The Newcastle upon Tyne Hospitals NHS Foundation Trust

Prevention of Stress Ulceration in Critical Care

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1 Introduction

Data regarding stress ulceration on Critical Care are generally dated, contradictory and relate to practices which have subsequently changed. Previous studies have shown that gastric injury can occur in intensive care patients within 24-48 hours of admission and by day three 75-100% of patients will have mucosal damage.

Of these, 20% will develop bleeding. Although only 1-4% will be clinically significant, there is an almost 50% mortality amongst these patients.[1,2] Furthermore, severe ulceration and bleeding can increase the length of stay in the ICU by up to 8 days.

Medications to prevent stress ulceration such as proton pump inhibitors (PPI) and Histamine-2 receptor antagonists (H2RA) have been shown to be moderately effective in reducing this complication[3] but have important side effects in critically ill patients including ventilator-associated pneumonia (VAP) and clostridium Difficile Infection (CDI).[4,5]

2 Guideline Scope

This guideline pertains to stress ulcer prophylaxis in the cohort of critically unwell patients throughout the trust. It is intended to be used by any member of the critical care multidisciplinary team including doctors, nurses, pharmacists and dieticians.

3 Main body of the guideline (see also attached appendix)

3.1 Which Patients Require Stress Ulcer Prevention?

HIGH RISK:

Patients who appear to be at major risk of stress ulcer-related bleeding include those with/on:

1. Mandatory mechanical ventilation for longer than 48 hours[2]
2. Coagulopathy (platelets <50, INR >1.5, APTT >2 x normal)[2]
3. Patients following oesophagectomy (at high risk of symptomatic reflux)

These patients should have regular stress ulceration prophylaxis unless the clinical decision suggests otherwise.

MEDIUM RISK:

Patients with an increased risk of stress ulcers include those with/on:

1. Hypotension or on high dose vasoconstrictors
2. Acute lung injury
3. Brain injury
4. Hepatic failure
5. History of gastrointestinal bleeding
6. Major trauma
7. Renal failure
8. Severe burns
9. High dose steroids (>40mg/day of prednisolone or equivalent)
10. Post-transplant recipients

In these patients, a clinical decision should be made as to whether they should receive stress ulcer prophylaxis

3.2 Which drug to use?

The three available drug options for stress ulcer prophylaxis are sucralfate, H2-antagonists and proton pump inhibitors (PPI).

Sucralfate is now rarely used due to formation of bezoars with enteral feed, necessitating regular feed interruptions for administration. It has been found to be less effective than H2RA.[6]

H2-antagonists usually ranitidine, may be used, and can be given intravenously or enterally. They may require dose adjustment in renal failure, and patients may develop tolerance after 72 hours.[7]

Proton pump inhibitors (PPIs) are longer acting (although their full effect may not be seen for two days), and may also be given intravenously or enterally, usually as omeprazole or lansoprazole respectively. Dose adjustment is rarely needed, although may be considered in severe hepatic impairment. Data comparing H2RA and PPI are conflicting.[8,9]

Both PPI and H2RA have been associated with VAP and CDI though the association appears stronger with PPI.[4,5]

3.3 Regular Medication

Where possible, patients admitted on an H2RA or a PPI should continue their regular medication though the indication for this should be explored.

The drug chart should be annotated with ‘usual meds’ or ‘usually on a PPI/ranitidine’ etc. to ensure that on transfer, the medication doesn’t get stopped.

Default Prophylaxis in HIGH RISK PATIENTS

If not absorbing: intravenous omeprazole 40mg od

If absorbing and still required: enteral lansoprazole 30mg od

Alternative Options

Intravenous ranitidine 50mg tds

Enteral ranitidine 150mg bd

Where possible, patients admitted on an H2RA or a PPI should continue their regular medication though the indication for this should be explored.

3.4 Enteral Feeding

Enteral feeding as sole prophylaxis for stress ulceration remains controversial; however feeding does protect the gut mucosa.

3.5 Stopping Therapy

Stress ulcer prophylaxis should be reviewed daily, with a view to stepping it down to enteral or stopping. Most patients without additional risk factors who are absorbing adequate enteral feed, will not require prophylaxis.

Certain patient groups, including liver and renal transplantation, acute pancreatitis, upper GI and fully anticoagulated patients, may benefit from continuing stress ulcer prophylaxis on the wards.

All stress ulcer prophylaxis should be reviewed on a daily basis with regard to commencement, continuation and discontinuation. Prophylaxis should also be reviewed on discharge from critical care

3.6 Rescue Therapy

If bleeding occurs despite prophylaxis, the following may be considered:

Omeprazole 80mg iv stat followed by an infusion of 80mg/100ml running at 10ml/hour for 72 hours (then stepped down to dose below)

Omeprazole 40mg iv bd or lansoprazole 30mg enterally bd

Adding in ranitidine to the PPI

Terlipressin if portal hypertension-related

Helicobacter pylori eradication

Endoscopy may reveal treatable lesions

Surgery

Enteral nutrition should be used wherever possible and when the clinical circumstances allow

The ongoing requirement for stress ulcer prophylaxis should be reviewed on a daily basis and on discharge from critical care

Guidelines for rescue therapy for acute upper gastrointestinal haemorrhage can be found on the trust intranet

The adherence to this guideline should be audited regularly[10]

4 Training, implementation and resource implications

This guideline largely reflects current practice across the four adult critical care units in the trust and as such will only require regular (at least yearly) audit.

5 Monitoring section

The guideline will act as the standard against which stress ulcer prophylaxis shall be audited according to NICE guidelines.[10]

6 References

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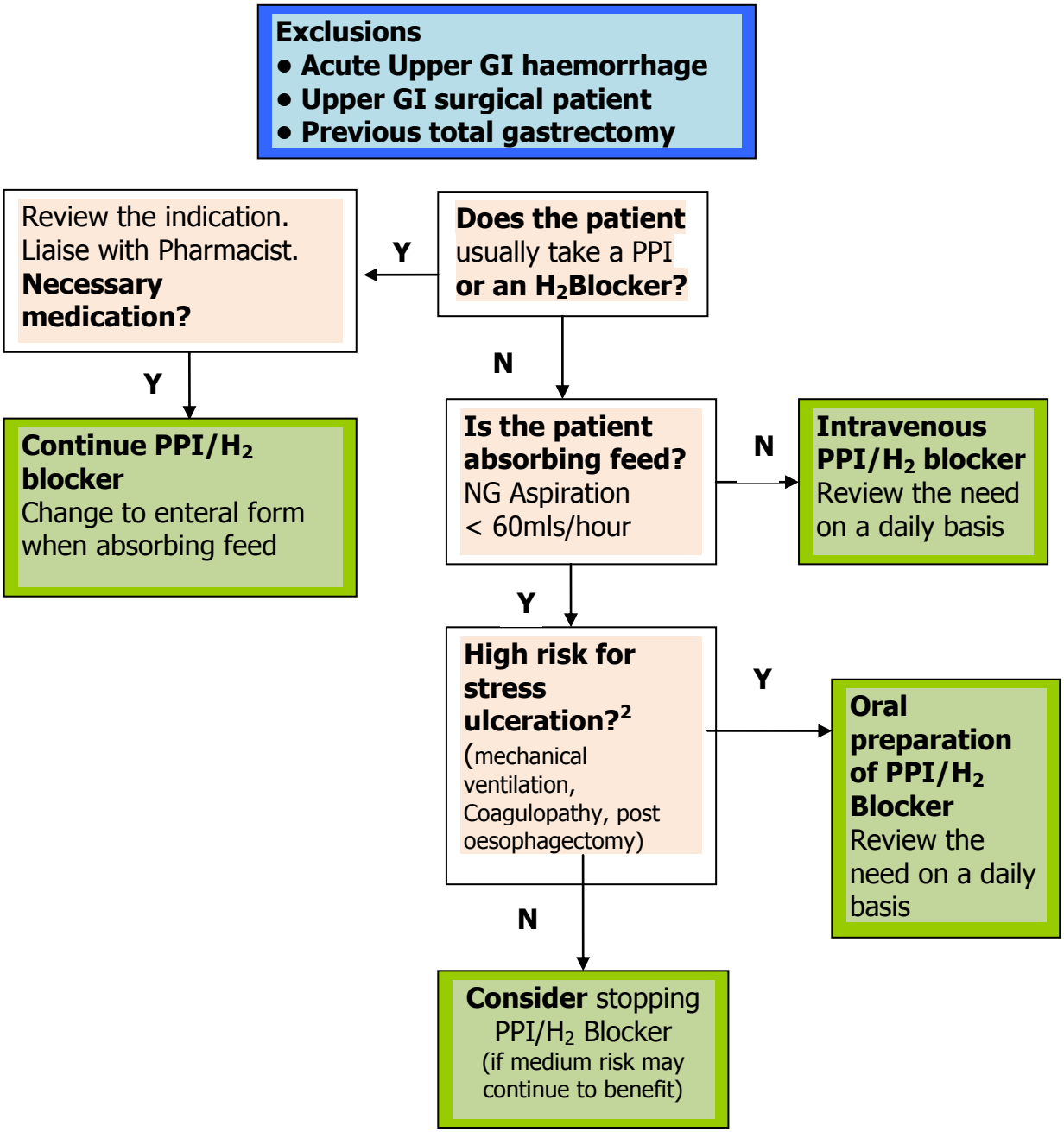
Stress Ulcer Prophylaxis Guideline[1]



References

1. NICE guideline (CG141, Sections 1.7.1 & 1.7.2) http://www.nice.org.uk/nicemedia/live/13762/59557/59557.xls
2. Cook DJ, Fuller HD, Guyatt GH, et al. Risk Factors for Gastrointestinal Bleeding in Critically Ill Patients. NEJM 1994; **330:** 377-381

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