

## Blood and guts.....

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## Blood and guts.....

- Presentation
- Initial assessment and management
  - risk stratification
  - medical management
- How and when to refer for endoscopy
- Therapy at endoscopy
- Post OGD management
- Discharge and follow up
- Cases

## GI bleeding / presentation

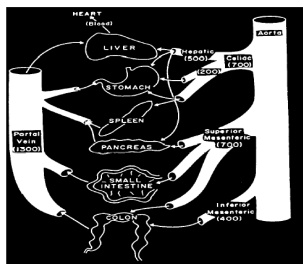
- 100/100,000 per year / 475/100,000 for over 75
  - 1/3 myocardial infarction
- Every other take
  - 2/3 A&E – 1/3 Wards
- Mortality 10-15% in unselected patients
  - 14% national audit 1994
  - 10% national audit 2007
    - despite increasing age/cardiovascular drugs/increasing varices

## GI bleeding / presentation

- Variable presentation
  - 10% pr bleeding from UGIT
  - 10% melaena from LGIT
  - variable rate of blood loss
- Haemodynamics
  - most important factor when assessing
- Co-morbidity
  - liver disease / renal disease
  - cardiac disease / anticoagulants / anti-platelet

## Haemodynamics / resuscitation

- Splanchnic circulation



- 20-40% blood volume / major reservoir

## Haemodynamics / resuscitation

- Class 1: 10–15% loss 750mls
  - physiological compensation / no clinical signs
- Class 2: 15–30% loss 1.5L
  - postural hypotension, generalised vasoconstriction
- Class 3: 30–40% loss 2L
  - hypotension, tachycardia over 120, tachypnoea
- Class 4: >40% loss 3L
  - marked hypotension, tachycardia and tachypnoea, comatose

What is average circulating volume of 70kg man? 5 L

## Haemodynamics / resuscitation

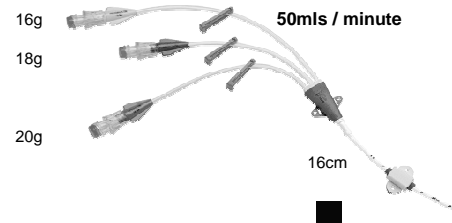
- Flow  $\propto$  diameter<sup>4</sup>

- Pink 20g 40ml/minute
- Green 18g 75ml/minute
- Grey 16g 150ml/minute
- Orange 14g 300ml/minute

## Haemodynamics / resuscitation

- Triple lumen central line

- Flow  $\propto$  1/length



16 g venflon (grey) = 150ml/min

## Haemodynamics / resuscitation

- Establish good IV access
  - 2x16g grey cannula (300ml/min)
  - 2x18g green cannula (150ml/min)
- Hypotensive – 2l short
  - 20g pink – approx. 1hour
  - 16g grey – approx. ¼ hour
  - rapid resuscitation
  - blood asap
- Evidence
  - Am Jnl Gastro 2004
  - rapid correction of haemodynamics
    - less MI / fewer deaths 2% vs. 10%

## Initial Medical Management

- Correct
  - platelets less than 50
  - ? reverse clopidogrel with platelets
  - clotting when INR>1.5
- PPI ?
  - start oral PPI e.g. 40mg opd omeprazole
  - IV only if cannot take PO
- Cochrane Database Syst Rev 2006
  - decreases blood in stomach at endoscopy
  - no affect on mortality, re-bleeding, or need for surgery.

## Initial Medical Management

- Terlipressin (lysine vasopressin)
  - mesenteric/splanchnic vasoconstrictor
  - ➡ decreases portal venous inflow
  - 34% reduction in mortality for variceal bleed
    - Cochrane Database Systemic review 2003
- STRAIGHT AWAY IF VARICES LIKELY
  - 1-2 mg qds

## Initial Medical Management

- Prophylactic antibiotics for variceal bleed
  - 25% reduction in mortality
    - Cochrane review 2002
  - 2-3X less likely to rebleed
    - randomised trial of IV ofloxacin Hepatology 2004
  - sepsis increases portal pressure
- Which antibiotic?
  - cephalosporin, quinolone, augmentin
- Give before endoscopy
  - bacteraemia 10-50% / same as dental extraction

## GI bleeding and warfarin

- Do you stop warfarin in patients with prosthetic valves having a major GI bleed?
- YES ! Reverse with FFP if necessary
- Risk of thrombotic complication per 100 patient years
  - 4.0 on no anticoag
  - 2.2 on aspirin
  - 1.0 on warfarin
  - Mitral 2X risk vs. aortic

*Thromboembolic and bleeding complications in patients with mechanical heart valve prostheses. Cannegieter et al, Circulation 1994*

- studied 53,647 patient years!

## GI bleeding and anti-platelet drugs

- 2.5% of acute 1<sup>y</sup> PCI have GI bleed
    - 6/12 mortality 15% vs. 5%
  - 183 patients endoscopy for GI bleeding within 7 days of acute MI
    - 17% had high risk lesions needing therapy
    - findings altered cath decisions in 43%
    - most useful if unstable or haematemesis
    - ? defer OGD if bleeding mild
      - *Digestive Diseases and Sciences 2006*
1. Keep aspirin and clopidogrel going if possible
  2. Urgent scope and PPI if major bleed
  3. Aspirin safe to continue post OGD with PPI infusion
  4. No evidence for prophylaxis yet
    - ? PPI may decrease efficacy of clopidogrel

## Clopidogrel and PPI

- Evidence for worse cardiac outcomes if on PPI
 

*Risk of adverse outcomes associated with concomitant use of clopidogrel and proton pump inhibitors following acute coronary syndrome. Ho PM et al. JAMA. 2009*
- Retrospective study of 8205 patients with ACS
  - higher risk of hospitalizations for ACS 14.6% vs 6.9%
  - revascularization procedures 15.5% vs 11.9%
  - mortality 19.9% vs 16.6% (not significant)
- Probably via cytochrome P450 system
  - Clopidogrel is activated by CYP2C19
  - PPI metabolised by CYP2C19
  - Omeprazole >> than other PPI
  - Effect probably smaller for esomeprazole and pantoprazole
 

*Effects of pantoprazole and esomeprazole on platelet inhibition by clopidogrel. Siller-Matula JM et al. Am Heart J. 2009*

## Endoscopy / risk stratification

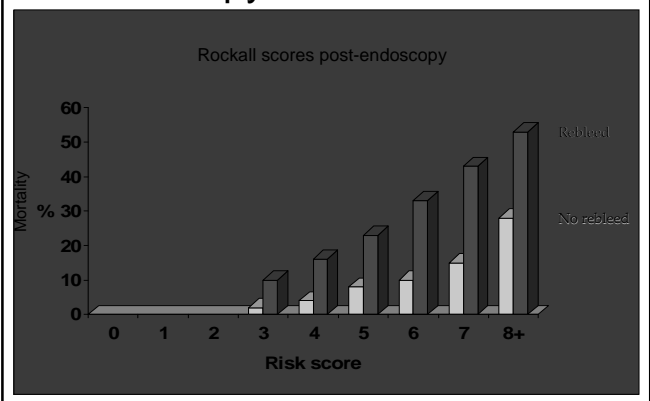
- Endoscopy – Why?
  - stop ongoing bleeding
    - 80% ulcers stop spontaneously
    - 60% varices stop spontaneously
  - stratifying risk of re-bleeding
  - prevent re-bleeding – therapy to non-bleeding lesions
- Rockall Score
  - stratify risk of death before & after OGD
  - AID in decision when to perform OGD

## Endoscopy / risk stratification

### Rockall score

	0	1	2	3
Age	<60	60-79	>80	
Shock	none	pulse>100	hypotensive	
Co-morbidity	none		CCF,IHD	organ failure, other ca
Diagnosis	Mallory-Weiss	other	UGIT ca	
Major SRH	none		present blood, adherent clot visible or spurting vessel	
max score prior to OGD	= 7			
max score post OGD	= 11			

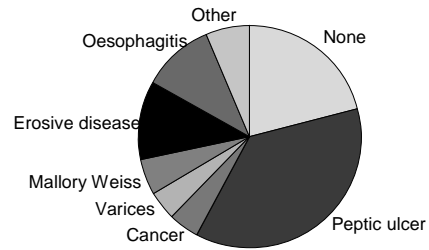
## Endoscopy / risk stratification



## Endoscopy

- Fast track of GI bleeders to endoscopy i.e. same day / am
  - treat if still bleeding
  - stratify for re-bleed risk and discharge
- On call endoscopist!!
  - If in any doubt phone
    - "Are you the on call endoscopist, I would like your opinion on a case please....."
    - "We have got an unstable patient who I think needs urgent endoscopy....."
    - Know facts and haemodynamics

## Diagnosis

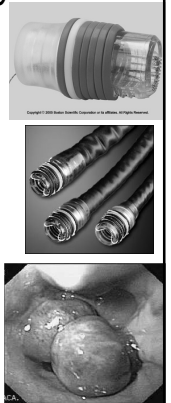


## Endoscopic therapy

- Treat active bleeding / prevent re-bleeding
- When performed urgently:
  - must arrive in endoscopy with
    - good access
    - blood available
    - blood pressure and Hb > 7
  - under GA if agitated
    - better result
    - protect airway

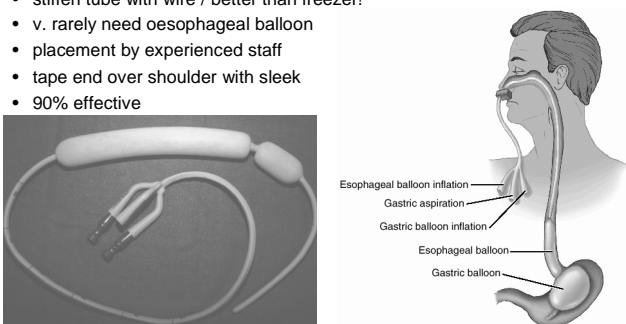
## Endoscopic therapy

- Bleeding oesophageal varices
  - sclerotherapy
    - needle injection of sclerosant into varix
    - haemostasis in approx 70% cases
    - re-bleed in 45%
  - banding
    - haemostasis in >80% cases
    - re-bleed in 27%
  - sengstaken tube



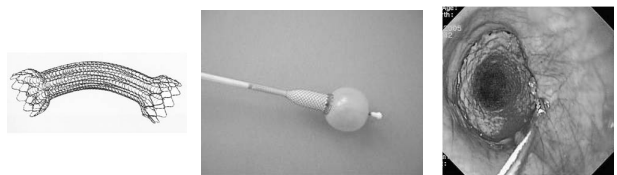
## Therapy / Varices Sengstaken-Blakemore Tube

- only in intubated patient
- place under direct vision with scope
- stiffen tube with wire / better than freezer!
- v. rarely need oesophageal balloon
- placement by experienced staff
- tape end over shoulder with sleek
- 90% effective



## Therapy / Varices

- *The use of self-expanding metal stents to treat acute esophageal variceal bleeding. Hubmann et al, Endoscopy 2006*
- 20 patients uncontrollable variceal bleeding
- stent placed for 2-14 days
- all stopped – no recurrent bleeding or associated morbidity etc.
- "Ella-Danis Stent"

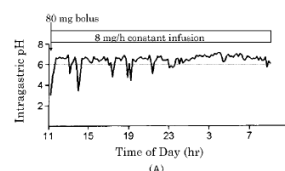


## Endoscopic Therapy / Ulcers

- 2 therapies better than 1
  - *Addition of a second endoscopic treatment following epinephrine injection improves outcome in high-risk bleeding ulcers.*  
*Calvet X et al. Gastroenterology 2004*
- Sixteen studies including 1673 patients
- Adding a second procedure:
  - reduced the further bleeding rate from 18.4% to 10.6%
  - reduced emergency surgery from 11.3% to 7.6%
  - mortality fell from 5.1% to 2.6%

## Post endoscopy / medical therapy

- PPI
  - Rationale
    - low pH activates Pepsin
    - →lyses clott
    - →inactivates platelets
  - PPI infusion 80mg bolus / 8mg/hour



## Post endoscopy / medical therapy

- 2 meta-analysis approx. 2000 patients
  - Aliment Pharmacol Ther 2005
  - BMJ 2005
    - rebleeding -14.6% NNT 10
    - surgery -5.4% NNT 25
    - mortality ? 2.5% ??
- How long for ?
  - most famous trial (NEJM 2000) 72 hours
  - 24-48 hours then convert if no re-bleed
  - convert once second look endoscopy
- Why not give to everybody?
  - cost
  - side effects – pneumonia / arrhythmias / ?C.diff
  - ?? increased mortality in elderly

## IV PPI before endoscopy?

- Lau et al. NEJM April 2007
  - Randomised trial / 320 each arm
  - Significant decrease in high risk lesions and need for therapy at endoscopy
    - active bleeding 15% vs. 6.5%
    - therapy 28% vs. 19%
  - No difference in transfusion/surgery/mortality
  - BUT not designed for this
  - Watch out pharmacy!!!

## Surgery

- Involve a surgical team with all major cases
- 10% of bleeding peptic ulcers
- Indication:
  - uncontrolled further haemorrhage
  - failed endoscopic treatment (?twice)
  - older patients tolerate hypovolaemia poorly
    - ? earlier surgery

## National GI bleed audit 2007 (National Transfusion Service)

- GI bleeding uses 13% of all RBC transfusions
- Patchy provision of emergency endoscopy service
- 208 hospitals supplying 6750 cases over 2 months
- Mortality 10% / 26% inpatients - 7% new admissions
- 2% had surgery (7% in 1994)
- 26% no endoscopy
- 65% of patients with varices received endoscopic therapy
- terlipressin used in 44% cases of varices/gastropathy
- 76% actively bleeding vessels were treated
- 38% high risk lesions got dual therapy
- NOT GOOD ENOUGH!

## Discharge / follow up

- Helicobacter eradication
  - treat if DU and no NSAIDS
  - eradication MUST be confirmed as OP
  - 65-95% ulcer recurrence if not eradicated
- Re-start anti-platelet therapy ?
  - aspirin + maintenance PPI (20mg omeprazole)
  - 1-3% rebleed/year vs. 10-15% on placebo
- Re-look OGD for gastric ulcers

## Discharge / Follow up

- $\beta$  blockers for varices
  - decrease re-bleed by 40%
- Re-banding for varices until obliterated
  - +  $\beta$ -blockers re-bleed 26% vs.50% over 2years
- All survivors evaluated for liver transplant
  - 60-80% 5 year survival
  - without OLT approx. 25% mortality at 1year

## Summary

- Acute bleeding is common / mortality high
  - variable presentation
- Initial assessment and rapid resuscitation
- Adjunctive medication
  - PPI / terlipressin / antibiotics
- Clopidogrel and omeprazole
- Endoscopic therapy and stratification of risk
- Mid gut bleeding – 5% of all GI bleeds
- Discharge and follow up planning