DECISIONS

A 77-year-old man with nonvariceal upper gastrointestinal bleeding

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A 77-year-old man presents to the emergency department with a one-day history of four melena stools. His medical history includes coronary artery bypass graft surgery, paroxysmal atrial fibrillation and hypertension. His medications include warfarin, ramipril and atorvastatin. On examination, his temperature and oxygen saturation (room air) are normal; his respiratory rate is 18 breaths per minute. In a supine position, his blood pressure is 118/68 mm Hg with a regular heart rate (86 beats/min). After sitting with his legs hanging over the side of the bed for two minutes, his blood pressure is 112/64 mm Hg and his heart rate is 90 beats/min. Initial laboratory investigations show a hemoglobin level of 66 (normal 140–174) g/L, platelet count of 185 (normal 130–400) × 10^9/L, international normalized ratio (INR) of 2.2 (normal 0.9–1.2) and urea level of 3.0 (normal 2.5–8.0) mmol/L. His electrocardiogram shows a normal sinus rhythm with no evidence of ischemia.

What are the immediate steps to stabilize this patient?

The immediate priority is to secure the patient's circulation. The patient should be placed in a monitored area, and blood collected for typing and cross-matching.[1] Venous access should be established with two large-bore intravenous catheters, and volume resuscitation initiated with crystalloid fluids.[1] It is important to recognize a suspected variceal bleed because this may necessitate a different management strategy. Several bedside variables are associated with an increased likelihood of a variceal source of upper gastrointestinal bleeding: history of liver disease (odds ratio [OR] 6.7), excessive alcohol use (OR 2.3), hematemesis (OR 2.7), hematochezia (OR 3.0), and stigmata of chronic liver disease (OR 2.5).[2]

Does he require admission to hospital and urgent endoscopy?

Limited observational data suggest that therapeutic endoscopy appears to be safe for patients with an INR less than 2.5.[3] The risk of upper gastrointestinal bleeding should be stratified for all patients with presumed bleeding using a validated scale.[4] Although several exist, the Glasgow–Blatchford bleeding score (Box 1) has been prospectively validated. A multicentre prospective trial involving 676 patients found that only patients with a Glasgow–Blatchford bleeding score of zero can be safely discharged home.[5] All other patients who present with presumed upper gastrointestinal bleeding require admission to hospital and endoscopy. Emerging observational evidence suggests that patients with Glasgow–Blatchford scores of 12 or higher may benefit from endoscopy within 13 hours;[6] however, Canadian guidelines maintain that all patients should receive endoscopy within 24 hours of presentation.[4]

Should he be given a packed red blood cell transfusion?

A recent randomized controlled trial involving 921 patients with acute upper gastrointestinal bleeding found that a restrictive transfusion strategy (target hemoglobin > 70 mmol/L) decreased six-week mortality, length of stay and transfusion-related adverse events compared with a liberal transfusion strategy (target hemoglobin > 90 mmol/L).[7] The overall mortality benefit conferred by the restrictive strategy was driven primarily by patients with Child–Pugh class A or B cirrhosis. There was no significant mortality benefit of the restrictive strategy among patients with Child–Pugh class C cirrhosis or with bleeding from a peptic ulcer, although trends in improvement were noted. This study did not examine the effect of the two transfusion strate-

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gies among patients with pre-existing cardiovascular disease or severe hemorrhagic shock, despite consensus guidelines suggesting higher hemoglobin targets for these patients.[4]

Does he require correction of coagulopathy or transfusion of platelets?

Expert consensus recommends reversing coagulopathy in patients receiving anticoagulants, but this should not delay endoscopy unless the INR is supratherapeutic. A systematic review of 18 studies examining platelet transfusion thresholds in patients with acute upper gastrointestinal bleeding concluded that there is insufficient evidence to recommend an optimal platelet count.[8] Based primarily on expert opinion, a platelet transfusion threshold of 50×10^9/L has been proposed.[8]

Should he be started on proton pump inhibitor or prokinetic therapy before endoscopy?

Although proton pump inhibitor therapy after endoscopy reduces the rate of rebleeding, need for surgery and mortality for certain patients,[9] the benefits in pre-endoscopic management are less certain, despite their widespread use. A Cochrane meta-analysis of six randomized controlled trials involving 2223 patients reported that the use of pre-endoscopic proton pump inhibitors reduced the need for endoscopic therapy (OR 0.68, 95% CI 0.50–0.93) but had no effect on mortality, rebleeding or the need for surgery.[10] No significant difference in any outcome was found between intravenous and oral preparations. Given its favourable safety profile, pre-endoscopic proton pump inhibitor therapy may be considered but should not delay resuscitation or endoscopy.[4] Prokinetic agents such as erythromycin and metoclopramide administered before endoscopy may increase visualization and reduce the need for repeat endoscopy.[11] The routine use of these agents is controversial and is not supported by current international guidelines.[4]

Box 1: Glasgow–Blatchford Score[4]

Admission risk marker	Score component value
Blood urea, mmol/L	
6.5–7.9	2
8.0–9.9	3
10.0–25.0	4
> 25.0	6
Hemoglobin for men, g/L	
120–129	1
100–119	3
< 100	6
Hemoglobin for women, g/L	
100–119	1
< 100	6
Systolic blood pressure, mm Hg	
100–109	1
90–99	2
< 90	3
Other markers	
Pulse ≥ 100/min	1
Presentation with melena	1
Presentation with syncope	2
Hepatic disease	2
Cardiac failure	2

Reprinted from *The Lancet*, vol. 365, Blatchford O, Murray WR, Blatchford M. A risk score to predict the need for treatment for upper-gastrointestinal haemorrhage. Page no. 1318-21, 200, with permission from Elsevier.[4]

The case revisited

The patient was placed in a monitored area, and venous access was established with two 16-gauge intravenous catheters. Because he had no features suggestive of a variceal source of bleeding, he was thought to have a nonvariceal upper gastrointestinal bleed. He was admitted to hospital because his Glasgow–Blatchford score was seven (Box 1). One unit of packed red blood cells was transfused, and his hemoglobin level four hours later was 75 g/L. Proton-pump inhibitor therapy was initiated, along with vitamin K for reversal of anticoagulation. The patient was admitted to the internal medicine ward, and the gastroenterology service was consulted. Endoscopy was performed within 24 hours of presentation and showed a single duodenal ulcer with a clean base; no intervention was required. Biopsies were taken to rule out *Helicobacter pylori* infection, and the patient was discharged home with pantoprazole taken orally once daily.

The clinician and patient discussed the benefits and risks of reintroducing warfarin after upper gastrointestinal bleeding.[12] A recent retrospective cohort study involving 442 patients found that patients who resumed warfarin therapy within 90 days of upper gastrointestinal bleeding (median resumption of 4 d) had decreased overall mortality and thrombosis without an increased risk of recurrent gastrointestinal bleeding.[13] Considering this limited evidence and the low-risk findings on endoscopy, the patient was comfortable restarting warfarin four days later. Follow-up was arranged with the patient's family physician to repeat a complete blood count,

monitor warfarin therapy, and discuss the biopsy results for *Helicobacter pylori*.

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