Upper GI bleed

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National clinical advisers team NCEPOD GI haemorrhage study 2015
Introduction

• Gastrointestinal bleeding is one of the commonest medical emergencies

• The incidence rate of 1.33/1000 population equates to approximately 85,000 cases/year in the UK or one gastrointestinal bleed every 6 minutes

• Several surveys have shown that current services are inadequately resourced, particularly in the out-of-hours period
A Common Clinical Problem

- 1 - 2% of all hospital admissions
  - Most common diagnosis of new ICU admissions
- 5 - 10% mortality
- 80% of GI bleeds stop spontaneously
  - Those with massive bleeding need urgent intervention
Introduction

- Second commonest medical reason for transfusion, accounting for 14% of all blood transfusions
- Early treatment can reduce the number of units of blood received and complications
- Managed by both medical and surgical teams
- Traditionally split into upper GI and lower GI bleeding
Introduction

• There has been a focus on upper GI bleeds including a large BSG audit of 6750 patients in 2007 and subsequent quality improvement initiatives

• Conversely the review of services for lower GI bleeds has been lacking
GI bleed presentation

- Melaena / haematemesis
- Collapse
- Dizziness
- Hypotension
Causes of acute upper gastrointestinal haemorrhage

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>Approx %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peptic ulcer</td>
<td>35-50 %</td>
</tr>
<tr>
<td>Gastroduodenal erosions</td>
<td>8-15 %</td>
</tr>
<tr>
<td>Oesophagitis</td>
<td>5-15 %</td>
</tr>
<tr>
<td>Mallory Weiss tear</td>
<td>15%</td>
</tr>
<tr>
<td>Varices</td>
<td>5-10 %</td>
</tr>
<tr>
<td>GI cancer</td>
<td></td>
</tr>
</tbody>
</table>
What is ‘coffee grounds’?
**Table 4.8 Delay in recognising the inpatient's GI bleed – reviewers’ opinion**

<table>
<thead>
<tr>
<th>Delay</th>
<th>Number of patients</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>135</td>
<td>79.4</td>
</tr>
<tr>
<td>Yes</td>
<td>35</td>
<td>20.6</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td></td>
<td><strong>170</strong></td>
</tr>
<tr>
<td>Unknown</td>
<td></td>
<td>10</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>180</strong></td>
</tr>
</tbody>
</table>
### Table 4.9 Initial risk assessment score used

<table>
<thead>
<tr>
<th>Risk assessment score used</th>
<th>Number of patients</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>125</td>
<td>34.1</td>
</tr>
<tr>
<td>No</td>
<td>242</td>
<td>65.9</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td><strong>367</strong></td>
<td></td>
</tr>
<tr>
<td>Unknown</td>
<td>108</td>
<td></td>
</tr>
<tr>
<td>Not answered</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>490</strong></td>
<td></td>
</tr>
</tbody>
</table>
### Table 4.29 Time to OGD by appropriate blood usage

<table>
<thead>
<tr>
<th>Time to OGD reasonable</th>
<th>No</th>
<th>Yes</th>
<th>Subtotal</th>
<th>Not answered</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>192</td>
<td>31</td>
<td>223</td>
<td>12</td>
<td>235</td>
</tr>
<tr>
<td>No</td>
<td>65</td>
<td>39</td>
<td>104</td>
<td>6</td>
<td>110</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td>257</td>
<td>70</td>
<td>327</td>
<td>18</td>
<td>345</td>
</tr>
<tr>
<td>Unknown</td>
<td>10</td>
<td>1</td>
<td>11</td>
<td>1</td>
<td>12</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>267</td>
<td>71</td>
<td>338</td>
<td>19</td>
<td>357</td>
</tr>
</tbody>
</table>
Time to OGD

- NICE QS 38 2013 suspected UGIB OGD < 24 hours
- All patients = time of admission or presentation (IPs)
- 65% (205/316) < 24 hours
Shock Index and time to OGD

- NICE Q5 - in those with haemodynamic instability
  OGD < 2 hours of optimal resuscitation
- 8.5% (8/94) SI >1 had OGD < 2 hours
- < 4 hours
- 22% (21/94) < 4 hours with SI >1

Table 6.3 Time to endoscopy vs. shock index

<table>
<thead>
<tr>
<th>Time to endoscopy</th>
<th>Shock index at presentation ≤1</th>
<th>%</th>
<th>Shock index at presentation &gt;1</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;2 hours</td>
<td>4</td>
<td>1.8</td>
<td>8</td>
<td>8.5</td>
</tr>
<tr>
<td>2-4 hours</td>
<td>16</td>
<td>7.1</td>
<td>13</td>
<td>13.8</td>
</tr>
<tr>
<td>4 to 24 hours</td>
<td>119</td>
<td>52.9</td>
<td>53</td>
<td>56.4</td>
</tr>
<tr>
<td>&gt;24 hours</td>
<td>86</td>
<td>38.2</td>
<td>20</td>
<td>21.3</td>
</tr>
<tr>
<td>Total</td>
<td>225</td>
<td>94</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
1 - Recognition

Immediately

- Haematemesis, Melaena, Bright red rectal bleeding

- PR examination (all patients with confirmed or suspected GI bleed should have PR examination performed on arrival)
2 - Assessment

Immediately

a) ABCDE approach: consider Shock index (SI): ratio between HR and systolic BP >0.9 - detect early haemorrhagic shock

b) Risk assessment: Use Blatchford score (use Rockall post endoscopy)
   **Blatchford score - assess probability for intervention (blood transfusion, endoscopy)**
   - Score 0 - low risk, consider early discharge
   - Score >0 - manage as in patient
   - Score >5 - high risk for intervention

c) Blood sampling for ABG (Hb, PH, Lactate), FBC, Clotting, U&Es, LFTs and cross match, ECG, Drugs History - Clopidogrel, aspirin, warfarin, NOAC
### Table 1 | Glasgow–Blatchford score assessment criteria

<table>
<thead>
<tr>
<th>Risk factors at presentation</th>
<th>Threshold</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blood urea nitrogen (mmol/l)</td>
<td>6.5–7.9</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>8.0–9.9</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>10.0–24.9</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>≥25.0</td>
<td>6</td>
</tr>
<tr>
<td>Hemoglobin for men (g/l)</td>
<td>120–130</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>100–119</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>&lt;100</td>
<td>6</td>
</tr>
<tr>
<td>Hemoglobin for women (g/l)</td>
<td>100–120</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>&lt;100</td>
<td>6</td>
</tr>
<tr>
<td>Systolic blood pressure (mmHg)</td>
<td>100–109</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>90–99</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>&lt;90</td>
<td>3</td>
</tr>
<tr>
<td>Heart rate (bpm)</td>
<td>&gt;100</td>
<td>1</td>
</tr>
<tr>
<td>Melena</td>
<td>Present</td>
<td>1</td>
</tr>
<tr>
<td>Syncope</td>
<td>Present</td>
<td>2</td>
</tr>
<tr>
<td>Hepatic disease</td>
<td>Present</td>
<td>2</td>
</tr>
<tr>
<td>Cardiac failure</td>
<td>Present</td>
<td>2</td>
</tr>
</tbody>
</table>

Total score (0–23). Patients with scores >0 are considered to be at high risk. Permission obtained from Elsevier Ltd © Blatchford, O. et al. *Lancet* 356, 1318–1321 (2000).

### Table 2 | Rockall score assessment criteria

<table>
<thead>
<tr>
<th>Variables</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)</td>
<td></td>
</tr>
<tr>
<td>&lt;60</td>
<td>0</td>
</tr>
<tr>
<td>60–79</td>
<td>1</td>
</tr>
<tr>
<td>≥80</td>
<td>2</td>
</tr>
<tr>
<td><strong>Hemodynamic shock</strong></td>
<td></td>
</tr>
<tr>
<td>Heart rate &gt;100 bpm</td>
<td>1</td>
</tr>
<tr>
<td>Systolic blood pressure &lt;100 mmHg</td>
<td>2</td>
</tr>
<tr>
<td><strong>Coexisting illnesses</strong></td>
<td></td>
</tr>
<tr>
<td>Heart failure, ischemic heart disease</td>
<td>2</td>
</tr>
<tr>
<td>Renal failure, hepatic failure, metastatic cancer</td>
<td>3</td>
</tr>
<tr>
<td><strong>Endoscopic signs (diagnostic)</strong></td>
<td></td>
</tr>
<tr>
<td>No lesion observed, or Mallory–Weiss tear</td>
<td>0</td>
</tr>
<tr>
<td>Peptic ulcer, erosive disease, esophagitis</td>
<td>1</td>
</tr>
<tr>
<td>Cancer of the upper gastrointestinal tract</td>
<td>2</td>
</tr>
<tr>
<td><strong>Endoscopic signs (hemorrhagic)</strong></td>
<td></td>
</tr>
<tr>
<td>Clean-base ulcer or flat, pigmented spot</td>
<td>0</td>
</tr>
<tr>
<td>Visible blood, active bleeding, visible vessel,</td>
<td>2</td>
</tr>
<tr>
<td>adherent clot</td>
<td></td>
</tr>
</tbody>
</table>

3 - Resuscitation
to start within 30 minutes

Two large venflon - O2, fluid resuscitation - saline colloid/ Blood transfusion - (consider activating massive haemorrhage protocol early if ongoing shock or massive haemorrhage)

a) Aim - systolic BP >100 (90-100 systolic in variceal bleed), satisfactory urine output, Use fluid boluses, reassess after each bolus

b) Aim HB 8-10 (for variceal bleed, HB7). Avoid over or under transfusion. Blood transfusion for: Hb less than 7.0, ongoing shock/ haemorrhage

c) Monitoring every 15 minutes for the first hour

d) Keep patient NBM

e) If suspected peptic ulcer bleed give bolus IV PPI (not in NICE guidance, but emerging evidence), variceal bleed, give terlipressin 2mg (antibiotics in suspected variceal bleed)

f) Patient on anticoagulant - high INR - need urgent correction (discuss lower limit in high risk patient, recurrent PE, MVR), offer prothrombin complex concentrate to patient on warfarin and high INR


g) Offer FFP for patients who are actively bleeding with PT and/or aPTT more than 1.5 normal, offer cryoprecipitate to patients with persistent fibrinogen level of less than 1.5g/l despite initial resuscitation
Is the patient shocked?

<table>
<thead>
<tr>
<th></th>
<th>Class I</th>
<th>Class II</th>
<th>Class III</th>
<th>Class IV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vol loss (ml)</td>
<td>&lt;750</td>
<td>750-1500</td>
<td>1500-2000</td>
<td>&gt;2000</td>
</tr>
<tr>
<td>Vol loss (%)</td>
<td>0-15</td>
<td>15-30</td>
<td>30-40</td>
<td>&gt;40</td>
</tr>
<tr>
<td>Systolic</td>
<td>Normal</td>
<td>Normal</td>
<td>Low</td>
<td>V Low</td>
</tr>
<tr>
<td>Diastolic</td>
<td>Normal</td>
<td>Raised</td>
<td>Low</td>
<td>V Low</td>
</tr>
<tr>
<td>Pulse</td>
<td>Slight tachy</td>
<td>100-120</td>
<td>120 thready</td>
<td>&gt;120, v thready</td>
</tr>
<tr>
<td>Resp rate</td>
<td>Normal</td>
<td>Normal</td>
<td>&gt;20</td>
<td>&gt;20</td>
</tr>
<tr>
<td>Mental state</td>
<td>Alert</td>
<td>Anxious / aggressive</td>
<td>Drowsy</td>
<td>Confused / unconscious</td>
</tr>
</tbody>
</table>
What size cannula?
## What size cannula?

<table>
<thead>
<tr>
<th>Colour</th>
<th>Gauge</th>
<th>Flow rate (ml/min)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pink</td>
<td>20</td>
<td>40</td>
</tr>
<tr>
<td>Green</td>
<td>18</td>
<td>75</td>
</tr>
<tr>
<td>Grey</td>
<td>16</td>
<td>150</td>
</tr>
<tr>
<td>Orange</td>
<td>14</td>
<td>300</td>
</tr>
<tr>
<td>Triple lumen CVP line</td>
<td>16</td>
<td>50</td>
</tr>
</tbody>
</table>
What fluid replacement?

• Blood if >30% volume loss
  – ?O-negative
  – ?Group specific
  – ?Cross-matched
Crystalloid or colloid?

- No comparative studies in UGIB
- Probably makes no difference
Inapppropriate use of blood
### Table 4.27 Appropriate blood product use – reviewers’ opinion

<table>
<thead>
<tr>
<th>Appropriate blood product use</th>
<th>Number of patients</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>342</td>
<td>80.3</td>
</tr>
<tr>
<td>No</td>
<td>84</td>
<td>19.7</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td><strong>426</strong></td>
<td></td>
</tr>
<tr>
<td>Unknown</td>
<td>59</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>485</strong></td>
<td></td>
</tr>
</tbody>
</table>
Table 4.28 Improved management may have reduced the use of blood products – reviewers’ opinion

<table>
<thead>
<tr>
<th>Improved management may have reduced the use of blood products</th>
<th>Number of patients</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>113</td>
<td>24.7</td>
</tr>
<tr>
<td>No</td>
<td>344</td>
<td>75.3</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td><strong>457</strong></td>
<td></td>
</tr>
<tr>
<td>Unknown</td>
<td>28</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>485</strong></td>
<td></td>
</tr>
</tbody>
</table>
National Audit

- 2011 Red cell use in Medical Patients
  - 9216 cases in 181 hospitals/trusts
  - Medical use (only 1:3 haem audited)
  - 53% of transfusions fell outside of algorithm based on national appropriate use guidance
  - 1592 potentially avoidable transfusions audited in more depth
    - 43% ?reversible, 32% above guideline trigger, 18% over transfused
UK Comparative audit of Upper GI bleeding and Blood use

• Acute upper GI bleeding accounts for 13% of all blood use
• 38% in West Midlands transfused rbc
• 6750 cases analysed
• 13% of rbc transfusions deemed inappropriate
  – Hb>100g/l and stable
• 42% of platelets given were inappropriate
• 27% of FFP was given inappropriately
  • 57% with INR>1.5 not given FFP
Appropriate thresholds for transfusion in GI bleeding?

- Transfusion Strategies for Acute Upper Gastrointestinal Bleeding
  - NEJM, January 8, 2013
  - Liberal (Hb 90) v Restrictive (Hb 70)
  - Improved survival in restrictive group 95% v 91%
    - Less re-bleeds
    - Less adverse events
    - Lower portal-pressure gradient
  - THOUGH - higher mortality in restrictive group with
    - PUD
    - Childs-Pugh A or B
Serious Hazards of Transfusion

• 2012 data
  – Transfusion caused or contributed to death – 9
  – Major morbidity definitely or probably related to transfusion – 134
  – Minor or no morbidity as result of transfusion reaction – 1502

Risk of death 3.1 per 1 000 000 components transfused
Risk of major morbidity 46.5 per 1 000 000
4 - Time to Endoscopy

- All patient with a GI bleed and haemodynamic instability should have 24/7 access to an OGD within two hours of optimal resuscitation (NICE recommendation)
- Endoscopy within 24 hours (ideally within 6-12 hours within working hours, if space and skilled endoscopist available - this potentially prevent further bleed and possibly blood transfusion).
- Patient with BRRB with shock index >1 - urgent OGD -
Who is at risk- assessment

- In patient Vs acute admissions
- Increasing age
- Co-morbidity – IHD, Renal/Liver/cancer
- Shock – BP < 100, HR > 100 (drugs)
- Drop in HB, Urea level
- Anti-PL, NSAIDs, warfarin
- Endoscopic findings- spurtter, vessel
### Table 2.12 Endoscopy on-call rota 24/7 (hospitals to which patients with a GI bleed are admitted)

<table>
<thead>
<tr>
<th>Endoscopy on-call rota 24/7</th>
<th>Number of hospitals</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>125</td>
<td>90.6</td>
</tr>
<tr>
<td>No</td>
<td>13</td>
<td>9.4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>138</strong></td>
<td></td>
</tr>
</tbody>
</table>

### Table 2.13 Endoscopy service 24/7 (hospitals to which patients with a GI bleed are admitted)

<table>
<thead>
<tr>
<th>Endoscopy service 24/7</th>
<th>Number of hospitals</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>125</td>
<td>67.6</td>
</tr>
<tr>
<td>No</td>
<td>60</td>
<td>32.4</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td><strong>185</strong></td>
<td></td>
</tr>
<tr>
<td>Not answered</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>186</strong></td>
<td></td>
</tr>
</tbody>
</table>
what would you do?

- Resuscitation – IV access- grey VFX2
- What Fluid- D/W, N/S, Colloid, Blood?
- What to Monitor (BP >100)
- Proton pump inhibitors?
- When to endoscope
• NICE QS 38 2013 suspected UGIB OGD < 24 hours
• All patients = time of admission or presentation (IPs)
• 65% (205/316) < 24 hours

NCEPOD 2015
### Table 6.14 Findings at OGD

<table>
<thead>
<tr>
<th>Findings at OGD</th>
<th>Number of patients</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-variceal bleeding</td>
<td>213</td>
<td>46.1</td>
</tr>
<tr>
<td>Variceal bleeding</td>
<td>38</td>
<td>8.2</td>
</tr>
<tr>
<td>Upper GI bleeding but cause obscured by blood</td>
<td>25</td>
<td>5.4</td>
</tr>
<tr>
<td>No upper GI bleed found</td>
<td>186</td>
<td>40.3</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td>462</td>
<td></td>
</tr>
<tr>
<td>Not answered</td>
<td>28</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>490</td>
<td></td>
</tr>
</tbody>
</table>

NCEPOD 2015
Length of stay

- Median 8 days
- 20% >18 days
- 10% 1 month +

Figure 7.1 Length of stay - acute admission with GI bleeding

NCEPOD 2015
### Table 7.7 Mortality

<table>
<thead>
<tr>
<th></th>
<th>Died</th>
<th>Total number of patients</th>
<th>Mortality %</th>
</tr>
</thead>
<tbody>
<tr>
<td>All patients</td>
<td>3,093</td>
<td>29,796</td>
<td>10.4</td>
</tr>
<tr>
<td>≥4 units</td>
<td>921</td>
<td>4,563</td>
<td>20.2</td>
</tr>
<tr>
<td>No blood</td>
<td>1,496</td>
<td>20,631</td>
<td>7.3</td>
</tr>
</tbody>
</table>

### Table 7.8 Mortality by degree of sickness using shock index as a marker

<table>
<thead>
<tr>
<th>Shock index</th>
<th>Alive</th>
<th>Deceased</th>
<th>Mortality %</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>≤0.7</td>
<td>172</td>
<td>38</td>
<td>18.1</td>
<td>210</td>
</tr>
<tr>
<td>&gt;0.7 ≤1</td>
<td>170</td>
<td>55</td>
<td>24.4</td>
<td>225</td>
</tr>
<tr>
<td>&gt;1.0 ≤1.3</td>
<td>73</td>
<td>28</td>
<td>27.7</td>
<td>101</td>
</tr>
<tr>
<td>&gt;1.3</td>
<td>36</td>
<td>15</td>
<td>29.4</td>
<td>51</td>
</tr>
<tr>
<td>Insufficient data</td>
<td>25</td>
<td>6</td>
<td>19.4</td>
<td>31</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>476</strong></td>
<td><strong>142</strong></td>
<td></td>
<td><strong>618</strong></td>
</tr>
</tbody>
</table>
What is the management of high-risk lesions?
Active bleeding
Non bleeding visible vessel
Adherent clot

Endoscopic haemostasis

- injection therapy (vasoconstrictors, sclerosants, tissue adhesives)
- thermal therapy (heater probe, bipolar, argon plasma coagulation)
- mechanical therapy (endoscopic clips, loops, suturing/stapling devices, OTSC)

Nanotherapy- Hemospray/ endoclot
## Endoscopic Risk Stratification

<table>
<thead>
<tr>
<th>Endoscopic Finding</th>
<th>Rebleed</th>
<th>Mortality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active Bleeding</td>
<td>55%</td>
<td>11%</td>
</tr>
<tr>
<td>Visible Vessel</td>
<td>43%</td>
<td>11%</td>
</tr>
<tr>
<td>Adherent Clot</td>
<td>22%</td>
<td>7%</td>
</tr>
<tr>
<td>Flat Spot</td>
<td>10%</td>
<td>3%</td>
</tr>
<tr>
<td>Clean Ulcer Base</td>
<td>5%</td>
<td>2%</td>
</tr>
</tbody>
</table>

Laine & Peterson NEJM 1994;331:717
Spurter

- Endoscopin treatment
- Clips
- Adrenaline
- MPEC (MTP)
- Heater probe (MP)
- ADr + C or H
- Bands
**Figure 3. ESGE algorithm for the endoscopic management of patients with NVUGIH secondary to peptic ulcer stratified by endoscopic stigmata**

**Performance of UGI Endoscopy**
- **High Risk Stigmata**
  - FIA (active spurting)
  - FIB (active ooze)
  - FIIa (non-bleeding visible vessel)
- **Low Risk Stigmata**
  - Flat pigmented spot (FIIc)
  - Clean base (FIIC)
- **Adherent Clot (FIIb)**
- **No endoscopic hemostasis required**
  - In select clinical settings these patients may have expedited
- **Consider performing clot removal followed by endoscopic hemostasis of high risk stigmata OR medical management with high dose IV PPI**
- **For FIA and FIB stigmata**
  - Combination endoscopic therapy using dilute epinephrine injection plus a second hemostasis modality (contact thermal**, mechanical, or injection of a sclerosant can be used alone as monotherapy or in combination with dilute epinephrine injection)
- **For FIIa stigmata**
  - Contact thermal**, mechanical, or injection of dilute epinephrine injection
- **High dose IV PPI given as bolus + continuous infusion or as intermittent IV bolus dosing (minimum twice daily) for 72 hours**
  - Test for *H. pylori*, treat if positive
  - Document *H. pylori* eradication
- **If endoscopic hemostasis performed:**
  - Dilute epinephrine injection circumferential to base of clot followed by cold polyp snare guillotine removal of clot
  - If underlying high risk stigmata identified after clot removal, apply endoscopic hemostasis as described for F IA, F IB, F IIa stigmata
- **If clinical evidence of ulcer rebleeding, repeat upper endoscopy with endoscopic hemostasis where indicated**
  - If hemostasis not achieved or recurrent rebleeding following second attempt at endoscopic hemostasis, consider endoscopic salvage therapy with topical hemostatic spray / over-the-scope clip or refer for TAE or surgery

---

**Use of a large channel or double channel therapeutic UGI endoscope is recommended;** **Large size 10Fr probe recommended;** UGIH, upper gastrointestinal hemorrhage; PPI, proton pump inhibitor; F, Forrest; ASA, acetylsalicylic acid; DAPT, dual anti-platelet therapy; TAE, transcatheter angiographic embolization
Spurter 11% mortality, 50% rebleed, 10% death

• Endoscopin treatment
• Clips
• Adrenaline
• Heater probe (MP)
• ADr + C or H
• Bands
A Scope view

B Cross-section of stomach wall

- Peptic ulcer
- Hemorrhage
- Blood vessel

Mucosa
Thermal treatment

• Heater probe – MP
• Gold probe BP (depth is sallow and more predictable)
• Coupled with injection therapy
• Coaptive coagulation- firm pressure
• Until area black and cavitated (several pulses)
• HP used to low power 15-30J (lower in Duo)
• Caution- cavitating lesion, repeat therapy, if plane parallel
Injection therapy

• Adrenaline 1:10,000 mono therapy?
• Along with thermal, clips or thrombin
• RCT- >13ml adrenaline- avoid injecting the vessel, 4 quadrant around then into it. (direct injection into vessel- ↑HR, BP
• >40ml can lead to /Pain/perforation?
• Sclerosant effective- ↑ complication
  » Lin et al GIE 2002
  » Rollhauser et al Clin Gast 2001
A Circumferential injections

Saline injected, blood vessels compressed, hemorrhage halted

Sclerotherapy needle

Stomach wall

B Ulcer

Scope view
Adherent clot IIb

- 4 quadrant injection adrenaline
- Clot removal- flushing/displacing, snaring
- Once vessel exposed treat
APC

- No tissue contact needed (tangentional lesion)
- Tissue coagulation – depth 2-3mm
- Not useful to treat spurer
- Good for oozing ulcer/ GAVE
- Safe in duodenum
- Unipolar- care if plantable defib/Pacemake

» Johannsw et Eur j Gastroenter Hepato 1997
» Peterson et GIE 2007
clips
APC  Courtesy Dr M SACCA
Application technique for endoscopic hemostasis
Hemospray is licenced for:

a

**UPPER GI non-VARACEAL BLEEDS**

**CONTRA INDICATIONS:**

- Perforations
- Fistulae
Simplify your choice for fast, effective hemostasis.

Easy as 1 2 3

1. Activate CO₂
2. Open
3. Deploy
Hemospray use for the management of acute bleeding from upper gastrointestinal cancer: The Russells Hall Experience

Disney BR, Kumar Kurup A, Ishaq S

BSG 2015

Hemospray was found to be effective for malignancy related upper gastrointestinal bleeding and should be considered as a primary therapeutic modality in this setting. It may be used as a bridge to more definitive therapies such as radiotherapy or drug therapy (e.g. thalidomide, chemotherapy).
Figure 2. ESGE algorithm for the management of patients with acute UGIH using anti-platelet agent(s)

UGI endoscopy demonstrates a non-variceal source of bleeding, (e.g. peptic ulcer bleed)

High-risk endoscopic stigmata identified
(F1a, F1b, F1a, F1h, F1h)

APA used for primary prophylaxis
Hold low-dose ASA
Re-evaluate risks and benefits of ongoing low-dose ASA use
Resume low-dose ASA after ulcer healing or earlier if clinically indicated

APA used for secondary prophylaxis (known cardiovascular disease)
1. Patients on low-dose ASA alone
   Resume low-dose ASA by Day 3 following index endoscopy
   Second-look endoscopy at the discretion of the endoscopist may be considered
2. Patients on dual anti-platelet therapy (DAPT)
   Continue low-dose ASA without interruption
   Early cardiology consultation for recommendation on resumption / continuation of second APA
   Second-look endoscopy at the discretion of the endoscopist may be considered

Low-risk endoscopic stigmata identified
(F1e, F1h)

APA used for primary prophylaxis
Hold low-dose ASA
Re-evaluate risks and benefits of ongoing low-dose ASA use
Resume low-dose ASA at hospital discharge if clinically indicated

APA used for secondary prophylaxis (known cardiovascular disease)
1. Patients on low-dose ASA alone
   Continue low-dose ASA without interruption
2. Patients on dual anti-platelet therapy (DAPT)
   Continue DAPT without interruption

For patients using a non-ASA APA as monotherapy (e.g., thienopyridine alone), may substitute low-dose ASA for interval period in those patients without any contraindication or allergy to ASA. Early cardiology consultation should be obtained for further APA recommendations

ASA, acetylsalicylic acid; APA, anti-platelet agent, DAPT, dual anti-platelet agent
The risk of gastrointestinal bleeding with novel oral anticoagulants in a large cohort of patients at a district general hospital

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¹Department of Gastroenterology, Dudley Group NHS Foundation Trust, Russells Hall Hospital, Dudley UK
²Department of Haematology, Dudley Group NHS Foundation Trust, Russells Hall Hospital, Dudley UK

BACKGROUND:
- Rivaroxaban, apixaban and dabigatran comprise the novel oral anticoagulants (NOAC).
- NOACs are used as first line treatment for atrial fibrillation (AF), pulmonary embolism (PE) at Russells Hall Hospital (RHH) since 2012 and deep vein thrombosis (DVT) since 2013.
- Trial data regarding risk of gastrointestinal (GI) bleeding is conflicting.

METHODS:
- A retrospective review was performed of all patients at RHH who received NOACs.
- These patients were identified from the electronic patient administration (EPA) database and patient notes.
- Basic demographic, clinical and laboratory data and endoscopic findings were collated.

STRENGTHS:
- Largest cohort worldwide
- Single center experience

LIMITATIONS:
- Due to the small sample size of patients on apixaban and dabigatran, difficult to compare with the trial data as well as between the NOACs.
- Severity of upper GI bleed using the Rockall score or Blatchford score was not performed.

A multivariate analysis needs to be performed with patients on warfarin over the same time period to at least ensure there are no confounding variables.

- Alcohol, concomitant medications, symptoms, comorbidities

CONCLUSIONS:
- Prevalence of bleed more common >75 yrs of age
- Whilst there appeared to be a higher incidence of GI bleeding as compared to that observed in RCTs thus far;
- There were no deaths directly as a result of the GI bleed
- Only 11.5% required endoscopic intervention
- The use of blood products was relatively low at 34.4%

Further studies need to be performed to provide a more accurate analysis for apixaban and dabigatran.

REFERENCES:
When to suspect Variceal bleed

- Melaena / haematemesis
- Jaundice
- Ascites
- Splenomegaly
- Spider naevi
- Alcohol misuse
- ↑INR,Bil ,↓PL
STIGMATA OF CLD

1. Hands
   - Clubbing
   - Dupuytren's contracture
   - Leuconychia
   - Bruising
   - Flapping tremor (hepatic encephalopathy)

2. Face
   - Jaundice
   - Spider naevi
   - Parotid swelling

3. Chest
   - Loss of body hair
   - Gynaecomastia

4. Abdomen: inspection
   - Scars
   - Distension
   - Veins
   - Testicular atrophy

5. Abdomen: palpation/percussion/auscultation
   - Hepatomegaly
   - Splenomegaly
   - Ascites
   - Palpable gallbladder
   - Hepatic bruit (rare)
   - Tumour

6. Legs
   - Bruising
   - Oedema

Observation
- Unkempt
- Smell of alcohol or fetor hepaticus
- Encephalopathy
- Weight loss
- Scratch marks from itching

Colledge et al: Davidson’s Principles and Practice of Medicine, 21st Edition
Copyright © 2010 by Churchill Livingstone, an imprint of Elsevier, Ltd. All rights reserved.
Table 2  Scoring systems for quantifying the severity of cirrhosis
Severity of liver disease can be described using the Child–Pugh score or MELD score.
The Child–Pugh score is the sum of severity scores for Child class, variceal size and red wale markings the variables shown below.

<table>
<thead>
<tr>
<th>Category</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Encephalopathy</td>
<td>0</td>
<td>I/II</td>
<td>III/IV</td>
</tr>
<tr>
<td>Ascites</td>
<td>Absent</td>
<td>Mild-moderate</td>
<td>Severe</td>
</tr>
<tr>
<td>Bilirubin (μmol/L)</td>
<td>&lt;34</td>
<td>34–51</td>
<td>&gt;51</td>
</tr>
<tr>
<td>Albumin (g/L)</td>
<td>&gt;35</td>
<td>28–35</td>
<td>&lt;28</td>
</tr>
<tr>
<td>INR</td>
<td>&lt;1.3</td>
<td>1.3–1.5</td>
<td>&gt;1.5</td>
</tr>
</tbody>
</table>

Child–Pugh class A represents a score of ≤6, class B a score of 7–9, and class C, ≥10. The MELD score is a formula that includes three laboratory-based variables reflecting the severity of liver disease. It was originally used to predict the short-term mortality after placement of a transjugular intrahepatic portosystemic stent-shunt for variceal bleeding. Subsequently, it has been used in selecting candidates for liver transplantation.

MELD score: please use the online calculator https://www.esot.org/Elita/meldCalculator.aspx.
INR, international normalised ratio.
Figure 8: Algorithm for the management of acute variceal bleeding. TIPS, transjugular intrahepatic portosystemic stent shunt.
Variceal bleed - how resuscitation is different

• Do not over-transfuse - rebleeding risk
• No Saline if ascites
• Dextrose/colloid, packed cell, PCC (Octaplex 1ml/kg)
  – (Liver failure/thrombombotic tendencies - avoid)
• BP > 90 mmHg, Hb > 8gm/dl
• Terlipressin 1-2mg QDS - for 5 days
• IV antibiotics - Tazocin
• Early endoscopy/Sengstaken tube)
Oesophageal Variceal Bleeding - Specific Measures

- **Endoscopic**
  - Injection sclerotherapy
  - Band ligation

- **Pharmacological**
  - Vasopressin analogues
  - Somatostatin
  - Somatostatin analogues

- **Rescue Measures**
  - Tamponade
  - TIPSS
  - Surgery
Oesophageal Variceal Bleeding - Antibiotics

Bernard et al 1995
- 64 cirrhotics with bleeding
- 42 infections in 23 patients (36%)
- In infected patients
  - Higher mean Child-Pugh score
  - High mean transfusion requirement
  - More frequent rebleeding (43 vs 10%)
  - Higher 30 day mortality (48 vs 15%)

Bernard et al 1996
- Meta analysis of 414 patients receiving prophylactic antibiotics
- Reduced incidence of bacterial infections
- Increase in short term survival
- Prophylactic antibiotics should be given to patients with variceal bleeding
Banding
TIPSS

- 115 patients
- 61% Childs grade C
- Technical success rate 94%
- 30 day mortality 30%
- Rebleeding in 33%, usually due to shunt insufficiency
- 1 yr survival 52%

Saravanan R, 2005
Acute GI Bleed Protocol

Calculate their Rockall Score from initial vital signs (not compensated ones)?

- Suspect variceal bleed if:
  - Tachycardia or Acute PMH of alcohol abuse

Likely Variceal Rockall over 2 Mortality Risk 50%
- Aim for SBP 90-100
- Volplex, Red Blood Cells (HR?) Avoid overfilling
- Terlipressin 2mg bolus then 1mg QDS for 72 hrs
  - IV/oral Ciprofloxacin

High Risk Non Variceal Rockall over 2
- Is VIT K, FFP or Octaplex needed to correct coagulation?
  - Aim for SBP above 100
  - Saline, Volplex, Red Blood Cells (check HR)
  - IV PPI not indicated until after endoscopy
- Monitor BP, pulse, O₂, sats & urine output at least hourly initially
- Urgent SpR review: SpR to d/w on-call endoscopist or Surgeon. GI consultant will visit EAU at 9am weekends.
- Check for next reserved OGD slot or ask to create extra slot if none available. Speak to GI Unit then order it on Soarian

Low Risk Non Variceal Rockall 1 or 2
- Group & save only
- Monitor BP, pulse, O₂, sats at least hourly
- Next OGD available list
- Consider home post OGD

Mortality Rates (based on Pre-OGD R5 Scores):
- 0-2 <5.6%
- 3 11.0%
- 4 24.6%
- 5 39.6%
- 6 48.0%
- 7 56.6%

General Management Points:
- Stop diuretics, NSAIDS, antplatelets, anticoagulants (except if used for mech. valve or PE- contaut endoscopist urgently)
- Eradicate H pylori if DU or GU (& arrange Urease breath test). PPI in other cases.
Summary

• Resuscitate adequately
• Risk assessment- Rockall, GBS
• Early GI team ownership
• If suspect varices –terlipressin/Abx/ early endoscopy
• If non variceal- with 24 hour ( early in shock)
• Intravenous PPI infusion if peptic ulcer bleed with stigmata of haemorrhage
• Restrictive blood transfusion
• Monitor for rebleeding
• Joint management- bleeding uit