Association between Proton Pump Inhibitor Therapy for Stress Ulcer Prophylaxis and *Clostridium difficile*-Associated Disease in Critically Ill Patients

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Introduction

•The incidence and prevalence of *Clostridium difficile* infections has increased greatly in recent years.
•Evidence suggests that medication prescribing practices may have a role in these increases.
•An increase in the use of proton pump inhibitors has coincided with the observed increase in *Clostridium difficile*-associated disease.
•Not only is there evidence to show overuse of proton pump inhibitors by many prescribers, but there have been reports in the literature of an association between their use and *Clostridium difficile*-associated disease.
•These studies have shown that patients prescribed a proton pump inhibitor during their hospital admission had anywhere from 2 to 3.6 times the odds of developing *Clostridium difficile*-associated disease.
•One study in critical care patients found no association between proton pump inhibitor therapy and development of *Clostridium difficile*-associated disease. However, the study was conducted during a *Clostridium difficile* epidemic and therefore their findings may not be reliable.

Objective and Design

•To evaluate if there is an association between use of proton pump inhibitors for stress ulcer prophylaxis in critically ill patients and development of *Clostridium difficile*-associated disease.
•This study was designed as a retrospective cohort study.

Hypothesis

We hypothesize that there is an association between use of proton pump inhibitors and development of *Clostridium difficile*-associated disease.

Methods

•Approved by Institutional Review Board of Mercy Hospital, Scranton, PA.
•Inclusion Criteria:
- Admitted to ICU between January 1, 2008 and December 31, 2008
- Age 18 years or older

•Exclusion Criteria:
- Diagnosis of *Clostridium difficile*-associated disease prior to or at time of admission to ICU
- Use of histamine-2 receptor antagonist at any time while an inpatient
- Admission to ICU for upper gastrointestinal bleed

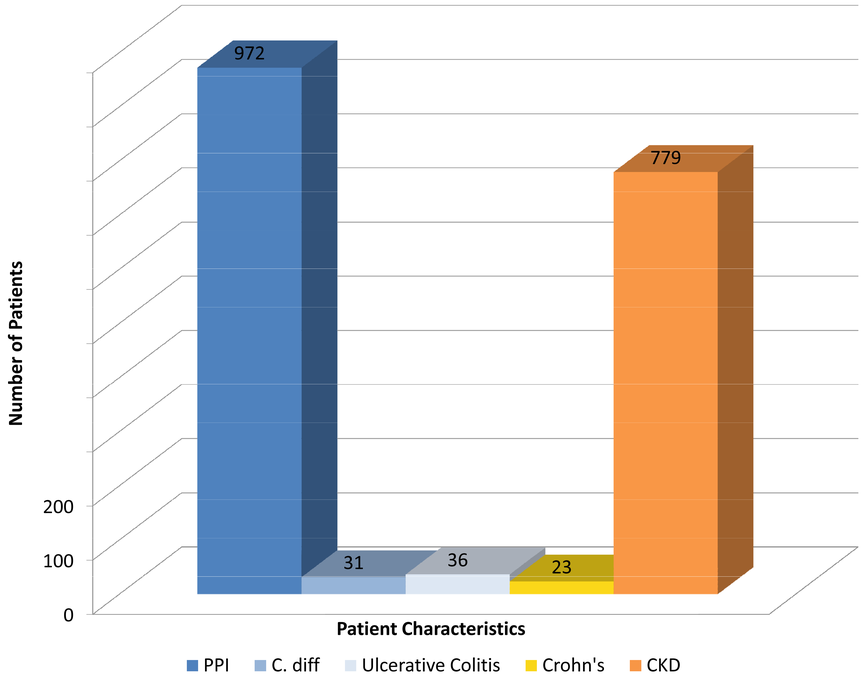
•Data collected:
- Medication use data (medication name, number of doses received, and duration used)
- Presence of *Clostridium difficile*-associated disease related comorbidities (chronic kidney disease, ulcerative colitis, Crohn's Disease)

•All disease states and comorbidities identified using ICD-9 codes from Medical Records department
•Statistical Analyses:
- Univariate and multivariate logistic regression analyses will be performed to evaluate the association between proton pump inhibitor therapy and *Clostridium difficile*-associated disease.
- A propensity score analysis will then be performed to further analyze the association. The following covariates will be included in the analysis:
  - Antibiotic use, comorbidities, age, gender, ICU admission diagnosis, and length of hospital stay

•Primary Outcome:
- Association between proton pump inhibitor use and development of *Clostridium difficile*-associated disease.

•Secondary Outcomes:
- Length of hospital stay
- Inpatient mortality

Results



Disclosure

Authors of this presentation have the following to disclose concerning possible financial or personal relationships with commercial entities that may have a direct or indirect interest in the subject matter of this presentation:

Joshua Guinter: Nothing to disclose
Scott Bolesta: Nothing to disclose