702 Outcomes of COPD Patients with Burn Injuries at a Single Institution

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Introduction: Chronic obstructive pulmonary disease (COPD) is a condition with significant morbidity and mortality. In 2018, about 16 million adults in the United States reported a diagnosis of COPD based on data from the American Lung Association. Home oxygen is often used in more severe cases of COPD, and despite warnings against smoking while using home oxygen, many patients continue to sustain burn injuries. An existing diagnosis of COPD can further complicate management of a burn patient, especially if there is concomitant inhalation injury present. The objective of this study was to explore the outcomes of COPD patients admitted to our Burn Center.

Methods: This was a single-site, retrospective review using our institutional Burn Center registry. All adult patients with flame burns (18 years or older) admitted to our Burn Center between July 1, 2011 and June 30, 2020 who had a history of COPD with and without home oxygen use were included in this study. All adult patients with flame burns, who did not have a history of COPD, were included for comparative purposes. Variables of interest included demographics, burn mechanism, length of stay (LOS), ICU and ventilator days, and mortality.

Results: There were a total of 4,397 patients with flame burns included in this study, and 515 of those patients were identified to have an existing diagnosis of COPD. The mean age of the COPD group was 45.1 years +/- 13.0 years, and the patient population was predominantly male (60.4%). The mean total body surface area (TBSA) involvement was 5.12% +/- 10.38%. Inhalation injury was present in 10.1% of patients with COPD and in 7.8% of those without COPD. The mean LOS for the COPD group was 11.9 days +/- 19.4 days and 13.4 days +/- 31.0 days for the non-COPD group. The mean ICU LOS for the COPD group was 11.2 days +/- 19.9 days and 18.0 days +/- 37.0 days for the non-COPD group. The mean number of ventilator days was 16.5 days +/- 35.4 days for the COPD group and 26.3 days +/- 42.0 days for the non-COPD group. The overall hospital mortality was 10.3% for the COPD group and 4.3% for the non-COPD group.

Conclusions: This study demonstrates that the overall hospital mortality was highest in the COPD group. Although hospital and ICU length of stay, as well as the number of ventilator days were higher in the non-COPD group, it remains clear that an existing diagnosis of COPD can negatively impact the outcomes of burn patients.

703 Evaluation of a Stress Ulcer Prophylaxis Protocol in an Burn Intensive Care Unit

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Introduction: Patients suffering from large burn injuries have an increased risk of gastrointestinal mucosal damage from stress ulcers. Proton pump inhibitors (PPIs) and histamine H2-receptor antagonists (H2RAs) are routinely used for stress ulcer prophylaxis in burn patients, however there are few comparative trials evaluating the efficacy of these therapies in the burn population. Our burn center uses a stress ulcer prophylaxis protocol that incorporates both classes in a step-wise manner. The objective of this study was to evaluate the protocol by comparing the incidence of uncontrolled gastric pH, positive gastric occult blood, and gastrointestinal bleed (GIB) while on famotidine or pantoprazole prophylaxis.

Methods: This was a single-center retrospective observational study conducted at an academic medical center and was approved by the hospital's Institutional Review Board. Patients were included if they were at least 18 years of age, admitted to the burn intensive care unit (BICU) from June 2017 to August 2020 with burns involving at least 1% TBSA, and had at least one documented gastric pH and/or occult blood test while receiving famotidine or pantoprazole. The primary endpoint was a composite of gastric pH less than 5, a positive occult blood test, or occurrence of GIB.

Results: In total, 107 patients with a mean age of 55 yo were included in the study. The median TBSA burn was 16% and length of stay was 23 days. Seventy seven (72%) patients received famotidine and 93 (87%) of patients received pantoprazole. The incidence of the primary endpoint in all patients receiving famotidine and pantoprazole were 69 (90%) and 86 (92%), respectively (p = 0.513). During famotidine prophylaxis, 256 (43%) gastric pH tests were less than 5 and 397 (47%) gastric occult blood tests were positive, with no reports of GI bleeding. During pantoprazole prophylaxis, 751 (33%) gastric pH tests were less than 5 and 1220 (47%) gastric occult blood tests were positive, and 4 (4%) were diagnosed with a GI bleed. A total of 91 (85%) patients had deviations from the protocol, which included 42 (46%) patients who did not receive the recommended dose or agent, 27 (30%) patients who were not initiated on the recommended initial agent, and 22 (24%) patients who did not receive a recommended increase in dose or switch agents when recommended.

Conclusions: In the setting of burn injuries of at least 1% TBSA, no difference was detected in uncontrolled gastric pH, positive occult blood tests, or GIB when using famotidine or pantoprazole in our stress ulcer prophylaxis protocol. The overall incidence of gastric pH less than 5 and positive gastric occult blood was high for both agents, while the incidence of GIB was low in both groups.