Management of Non Variceal Upper Gastrointestinal Bleed

Sherif Safwat*
Mid Essex Health Authority, UK

Abstract

Upper gastrointestinal bleeding has 10% in-hospital mortality. Despite significant advances in the management, there has not been any improvement in mortality. The only improvement over the last 25 years has been in variceal bleeds. Increasing age and comorbidities are the major factors related to mortality. Early endoscopic management of severe upper GI bleeds improves survival. Adopting a system which identifies severe bleeding and vulnerable patients is essential.

Keywords: GI Bleeds; Variceal; Haematemesis; Comorbidities

Scores to Identify High Risk and Low Risk Patients

The various scoring systems aim to identify significant bleeds and patients with comorbidities that would worsen the outcome [1-7] (Table 1).

Rockall Score

The two scoring systems are useful in identifying the high and low risk patients, but clinical judgment is superior [8-10]. It is also worth noting that GI bleeding in inpatients has a three folds increase in mortality [11-12]. So in general a patient who has a witnessed haematemesis or melena in hospital has a significant bleed and requires special attention. A systolic blood pressure below 100 a heart rate above 100 per minute, Haemoglobin level below 10 gm/dl and a high urea in a bleeding patient should alert you that an early endoscopic intervention is warranted (Table 2).

Preparing the Patient for Endoscopic Intervention

Resuscitation of the haemodynamically unstable patient with gastrointestinal bleeding is vital, particularly if they are elderly or have comorbidities. There are certain issues with bleeders that should be highlighted:

1. Avoid overzealous filling of your patient. As any good plumber would tell you, the first rule of good plumbing; before fixing the leak you need to switch off the main water supply. Aim to keep the systolic BP at 100 mmHg and Hemoglobin at 7 gm/dl [13]. These patients are better treated in specialized or high dependency units, particularly the vulnerable elderly and patients with co-morbidities. If variceal bleed is suspected Portal pressure (Hepatic venous pressure gradient) should be reduced by the use of Terlipressin or somatostatin [14,15].

2. Correct significant clotting disorders.

3. Decide on the place for endoscopy and the support required: either A&E, operating theatre, endoscopy unit or ITU. This depends on what is available in your hospital, the risk of aspiration and the availability of specialist endoscopy nurses.

4. Patients with suspected variceal bleed benefit from prophylactic antibiotics as it improves mortality [16-18].

5. Intravenous proton pump inhibitor: This should be given in serious GI bleeds; 80 mg IV pantoprazole stat followed by 8 mg per hour for 72 hours or 40 mg qds. There is controversy about

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Table 1: Glasgow-Blatchford Score

<table>
<thead>
<tr>
<th>Variable</th>
<th>Score 0</th>
<th>Score 1</th>
<th>Score 2</th>
<th>Score 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>&lt;60</td>
<td>60-79</td>
<td>&gt;80</td>
<td></td>
</tr>
<tr>
<td>Shock</td>
<td>No shock</td>
<td>Pulse &gt;100</td>
<td>SBP &lt;100</td>
<td></td>
</tr>
<tr>
<td>BP</td>
<td>&gt;100</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Systolic BP</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Co-morbidity</td>
<td>Nil</td>
<td>major</td>
<td>CHF, IHD, major morbidity</td>
<td>Renal failure, liver failure, metastatic cancer</td>
</tr>
<tr>
<td>Diagnosis</td>
<td>Mallory-Weiss</td>
<td>All other diagnoses</td>
<td>GI malignancy</td>
<td></td>
</tr>
<tr>
<td>Evidence of bleeding</td>
<td>None</td>
<td>Blood, adherent clot, spurting vessel</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

8 points put patient in high risk, while 2 points or less is low risk.

Table 2: Rockall score.

*Corresponding author: Sherif Safwat, Mid Essex Health Authority, UK; E-mail: Sherif.Safwat@meht.nhs.uk

Received March 08, 2013; Accepted March 31, 2013; Published April 02, 2013

Citation: Safwat S (2013) Management of Non Variceal Upper Gastrointestinal Bleed. J Gastroint Dig Syst 53: 004. doi:10.4172/2161-069X.S3-004

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the use of ppi prior to endoscopic therapy of non variceal GI bleed. Although it does not improve mortality, it is associated with significant down staging of endoscopic lesions [19,20].

6. IV Erythromycin prior to endoscopy improves visibility during endoscopy [21].

Endoscopic Management

![Figure 1: Acute hemorrhage.](image)
a. Forrest I a (Spurting hemorrhage) = Risk of re-bleeding 100%.
b. Forrest I b (Oozing hemorrhage) = Risk of re-bleeding 55%.

![Figure 2: Signs of recent hemorrhage](image)
a. Forrest II a (Visible vessel) = Rebleeding Rate 40-50%
b. Forrest II b (Adherent clot) = Re-bleeding rate 30%
c. Forrest II c (Haematin on ulcer base) = Re-bleeding rate 10%

![Figure 3: Lesions without active bleeding.](image)

Bleeding peptic ulcer

Two sites in the upper GI tract are associated with significant bleeds due to anatomical proximity to arteries. Posterior wall of first part of duodenum from gastroduodenal artery and proximal lesser curve of stomach from left gastric artery.

There are several endoscopic features that give indication to the seriousness of the bleed and the risk of re-bleeding. The Forrest classification describes various degrees of bleeding from ulcers and the re-bleeding risk associated. Other factors associated with failure of haemostasis are ulcer size, presence of shock at presentation and previous ulcer bleeding.

**Forrest classification** [22]

(Figure 1) (Figure 2) (Figure 3)

**Strategies for a successful endoscopic haemostasis**

Keeping the systolic blood pressure at around 100 mmHg and restricting the use of blood transfusions unless the Haemoglobin is 7 gms or less gives the endoscopist an advantage with a less bloody field, allows for better visualization of the ulcer field and improves survival [23].

Three modalities are available to control ulcer bleeding: adrenaline (1:10000) injection, Heat probe and clips. Adrenaline injection, although not proven to improve survival as a single modality, it is a very useful temporary method to control the bleeding by both its tamponade effect and vasoconstriction [24]. If a visible vessel is seen it can be tackled by either heat probe or clip without prior adrenaline injection. When a clot is seen, injecting adrenalin at the base of the ulcer, around the clot loosens it, and it can be washed off by water spray. If the clot does not wash away, you may shave it off using a snare. Once the clot is dislodged any visible vessel should be dealt with either with heat probe or clip. Attempts should be repeated till you can see a clean ulcer base.

Surgical treatment would be required if endoscopic intervention fails to stop the bleeding. Information regarding the site of bleeding

![Figure 4: a. Oesophageal Varices](image)
b. Mallory-Weiss Tear: History is usually of severe retching followed by red fresh blood haematemesis. Bleeding may be quiet significant particularly in anti-coagulated patients.
c. Ulcer within Barretts and a visible vessel
d. Angiodysplasia duodenum
e. Gastrointestinal Stromal Tumour (GIST): This usually requires surgical excision.
f. Malignancy: Gastric Lymphoma
is important to be passed on to the surgeon. In case of failure to identify the bleeding point triple phase CT angiography is required and interventional angiography can be used to control the bleeding.

After successful treatment of a bleeding peptic ulcer, gastric ulcer patients should be re-scoped in 6 weeks to ensure healing. Duodenal ulcer patients do not require re-scoping but they would benefit from H pylori eradication.

**Other Causes of Upper GI Bleed**

(Figure 4 (a-f))

**Conclusion**

Management of the upper GI bleed should not be perplexing as long as you are well prepared. As Billy Connelly said 'There is no such thing as bad weather, only bad clothes'.

**References**


