VUMC Multidisciplinary Surgical Critical Care

Gastrointestinal Stress Ulcer Prophylaxis Guideline:

Background: Work by Cooke and colleagues ascribed 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 and the type of patient population studied. For example, in perioperative cardiac surgery patients the risk is approximately 0.4%. In stroke patients (who were not mechanically ventilated) the risk is 0.1%. There is a strong relationship between duration of mechanical ventilation, duration of intensive care stay, and incidence of ulceration: patients without coagulopathy and mechanical ventilation had an incidence of bleeding of 0.1% in the earlier Cooke study. Again, duration of care and mechanical ventilation represent markers of severity of illness rather than direct causes of ulceration.

Critically ill patients are at risk of GI hemorrhage from primarily gastric or duodenal ulcers. Increased gastric acidity and a decrease in gastric mucosal barrier is believed to be the cause. The longer the gastric pH remains below 4 the greater the risk of hemorrhage. Patients most at risk include critically ill (sepsis, burn, trauma including neuro-trauma) patients requiring >48 hours of mechanical ventilation, patients with a coagulopathy, prior history of GI hemorrhage, organ dysfunction (renal, hepatic, cardiac), or with hypotension/shock. Overall, we know that there is a good relationship between severity of illness (as determined by, for example, Apache II scores) and incidence of ulceration. Moreover, the longer a patient is in ICU, the more likely they are to have a GI bleed. Patients who are likely to have a number of these risk factors, are more likely to have ulceration and bleeding. As many as 20% of patients may develop clinical GI hemorrhage and if surgery is required mortality can approach 80%.

The most common complication of stress ulcer prophylaxis is pneumonia. The hypothesis is based upon the concept that higher pH relates to overgrowth of gastric microbes and leads to upper tracheal colonization. This concept partnered with microaspiration of intubated patients lying supine may increase the nosocomial pneumonia rate. The ability to reliably maintain a pH <4 will decrease the rate of pneumonia. Several studies comparing the pneumonia rate when comparing sucralfate, antacids and H2 blockade show either improvement or insignificant trends toward decreasing rates with sucralfate.

Purpose: Standardize the prevention and care of GI hemorrhage

Indications for Prophylaxis:

High Risk Patient:

- All patients to receive prophylaxis

Moderate Risk Patient:

- Consider prophylaxis

Low Risk Patient or Tolerating PO Diet/Full Gastric Enteral Feeds:

- NO prophylaxis or discontinue prophylaxis

HIGH RISK:

- Mechanical Ventilation >48 hours
- Coagulopathy
- History of previous GI hemorrhage
- Current outpatient PUD treatment or prophylaxis
- CNS injury (SAH/CVA – hemorrhagic or ischemic)
- Sepsis with or without organ dysfunction
- Vasopressor/inotropic Rx

MODERATE RISK:

- Chronic NSAID or aspirin use
- High dose prolonged steroid Rx
- ICU stay >10 days

Nutritional Guideline and Stress Ulcers: The administration of gastric nutrition reduces but does not eliminate the risk of GI hemorrhage. Any patient predicted to be mechanically ventilated > 48 hours and **without** a contraindication to gastric enteral nutrition, is encouraged to have nasogastric nutrition initiated within 72 hours of admission when a nasoenteric tube is in-situ.

Prophylaxis Algorithm:

With Gastric Access, (-) Gross Blood

Pepcid 20mg PT q12h (q24h for CrCl < 50 mL/min)

With Gastric Access, (+) Gross Blood

Omeprazole (Prilosec) suspension 20 mg PT q24h

Without Gastric Access, (-) Gross Blood

If on TPN:

Add Pepcid 40mg q24h to Bag (20mg for CrCl < 50mL/min)

If NOT on TPN:

Pepcid 20mg iv q12h (q24h for CrCl < 50 mL/min)

Without Gastric Access, (+) Gross Blood

Esomeprazole (Nexium) 40mg IV q24h

* Discontinue therapy when the patient is stabilized and at goal oral/enteral nutrition.

** May consider Prilosec PO/PT, or Nexium IV if the patient was taking a PPI as a home medication.

Clinical Management Guidelines (CMG) have been developed for the Multidisciplinary Surgical Critical Care Service in an attempt to standardize and optimize care. They are based on a combination of accepted critical care practice and recent contributions to the medical literature. CMGs are intended to provide guidelines for the management of the majority of patients, and are not proposed as rules, policies or as a substitute for clinical judgment. Deviations from the CMGs are necessary and expected; all exceptions should be documented in the medical record and discussed with the attending physician.

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