Management of Patients with Rebleeding

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KEYWORDS

• Peptic ulcer • Rebleeding • Endoscopy • Surgery • Angiographic embolization

KEY POINTS

- Rebleeding after endoscopic hemostasis is a major risk factor for mortality.
- Risk factors for rebleeding should be recognized to identify high-risk patients.
- Newly developed devices, such as TC-325 (Hemospray; Cook Medical, Bloomington, IN) and Over-The-Scope Clip (Ovesco Endoscopy AG, Tübingen, Germany), might secure hemostasis on recurrent bleeding.
- If further rebleeding recurs after a second endoscopic attempt, transarterial angiographic embolization or surgery should be considered.
- Definitive treatment of the cause and preventive measures for peptic ulcers should always be considered to reduce disease recurrence and complications.

INTRODUCTION

Acute upper gastrointestinal bleeding is a major cause of hospitalization. Peptic ulcers accounted for 36% of all causes of acute upper gastrointestinal bleeding.[1] Despite a decreasing trend in the incidence,[2,3] peptic ulcer bleeding continues to carry a significant morbidity and mortality rate. Rebleeding may develop in up to 15% of patients after therapeutic endoscopy and is associated with a high mortality rate.[4] The mortality rate of peptic ulcer bleeding remains at about 10%.[5–7]

Medical advances over the past decades have transformed the clinical management of peptic ulcer bleeding. Endoscopic therapy has become the first-line treatment of peptic ulcer bleeding, achieving primary hemostasis in more than 90% of patients. Potent acid suppressants and eradication therapy for *Helicobacter pylori* have

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contributed to a decrease in hospital admissions for peptic ulcer bleeding. On the other hand, there is an increase in the number of patients taking acetylsalicylic acid and other antiplatelets for various cardiovascular diseases,[8,9] posing new challenges to disease management. These epidemiologic changes could have major implications on the disease course and outcome. Peptic ulcer bleeding is now predominantly a disease of the elderly, with more than 60% of patients older than 60 years and around 20% older than 80 years.[8] Patients with peptic ulcer bleeding now have more complex comorbidities, more diverse causes, and more elaborate lists of medications than ever before. Effective management of recurrent ulcer disease relies on the identification and modification of risk factors.

TREATMENT OF PEPTIC ULCER BLEEDING

Risk Stratification

The first step in managing patients with upper gastrointestinal bleeding is clinical evaluation and risk stratification. The aim is to determine the severity of bleeding and, hence, the priority and timing of different therapies. Patients with exsanguinating hemorrhage and unstable hemodynamics require immediate resuscitation and intensive monitoring. Prompt fluid and red cell replacement can be life saving in this situation. Nevertheless, overzealous transfusion in otherwise stable patients should be avoided, as it can be associated with higher rates of rebleeding and death.[10–13] In a randomized controlled trial involving 921 patients with severe acute upper gastrointestinal bleeding, patients receiving liberal transfusion at a hemoglobin threshold of 9 g/dL had an increased risk of further bleeding and death, compared with patients receiving transfusion only at a hemoglobin threshold of 7 g/dL.[12] Blood product transfusion also carries a risk of pulmonary edema, transfusion reaction, and blood-borne infection. Apart from the hemodynamic assessment, several risk stratification systems have been developed to predict disease outcomes. These systems include the Rockall score, which combines clinical and endoscopic parameters,[14] and the Glasgow-Blatchford score, which combines clinical and laboratory parameters to predict disease outcomes.[15] Furthermore, a risk stratification score combining albumin, International Normalized Ratio (INR), mental status assessment, systolic blood pressure and age (AIMS65) has been derived and validated in more than 60,000 patients to predict in-hospital mortality, length of stay, and costs.[16] These scores may help to risk stratify patients to different therapeutic strategies and allow some of the patients with lower risk for outpatient management.[17,18]

Pre-endoscopic Management

The role of preemptive acid suppressive therapy before endoscopy was addressed in several studies. In a randomized study involving 638 patients with upper gastrointestinal bleeding, high-dose proton-pump inhibitor was found to reduce the endoscopic grade of peptic ulcer and, hence, the need for endoscopic therapy.[19] This result was confirmed in a subsequent meta-analysis that showed an almost one-third reduction in the need for endoscopic therapy (odds ration [OR] = 0.68, 95% confidence interval [CI] = 0.50–0.93)[20]; yet there was no significant difference in blood transfusion, rebleeding, surgery, or death. The use of proton-pump inhibitors should not replace endoscopy in actively bleeding patients. In situations whereby endoscopy may be delayed or contraindicated, proton-pump inhibitor therapy improves clinical outcomes.[21]

Endoscopic Treatment

Endoscopy is now the first-line treatment of upper gastrointestinal bleeding. It has been shown to reduce further bleeding (OR = 0.38, 95% CI = 0.32–0.45), the need