

## Stressing over ulcer prophylaxis in the neurocritical trauma patient

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Critically ill patients, particularly those with traumatic brain injury (TBI) or spinal cord injury (SCI) are at high risk for stress ulcer formation.<sup>1,2</sup> Treatment algorithms have been developed to guide stress ulcer prophylaxis (SUP), yet data regarding optimal agent, duration, and risks demonstrate conflicting results.<sup>2-5</sup> McGraw and colleagues retrospectively evaluated outcomes in critically ill patients with TBI and SCI at six institutions in an attempt to elucidate optimal SUP treatment protocols.<sup>6</sup>

The authors found that the majority of patients received SUP, generally with histamine receptor antagonists. Those receiving SUP demonstrated longer hospital and intensive care stays. Notably, clinically significant gastrointestinal bleeding (CSGIB) was rare, occurring exclusively in patients with severe TBI (Glasgow Coma Scale <9), and with increased incidence in older patients. Furthermore, there was no statistically significant difference between the rate of CSGIB with those receiving SUP versus those who did not, although a trend towards significance was noted. However, SUP did reduce CSGIB for those with severe TBI. No difference was noted in CSGIB between patients receiving enteral feeds versus those who did not, nor between TBI and SCI patients. In those with severe TBI, SUP was also associated with greater all-cause and ventilator-associated pneumonia. Interestingly, *Helicobacter pylori* infection was not identified in any patient.

Prior literature demonstrated an incidence of stress ulcers up to 17% in patients with TBI.<sup>7</sup> McGraw *et al* indicate that this number, and the incidence of CSGIB, may be far less. This is important in that hemodynamic changes and drops in hemoglobin may alter brain tissue oxygenation and worsen ischemia. Current guidelines broadly recommend prophylaxis for all patients sustaining TBI.<sup>6</sup> Many studies, including McGraw *et al*, note that CSGIB occurs primarily in those with more severe TBI.<sup>3,4</sup> The authors demonstrate that older patients show increased benefit from SUP, suggesting increased vigilance in this vulnerable population. They also question the protective effect of enteral feeding, although additional granular data are required to make a conclusion.

Despite the implications for practice, the authors were neither able to capture the duration or quantity of enteral feeding nor establish a causal relationship between SUP and pneumonia. They astutely identify no difference in antithrombotic use between the SUP and non-SUP groups, however,

thrombocytopenia, shock, and pre-existing liver disease may confound ulcer formation and should be further investigated. Moreover, the agent of choice and duration of therapy remain undefined.

The authors add valuable data to the literature, and highlight the need for further study of SUP in neurocritical trauma patients, focusing on older patients and those with severe TBI.

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