NONVARICEAL UPPER GASTROINTESTINAL HEMORRHAGE

INTRODUCTION

This ESGE Guideline focuses on the pre-endoscopic, endoscopic, and post-endoscopic management of patients presenting with acute nonvariceal upper gastrointestinal hemorrhage (NVUGIH), specifically peptic ulcer hemorrhage.

Pre-endoscopy management : Initial patient evaluation and hemodynamic resuscitation

RED BLOOD CELL (RBC) TRANSFUSION STRATEGY

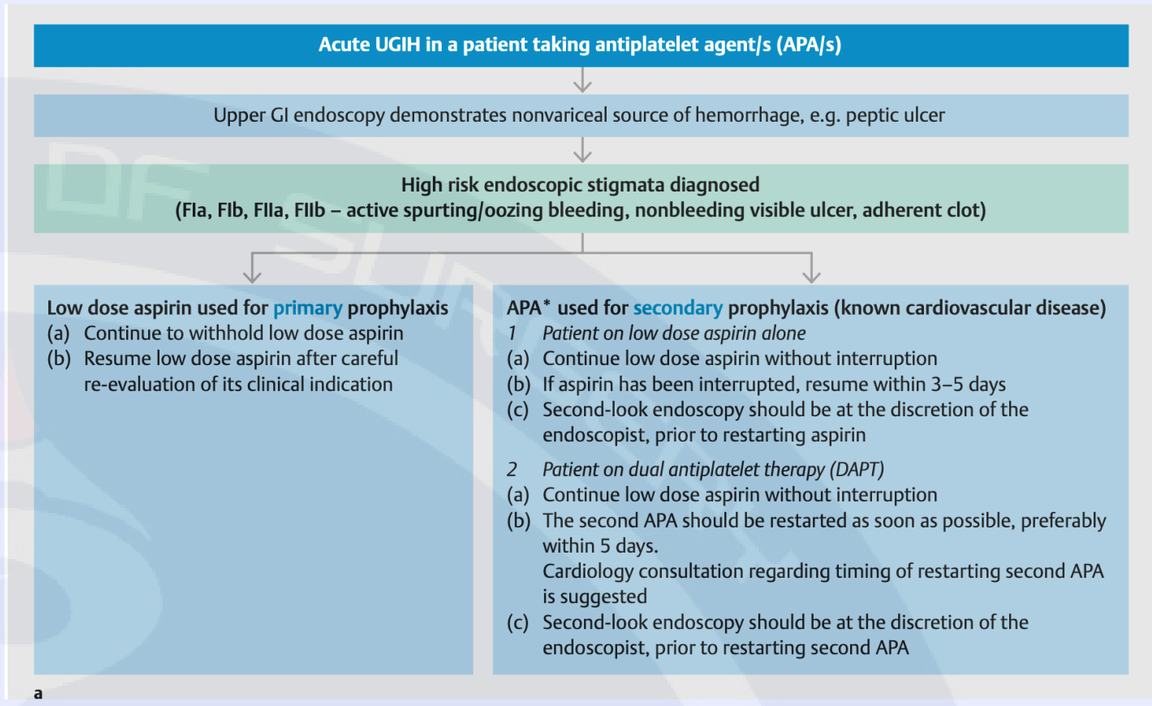
- Hemodynamically stable patients with no history of cardiovascular disease
  - hemoglobin threshold of ≤ 7 g/dL prompting RBC transfusion.
  - A post-transfusion target hemoglobin concentration of 7–9 g/dL is desired
- History of acute or chronic cardiovascular disease
  - a hemoglobin threshold of ≤8g/dL prompting RBC transfusion.
  - A post-transfusion target hemoglobin concentration of ≥ 10 g/dL is desired.

PATIENT RISK STRATIFICATION

Risk factors at presentation	Threshold	Score
Blood urea nitrogen (mmol/l)	6.5–7.9	2
	8.0–9.9	3
	10.0–24.9	4
	≥25.0	6
Hemoglobin for men (g/l)	120–130	1
	100–119	3
	<100	6
Hemoglobin for women (g/l)	100–120	1
	<100	6
Systolic blood pressure (mmHg)	100–109	1
	90–99	2
	<90	3
Heart rate (bpm)	>100	1
Melena	Present	1
Syncope	Present	2
Hepatic disease	Present	2
Cardiac failure	Present	2

Total score (0–23). Patients with scores >0 are considered to be at high risk. Permission obtained from Elsevier Ltd © Blatchford, O. *et al*. *Lancet* 356, 1318–1321 (2000).

PRE-ENDOSCOPY MANAGEMENT OF ANTITHROMBOTIC AGENTS (ANTIPLATELET AGENTS AND ANTICOAGULANTS)



PRE-ENDOSCOPY PROTON PUMP INHIBITOR (PPI) THERAPY

- high dose intravenous proton pump inhibitor (PPI) therapy be considered in pa- tients presenting with acute UGIH, to downstage endo- scopic stigmata and thereby reduce the need for endo- scopic therapy;

SOMATOSTATIN AND SOMATOSTATIN ANALOGUES

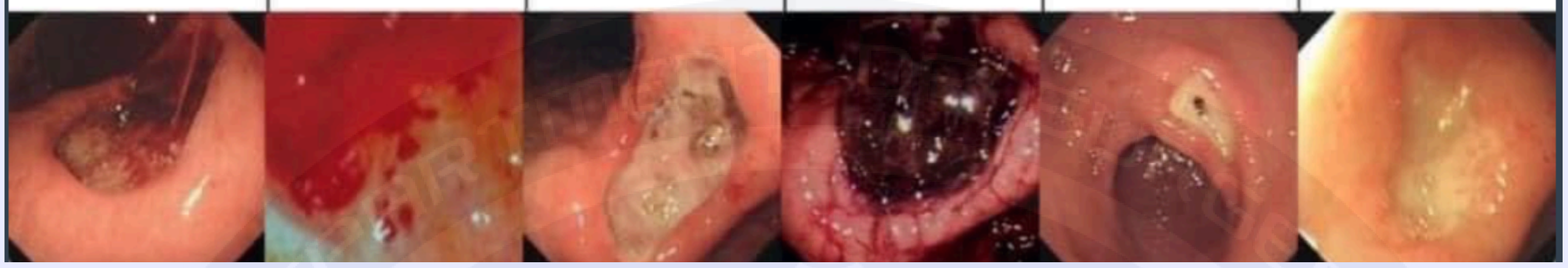
- not recommend the use of somatostatin, or its analogue octreotide, in patients with NVUGIH.

PROKINETIC MEDICATIONS

- pre-endoscopy administration of intra- venous erythromycin in selected patients with clinically severe or ongoing active UGIH.

ENDOSCOPIC MANAGEMENT

Ia	Ib	IIa	IIb	IIc	III
Spurting bleed	Oozing bleed	Non-bleeding visible vessel	Adherent clot	Flat spot in ulcer crater	Clean base ulcer



Performance of upper GI endoscopy[1]

High risk endoscopic stigmata
FIa (active spurting, pulsatile arterial bleeding)
FIb (active oozing)
FIIa (nonbleeding visible vessel)

Perform endoscopic hemostasis

FIa and FIb stigmata
Combination therapy using dilute epinephrine injection + a second hemostasis modality (thermal[2], mechanical or sclerosant injection[3])

FIIa stigmata
Thermal[2], mechanical, or sclerosant injection[3] as monotherapy or in combination with dilute epinephrine injection

- High dose PPI (intravenous bolus + continuous infusion or minimum twice-daily intravenous bolus dosing for 72 hours or oral dosing)
- May start clear liquids soon after endoscopy
- Test for *Helicobacter pylori* at index endoscopy, treat if positive; document *H. pylori* eradication
- If negative *H. pylori* test at index endoscopy, repeat testing within 4 weeks following the acute bleeding episode to confirm initial test was true negative

If clinical evidence of rebleeding, repeat endoscopy with endoscopic hemostasis if indicated;
If endoscopic hemostasis still unsuccessful, refer for TAE if locally available, otherwise refer for surgery

a

Performance of upper GI endoscopy[1]

FIIb (adherent clot)

Consider performing clot removal followed by endoscopic hemostasis of underlying high risk stigmata[4]
OR
Medical management with high dose PPI (intravenous bolus + continuous infusion for 72 hours or minimum twice-daily intravenous bolus dosing for 72 hours or oral dosing)

If clot removal/endoscopic hemostasis performed:
- Dilute epinephrine injection circumferential to base of clot followed by clot removal using cold polyp snare guillotine technique
- If underlying high risk stigmata identified after clot removal, apply endoscopic hemostasis as described for FIa, FIb, FIIa stigmata
- High dose PPI (intravenous bolus + continuous infusion or minimum twice-daily intravenous bolus dosing for 72 hours or oral dosing)
- May start clear liquids soon after endoscopy
- Test for *H. pylori,* treat if positive; document *H. pylori* eradication
- If negative *H. pylori* test at index endoscopy, repeat testing within 4 weeks following the acute bleeding episode to confirm initial test was true negative

If clinical evidence of rebleeding, repeat endoscopy with endoscopic hemostasis if indicated;
If endoscopic hemostasis still unsuccessful, refer for TAE if locally available, otherwise refer for surgery

b

Performance of upper GI endoscopy[1]

Low risk stigmata
FIIc (flat pigmented spot)
FIII (clean base)

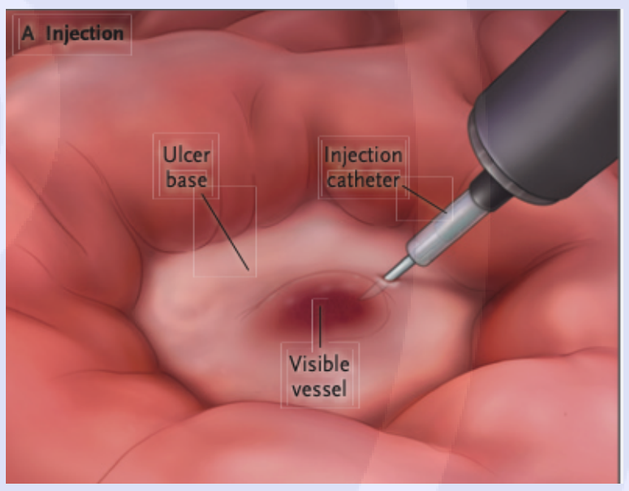
No endoscopic hemostasis required
In select clinical settings, these patients may have expedited hospital discharge

- Start oral PPI
- Start regular diet
- Test for *H. pylori,* treat if positive; document *H. pylori* eradication
- If negative *H. pylori* test at index endoscopy, repeat testing within 4 weeks following the acute bleeding episode to confirm initial test was true negative

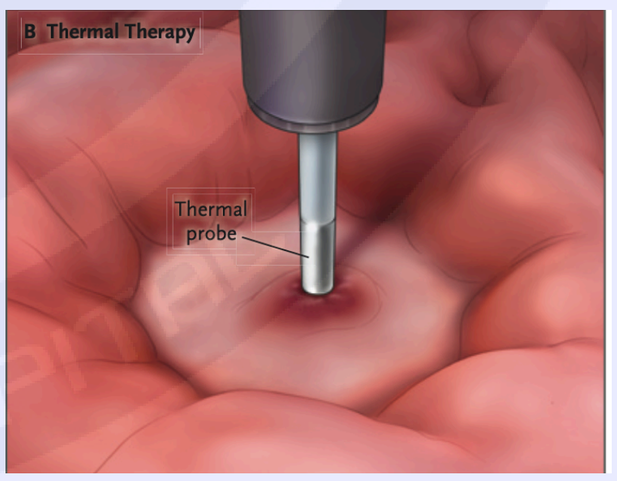
c

INJECTION THERAPY

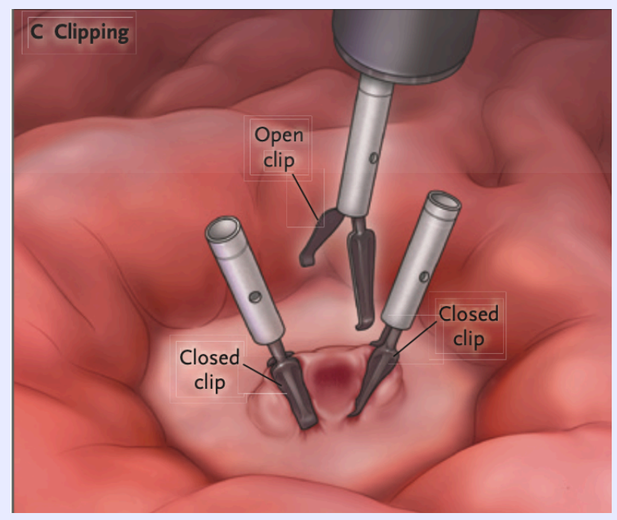
Diluted epinephrine (1:10 000 or 1:20 000 with normal saline injec- ted in 0.5–2-ml aliquots in and around the ulcer base)
Endoscopic injection is performed using needles which consist of an outer sheath and an inner hollow-core needle (19–25 gauge)



THERMAL THERAPY



MECHANICAL THERAPY



POST-ENDOSCOPY MANAGEMENT

PROTON PUMP INHIBITOR THERAPY

- High dose proton pump inhibitor (PPI) therapy for patients who
  - receive endoscopic hemostasis
  - for patients with FIIb ulcer stigmata (adherent clot) not treated endoscopically.

(a) PPI therapy should be administered as an intravenous bolus followed by continuous infusion (e.g., 80mg then 8mg/hour) for 72 hours post endoscopy.
(b) High dose PPI therapies given as intravenous bolus dosing (twice-daily) or in oral formulation (twice-daily) can be considered as alternative regimens.

MANAGEMENT OF RECURRENT BLEEDING

- Repeat upper endoscopy, including hemostasis if indicated.
- failure of this second attempt at endoscopic hemostasis
  - transcatheter angiographic embolization (TAE) should be considered.
  - Surgery is indicated when TAAE is not locally avail- able or after failed TAE.
- Recurrent peptic ulcer hemorrhage
  - Capmounted clip should be considered.

HELICOBACTER PYLORI

- Patients with NVUGIH secondary to peptic ulcer, investigation for the presence of Helicobacter pylori in the acute setting (at index endoscopy)
- initiation of appropriate antibiotic therapy when H. pylori is detected.
- Re-testing for H. pylori in those patients with a negative test at index endoscopy.

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