Effects of Proton Pump Inhibitors vs Histamine Type-2 Receptor Antagonists in Combination with Oral Corticosteroids on Hospital Readmission Rates

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Introduction

- Proton pump inhibitors (PPIs) and histamine receptor-2 antagonists (H2RAs) are widely used by patients in both the institutional setting and in the community for many indications.
- One such indication is reducing the risk of ulcers in high risk patients, such as those taking oral corticosteroids.
- Several studies have determined PPIs to be inappropriately prescribed in a large number of patients.
- There is limited data on readmission rates for patients who are prescribed these medications.

Objective

- To determine if there is a difference in 30-day readmission rates in patients on acid reduction therapy (PPI or H2RA) alone or in combination with oral corticosteroids.

Methods

- Retrospective chart review approved by the Institutional Review Board at a 500-bed teaching hospital in Springfield, Illinois
- Inclusion Criteria:
  - Adults 18 years old or older who were discharged on a PPI or H2RA in combination with a corticosteroid as well as patients discharged with a corticosteroid alone
- Data Collected:
  - Patient demographics
  - Comorbid conditions (Prior MI, CHF, etc.)
  - Discharge medications
  - Hospital admissions within last year
  - ED visits within last 6 months
- Data Analysis: Descriptive Statistics and multivariate logistic regression

Results

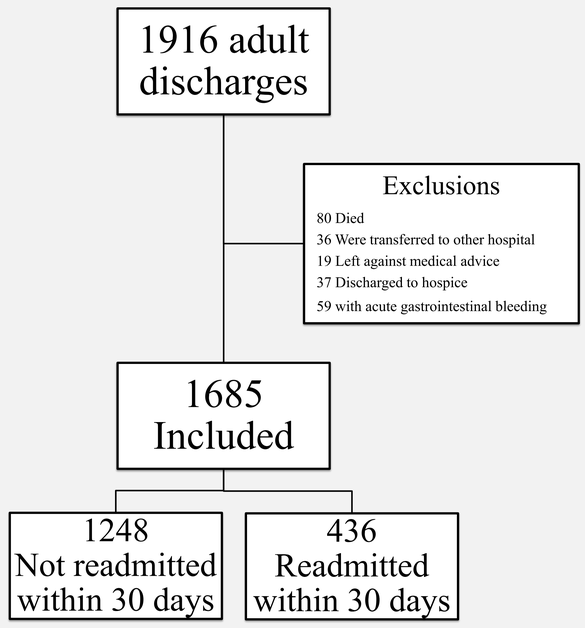
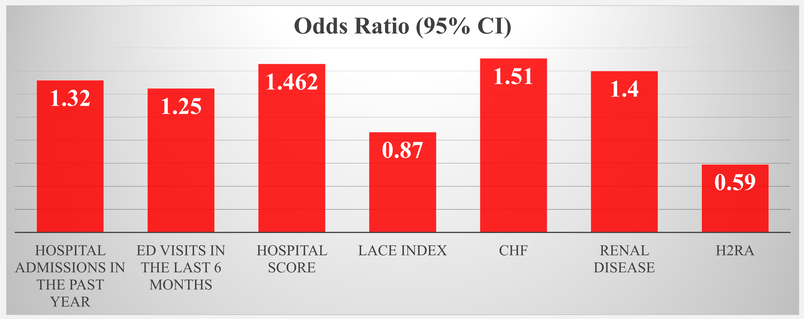


Table 1: Study population Baseline Characteristics

	Not readmitted within 30 days n = 1248	Readmitted within 30 days n = 436	p value
Age, mean (SD)	63 (16)	64 (15)	0.184
Female (%)	208 (48%)	591 (47%)	0.900
Length of stay (SD)	7.74 (7.17)	8.48 (8.9)	0.173
Hospital admissions in the last year (SD)	1.67 (1.75)	0.74 (0.84)	< 0.001
Emergency department visits in last 6 months (SD)	0.40 (1.25)	1.26 (3.11)	< 0.001
HOSPITAL Score (SD)	3.85 (1.43)	5.01 (1.81)	< 0.001
LACE Index (SD)	11.4 (2.44)	12.7 (3.74)	< 0.001
Charlson Comorbidity Score (SD)	4.97 (3.28)	6.12 (3.73)	< 0.001
Medical Comorbidities (%)			
Myocardial infarction	340 (27%)	149 (34%)	0.006
Congestive heart failure	291 (23%)	157 (36%)	< 0.001
Peripheral artery disease	114 (9%)	45 (10%)	0.466
Stroke	74 (6%)	26 (6%)	0.979
Dementia	38 (3%)	9 (2%)	0.285
Chronic lung disease	352 (28%)	143 (33%)	0.070
Connective tissue disease	28 (2%)	6 (1%)	0.268
Peptic ulcer disease	59 (5%)	19 (4%)	0.752
Cirrhosis	40 (3%)	23 (5%)	0.050
Diabetes without complications	268 (22%)	126 (29%)	0.002
Diabetes with complications	143 (12%)	88 (20%)	< 0.001
Paralysis	44 (4%)	24 (6%)	0.071
Renal disease	237 (19%)	142 (33%)	< 0.001
Cancer	89 (7%)	41 (9%)	0.126
Metastatic cancer	27 (2%)	17 (4%)	0.050
Oral Corticosteroid Therapy (%)	208 (16%)	76 (17%)	0.682
Gastric Acid Secretion Inhibitor (%)			
Proton pump inhibitor	534 (43%)	188 (43%)	0.904
H2 Receptor Antagonist	139 (11%)	34 (8%)	0.048
Drug combinations (%)			
PPI + Oral Steroids	96 (7%)	41 (9%)	0.249

Table 2: Multivariate Logistic Regression of Potential Risk Factors with 30 Day Readmissions

	Odds Ratio (95% CI)	P value
Hospital admissions in the past year	1.32 (1.15-1.50)	< 0.001
ED visits in the last 6 months	1.25 (1.13-1.39)	< 0.001
HOSPITAL score	1.462 (1.31-1.63)	< 0.001
LACE index	0.87 (0.80-0.94)	< 0.001
CHF	1.51 (1.12-2.04)	0.007
Renal disease	1.40 (1.03-1.90)	0.031
H2RA	0.59 (0.36-0.93)	0.035



Discussion

- Hospitalization within last year, ED visit within last 6 months, increased HOSPITAL score, CHF, and renal disease may indicate increased 30-day readmission risk
- H2RA use and lower LACE index score associated with lower 30-day readmission risk
- PPI use alone was not associated with increased 30-day readmission risk
- Limitations include lack of standard dosing protocol and differences in baseline disease states
- Corticosteroids in combination with PPIs or H2RAs were not associated with higher 30-day readmission

Conclusion

- This data shows no correlation between the use of PPIs or H2RAs alone or with concurrent oral corticosteroid use and 30-day readmission rates.
- Further investigation warranted before any clinical significance can be determined