VUMC Trauma Critical Care Stress Ulcer Prophylaxis Protocol

**Background**
Critically ill patients are at risk of GI hemorrhage primarily from gastric or duodenal ulcers. Cook and colleagues describe the risk of overt bleeding to be 4.4% and clinically significant bleeding to be 1.5%. The incidence of clinically significant bleeding appears to be dependent on severity of illness (ISS > 15 for trauma) and the type of patient population studied.

The most definitive indications for stress ulcer prophylaxis include 1) Traumatic brain injury, 2) Major burn injury, 3) Mechanical ventilation (>48 hrs), 4) Coagulopathy (INR >1.5 or platelet count < 50,000). Other risk factors for GI bleeding in the ICU setting include alcoholism, acute hepatic failure, sepsis, acute renal failure, trauma, prolonged NSAIDs, and high dose steroids.

Literature indicates that H\textsubscript{2} receptor antagonists (H\textsubscript{2}RA) and proton pump inhibitors (PPI) are equally effective in reducing stress-related gastrointestinal bleeding. Meta-analyses describing superiority of PPIs are controversial. Per the EAST Practice Management Guidelines either H\textsubscript{2}RAs or PPIs may be used for stress ulcer prophylaxis in critical ill trauma patients.

Numerous analyses describe the role of enteral nutrition (EN) in the prevention of stress-related gastrointestinal bleeding. EN prevents mucosal ischemia and ulceration by increasing splanchnic blood flow and increasing gastric pH (to a lesser degree). Pre and post-pyloric EN should provide some degree of protection against stress-related mucosal ulceration. However, data describing EN as the sole stress ulcer prophylaxis in hypersecretory states, including major head injury and burn patients, is lacking.

**Indications for Prophylaxis**

**High Risk Patient:**
- All patients to receive prophylaxis

**Moderate Risk Patient:**
- Consider prophylaxis

**Low Risk Patient or Tolerating PO Diet:**
- NO prophylaxis or discontinue prophylaxis

**HIGH RISK:**
- Mechanical ventilation >48 hours
- Coagulopathy (plt<50,000 or INR >1.5)
- Traumatic brain injury
- Significant burn injury (>20 % TBSA Partial + Full Thickness)
- History of previous gastrointestinal hemorrhage

**MODERATE RISK: (≥ 2)**
- Chronic NSAID or aspirin use
- Current high dose NSAID therapy (ibuprofen >1200 mg/day, naproxen >1000 mg/day, all scheduled ketorolac regimens)
- Sepsis
- Vasopressor/inotropic therapy
- Corticosteroid therapy (≥250 mg/d hydrocortisone equivalence)
- New gastroduodenal or gastrojejunal anastomosis
- Spinal cord injury
Trauma High Risk Prophylaxis Algorithm

Critical Illness

TBI, SCI, or Burn: Continue through ICU stay

Intubated or Coagulopathy: Discontinue once goal EN reached, unless additional moderate risk factor present

Consider continuation/initiation if meet the following:
- High dose NSAIDs** PLUS
  - Concomitant therapeutic anticoagulation
  - Concomitant aspirin
  - Concomitant corticosteroids
  - Peptic ulcer disease
  - History of H. pylori infection
  - New gastroduodenal or gastrojejunal anastomosis
  - SCI

Consider switching to celecoxib 100-200mg BID if able to take capsules

**Ibuprofen >1200 mg/d, naproxen >1000 mg/d, all scheduled ketorolac regimens

- Preferred first line agent for stress ulcer prophylaxis:
  - Famotidine 20 mg PO/PT/IV q12h
    - CrCl < 50 mL/min: 20 mg q24h
  - Omeprazole 40 mg PO/PT q12h if enteral access (oral suspension if DHT)
  - Pantoprazole 40 IV Q12h if no enteral access

- If confirmed/suspected upper gastrointestinal bleeding:
  - Omeprazole 40 mg PO/PT q12h if enteral access (oral suspension if DHT)
  - Pantoprazole 40 IV Q12h if no enteral access

- If taking a PPI prior to admission: Resume home PPI

References:


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