LEARNING OBJECTIVES

- To understand how to diagnose stress ulcers
- To describe who is at risk and for whom stress ulcer prophylaxis is indicated
- To list which agents are best for stress ulcer prophylaxis
DEFINITION

- **Stress ulceration**: ulceration of the upper gastrointestinal (GI) tract (esophagus, stomach, duodenum) that occurs due to hospitalization.
- More common in critically ill patients and is associated with increased mortality.
- Bleeding can be occult (15-50%), overt (2-9%), or clinically significant (1-3%).
- Primary prevention of GI bleeding from stress ulcers is known as stress ulcer prophylaxis (SUP).
DIAGNOSIS

- Stress ulcers should be suspected in critically ill patients with hematemesis, melena, anemia, and/or hypotension/shock.
- In cases with occult bleeding, the diagnosis is an assumptive one and most experts do not perform diagnostic endoscopy.
- For those with overt and/or clinically significant bleeding, endoscopy is typically indicated.
  - Particularly when the results are likely to affect decision-making and/or a potentially treatable lesion is suspected.
  - EGD may reveal superficial erosions in the gastric mucosa.
RISK FACTORS

- Mechanical ventilation >48 hours
- Bleeding diathesis (Platelets <50,000 per m$^3$, elevated INR >1.5, or a PTT >2 times normal)
- GI ulceration or bleeding within the past year
- Traumatic brain/spinal cord injury
- Severe burns >35% of BSA
- ≥ 2 minor risk factors (sepsis, ICU stay >1 week, occult GI bleeding ≥6 days, glucocorticoid therapy), or on NSAIDs/antiplatelet agents
RISK FACTORS (BY LEVEL OF REC)

- **Level 1 recommendations**
  - SUP is recommended for ALL patients with:
    - Mechanical ventilation
    - Coagulopathy
    - Traumatic brain injury
    - Major burn injury

- **Level 2 recommendations**
  - SUP is recommended for all ICU patients with:
    - Multi-trauma
    - Sepsis
    - Acute renal failure

- **Level 3 recommendations**
  - SUP is recommended for all ICU patients with:
    - ISS >15
    - Requirement of high-dose steroids (>250 mg hydrocortisone or equivalent per day)
LOW RISK PATIENTS

- SUP can be considered on a case-by-case basis for critically ill patients who are at low risk of GI bleeding:
  - Mechanical ventilation <48 hours
  - Few morbidities
  - No bleeding diathesis, or history of GI bleeding
- Other factors that may influence this decision include:
  - Receiving enteral nutrition
  - Severity of the patient’s illness
  - Number of comorbidities
  - Other risk factors that may increase the risk of bleeding
SUP OPTIONS

Level 1 recommendations
- No difference between H2 antagonists, cytoprotective agents (sucralfate), and some PPIs
- Antacids should not be used as SUP

Level 2 recommendations
- Aluminum containing compounds should not be used in patients on dialysis

Level 3 recommendations
- Enteral feeding alone may be insufficient stress ulcer prophylaxis
DURATION OF SUP

- **Level 1 recommendations**
  - No level 1 recs

- **Level 2 recommendations**
  - Continue during mechanical ventilation and/or intensive care unit (ICU) stay

- **Level 3 recommendations**
  - Continue until able to tolerate enteral nutrition
ADVERSE EFFECTS

- Choose your patient wisely!
  - Don’t prescribe SUP to medical inpatients unless at high risk for GI complications

- Histamine H2-receptor antagonists and PPIs are associated with adverse drug events, increased medication costs, and enhanced susceptibility to community-acquired nosocomial pneumonia and Clostridium difficile
OTHER ADVERSE EFFECTS

- Fractures of the hip, wrist, and spine
- Iron-deficiency anemia in pts with low baseline iron stores
- Gastric acid rebound or reflux
- Major adverse cardiac events such as reinfarction in pts taking PPIs & Plavix
REFERENCES

