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PRACTICE

GUIDELINES

Management of acute upper gastrointestinal bleeding: summary of NICE guidance

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This is one of a series of *BMJ* summaries of new guidelines based on the best available evidence; they highlight important recommendations for clinical practice, especially where uncertainty or controversy exists.

Acute upper gastrointestinal bleeding is the commonest medical emergency managed by gastroenterologists in the United Kingdom. The most frequently identified source of bleeding is peptic ulcer disease, but other important causes exist, particularly oesophageal or gastric varices, which are classically associated with more severe bleeding. A large audit in the UK in 2007¹ indicated that the rate of mortality from acute upper gastrointestinal bleeding (about 7%) has not changed much over the past 50 years, and that service provision varies considerably across the UK. This article summarises the most recent recommendations from the National Institute for Health and Clinical Excellence (NICE) on the management of acute upper gastrointestinal bleeding.²

Recommendations

NICE recommendations are based on systematic reviews of the best available evidence and explicit consideration of cost effectiveness. When minimal evidence is available, recommendations are based on the Guideline Development Group's experience and opinion of what constitutes good practice. Evidence levels for the recommendations are given in italic in square brackets.

Risk assessment

At presentation with acute upper gastrointestinal bleeding, assess for risk of serious adverse events or need for intervention. To do this use the following formal risk assessment scoring systems for all patients with acute gastrointestinal bleeding: the Blatchford scoring system³ at first assessment and the full Rockall scoring system⁴ after endoscopy (tables 1↓ and 2↓). [*Based on low to very low quality evidence from prospective and retrospective case reviews*]

Resuscitation and initial management

Patients with massive bleeding

• Transfuse with blood, platelets, and clotting factors in line with local protocols for managing massive bleeding. [Based on the experience and opinion of the GDG]

Blood products

- Base decisions on blood transfusion on the full clinical picture, recognising that overtransfusion may be as damaging as undertransfusion. [*Based on very low quality evidence from a randomised control trial and observational studies and on the experience and opinion of the Guideline Development Group (GDG)*]
- Do not offer platelet transfusion to patients who are not actively bleeding and who are haemodynamically stable. [*Based on the experience and opinion of the GDG*]
- Offer platelet transfusion to patients who are actively bleeding and have a platelet count of <50×10⁹/L. [*Based on the experience and opinion of the GDG*]
- Offer fresh frozen plasma to patients who have (*a*) a fibrinogen concentration <1 g/L or (*b*) a prothrombin time (international normalised ratio) or activated partial thromboplastin time that is more than 1.5 times the normal level. [*Based on the experience and opinion of the GDG*]
- Do not use recombinant factor VIIa except when all other methods have failed. [*Based on high to low quality evidence from randomised controlled studies*]

Patients who are taking warfarin

• Offer prothrombin complex concentrate to patients who are taking warfarin and are actively bleeding. [Based on the experience and opinion of the GDG]

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• Treat patients who are taking warfarin and whose upper gastrointestinal bleeding has stopped in line with local warfarin protocols. [*Based on the experience and opinion of the GDG*]

Timing of endoscopy

- Offer endoscopy to unstable patients with severe acute upper gastrointestinal bleeding immediately after resuscitation. [*Based on the experience and opinion of the GDG*]
- Offer endoscopy within 24 hours of admission to all other patients with upper gastrointestinal bleeding.
- Units seeing more than 330 cases a year should offer daily endoscopy lists; units seeing fewer than this should arrange their service according to local circumstances. [Based on very low quality evidence from randomised controlled trials, one cost effectiveness study with minor limitations and partial applicability, an original economic model with potentially serious limitations and direct applicability, and on the experience and opinion of the GDG]

Management of non-variceal bleeding

Proton pump inhibitors

- Do not offer acid suppression drugs (proton pump inhibitors or H₂ receptor antagonists) before endoscopy to patients with suspected non-variceal upper gastrointestinal bleeding. [Based on moderate to low quality evidence from randomised controlled studies and economic evidence with direct to partial applicability and minor to potentially serious limitations]
- Offer proton pump inhibitors to patients with non-variceal upper gastrointestinal bleeding and stigmata of recent haemorrhage shown at endoscopy. [*Based on moderate to very low quality evidence from randomised controlled studies and economic evidence with direct applicability and minor serious limitations*]

Endoscopic treatment

- Do not use adrenaline as monotherapy for the endoscopic treatment of non-variceal upper gastrointestinal bleeding. [Based on low to very low quality evidence from randomised controlled studies]
- For the endoscopic treatment of non-variceal upper gastrointestinal bleeding, use one of the following [Based on low to very low evidence from randomised controlled studies and the experience and opinion of the GDG]: -A mechanical method—for example, clips with or without adrenaline
 - -Thermal coagulation with adrenaline
 - -Fibrin or thrombin with adrenaline.

Unstable patients who rebleed after endoscopic treatment

• Offer interventional radiology; if this is not promptly available, refer urgently for surgery. [*Based on very low quality evidence from observational studies and the experience and opinion of the GDG*]

Management of variceal upper gastrointestinal bleeding

Terlipressin

• Offer terlipressin, a vasopressin analogue, to patients with suspected variceal bleeding at presentation. Stop treatment after definitive haemostasis has been achieved or after five days, unless there is another indication for its use, such as renal failure. [*Based on very low to moderate quality evidence from randomised controlled studies and on economic evidence of direct applicability and minor limitations*] At the time of publication (June 2012), terlipressin was indicated for the treatment of bleeding from oesophageal varices, with a maximum duration of treatment of 72 hours. Prescribers should consult the relevant summary of product characteristics and obtain and document informed consent for off-label use.

Antibiotics

• Offer prophylactic antibiotic treatment at presentation to patients with suspected or confirmed variceal bleeding. [Based on low to very low quality evidence from randomised controlled studies and on economic evidence of partial applicability and potentially serious limitations]

Oesophageal varices

- Use band ligation in patients with bleeding from oesophageal varices. [Based on moderate to very low quality evidence from randomised controlled trials and on economic evidence of partial applicability and potentially serious limitations]
- Consider using transjugular intrahepatic portosystemic shunts if oesophageal variceal bleeding is not controlled by band ligation. [*Based on the experience and opinion of the GDG*]

Gastric varices

- Offer endoscopic injection of N-butyl-2-cyanoacrylate to patients with bleeding from gastric varices. [Based on moderate to very low quality evidence from randomised controlled trials and on economic evidence of partial applicability and potentially serious limitations]
- Offer transjugular intrahepatic portosystemic shunts if bleeding from gastric varices is not controlled by endoscopic injection of N-butyl-2-cyanoacrylate. [Based on the experience and opinion of the GDG]

Primary prophylaxis in acutely ill patients

- Offer acid suppression treatment (H₂ receptor antagonists or proton pump inhibitors) for primary prevention of upper gastrointestinal bleeding in acutely ill patients admitted to critical care. If possible, use the oral form of the drug. [Based on low to very low quality evidence from randomised controlled studies and on economic evidence of partial applicability and potentially serious limitations]
- Review the ongoing need for acid suppression drugs for primary prevention of upper gastrointestinal bleeding in acutely ill patients when they recover or are discharged from critical care. [*Based on the experience and opinion of the GDG*]

Control of bleeding and prevention of re-bleeding in patients taking NSAIDS, aspirin, or clopidogrel

A substantial proportion of acute peptic ulcer bleeds occur in patients taking non-steroidal anti-inflammatory drugs (NSAIDs), aspirin, or clopidogrel. In patients with upper gastrointestinal bleeding who are taking these drugs:

- Continue low dose aspirin for secondary prevention of vascular events once haemostasis has been achieved. [Based on high to moderate quality evidence from one randomised controlled study]
- Stop other non-steroidal anti-inflammatory drugs (including cyclo-oxygenase-2 inhibitors) during the acute phase of bleeding. [*Based on the experience and opinion of the GDG*]
- Discuss the risks and benefits of continuing clopidogrel (or any other thienopyridine antiplatelet agents) with the appropriate specialist (for example, a cardiologist or a stroke specialist) and with the patient. [*Based on the experience and opinion of the GDG*]

Overcoming barriers

Some recommendations in this guideline may pose difficulties for some services, in particular doing endoscopy within 24 hours for any patient presenting with acute gastrointestinal bleeding (sooner if the patient is unstable). The health economic model devised to inform this recommendation showed that, for units treating a large number of acute upper gastrointestinal bleeds annually, it was highly likely that providing daily endoscopy lists would reduce length of the hospital stay and that this reduction would offset the cost of additional staffing for weekend lists. The cost effectiveness of weekend lists in smaller units is less certain, and this strategy of providing endoscopy could not be firmly recommended in smaller units on health economic grounds. The GDG therefore stipulated that all patients should receive endoscopy within 24 hours without specifying how smaller units should achieve this; the possibility of network arrangements may offer one potential mechanism for smaller providers.

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Further information on the guidance

Methods

The guideline was developed according to NICE guideline methodology (www.nice.org.uk/aboutnice/howwework/ developingniceclinicalguidelines/clinicalguidelinedevelopmentmethods/). This involved systematic searching, critically appraising, and summarising the clinical and cost effectiveness evidence. The Guideline Development Group also did new cost effectiveness analysis, for timing of endoscopy. NICE has produced four different versions of the guideline: a full version; a version known as the "NICE guideline" (which summarises the recommendations); a NICE pathway (an interactive tool that brings together all related NICE guidelance on a topic in one interface); and a version for patients and the public. All these versions are available from the NICE website (http://guidance.nice.org. uk/CG141). Updates of the guideline will be published according to the NICE guideline development programme.

Future research

Research recommendations were not made in this guideline. However, in resuscitation of patients with acute upper gastrointestinal bleeding there was no evidence for thresholds and target levels of blood transfusions (red blood cells, fresh frozen plasma, and platelets). The GDG discussed concerns relating to restrictive versus liberal blood transfusions, including resource implications, and emphasised that research in this area should be considered.

Tables

Table 1| The Blatchford scoring system.3 For a patient with acute upper gastrointestinal bleeding, add up scores in the right hand column for each risk marker (if no value applies for a particular marker, score 0) to derive a total score*

Risk marker at admission	Score
Blood urea (mmol/L)	
≥6.5 <8.0	2
≥8.0 <10.0	3
≥10.0 <25	4
≥25	6
Haemoglobin (g/L) for men	
≥120 <130	1
≥100 <120	3
<100	6
Haemoglobin (g/L) for woman	
≥100 <120	1
<100	6
Systolic blood pressure (mm Hg)	
100-109	1
90-99	2
<90	3
Other markers	
Pulse ≥100 (beats/min)	1
Presentation with malaena	1
Presentation with syncope	2
Hepatic disease	2
Cardiac failure	2

*A total score can range from 0 to 23. A score of 0 is the clinical cut-off, above which patients are considered to be at risk of needing an intervention.

Table 2| The full (post-endoscopy) Rockall scoring system.4 For a patient with acute upper gastrointestinal bleeding, add up scores at the top of the columns for each of the variables to derive a total risk score*

	Score*			
	0	1	2	3
Age†	<60	60-79	≥80	
Shock†	No shock (systolic blood pressure ≥100, pulse <100)	Tachycardia (systolic blood pressure ≥100, pulse ≥100)	Hypotension (systolic blood pressure <100)	
Comorbidity†	No major comorbidity		Cardiac failure, ischaemic heart disease, any major comorbidity	Renal failure, liver failure, disseminated malignancy
Diagnosis‡	Mallory-Weiss tear, no lesion identified, and no stigmata of recent haemorrhage	All other diagnoses	Malignancy of upper gastrointestinal tract	
Major stigmata of recent haemorrhage‡	None or dark spot only		Blood in upper gastrointestinal tract, adherent clot, visible or spurting vessel	

*The total score can range from 0 to 11, with a score of 2 representing the clinical cut-off, above which patients are considered to be at high risk of death or rebleeding.

†Scores are calculated on admission.

\$Scores are added after endoscopy.