VENTURA COUNTY MEDICAL CENTER/SANTA PAULA HOSPITAL
CLINICAL PRACTICE GUIDELINE/PROTOCOL

The contents of this clinical practice guideline are to be used as a guide. Healthcare professionals should use sound clinical judgment and individualize patient care. This CPG is not meant to be a replacement for training, experience, CME or studying the latest literature and drug information.

Protocol for Stress Ulcer Prophylaxis in the Inpatient Setting

(**Note: This does not apply to those with overt current Upper GI Bleeding, who are to be treated for that bleeding with Proton Pump Inhibitors and/or other modalities. Patients with a history of GERD who are admitted on acid suppressive therapy may also be continued on that therapy.)

Purpose:

1. To identify those at risk for stress ulceration
2. To establish a standardized approach to preventing the development of stress ulceration
3. To minimize the over-use of acid suppressing medications, which have been shown in the literature to increase the risk of infections including Clostridium difficile colitis and community-acquired and ventilator-associated pneumonias. Up to 60% of prescriptions for proton pump inhibitors in the hospital are not indicated.

Risk Factors:

Major Risk Factors (risk of Clinically Significant Bleeding (CSB†) estimated to be 3.7%)

- Mechanical Ventilation
- Coagulopathy (plt<50,000, INR>1.5 or pTT > 2 times the upper limit of normal)
- Shock of any etiology
- Severe Burns (particularly with Body Surface Area >35%)
- Severe Head Trauma (Glasgow Coma Scale <=10 at any time)
- Elevated Intracranial Pressure
- Acute Hepatic Failure
- Spinal Cord Injury

Minor Risk Factors (<0.1% developed CSB† without major risk factors)

- Multi-Trauma (injury severity score > 16)
- Acute Coronary Syndrome
- Acute Renal Failure
- Prior History of UGI Bleeding within 1 year of admission
- Surgery/Post-Surgical Status
- Glucocorticoid or NSAID use (>250mg/day hydrocortisone or equivalent)

Treatment:

- Patients with at least 1 major risk factor or at least 2 minor risk factors should be treated with once daily proton pump inhibitor, esomeprazole.
- Patients with 1 minor risk factor or less may be treated with sucralfate. It is also reasonable not to treat those patients and to solely observe them.
  Note: As sucralfate interferes with gastric absorption of most enterally administered medications, it should be administered at least 1 hour after or 2 hours before other enteral medications. ***SEE SUCRALFATE ADMINISTRATION PROTOCOL – PAGE 3.***

Treatment Cessation:

- Acid suppressive medications should be discontinued for all patients on discharge from the ICU unless a) they had developed stress ulceration during their ICU stay or b) if they were on acid suppressive therapy as an outpatient
- Daily re-evaluation of risk factor presence should be ascertained, and acid suppressive therapy discontinued when risk factors have resolved

CSB = Clinically Significant Bleeding (CSB) is defined as overt bleeding complicated by the following in 24 hours: (1) ↓SBP>=20mmHg, (2) ↑HR>=beats/min, (3)↓Hb>=2g/dL, (4) transfusion without appropriate ↑ in Hb

Comparison of Therapeutic Agents

Agents	Benefits	Risks	Comments
Proton Pump Inhibitor (PPI)	• May be more effective than other agents • Tolerance does not develop • Acid suppressive effects can last up to 48 hours after last dose	• Profoundly affecting the gastric acid protection may predispose to infections such as pneumonia and C. dif colitis • Adverse Effects (rare): blood dyscrasias, hepatic dysfunction	• Best agent for patients at highest risk for stress-related mucosal bleeding • Inexpensive at VCMC
H-2 Receptor Antagonist (H2R Antagonist)	• ↓ clinically significant bleeding • Effective PO or IV	• Adverse Effects: thrombocytopenia, confusion (↑ risk with cimetidine, elderly, liver/renal impairment)	• Tachyphylaxis may develop to these agents
Sucralfate	• Cytoprotective effect on gastric mucosa • Minimal adverse effects • Likely ↓ risk of pneumonia versus PPI or H2R Antagonist (hotly debated)	• Adverse effects (rare): Bezoar formation when getting tube feeds • Affects bioavailability of other orally administered meds • May have higher risk of stress-related mucosal bleed (debated) • Avoid use in chronic renal insufficiency for aluminum toxicity	• Caution with many drug interactions, particularly the following: tetracycline, quinolones, quinidine, phenytoin, digoxin, anti-fungals, H2 Receptor Antagonists
Enteral Nutrition	• Protects against bacterial translocation across intestinal mucosa • ↓ rate of overt GI bleeding	• Alone, does not prevent stress-related mucosal bleeding • Not recommended for GI Prophylaxis	• Start enteral nutrition as soon as possible to prevent translocation of intestinal bacteria; however, maintain patient on prophylaxis agent

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Ventura County Medical Center/ Santa Paula Hospital
Sucralfate Administration Protocol

1. Give sucralfate 1 gram four times daily, **administered at 0400, 1000, 1600, 2200**
2. Co-administration

Drug	Hours before Sucralfate administration	Hours after Sucralfate administration
Anti-fungals (-azoles)	2	2
Cimetidine	2	2
Digoxin	2	2
Phenytoin	2	2
Phosphate	1	2
Quinidine	2	2
Quinolones	2-4	n/a
Ranitidine	2	2
Tetracycline	2	2

3. Give Sucralfate one hour before bolus tube feeds; no adjustment needed for continuous tube feeds.
    a. Watch risk for bezoar formation (undigested material formed in lumen of the gut), although risk is <1-2%, there is no clinical justification to withhold tube-feeds
    b. Sucralfate can be given via NG tube

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