% of patients. We found duodenal ulcers as the most common cause of upper GI bleeding followed by gastric ulcers, and clean based ulcers were the most common type of peptic ulcers. Varices are an important cause of massive variceal bleed. NSAIDs and anti-thrombotics are important factors for UGIB.

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Introduction Background

Acute upper gastrointestinal bleeding (UGIB) is a frequent condition that needs to be rapidly evaluated and managed. It is a life-threatening emergency. Hematemesis (vomiting blood) and/or melena (black, tarry stools) are the typical presentations. However, it can also show up as abundant hematochezia or blood loss symptoms.

Both variceal and non-variceal factors are possible causes of UGIB. The most frequent causes of UGIB are non-variceal ones and must of all peptic ulcers. Portal vein hypertension is a common accompanying condition to variceal causes, which include gastric and esophageal varices. The use of NSAIDs, anti-thrombotic drugs has a well-defined role when it comes to gastrointestinal bleeding.

The pattern of UGIB has changed during the recent years with a decreased number of UGIB with variceal causes in the light of the improvement in management of portal vein hypertension. Also, other advancements in management of different factors such as *Helicobacter pylori* treatment or better use of NSAID have led to changes in outcome of the disease. Therefore, large epidemiological studies are needed to get insight in the disease pattern and outcome in recent years. In this study, we report etiology and outcome of UGIB in a large group of patients, from a population of Morocco.

Methods

This is a monocentric study conducted from January 2019 to January 2024. We included all patients hospitalized by our Unit for a GIB as : hematemesis and/or melena. Also patients with hematochezia with severe anemia and/or hemodynamic instability were included.

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All patients had an oesophagogastroduodenoscopy (EGD) to find the cause of bleeding and for a therapeutic approach when possible. Propofol sedation was used in 90% of cases.

Results

A total of 737 individuals underwent UGE for GI bleeding during the study period. Mean age was 56,3 years and 58,7% of patients were male.

The mean duration of hospitalization (SD) was 38 hours. Among all patients, 17,3% reported consumption of NSAIDs and 21,4% were taking anti-coagulants.

Regarding comorbidities, 31% of patients had at least one comorbidity including 29% cirrhosis, 15% renal disease, 12% ischemic heart disease. 50% of patients had no comorbidities.

The most frequent presenting symptom was isolated melena in 37,8% followed by melena associated with hematemesis in 31,4%, isolated hematemesis in 27,4% and abundant hematochezia in 3,4%. Hemodynamic instability was seen in 24,5% of patients.

All patients underwent a oesogastroduodnoscopy in emergency. Ulcers were the most common cause of bleeding seen in 36,9%: it was duodenal in 23% of the patients and gastric in 13,9%. 59% of those ulcers were classified Forrest III, 32% Forrest II and 9% Forrest I. Esophageal and fundal varices were found in 19,8% of the cases : 18% oesophageal and 1,8% fundal varices.

The other causes of bleeding were : oesophagitis in 12,2% of the patients, gastritis (including gastric erosions) in 10%, gastric or duodenal neoplasm in 9,3%, Vascular anomaly in 2,2% and postoperative in 1,6%.

The oesogastroduodenoscopy was normal in 8% of the patients. Among the patients who were taking anti-coagualnt gastritis was the most frequent cause of bleeding (4%) and the endoscopy was normal in 14,6%.

Regarding therapeutic interventions, 41,5% had undergone therapeutic endoscopy : adrenalin injection therapy in 14%, clipping in 15%, variceal band ligation in 12,5% and argo plasma coagulation in 2% of the case.

Discussion

Upper Gastrointestinal bleeding (UGIB) is the most common cause of GI-related hospitalization.

The incidence is about 90–108/100,000 inhabitants per year [1,2,3].

In this study we described etiologies and outcomes of upper GI bleeding in 737 patients admitted to an endoscopy unit over a five-year period.

Men represented more than half of our patients, which is in line with the results of other studies. [4,5] 11,7% of patients had a history of NSAID use that we were able to document; however, given the retrospective design of our study, this number may be underestimated.

In fact, after *Helicobacter pylori*, NSAIDs are recognized as the second biggest risk factor for ulcer bleeding. [6] Wilcox and Clark also showed that NSAID users were less likely than non-NSAID users to be subjects to re-bleeding or death and also had a shorter hospital stay [7].

Identified risk factors for UGIB also include antithrombotic drugs, which are frequently administered for the long-term prevention or treatment of cardiovascular disease [8-10].

One population-based retrospective case-control study performed in the UK demonstrated an increased risk of AUGIB for individuals using warfarin [11]. In their study, Zheng et al. noted that a growing percentage of UGIB

patients were receiving long-term antithrombotic medication. [12] In our study, 21,4% of the patients were taking these drugs.

Peptic ulcers were the most frequent EGD finding, occurring in 36,7% of our patients. These included gastric (13,9%), and duodenal (23%) ulcers. These numbers were similar as Minakari's and al study who found ulcers in 43% : gastric in 17,8% and duodenal in 24,6% [13].

Peptic ulcers are the most common cause of UGIB, according to studies conducted in the US and other countries. Duodenal ulcers are more common (19,5%–41%) than gastric ulcers (10,8%–29,5%) [5,6,14-16]. Therefore, peptic ulcers appear to be the most frequent cause of upper gastrointestinal bleeding. It should be mentioned that around 90% of adults in Morocco suffer from *Helicobacter pylori* infection. This conclusion may also be explained by the common usage of NSAIDs and aspirin as said previously. [17]

The most frequent form of ulcer in both duodenal and gastric ulcers was clean-based ulcer. Similar studies have also revealed that clean-based ulcers are the most prevalent type of ulcers. [6,17]

Based on EGD results, esophageal varices were observed in 18% of cases. Studies conducted in other nations have identified frequencies in a comparable range. However, France and India seem to have higher frequencies [5,14, 18]. There is a claim that the large use of new drugs for cirrhosis and hepatitis, as well as new endoscopic treatments for individuals with portal hypertension, is lowering the rate of variceal hemorrhage [17].

In our study, esophagitis and gastritis were observed in 10% and 12,2% of cases respectively. With a frequency ranging from 9% to 31%, esophagitis and gastritis are thought to be the two primary causes of upper gastrointestinal bleeding in larger worldwide studies [16, 19-21].

In 3,7% of the patients in our results, bleeding was caused by malignant neoplasms of the upper gastrointestinal tract, primarily gastric neoplasms. Although it is less common in the United States, stomach cancer is still a significant cause of upper gastrointestinal hemorrhage in non-Western nations [6]. However western nations have sometimes reported numbers as high as 4% [16,21].

For 2,2% of our patients, angiodysplasia was found. In other studies, 1%–2% of UGIBs are caused by vascular malformations, which include Dieulafoy's lesion and arteriovenous malformations [4]. Worldwide, these diseases are considered to be minor causes of UGIB [6,22].

The percentage of UGIB cases with a normal EGD finding included 8% of the cases. As was previously mentioned, endoscopy does not to identify the source in 5%–14% of cases of UGIB [4, 14,15, 23].

Following guidelines, therapeutic endoscopy was performed on 51,5% of our patients. Therapeutic endoscopy is recommended for ulcers at high risk of bleeding (active arterial bleeding, non-bleeding visible vessels and adherent clot) with a favorable response of 85-90% [6,16]. Combination therapies are more common, especially for injection therapy which is superior to any other therapy alone [6,19].

Even if we haven't studied it, it is important to notice that rebleeding can happen in 7-16% of these cases in light of past studies [5,24]. Rebleeding occurs more frequently in patients with varices and peptic ulcers 8. Additionally ulcers with active bleeding are at higher dangers of rebleeding (55%) and those with non-bleeding ulcers have discernibly lower opportunities for rebleeding (0,5% for clean based ulcers) [6].

Voluminous bleeding is related with higher risks of rebleeding as well as hematemesis, need for blood bonding, and presence of hypertension [25]. Rebleeding increases mortality rate which confirms the importance of identifying its predisposing factors [6,13,25]. After rebleeding, the most feared complication is death. UGIB has a mortality rate ranging from 2,3 and 2,6%. [2,3]

According to the American society of gastrointestinal endoscopy, recurrent bleeding, need for therapeutic endoscopy or surgery, older age, severe comorbidity, evidences of active bleeding, massive blood transfusion and hypotension are associated with increased mortality [6,16].

Conclusion

UGIB is a frequent and an urgent cause of hospitalization in the emergency. EGD has a diagnostic as well as therapeutic role in UGIB. In this study endoscopy provided diagnosis in 92% of patients. We found duodenal ulcers as the most common cause of upper GI bleeding followed by gastric ulcers, and clean based ulcers were the most common type of peptic ulcers. Varices are an important cause of massive variceal bleed. NSAIDs and anti-thrombotics are important factors for UGIB.

To gain a better understanding of the characteristics and current status of care of patients with UGIB, we feel that an updated epidemiological study of the trends and hospital-based management and outcomes for all patients with UGIB presenting to emergency is necessary.

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