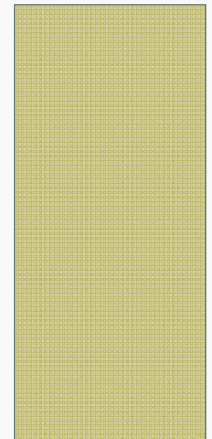


GI BLEED

ALAN NAIM, MD
GASTROENTEROLOGY FELLOW



DISTINGUISHING UPPER VS LOWER

- Upper GI bleed

- **History**

- NSAID use
- Previous ulcers
- Alcoholism → varices
- Previous stomach surgery
- Retching/vomiting → Mallory Weiss
- Weight loss → cancer
- Anticoagulants, antiplatelets

- **Symptoms**

- Nausea/vomiting
- Hematemesis
- Melena/ Rarely hematochezia (massive bleed)
- Abdominal pain

- Lower GI bleed

- **History**

- Hx of colon cancer/radiation/chemo
- Previous colon surgery
- Known diverticulosis
- Known IBD
- Known hemorrhoids

- **Symptoms**

- Abdominal pain
- Hematochezia
- Melena (less common)

15% of perceived LGI bleeds are Upper GI bleeds in origin

Stool color and origin/pace of bleeding

Guaiaac positive stool

Occult blood in stool

Does not provide any localizing information

Indicates slow pace, usually low volume bleeding

To be used as colon cancer screening, not for acute GI bleed

Melena

Very dark, tarry, pungent stool

Usually suggestive of UGI origin (but can be small intestinal, proximal colon origin if slow pace)

Hematochezia

Spectrum: bright red blood, dark red, maroon

Usually suggestive of colonic origin (but can be UGI origin if brisk pace/large volume)



DIFFERENTIAL DIAGNOSIS – UPPER GIB (75%)

- **Peptic ulcer disease (40%)**
- **Gastroesophageal varices**
- Erosive esophagitis/gastritis/duodenitis
- Mallory Weiss tear
- Vascular ectasia
- Neoplasm
- Dieulafoy's lesion
- Aortoenteric fistula
- Hemobilia, hemosuccus pancreaticus



Most
common

DIFFERENTIAL DIAGNOSIS – LOWER GIB

- **Diverticulosis – Most common**
- Colitis (IBD, Infectious, Ischemic)
- Hemorrhoids
- Post-polypectomy bleed (up to 2 weeks after procedure)
- Angioectasias
- Neoplasm
- Post-polypectomy bleed (up to 2 weeks after procedure)
- Dieulafoy's lesion

- **Physical Examination**

- Vital signs, orthostatics
- Abdominal tenderness
- Skin, oral examination
- Stigmata of liver disease
- Rectal examination
 - Objective description of stool/blood
 - Assess for mass, hemorrhoids
 - No need for guaiac test

**Always get objective description
of stool**

No non descriptive terms such as
“grossly guaiac positive”

**Don't rely on a card to tell you its an
acute GIB**

NARROWING THE DDX: UPPER OR LOWER SOURCE?

- Predictors of UGI source:
 - Age <50
 - Melenic stool
 - BUN/Creatinine ratio
 - If ratio ≥ 30 , think upper GIB

J Clin Gastroenterol 1990;12:500
Am J Gastroenterol 1997;92:1796
Am J Emerg Med 2006;24:280

UTILITY OF NG TUBE(NOT REQUIRED)

- **Most useful situation:** patients with severe hematochezia, and unsure if UGIB vs. LGIB
 - Positive aspirate (blood/coffee grounds) indicates UGIB
- **Can provide prognostic info:**
 - Red blood per NGT – predictive of high risk endoscopic lesion
 - Coffee grounds – less severe/inactive bleeding
- Negative aspirate – not as helpful; 15-20% of patients with UGIB have negative NG aspirate

RESUSCITATION

- **Early intensive resuscitation reduces mortality**
 - First 36 subjects = Observation Group (no intervention)
 - Second 36 subjects = Intensive Resuscitation Group (intense guidance provided) – *goal was to decrease time to correction of hemodynamics, Hct and coagulopathy*

EARLY INTENSIVE RESUSCITATION REDUCES UGIB MORTALITY

Table 1. Demographics of Patients in Observation Group (OG) and Intensive Resuscitation Group (IRG)

	Observation Group N = 36	Intensive Resuscitation Group N = 36	<i>p</i> Value
Age ^a	68 + 14	71 + 12	NS
Gender (M/F)	15/21	18/18	NS
Comorbidities ^a	3.2 ± 2.4	2.8 ± 2.1	NS
CAD	22/36	25/36	NS
Diabetes	4/36	6/36	NS
Malignancy	3/36	2/36	NS
Prior peptic ulcer	6/36	4/36	NS
Prior GI bleed	9/36	7/36	NS
Aspirin/NSAID use	10/36	8/36	NS
Coagulopathy (INR >1.8)	3/36	4/36	NS
Rockall score (13)	3.6 ± 1.2	3.4 ± 1.1	NS
Etiology of bleeding			NS
Peptic ulcer	22	24	
Esophageal ulcer	1	0	
Varices	5	3	
Mallory-Weiss tear	3	2	
Malignancy	2	3	
Other	3	4	

(groups are essentially the same)

Table 2. Time Intervals from Admission to Stabilization of Hemodynamics, Hematocrit Greater than 28, Correction of Coagulopathy (INR <1.8) and Endoscopic Intervention Between Observation Group (OG) and Intensive Resuscitation Group (IRG)

	Observation Group N = 36	Intensive Resuscitation Group N = 36	<i>p</i> Value
Values Represent Time in Minutes			
Hemodynamics	260 ± 88	111 ± 33	0.002
Hematocrit >28	243 ± 109	188 ± 39	0.03
INR <1.8	277 ± 74	213 ± 89	0.04
Endoscopic intervention	765 ± 232	861 ± 312	0.21

Intervention: Faster correction of hemodynamics, Hct and coags.
Time to endoscopy similar

EARLY INTENSIVE RESUSCITATION REDUCES UGIB MORTALITY

- Observation group
 - 5 MI
 - 4 deaths
- Intense group
 - 2 MI
 - 1 death (sepsis)

Table 3. Outcome of Patients in Observation Group (OG) and Intensive Resuscitation Group (IRG)

	Observation Group N = 36	Intensive Resuscitation Group N = 36	<i>p</i> Value
Days in hospital	7.2 ± 13.8	5.8 ± 8.3	0.06
Days in ICU	2.4 ± 2.5	3.9 ± 3.8	0.04
Units of blood given	2.5 ± 2.7	2.6 ± 2.9	0.22
Myocardial infarction	5	2	0.04
Rebleeding	7	8	0.33
Surgical intervention	6	4	0.09
Mortality	4	1	0.04

EVALUATION AND ASSESSMENT

- ABCs of GIB
 1. Airway and Access
 2. Blood products
 3. Correct Coagulopathy and Consultation
 4. Drugs and Diagnostic testing

AIRWAY AND ACCESS

- Ensure adequate airway
 - Hematemesis
 - Altered mental status
 - Shock
 - Needed for endoscopy
- Adequate access
 - 2 large bore PIV vs CVC

- Assess degree of hypovolemic shock

	Class I	Class II	Class III	Class IV
Blood loss (mL)	750	750-1500	1500-2000	>2000
Blood volume loss (%)	< 15%	15-30%	30-40%	>40%
Heart rate	<100	>100	>120	>140
SBP	No change	Orthostatic change	Reduced	Very low, supine
Urine output (mL/hr)	>30	20-30	10-20	<10
Mental status	Alert	Anxious	Aggressive/drowsy	Confused/unconscious

BLOOD PRODUCTS

- Crystalloid infusion while waiting on PRBC
- Vasopressors are not a substitute for volume resuscitation

TRANSFUSION GOAL

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ESTABLISHED IN 1812

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Transfusion Strategies for Acute Upper Gastrointestinal Bleeding

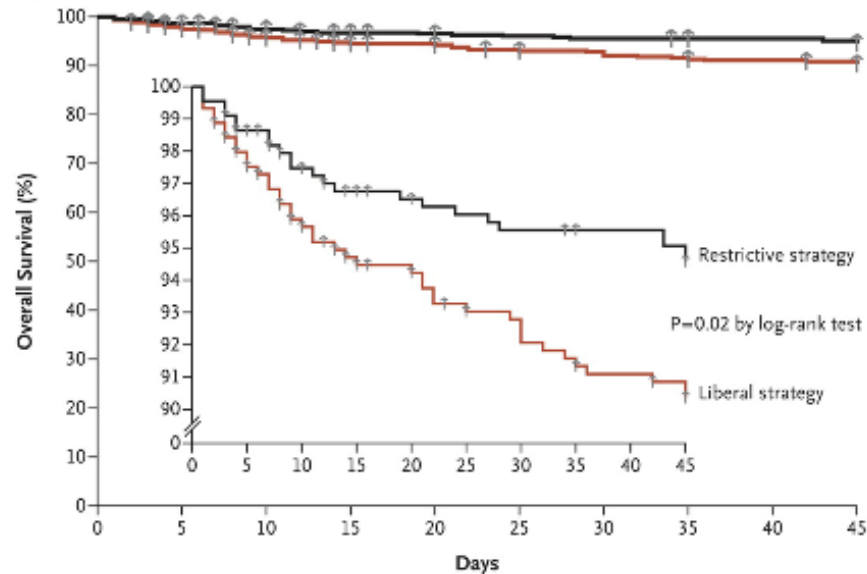
Càndid Villanueva, M.D., Alan Colomo, M.D., Alba Bosch, M.D., Mar Concepción, M.D.,
Virginia Hernandez-Gea, M.D., Carles Aracil, M.D., Isabel Graupera, M.D., María Poca, M.D.,
Cristina Alvarez-Urturi, M.D., Jordi Gordillo, M.D., Carlos Guarner-Argente, M.D., Miquel Santaló, M.D.,
Eduardo Muñiz, M.D., and Carlos Guarner, M.D.

- Randomized 921 patients to either liberal or restrictive strategy
- Liberal strategy transfusion trigger was Hgb <9 and restrictive strategy was 7
- The probability of survival at 6 weeks was higher in the restrictive-strategy group than in the liberal-strategy group (95% vs. 91%).
- Further bleeding occurred in 10% of the patients in the restrictive-strategy group as compared with 16% of the patients in the liberal-strategy group and adverse events occurred in 40% as compared with 48%.

RESTRICTIVE STRATEGY SUPERIOR

	Restrictive	Liberal	P value
Mortality rate	5%	9%	0.02
Rate of further bleeding	10%	16%	0.01
Overall complication	40%	48%	0.02

A Survival, According to Transfusion Strategy



Benefit seen primarily in Child A/B cirrhotics

CORRECTION OF COAGULOPATHY

- FFP transfusion
 - Synthetic liver dysfunction
 - FFP faster than vitamin K
 - Goal INR <1.5, consider endoscopy if <2.5
- Platelet transfusion
 - in bleeding pt if less than 50K
 - Platelet dysfunction
 - Anti-platelet agents or uremia
 - Goal platelets >50, 000/mm³

Table 2

Rockall score for the prognostication of upper gastrointestinal bleeding ³

	Score			
	0	1	2	3
Pre-upper gastrointestinal endoscopy				
Age	<60 years	60-79 years	≥80 years	
Shock	<i>No shock</i> BP >100 mmHg and pulse <100	<i>Tachycardia</i> BP >100 mmHg and pulse >100	<i>Hypotension</i> BP <100 mmHg	
Comorbidity	No major comorbidity		Ischaemic heart disease, cardiac failure, any major comorbidity	Renal or liver failure Disseminated malignancy
Post-upper gastrointestinal endoscopy				
Diagnosis	Mallory-Weiss or no lesion found, and no major stigmata of recent haemorrhage	All other diagnoses	Gastrointestinal malignancy	
Major stigmata of recent haemorrhage	None or dark spot only		Blood in upper gastrointestinal tract, non-bleeding visible vessel, spurting vessel or adherent clot	

BP systolic blood pressure

Patients with a score of 0, 1 or 2 have a lower risk of haemorrhage, whereas approximately 50% of patients with a post-endoscopy score of 3 or more will re-bleed.

AIMS65

- Simple risk score that predicts in-hospital mortality, LOS, cost in patients with acute UGIB

Albumin <3.0

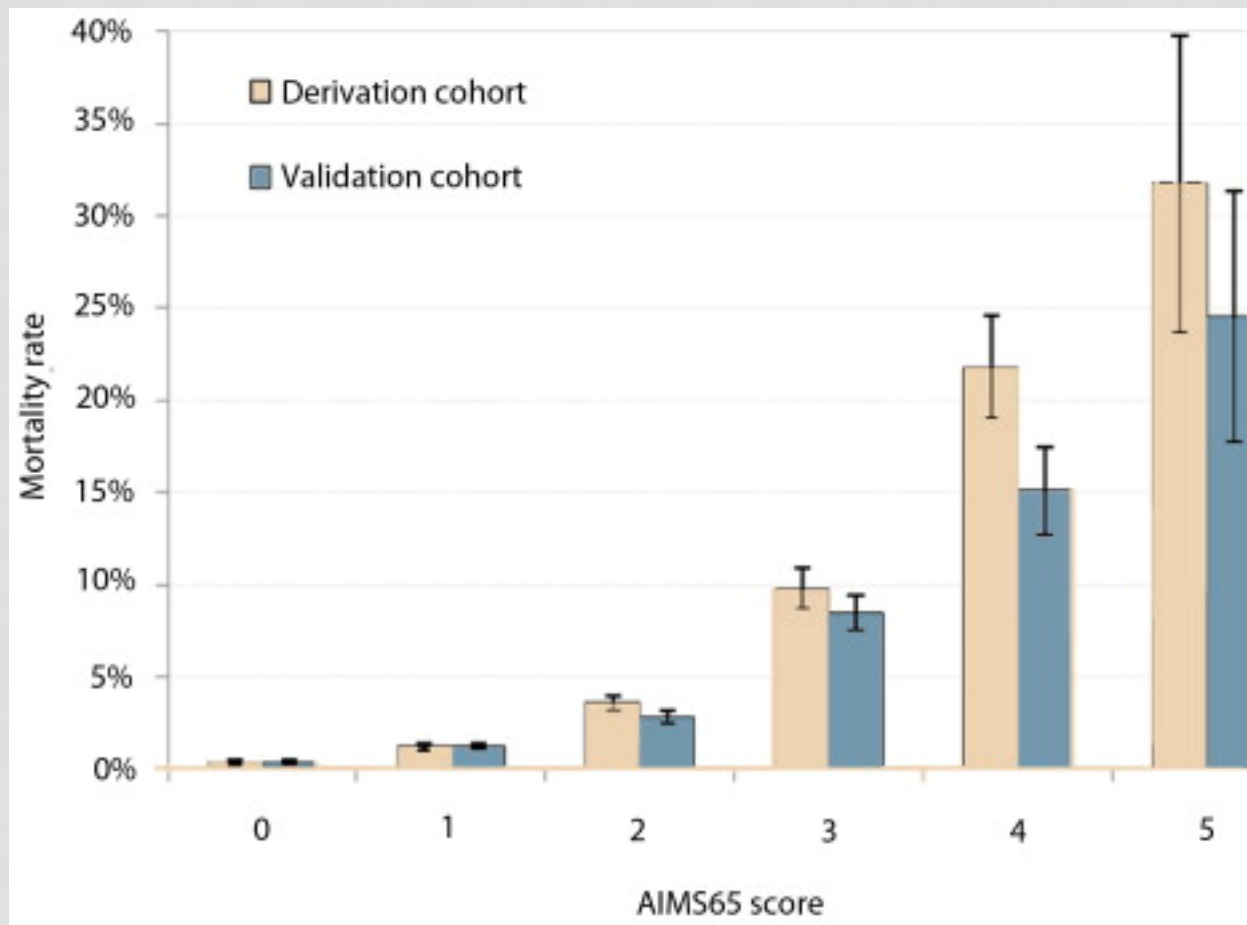
INR > 1.5

Mental status altered

Systolic BP <90

65+ years old

AIMS65



BLATCHFORD SCORE

- Predicts need for endoscopic therapy
- Based on readily available clinical and lab data
- Can use UpToDate calculator

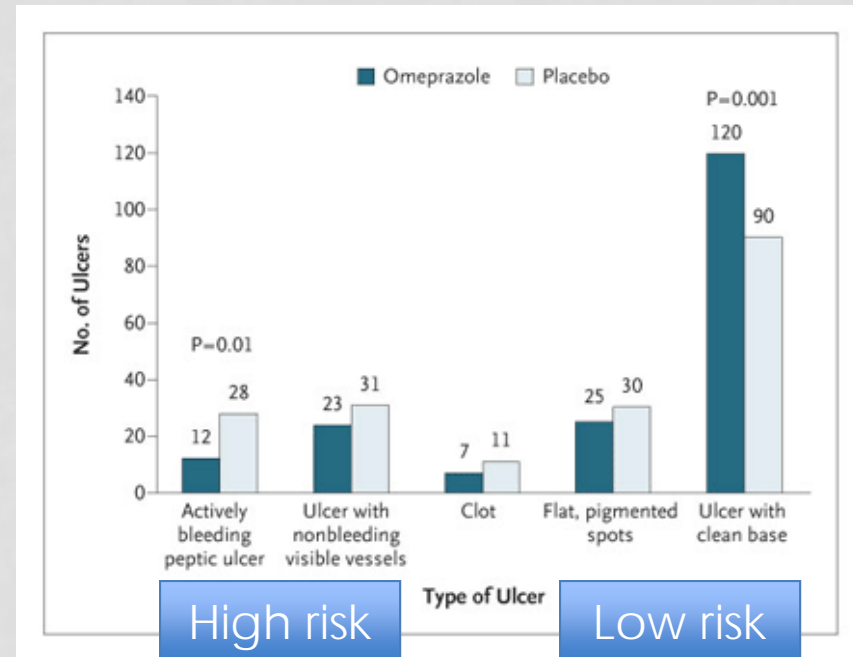
Admission risk marker	Score component value
Blood urea (mmol/L)	
≥6.5 <8.0	2
≥8.0 <10.0	3
≥10.0 <25.0	4
≥25	6
Haemoglobin (g/L) for men	
≥120 <130	1
≥100 <120	3
<10.0	6
Haemoglobin (g/L) for women	
≥100 <120	1
<100	6
Systolic blood pressure (mm Hg)	
100–109	1
90–99	2
<90	3
Other markers	
Pulse ≥100 (per min)	1
Presentation with melaena	1
Presentation with syncope	2
Hepatic disease	2
Cardiac failure	2

DIAGNOSTICS

- Upper GIB→EGD
- Definitive test for diagnosis and treatment
 - Safe if airway secure and pt is reasonably hemodynamically stable
 - Interventional options include epinephrine injection, cauterization, clipping, or banding of varices
 - May give 1 time dose of erythromycin 250 mg IV or Reglan 10 mg IVP to promote gastric emptying 30 min prior to procedure
 - Perform within 24 hours if GI bleed and within 12 hours if variceal bleeding

PPI PRIOR TO EGD

- Reduces high risk endoscopic stigmata (“downstages” lesion)
- Decreases need for endoscopic therapy
- Does not reduce rebleeding, surgery, or mortality rates



Endoscopic treatment required:

Omeprazole – 19% (23% of PUD)

Placebo – 28% (37% of PUD)

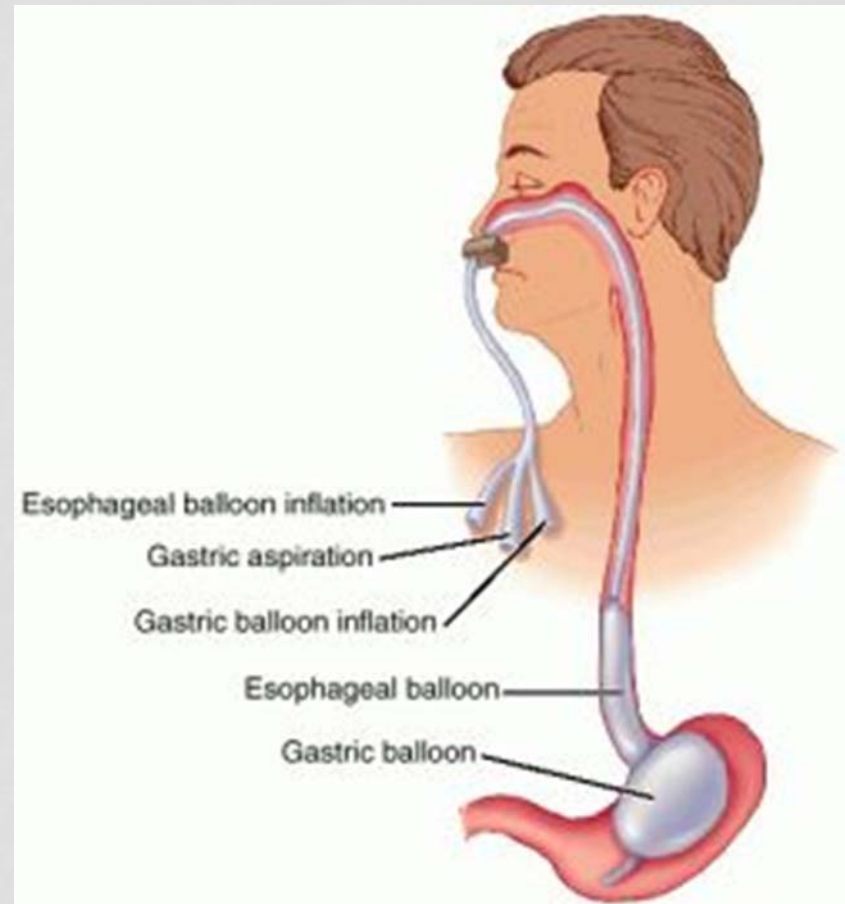
OTHER DRUGS

- If hx of liver disease or ascites give SBP prophylaxis
 - Ceftriaxone 1 g IV QD x 5-7 days
- Octreotide gtt for hx of liver disease or known varices (reduce splanchnic flow)
- Hold beta blocker in the acute setting which will prevent/block reflex tachycardia

Gastroenterology 2001;120:946
Cochrane Database Syst Rev
2008;16:CD000193
N Engl J Med 1995;333:555
Am J Gastroenterol 2009;104:617

MINNESOTA/BLAKEMORE TUBE

A flexible tube consisting of an esophageal and gastric balloon that is inflated and is used as a temporizing measure to tamponade gastric and/or esophageal varices.



MINNESOTA/BLAKEMORE TUBE

- Uses
 - Need experienced personell
 - Max of time 24-72 hrs
 - Need traction (usually a football helmet)
 - KUB and CXR for confirmation of placement
- Cautions
 - Necrosis if inflated too much or too long in
 - Nasal insertion often causes nose bleeds and sinusitis
 - Can compress trachea especially in shorter patients
 - Can perforate or tear esophagus during insertion

Cameron lesions

28/05/2018
15:59:14



MA



DR. MURUGU

Gastric ulcers presenting with acute upper GI bleeding

spurt



Visible vessel



**adherent
clot**



**Spots
Dots**



High Risk GI bleed

- Observe for 72 hours
- IV PPI therapy for 72 hours

Low Risk Ulcer

- PO PPI therapy
- Start diet promptly
- Early hospital discharge

Repeat endoscopy in 8-12 weeks with PPI bid if

- No biopsies taken (H.Pylori, malignancy)
- Concern for malignancy
- Incomplete evaluation of the stomach
- Patient continues to be symptomatic
- Duodenal ulcers less risk of malignancy, therefore often times no repeat done

LARGE ESOPHAGEAL VARICES PREDICTORS

- Severity of liver disease (Child Pugh)
- Platelet count < 88K
- Palpable spleen
- Platelet count/spleen diameter (mm) ratio <909

Gut 2003;52:1200

J Clin Gastroenterol 2010;44:146

J Gastroenterol Hepatol

2007;22:1909

Arch Intern Med 2001;161:2564

Am J Gastroenterol 1999;94:3103

- Large esophageal varices with red wales sign

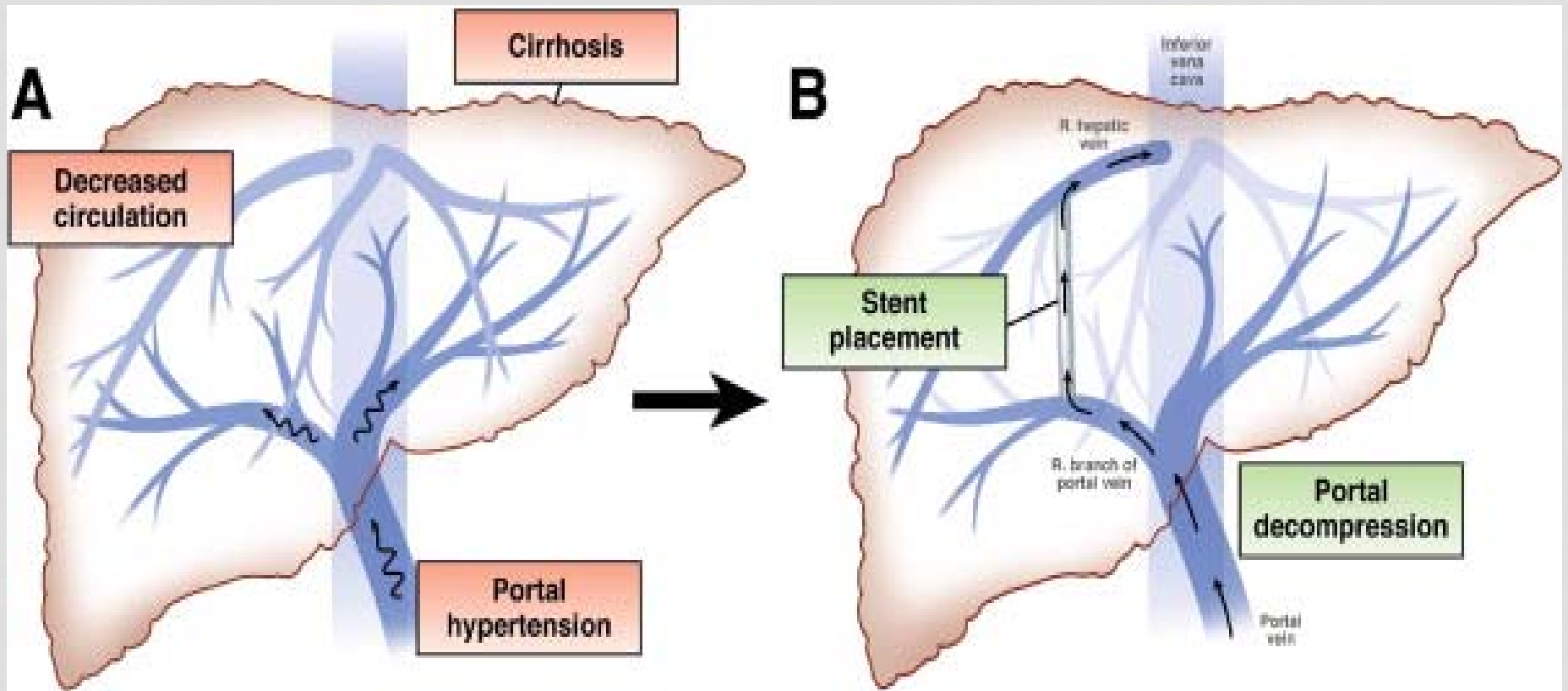


- Status post banding



Figure 2 Esophageal varices band ligation of a varix with a white ripple.

TRANSJUGULAR INTRAHEPATIC PORTOSYSTEMIC SHUNT (TIPS)



Increased pressure in PV forces blood to flow into smaller branches coming from abdominal organs that normally drain into the PV. These veins then enlarge and are referred to as varices

LGIB

If high-risk clinical features and signs

- a. hemodynamic resuscitation
- a. rapid bowel purge 4–6 l of golytely solution given over 3–4 h until rectal effluent is clear of blood and stool
- b. colonoscopy performed within 24 h

Anti-platelet and Anticoagulants in the setting of GI Bleed

- Need to balance risk of GI bleed with that of thrombosis
- Aspirin for secondary prevention should not be discontinued
- Aspirin for primary prevention should be held
- In patients with dual antiplatelet therapy, clopidogrel should be held for high risk ulcers unless
 - ACS in previous 90 days
 - 30 days post cardiac stenting

RADIOGRAPHIC STUDIES

- Tagged RBC scan
- Noninvasive, highly sensitive (0.05-0.1 ml/min)
- Ability to localize bleeding source correctly only ~66%
- More accurate when positive within 2 hours (95-100%)
- Lacks therapeutic capability



RADIOGRAPHIC STUDIES

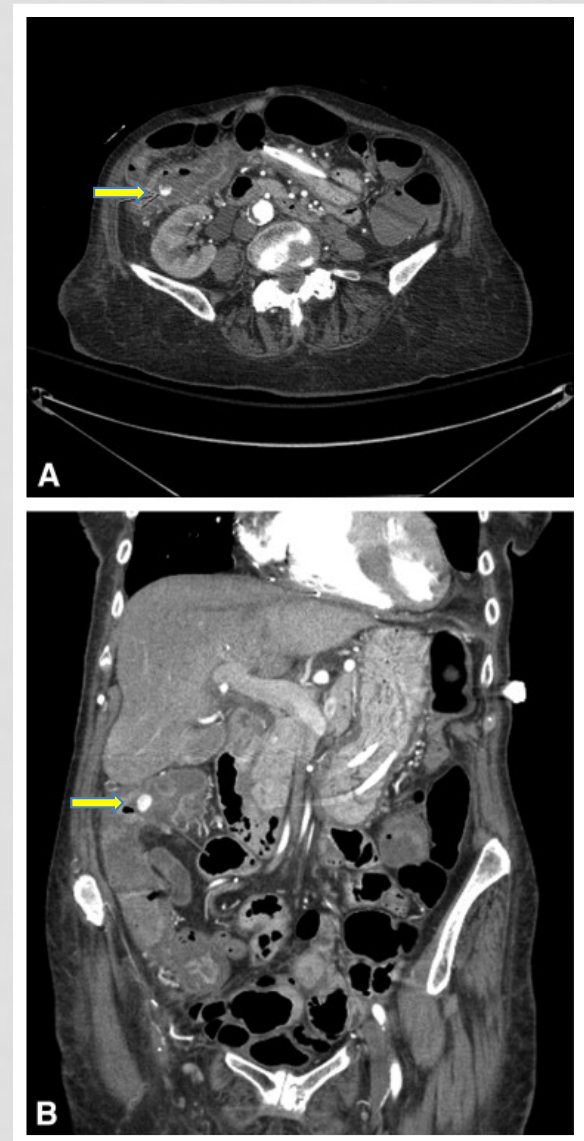
- Angiography
- Detects bleeding rates of 0.5-1 ml/min
- Therapeutic capability – embolization with microcoils, polyvinyl alcohol, gelfoam
- Complications: bowel infarction, renal failure, hematomas, thromboses, dissection



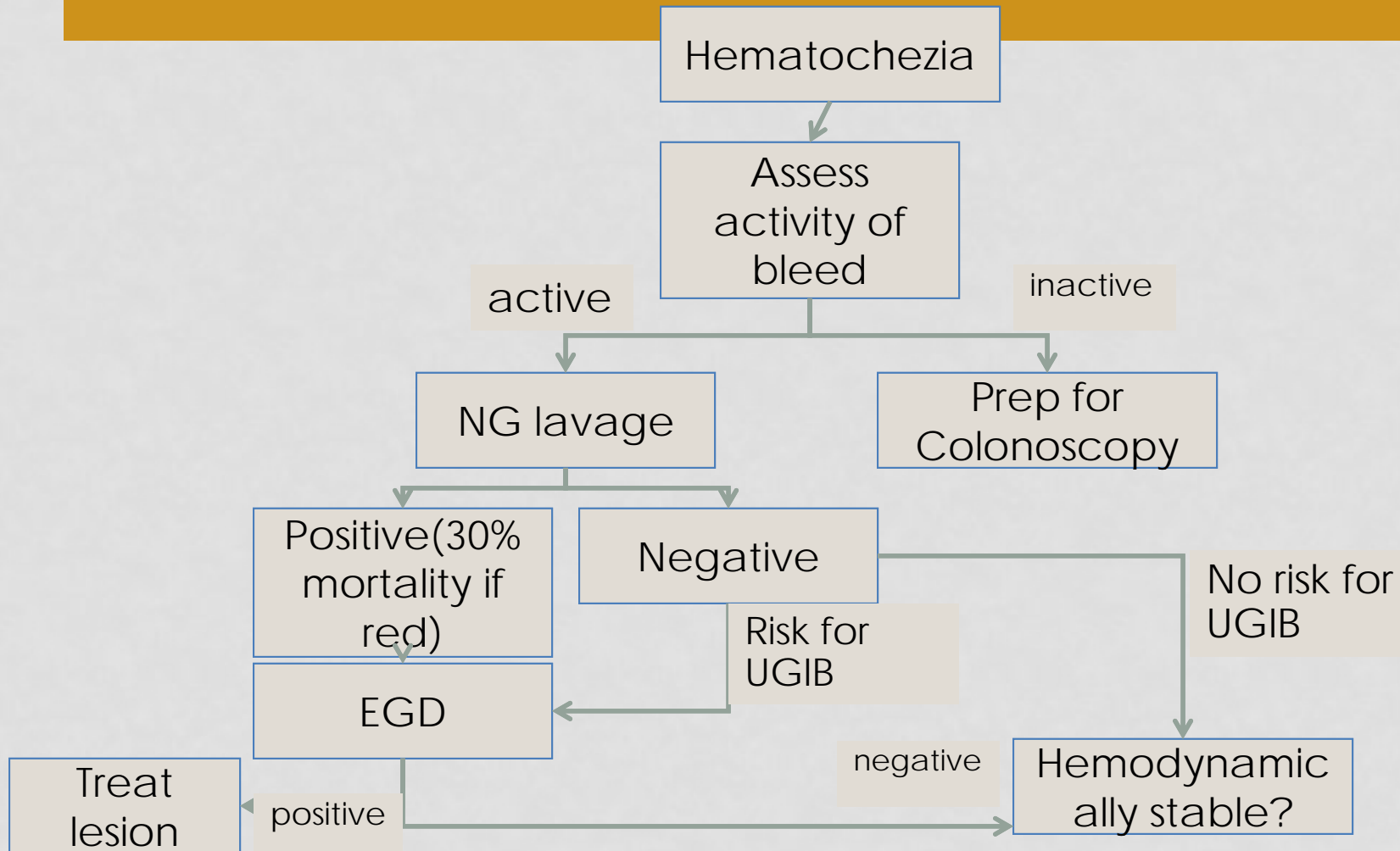
Recommended test for patients with brisk bleeding who cannot be stabilized or prepped for colonoscopy
(or have had colonoscopy with failure to localize/treat bleeding site)

MULTI-DETECTOR CT (CT ANGIO)

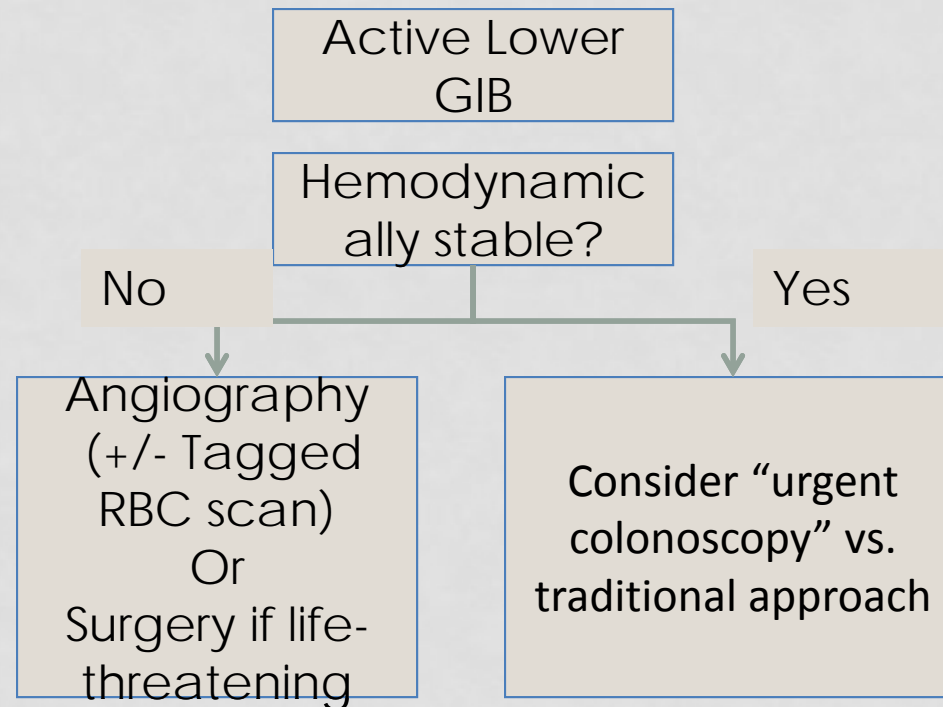
- Readily available, can be performed in ER within 10 minutes
- Can detect bleeding rate of 0.5 ml/min
- Can localize site of bleeding (must be active) and provide info on etiology
- Useful in the actively bleeding but hemodynamically stable patient



ALGORITHMIC EVALUATION OF PATIENT WITH HEMATOOCHEZIA



ALGORITHMIC EVALUATION OF PATIENT WITH HEMATOCCHEZIA



Obscure GI Bleed

- 5% of bleeding
- Usually between the papilla and the ileocecal valve
- Angiodysplasia is the most common cause, then nsaid enteropathy and IBD

Overt obscure GI bleed- bleeding is visible such hematochezia or melena

- Repeat EGD then capsule,

Occult obscure GI bleed- no gross blood but unexplained iron deficiency

- Perform capsule, if negative workup other causes of anemia (celiacs, hematuria, etc)
- If just FOBT is positive and no IDA, then stop after cscope +/- egd

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- Villaneuva, C et al *NEJM* 2013; 368:11-21

A 67-year-old man is re-evaluated for a 3-month history of iron deficiency anemia due to obscure gastrointestinal bleeding. At the time of diagnosis he was evaluated with two upper endoscopies and a colonoscopy that failed to reveal the source of gastrointestinal bleeding. He has remained hemodynamically stable but requires oral iron therapy. His medical history is notable for chronic atrial fibrillation, for which he takes diltiazem and warfarin.

On physical examination, temperature is 37.0 ° C (98.6 ° F), blood pressure is 130/78 mm Hg, pulse rate is 80/min, and respiration rate is 18/min. Abdominal examination findings are normal.

Laboratory studies show a hemoglobin level of 9.2 g/dL (92 g/L) and an INR of 2.5 (normal range, 0.8-1.2). A guaiac fecal occult blood test is positive.

Which is the next best test

- a. Angiography
- b. Capsule study
- c. Interoperative enteroscopy
- d. Tagged rbc scan

A 45-year-old man is evaluated in the emergency department for two episodes of hematemesis and lightheadedness. He has no history of gastrointestinal bleeding, bleeding disorders, alcoholism, chronic liver disease, cardiovascular disease, or cancer. He takes no medications. On physical examination, temperature is 37.0 ° C (98.6 ° F), blood pressure is 103/62 mm Hg supine and 78/50 mm Hg standing, pulse rate is 101/min supine and 125/min standing, and respiration rate is 14/min. There is no jaundice, spider angiomas, or palmar erythema. Abdominal examination reveals no tenderness, guarding, or rebound. Rectal examination identifies melena.

Plt 200,000

INR wnl

What is the most common cause of the bleed

- a. Duodenal angiodysplasia
- b. Varices
- c. Erosive Gastritis
- d. Peptic ulcer disease

An 80-year-old man is evaluated for gastrointestinal bleeding. His medical history is notable for a 3-month history of intermittent melena that resulted in a hospitalization 2 days ago, during which he has required fluid resuscitation and erythrocyte transfusions. Upper endoscopy and colonoscopy were normal.

On physical examination, temperature is 37.0 ° C (98.6 ° F), blood pressure is 135/80 mm Hg, pulse rate is 80/min, and respiration rate is 18/min. Abdominal examination findings are normal.

Laboratory studies show a hemoglobin level of 8.2 g/dL (82 g/L). Capsule endoscopy shows fresh blood in the proximal jejunum and several angiodysplasias.

Whats the next step

- a. Intraoperative enteroscopy
- b. Push enteroscopy
- c. Tagged rbc scan
- d. Repeat upper endoscopy