Upper GI Bleeding

EMU2018

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Incidence:

In non-cirrhotics, the commonest causes are peptic ulcer disease (50%) followed by erosive gastritis. In cirrhotic patients, variceal bleeding (50%) is the commonest cause. Mortality of GI bleeding varies 5% (ulcers) to 15% (varices). Major causes of peptic ulcers are H. Pylori and NSAID's. Overall incidence of upper gi bleeding is 1/1000 in the general population per year.

Anticoagulants are a contributing factor. Other causes are Mallory-Weiss tears, AV malformations, and malignancy and aorto-enteric fistula.

History / Exam:

Hematemesis, coffee ground emesis, black stool and melena are very typical features of UGI bleeding. Hematochezia and BRRB may be associated with UGI bleeding. Blood with clots are more likely LGI bleeding. Shock may be occult. Tachycardia may not be initially present. The shock index (HR/SBP) above 1 indicates significant blood loss and above 1.4 very significant loss.

Predictors for heavy UGIB include: cirrhosis, malignancy, syncope, coffee ground vomiting, hematochezia, HR>100, shock, anemia. 50 ml of upper gi blood will produce melena.

Prior UGIB: pos LR 6 for current UGIB
Black stool on Hx: pos. LR of 5 for UGIB
Melena on exam: pos LR of 25 for UGIB
NG lavage (blood or coffee grounds): LR 9 for UGIB

Lab:

Hg may be initially normal. BUN is often elevated in UGI bleeding. Elevated INR may indicate liver disease, anti-coagulation, or dilution. Lactate is a measure of shock. An elevated INR in cirrhotics does not predict bleeding.

BUN/Creatinine ratio >30: Pos LR 7 for UGIB

Clinical Scores:

The Blatchford Score was developed to determine which patients need early intervention. A Blatchford Score of zero is associated with a very low need for endoscopy, blood transfusion, or surgery. A score of more than zero demands that clinical decision making be used to decide whether to admit or discharge. The Rockall Scores (pre-endoscopic and post-endoscopic) were designed to predict rebleeding and death. The Blatchford Score is more helpful in the ED (check MDCalc) but clinical decision making is

likely more widely practised. One paper (Meltzer) suggest that both score were not sufficiently sensitive to determine which patients do not require endoscopic hemostasis, i.e., go home.

Nasogastric Lavage:

NG lavage has been shown to be one of the most painful ED procedures and as painful as fracture reduction, urethral catheter insertion, or I&D. While it is true that a positive NG aspirate (blood or coffee grounds) has a LR of 10 for a UGIB over a LGIB, it has a very poor sensitivity for identifying an UGIB (42%-82%).

Performing nasogastric lavage in the management of acute GI bleeding is associated with earlier time to endoscopy but does not influence mortality, length of hospital stay, emergency surgery, or transfusion requirement.

It may or may not have a role prior to intubation in a patient with severe hematemesis or before gastroscopy. However, ng lavage is not the routine management of most patients with UGIB. Nonetheless, most physicians do use NG tubes before intubating a patient with massive hematemesis.

IV Erythromycin/NG Lavage To Improve OGD View

This has been studied in peptic ulcer bleeds and in variceal bleeds. Erythromycin 250 IV over 5-20 minutes and then followed by EGD in 20-30 min provided a clear stomach (Frossard: 82% clear erythromycin vs 33% clear placebo) and reduced the need for a second endoscopy. Erythromycin clears the stomach and improves the gastroscopic view to a similar degree as NG lavage. Combining NG lavage with IV erythromycin does not improve the view. Nevertheless, IV erythromycin has not become a common tool in UGIB.

Use Of PPI's (Protein Pump Inhibitors) / Before and After Endoscopy

The benefit of PPI's <u>before</u> endoscopy is very small and is probably nil in regards to rebleeding, mortality, or need for surgery. However, they do reduce the stigmata of bleeding (i.e., bleeding or oozing vessels, vessels with clots) and they do reduce the need for endoscopic intervention (epinephrine injection and cauterization or clipping of bleeding vessels or visible vessels). Evidence-based enthusiasts will point out that these benefits are not patient oriented outcomes that matter.

PPI's do reduce the rate of rebleeding after endoscopic treatment (15% to 10%) and the need for further endoscopy and endoscopic treatment. In one study (Lau), the decrease in rebleeding rate was higher – 22.5% down to 7%. Most of the cases of rebleeding occur within three days after endoscopic treatment. Although the custom is to use pantoprazole 80 mg bolus and then 8 mg/hr for 3 days, a large

meta-analysis (Sachar) showed that intermittent therapy (80 mg IV and then 40 mg IV or po q 12 hrs) was non-inferior.

Octreotide

This is a very controversial area. Depending on what you do or do not consider clinically important, octreotide can be considered helpful or of no value. Overall, it probably has some benefits with little downside and it is still generally used for bleeding due to varices. The usual dose in North America is 50 mic bolus and then 50 mic per hr for 2 to 5 days. It should be considered a bridge to endoscopic treatment and of secondary importance compared to stabilization of the patient.

The best source of information is probably the Cochrane review (Gotzche). The only unarguable point is that octreotide did not reduce mortality. Blood transfusions were reduced by .7 to 1.5 units depending on which studies you looked at. The number of patients with initial hemostasis was improved. Rebleeding may or may not have been reduced depending on whether you relied on the studies of high risk or low risk of bias.

Put simply, initial hemostasis is improved; but, if the drug is used as a temporizing measure, it should not be done at the expense of delaying definitive treatment (endoscopic treatment).

Antibiotics

The best evidence is the Cochrane review of 2010 which looked at 12 trials. Antibiotics given for UGIB's in patients with cirrhosis (presumably largely due to variceal bleeds) improved survival and decreased bacterial infections, rebleeding, and hospitalization duration. The antibiotics should be given even before there is definitive proof of variceal bleeding. Enteric bacteria have to be covered. In North America the most commonly used antibiotic is ceftriaxone 1 gm q 24 hrs.

Timing of Endoscopy (EGD)

This is a very controversial area. In UGIB that is not trivial, there is general agreement that early endoscopy (<24 hrs) is indicated. However, from here on in the literature is full of conflicts.

A 2001 meta-analysis (Brennan) suggested that "early endoscopy" (defined as < 24 hrs) was beneficial in permitting early discharge and was safe for both high and low risk bleeds. It suggested that emergent endoscopy (<2-6 hrs) had no benefits and might be harmful.

A very complex paper analyzed a database of 12,601 patients with peptic ulcer bleeding (Laursen). The studied outcome was mortality. There was no evidence that endoscopy < 6 hours was superior. For low risk (ASA score 1 or 2) and hemodynamically stable patients (Shock Index [hr/SBP] < 1), there was no benefit to endoscopy < 24 hrs. For high risk patients (ASA score 3-5) who were hemodynamically stable, the best mortality was for patients who received EGD at 12-36 hrs. This suggested the benefits of

maximizing medical state. For hemodynamically unstable patients, endoscopy 6-24 hrs after arrival to the hospital had the lowest mortality. OGD performed in the first six hours produced poorer outcomes. This is likely due to a requirement for early resuscitation before endoscopy. However the authors do state in their comments, “However, these data should not lead to delayed endoscopy in patients with severe hemodynamic instability not responding to intensive resuscitation.”

Resuscitation / Transfusion:

Fluid resuscitaton to restore circulating volume to correct tissue oxygen deficits is essential. Over-resuscitation contributes to coagulopathy, tissue edema, and pulmonary edema. In patients who are not exsanguinating, maintaining a Hg of > 70 gm/L, and not more, produces better outcomes than transfusing to a Hg of > 90 gm/L. This study (Vallanueva) required that patients receive 1 unit at a time, be reassessed, and receive EGD with definitive treatment within six hours. This was equally true of ulcer bleeding as well as variceal bleeding.

Exsanguinating patients are in a different category. Blood loss at a rate of 3-4 units per hour may be the starting point to consider beginning a massive transfusion protocol. These data are most studied in trauma and not UGIB. There are no definitive studies in UGIB which demonstrates a statistically significant difference in survival by using a formal massive transfusion protocol that is formulaic based as opposed to based on traditional parameters such as INR, CBC, and fibrinogen.

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