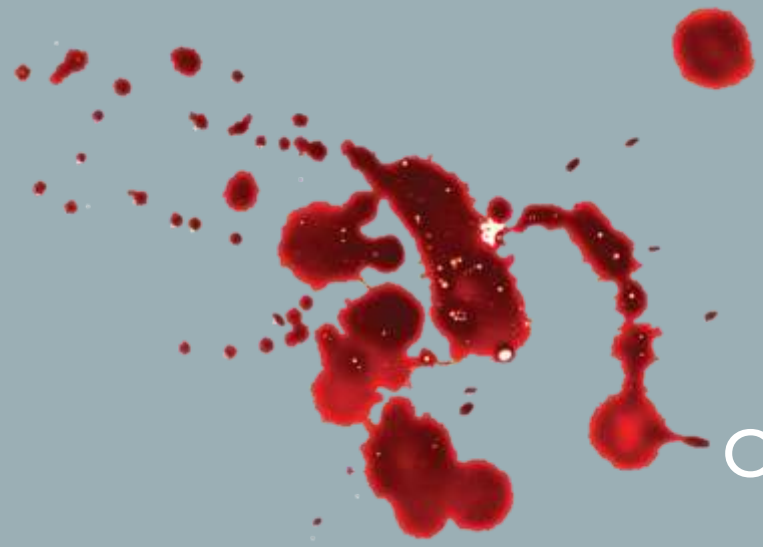
GI BLEEDING



Melissa Hershman, MD

Assistant Professor

Division of Gastroenterology

Oregon Health and Science University

DISCLOSURES

- Mahana Therapeutics, Advisor

INITIAL EVALUATION: LOCALIZING SOURCE OF BLEED

UPPER GI BLEEDING

- Hematemesis
- Coffee ground emesis
- Melena (50-100 cc blood)
- Hematochezia (5%)

~~FOBT~~
~~NG Aspiration~~

LOWER GI BLEEDING

- Hematochezia
- Maroon stools
- Melena

Melena LR 25
Coffee grounds LR 10
BUN/Cr >30 LR 7.5

Srygley FD et al. JAMA 2012

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PRE-ENDOSCOPIC RISK ASSESMENT

Rockall (0-7)	Glasgow-Blatchford (0-23)	AIMS 65 (0-5)
HR SBP Age Comorbidities	BUN Hgb SBP HR Melena Syncope Hepatic Disease Cardiac failure	Albumin <3.0 INR > 1.5 Mental status altered Systolic BP <90 65+ years old
Death	Transfusion, hemostatic therapy, death	Death

GOAL OF RISK ASSESSMENT MODELS

- Identify **low risk** patients with high sensitivity
  - Ex: GBS 0-1 Sensitivity 99% ; Specificity 27-40% (most hospitalized will not die or need intervention)
- 2021 ACG guidelines: **discharge** with outpatient follow up for risk assessment model showing ≤ 1% mortality

Laine L et al. AJG 2021

CAUSES OF MORTALITY IN PATIENTS WITH PEPTIC ULCER BLEEDING

- Prospective cohort study 9,375 patients with peptic ulcer disease
  - Overall Mortality rate 6.2%
  - **Majority (80.3%) do not directly die of bleeding**
    - Terminal malignancy (34%)
    - Multi-organ failure (24%)
    - Pulmonary disease (24%)
    - Cardiac disease (14%)

Sung JJY et al. Am J Gastroenterol 2010

MASSIVE BLEEDING

- Should be at a center with IR, GI, Surgery
  - → activate multidisciplinary team
- Consider CTA for localization, angiography
- Consider emergency devices:
  - Esophageal balloon tamponade (Sengstaken-Blakemore Tube, Minnesota Tube)

Don't miss diagnoses: aortoenteric fistula, splenic artery pseudoaneurysm

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EARLY INTENSIVE RESUSCITATION REDUCES MORTALITY IN GI BLEEDS

	Observation (n=36)	Intensive Resuscitation (n=36)	P value
Normal hemodynamics	260 min	111 min	.002
Normal HCT (28)	243 min	188 min	.03
Endoscopic intervention	765 min	861 min	
Days in hospital	7.2	5.8	.06
Units blood given	2.5	2.6	.22
Myocardial infarction	5	2	.04
Mortality	4	1	.04

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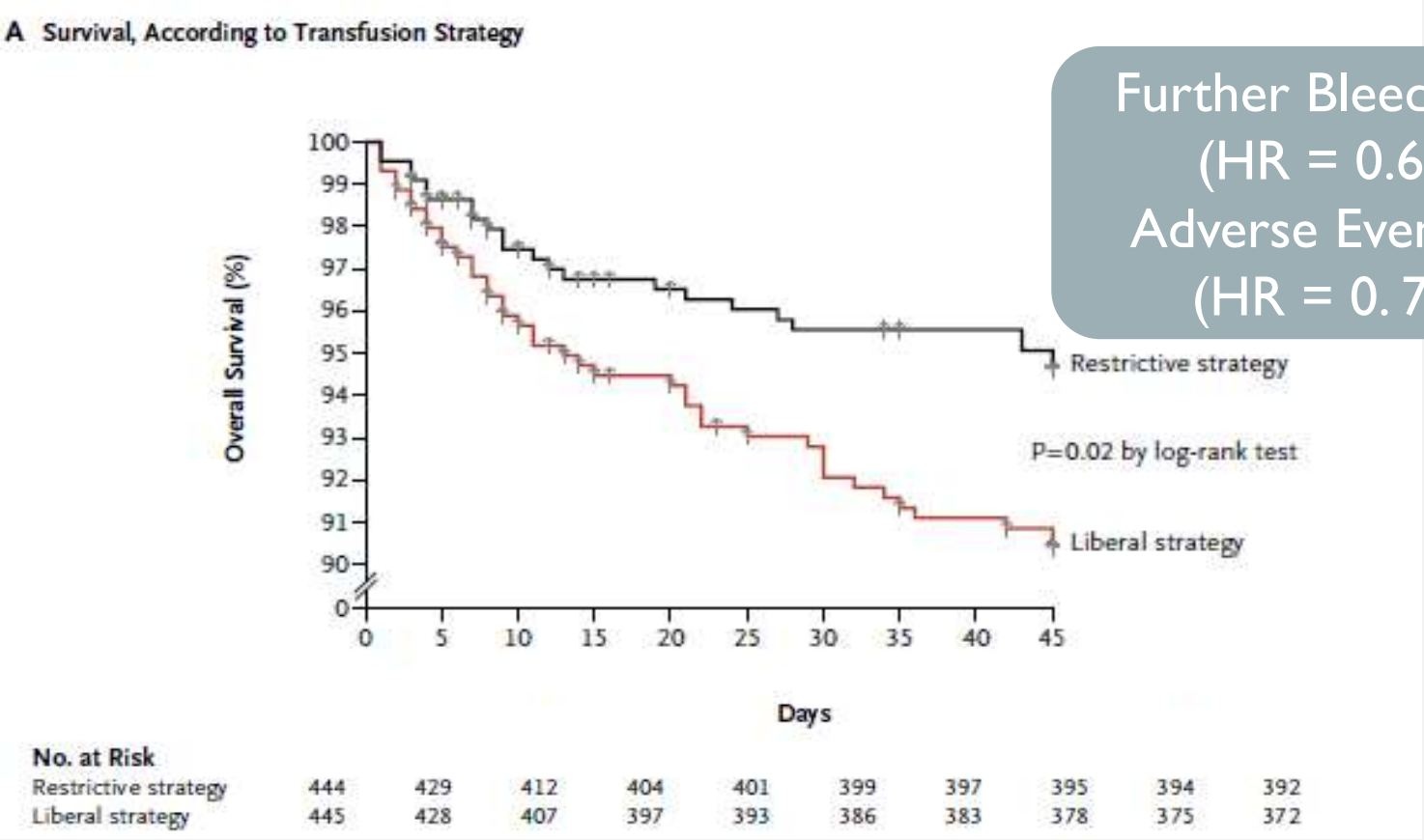
Baradarian R et al. Am J Gastro 2004

SIGNIFICANT MORTALITY BENEFIT OF RESTRICTIVE TRANSFUSION STRATEGY IN UGIB



Further Bleeding: 10% vs 16%
(HR = 0.62; 0.43-0.91)
Adverse Events: 40% vs 48%
(HR = 0. 73; 0.56-0.95)

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Villanueva C et al. NEJM 2013

RESUSCITATION SUMMARY

- Early correction of hemodynamics and hematocrit
  - Crystalloid
  - Blood transfusion parameters
    - All patients Hgb < 7 g/dL
    - Pre-existing CV disease Hgb < 8 g/ dL
    - Acute Coronary Syndrome Hgb < 8g/dL
      - Based on RCT with anemia (not specific to GIB) and acute MI – noninferior in CV events for 8 vs 10g/dL: 11% vs 14%
    - Hypotensive with active bleeding – do not need to wait for Hgb to drop < 7
  - Platelets for < 50K/uL with active bleeding

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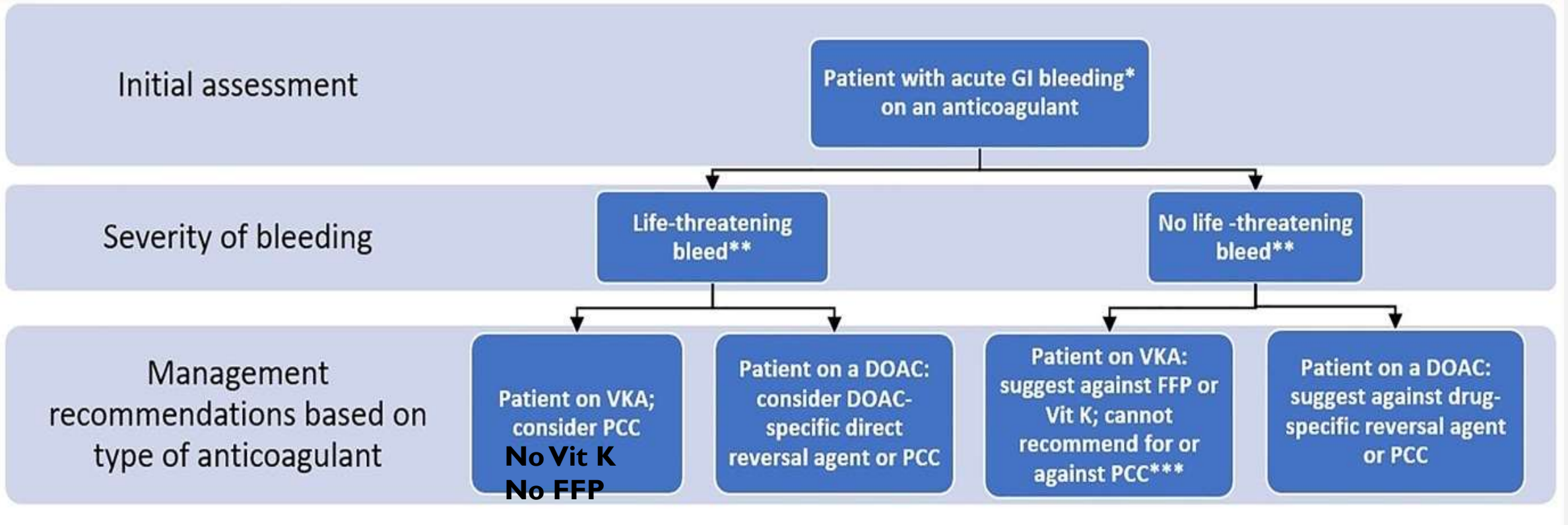
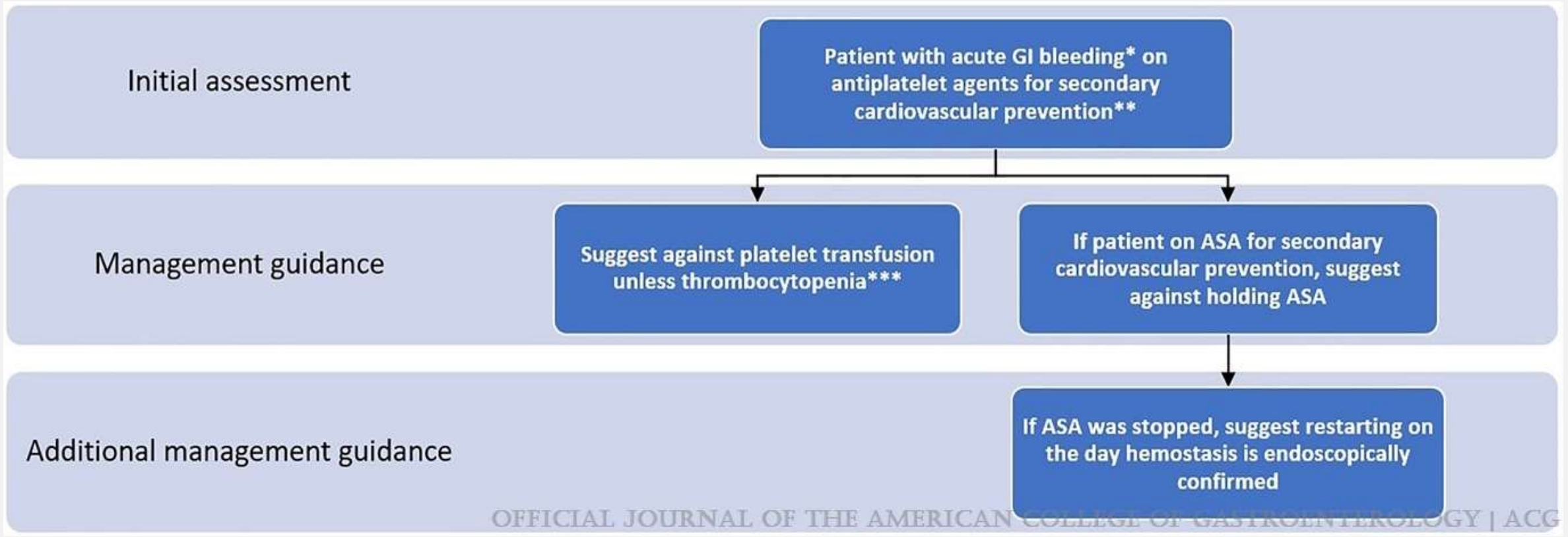
Ducrocq G et al. JAMA 2021
Laine L et al. AJG 2021

REVERSAL OF ANTICOAGULATION



Abraham NS et al. AJG 2022

MANAGEMENT OF ASPIRIN

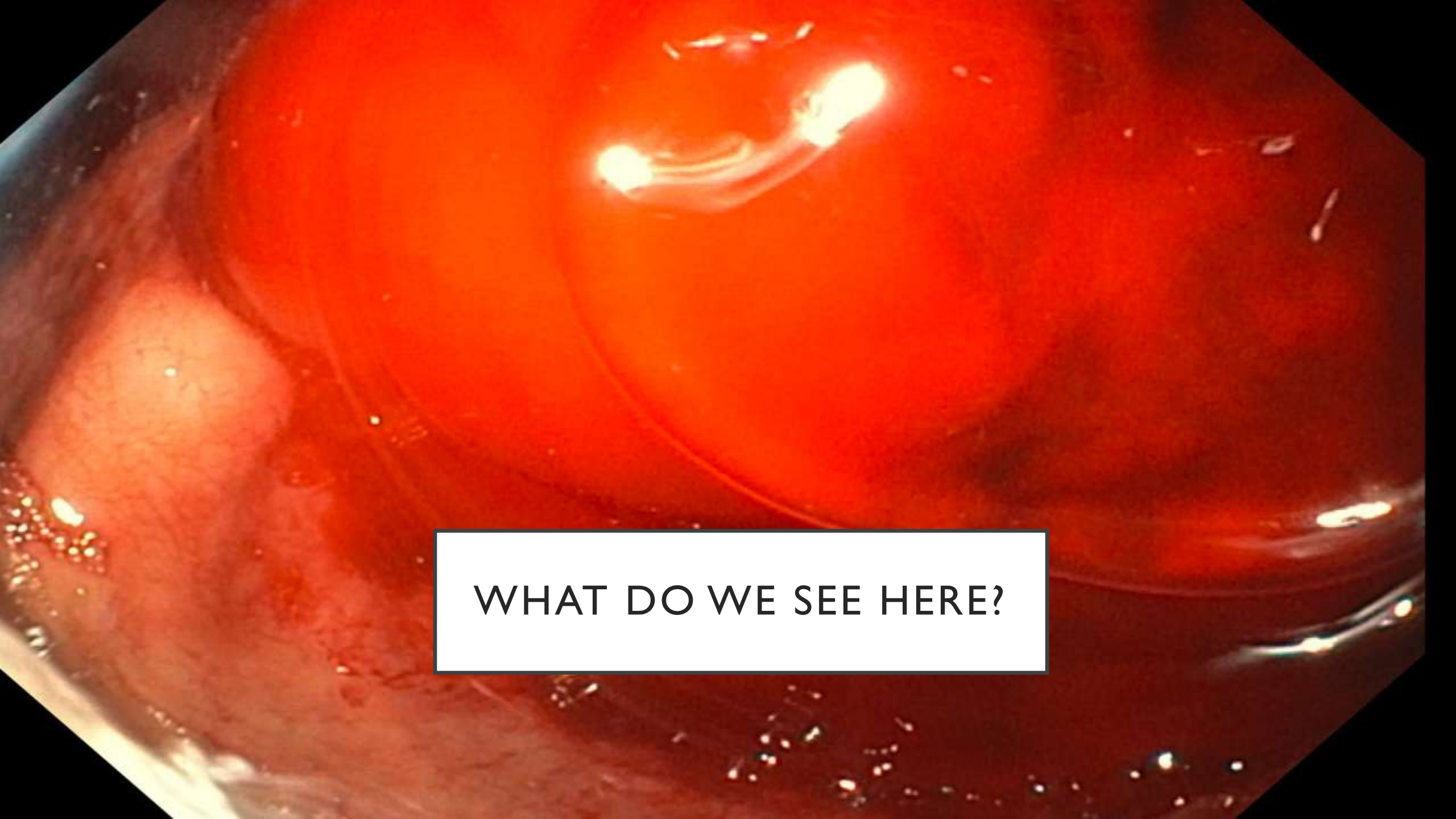


Abraham NS et al. AJG 2022

PRE-ENDOSCOPY MEDICATIONS: PPI

- IV PPI (ie. Pantoprazole): 80 mg bolus + 8 mg/hr drip OR 40mg IV q 12
  - Rationale: suppress acid, facilitate clot formation and stabilization
  - Duration: 48-72hrs; at least until EGD, then based on findings
  - Evidence: "downstages" high risk endoscopic lesions but not shown to reduce surgery, or mortality rates

Lau JY et al. N Engl J Med 2007
Sachar H et al. JAMA Int Med, 2014


WHAT DO WE SEE HERE?

PRE-ENDOSCOPY MEDICATIONS: PROKINETIC AGENT

- Erythromycin 250mg Infusion 30-90min prior to EGD
  - Reduced need for repeat EGD (OR 0.51; 95% CI: 0.34-0.77, P<0.01), LOS (MD -1.75; 95% CI: -2.43 to -1.06, P<0.01) BUT NOT other outcomes ie surgery, or # of PRBC needed
  - Need to 1st assess QTC/cardiac risk

- Alternative? Metoclopramide (Reglan) 10mg IV

Rahman R et al. Ann Gastorenterol. 2016
Laine L et al. AJG 2011

PREENDOSCOPY MEDICAL MANAGEMENT: VARICES SUSPECTED

- Intravenous PPI
- Octreotide drip (50 mcg IV bolus, 50 mcg/hr)
- Antibiotics in patients with cirrhosis and ANY GI bleeding cause: reduces hospital-associated infections, all cause mortality, re-bleeding, length of stay

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Zia HA et al. Clinical Liver Disease. 2021

HOW DO WE RECONCILE THE GI BLEED PARADOX?

- Pros of early endoscopy? Low risk pts (normal VS, no severe comorbidities) often low risk findings (40%) → d/c home
- HOWEVER 80-90% of bleeding stops with medical management
- Cons of early endoscopy (<12hr)? NO change in re-bleeding rate, LOS, surgery, mortality

...but also is it a Friday?

Current guidelines for EGD:

- Suspected variceal bleeding **<12 hrs**
- Other **<24 hrs**

Cooper GS et al. Gastrointest Endosc 1999
Laine L et al. AJG 2021
Lin HJ et al. J Clin Gastroenterol 1996

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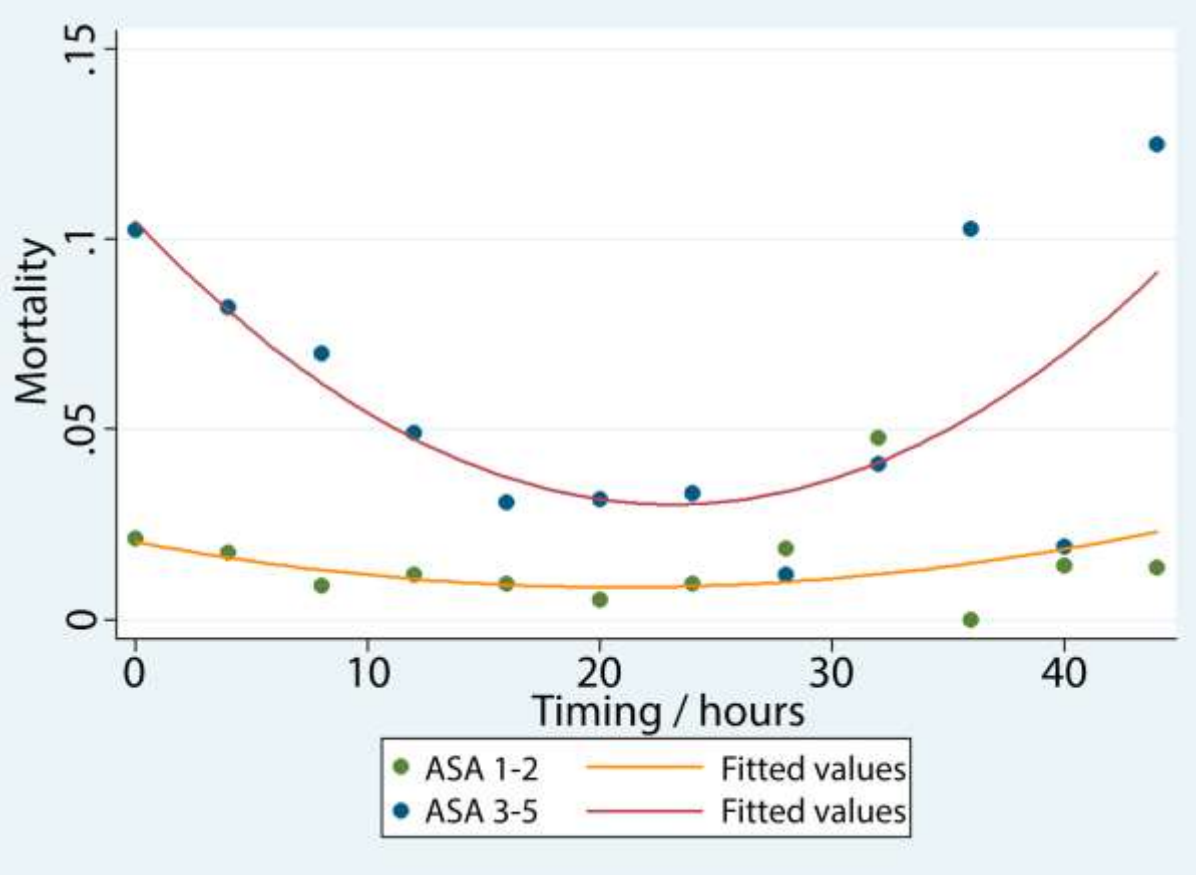
TIMING OF ENDOSCOPY AND MORTALITY



Procedural sedation may cause cardiovascular compromise in an under-resuscitated patient

SB Lauerson et al. GI Endoscopy 2017

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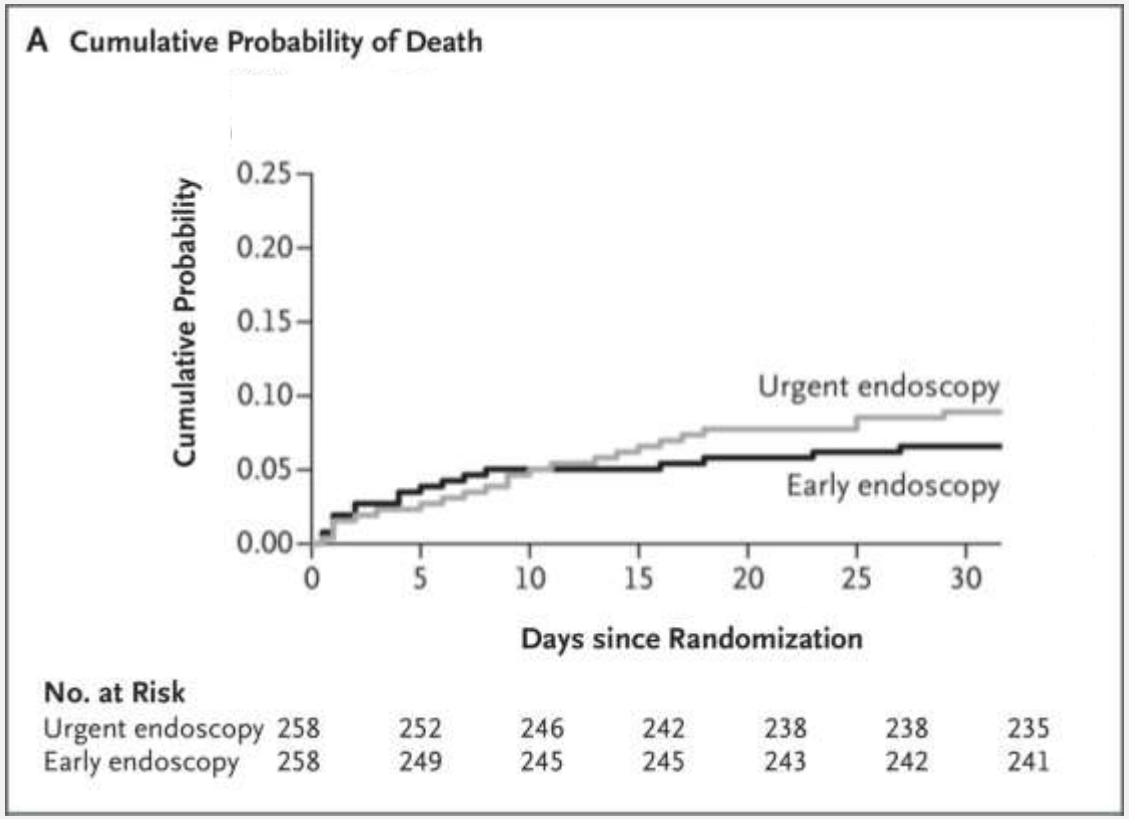
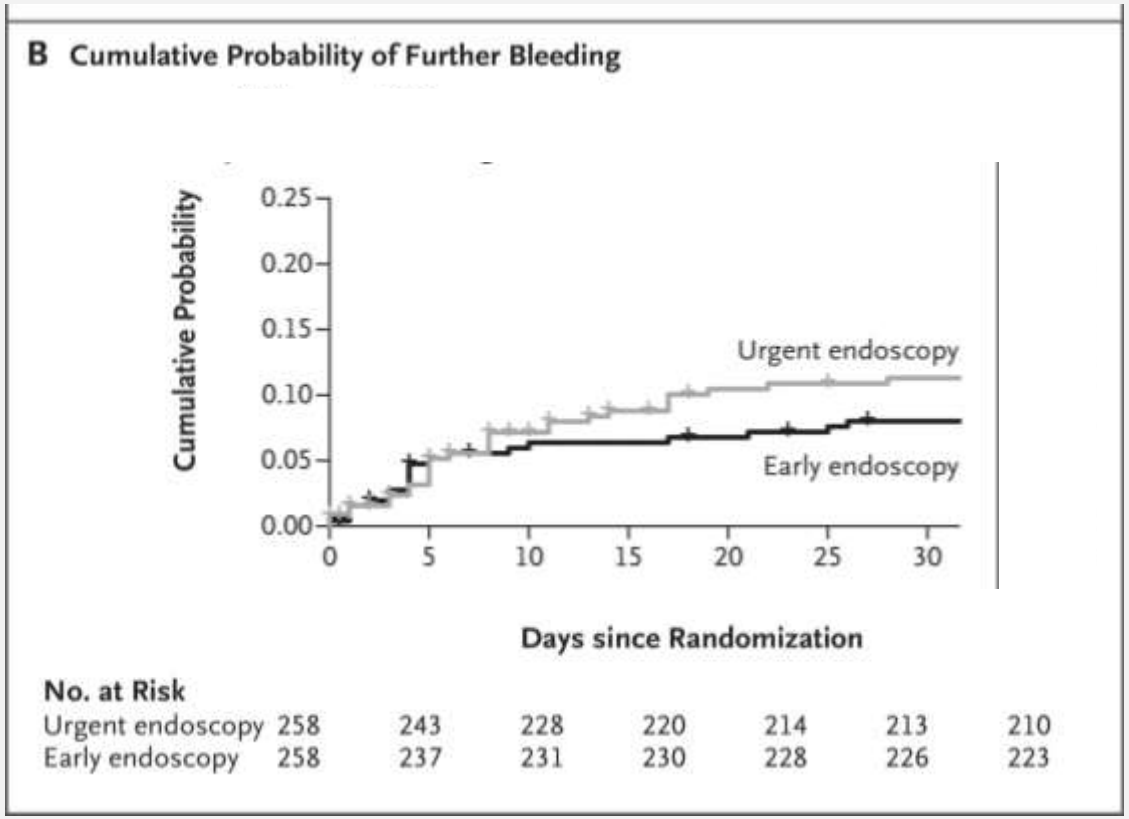
URGENT EGD (WITHIN 6H) DOES NOT IMPROVE MORTALITY OR REBLEEDING





Lau, JWY et al. NEJM 2020


IF YOU COULD SHARE THE FUN STUFF NOW..
THAT'D BE GREAT...
memegenerator.net

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DIFFERENTIAL DIAGNOSIS OF UPPER GIB

Cause	Prevalence
Peptic ulcer disease (PUD)	33.9%
Esophageal and gastric varices	32.8%
Erosive esophagitis	8.1%
Mallory-Weiss tear	6.4%
Erosion	5.1%
Tumor	5.1%
Esophageal ulcer	2.1%
Portal hypertensive gastropathy (PHG)	1.0%
Dieulafoy, Cameron Lesion	1.6%

80%

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Kim BSM et al. J Clin Gastroenterol 2014

Ulcer Classification

Forrest Ia
Arterial spurting

Forrest Ib
Oozing from ulcer base

Forrest IIa
Visible vessel

Require endoscopic therapy

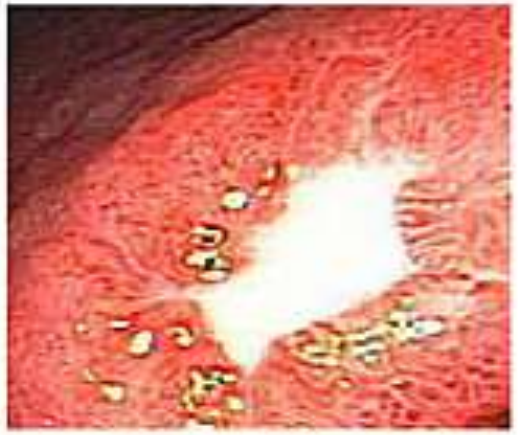
High Risk Ulcers
Continued/Rebleeding Rate: 85-100%

10-27%

50%

Forrest IIb
Adherent clot

Forrest IIc
Black spots



Forrest III
Clean ulcer base

Low Risk Ulcers
Continued/Rebleeding Rate: 30-35%

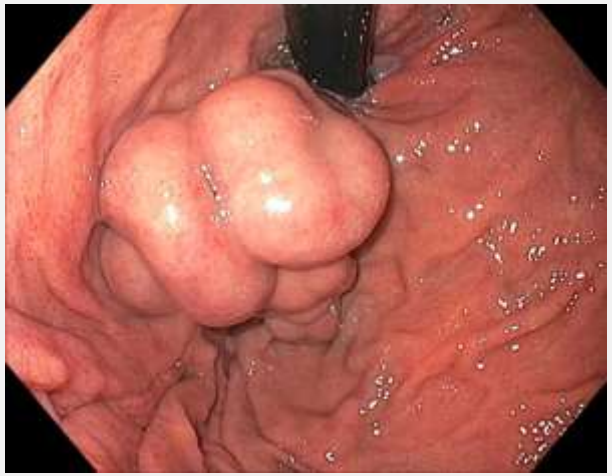
<8%

<5%

MANAGEMENT OF BLEEDING VARICES

- Esophageal
  - Endoscopic banding
  - Sclerotherapy
  - Esophageal stent (temp)
  - TIPS

- Gastric
  - Endoscopic banding
  - Cyanoacrylate (isolated GOV)
  - TIPS, BRTO



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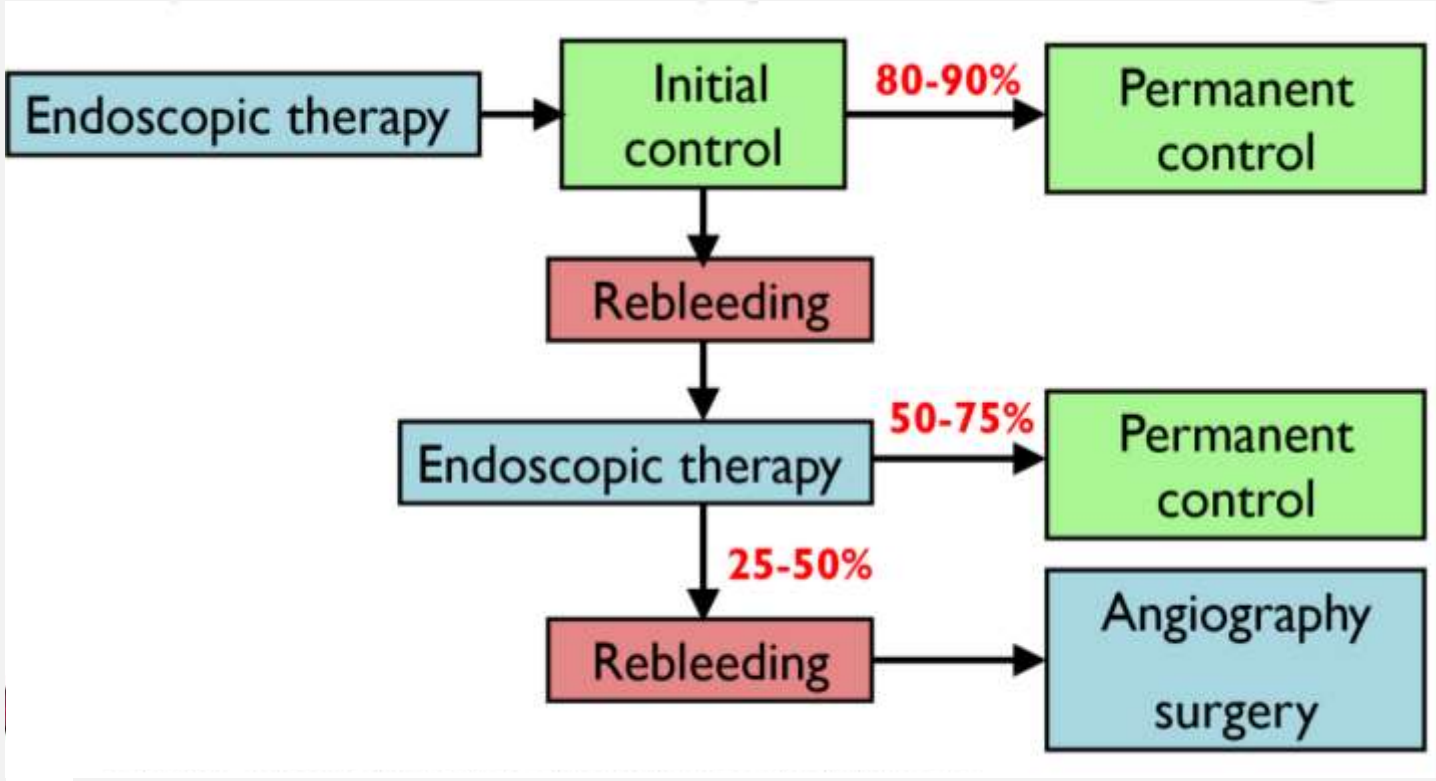
REPEAT ENDOSCOPY FOR RE-BLEEDING



Savides TJ et al. Gastroenterol Clin N Am 2000

POST-ENDOSCOPY NONVARICEAL UGIB MANAGEMENT

- Low Risk Endoscopic Findings
  - E.g. clean-based ulcer, nonbleeding Mallory-Weiss tear, erosions
  - Start diet promptly
  - Discharge if stable VS and Hgb
- High Risk Endoscopic Findings
  - E.g. ulcer with bleeding stigmata, varices, neoplasm, Dieulafoy
  - Remains admitted

Laine L et al. AJG 2021

POST-ENDOSCOPY PEPTIC ULCER MANAGEMENT

- High risk ulcers (required endoscopic therapy): **PPI IV x 72 hrs**
  - Reduces 30 day rebleeding rate vs placebo (6.7% vs. 22.5%)
  - Recommend to discharge on 2 weeks of BID PPI
    - Limited data to support BID vs daily beyond this
- Check H. pylori status
- Gastric ulcers: consider repeat EGD in 4-6 weeks r/o malignancy

Laine L et al. AJG 2021
Lau JYW et al. NEJM 2000
Wong C et al. Arch Intern Med 2010

POST-ENDOSCOPIC VARICEAL LIGATION MANAGEMENT

- Continue IV Vasoactive agent for 2-5 days
- Continue antibiotic prophylaxis for 5-7 days
- Consider stopping PPI if no indication vs 10 day max
- 2ndary prevention:
  - Repeat EGD 2-4 weeks retreatment
  - Start NSBB once stabilized and titrate to HR goal 50-60
- High risk for rebleed consider TIPS

Zia HA et al. Clinical Liver Disease. 2021

POST-PROCEDURE ASPIRIN MANAGEMENT

- If cardiovascular disease on aspirin 81mg: **restart same day hemostasis achieved**
  - Increased risk of rebleeding (10% vs. 5%) but decreased 30 day mortality (1.3% vs. 13%)

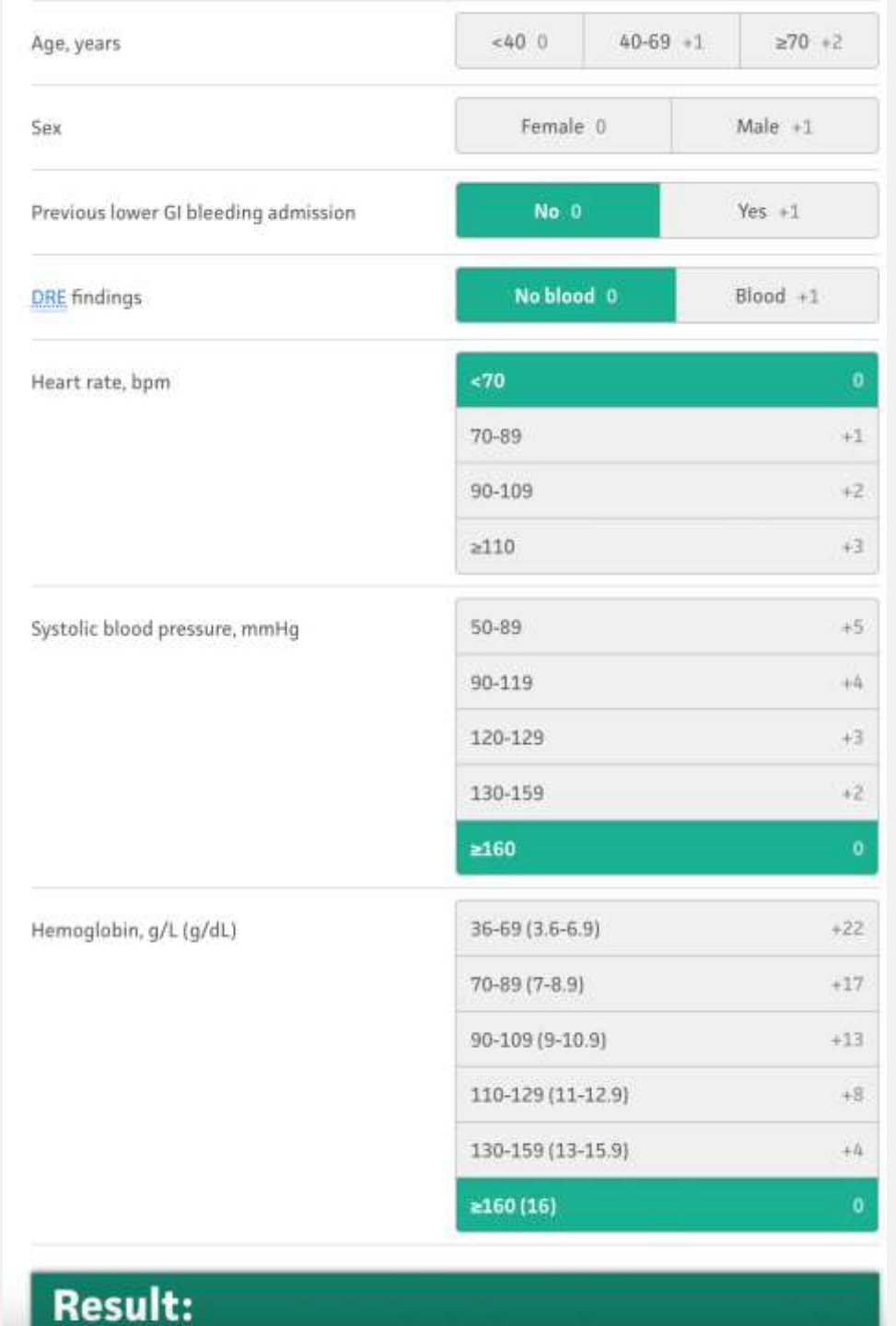
Laine L et al. AJG 2021

LOWER GI BLEEDING

- Diverticulosis (42%)
- Ischemia
- Anorectal (Hemorrhoids, Anal Fissures, Rectal Ulcers, Rectal Varices, Prolapse)
- Neoplasia (Polyps and cancer)
- Angiodysplasia
- Post polypectomy (up to 2 weeks after; 0-13%)
- IBD
- Radiation Colitis
- Other Colitis (infectious, C. diff)
- *Small Bowel/UGIB: 3-13% ; Unidentified Cause (6-23%)*

TRIAGING LOWER GI BLEEDING

- ~80% LGIBs resolve spontaneously
  → ~30% will rebleed
- Oakland Score good for predicting low risk LGIB for adverse outcomes
  - ≤ 8 = 95% probability of safe discharge



Age, years	<40 0	40-69 +1	≥70 +2
Sex	Female 0	Male +1	
Previous lower GI bleeding admission	No 0	Yes +1	
DRE findings	No blood 0	Blood +1	
Heart rate, bpm	<70	0	
	70-89	+1	
	90-109	+2	
	≥110	+3	
Systolic blood pressure, mmHg	50-89	+5	
	90-119	+4	
	120-129	+3	
	130-159	+2	
	≥160	0	
Hemoglobin, g/L (g/dL)	36-69 (3.6-6.9)	+22	
	70-89 (7-8.9)	+17	
	90-109 (9-10.9)	+13	
	110-129 (11-12.9)	+8	
	130-159 (13-15.9)	+4	
	≥160 (16)	0	

Result:

Oakland K et al. Lancet Gastroenterol Hepatol 2017

WHO'S A GOOD CANDIDATE FOR CTA?

Those with risk factors for positive exam (and intact kidneys):

- Hypotension and tachycardia
- Requiring > 3 PRBC / day
- Antiplatelet or anticoagulant agents
- Recent surgical or endoscopic intervention
- Hematochezia within 4 hours of the exam

Bleeding required:
0.3-0.5mL/min
Sensitivity ~90%

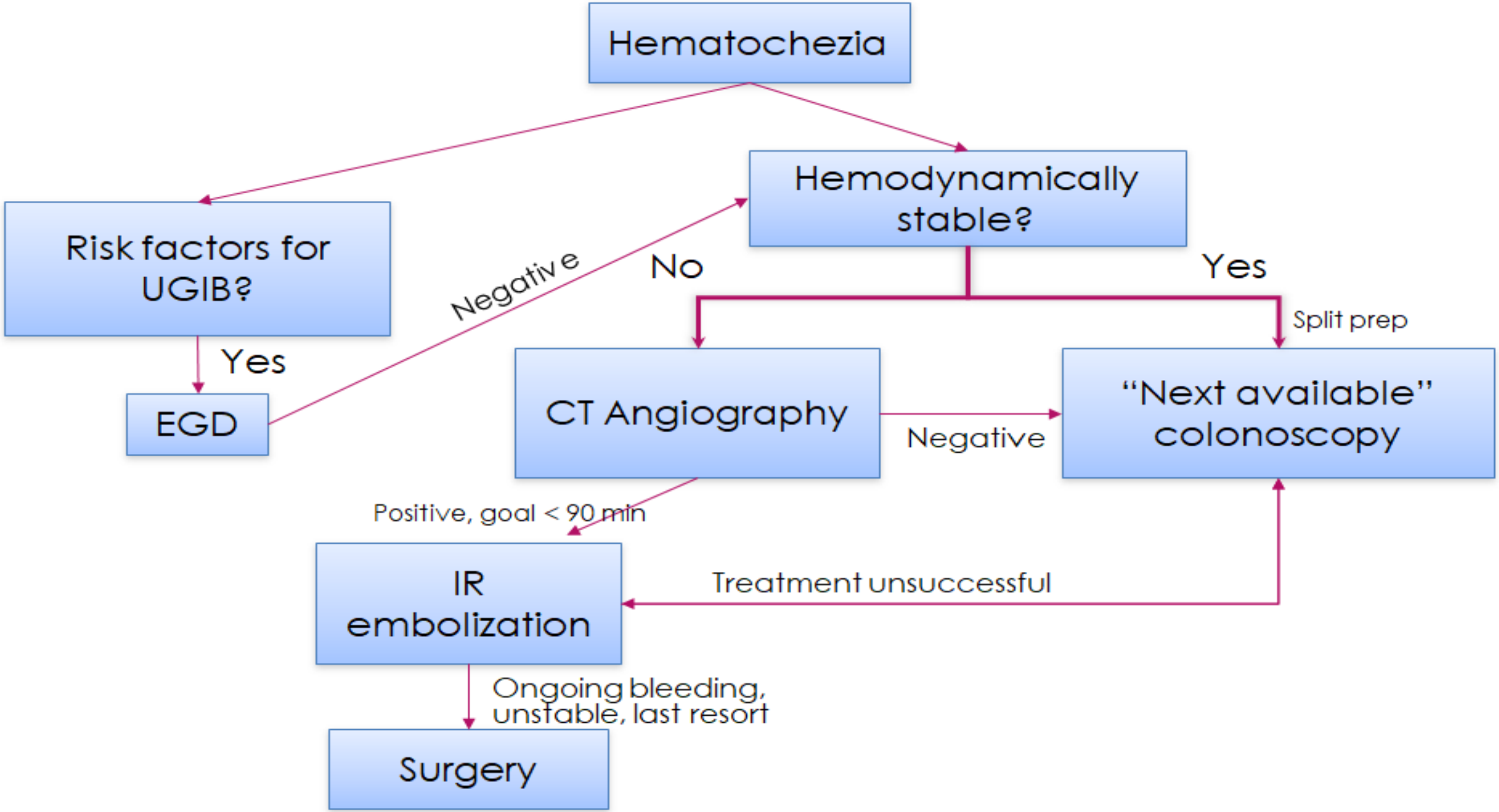
Snelling S et al. Ann R Coll Surg Engl 2022
Smith RS et al. J Med Imaging Radiat Oncol 2021
Strate L & Gralnek I, AJG 2016

TIMING OF COLONOSCOPY IN LGIB

- Urgent (<24hr) vs elective colonoscopy (>24hr):
  did not affect rate of bleeding, mortality, diagnostic yield, or any primary hemostatic intervention (endoscopic, surgical, or IR)

  - E.g. RCT 159 pts randomized colonoscopy < 24 hr vs 24-96 hrs:
    only 1.4% reduction in rebleeding with urgent colonoscopy

Niikura R et al. Gastroenterology 2020
Tsay C et al. Clin Gastroenterol Hep 2020


Hematochezia
Risk factors for UGIB?
Yes
EGD
Negative
Hemodynamically stable?
No
Yes
Split prep
CT Angiography
Negative
"Next available" colonoscopy
Positive, goal < 90 min
IR embolization
Treatment unsuccessful
Ongoing bleeding, unstable, last resort
Surgery

THANK YOU!

And remember,

“ All bleeding stops eventually”

- House of God

QUESTIONS?

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