

# Stress Ulcer Prophylaxis Guidelines

## Background

Stress ulcers are superficial erosions involving the mucosal layer of the stomach or duodenum that develop after major stressors such as surgery or trauma, and may lead to clinically significant bleeding events.<sup>1</sup> The pathogenesis of stress ulcer development is multifactorial, due to a combination of acid hypersecretion, impaired mucosal protection, decreased mucosal blood flow, and increased concentrations of refluxed bile salts.<sup>2,3</sup>

In the absence of appropriate prophylaxis, it is estimated that 1.5 to 8.5% of ICU patients develop some degree of gastroduodenal hemorrhage.<sup>4</sup> The goal of prophylaxis is to prevent clinically relevant complications of stress ulcers such as hemorrhage severe enough to require transfusion, endoscopic therapy, or surgery.<sup>5</sup> Patient risk factors for development of clinically important bleeding should guide the need for stress ulcer prophylaxis.

The following guidelines are not intended for patients with known gastric or duodenal ulcer disease requiring acid suppression therapy.

## Clinical Practice Guidelines

- I. Two risk factors for stress ulcer development have been found to independently predict an increased risk of clinically relevant bleeding - respiratory failure and coagulopathy.<sup>6</sup> Other factors have been identified as potential risk factors and warrant careful consideration.<sup>6,7</sup>
  - a. Independent risk factors - *presence of one or more warrants stress ulcer prophylaxis*
    1. respiratory failure requiring mechanical ventilation  $\geq 48$  hours
    2. coagulopathy (including medication induced)
      1. platelet count  $< 50,000$  mm<sup>3</sup>
      2. INR  $> 1.5$  or PTT  $>$  twice control value
  - b. Potential risk factors - *presence of two or more warrants stress ulcer prophylaxis*
    1. spinal cord injury
    2. head injury with GCS  $\leq 10$
    3. multi-trauma with ISS  $\geq 16$

4. high dose corticosteroid therapy (> 250 mg/day hydrocortisone or daily equivalent)
5. thermal injury involving > 35% total body surface area
6. hepatic failure defined as total bilirubin > 5 mg/dl, AST > 150 U/L, or ALT > 150 U/L
7. partial hepatectomy (peri-operative)
8. hepatic or renal transplantation (peri-operative)
9. septic shock with need for vasopressor support
10. intensive care unit stay > 1 week
11. occult GI bleed lasting > 6 days
12. history of GI ulcer or bleeding within the past year

II. Choice of pharmacological agent

- a. H2 receptor antagonists and proton pump inhibitors have similar efficacy for stress ulcer prophylaxis.<sup>8-11</sup>
- b. Histamine receptor-2 antagonist therapy appears to reduce costs with survival benefit comparable to proton pump inhibitor therapy for stress ulcer prophylaxis.<sup>12</sup> Intravenous is preferred over enteral route of administration for patients with concern of malabsorption or non-functioning GI tract.
- c. There is conflicting data regarding the efficacy of sucralfate for stress ulcer prophylaxis.<sup>7</sup> It is currently not recommended for routine use.

III. Duration of stress ulcer prophylaxis remains controversial. Some studies suggest an association between stress ulcer prophylaxis and hospital acquired pneumonia. Others suggest an association between stress ulcer prophylaxis and *C. difficile* infection. Definitive data is lacking however.

- a. Enteral feeding appears to have a protective effect against stress ulcer related bleeding and stress ulcer prophylaxis should be discontinued once tolerating goal tube feeds.<sup>13</sup>

IV. Prevention of recurrent stress ulcer related bleeding.<sup>7</sup>

- a. Efficacy of medical therapy for prevention of recurrent stress induced bleeding has not been well studied.
- b. Consideration should be given to increasing the dosage of the current prophylactic medication, adding a second agent, or switching to a different agent.

## Summary and Recommendations

- I. Stress ulcer prophylaxis is recommended for ICU patients with at least one independent risk factor and for ICU patients with two or more potential risk factors.
- II. The use of H2 receptor antagonist is currently recommended over proton pump inhibitor for stress ulcer prophylaxis.
- III. Prophylaxis should be continued for patients in the ICU as long as risk factors persist **or until tube feeds at full goal or diet is tolerated.**
- IV. Stress ulcer related bleeding while on appropriate prophylaxis warrants consideration of increasing medication dosage, adding a second agent, or switching to a different agent.

## References

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