ICU Management Protocol No. 8

STRESS RELATED MUCOSAL DISEASE (SRMD) PROPHYLAXIS IN THE INTENSIVE CARE UNIT

Prophylaxis is routinely provided for critically ill patients admitted to the intensive care unit (ICU) who are at high risk for stress – related mucosal disease (SRMD), an erosive process of the gastroduodenal mucosa associated with abnormally high physiological demands. SRMDs are previously known as stress ulcers.

Not all ICU patients have the same risk of developing SRMD. Specific risk factors include :

1. mechanical ventilation (more than 48 hours)
2. coagulopathy
3. shock states (septic, haemorrhagic, cardiogenic, anaphylactic)
4. severe head injury and neurosurgical patients
5. severe burns (more than 30%)
6. multiple organ failure

Patients in the ICU with history of gastric or duodenal ulceration, or with cirrhosis or acute renal failure, may benefit from prophylactic measures. Patients with multiple risk factors have an additive effect on the probability of developing SRMD.

Prophylactic therapy for SRMD

Considering available evidence and cost-effectiveness of current pharmacological agents for prophylaxis, the following are recommended:

1. IV Ranitidine 50 mg 8 hourly. Reduce dose to 50 mg 12 hourly in patients with renal failure.

The superior efficacy of intravenous H2 antagonists compared with sucralfate in preventing SRMD has been demonstrated, and therefore, H2 antagonists are preferred.

2. The use of proton pump inhibitors (PPI) as prophylaxis has not been shown to be superior to H2 antagonists and should probably be limited to those with history of recent UGIB or recent endoscopically proven ulcer.

   IV Omeprazole or IV Pantoprazole 40 mg daily

   PPIs are not renally eliminated and thus dose adjustment in renal impairment is not necessary

Treating clinically significant upper GI bleed in ICU

PPIs are the main stay of **treatment** in patients that develop clinically important UGIB usually given as infusion 8 mg /hr over 48 hours, as adjunct to endoscopic or surgical management.

Discontinuing SRMD prophylaxis

1. For those who do not have UGIB, prophylactic therapy is discontinued once patient is on full feeds and none of the above risk factors are present.

2. Consider changing to oral therapy as soon as tolerating orally.

3. For those who develop clinically significant bleed in ICU, PPIs are continued for at least 2 weeks (IV / oral Omeprazole or Pantoprazole 40 mg BD)

4. Although the potential protective effect of enteral nutrition on the gastric mucosa means that it should be considered as an adjunct to pharmacological prophylaxis in in appropriate cases, there is currently no evidence that enteral nutrition **alone** is sufficient to reduce the risk of stress related bleeding. Combination with pharmacotherapy has been shown to reduce SRMD incidence.

Risk of nosocomial pneumonia

No direct association has been found between the use of acid-suppressive therapy and nosocomial pneumonia. Factors other than elevated gastric pH probably contribute to pneumonia in the critically ill.

References:

1. Stephen Brett : Science review : The use of Proton Pump inhibitors for gastric acid suppression in critical illness; *Critical Care* 2005; **9:** 45-50.
2. David C. Metz : Preventing the gastrointestinal consequences of stress-related mucosal disease : *Current Medical Research and Opinion;* Vol 21, No.1; 2005 , 11-18.