Use of Proton Pump Inhibitors vs Histamine Type-2 Receptor Antagonists on Hospital Readmission Rates in Combination with Blood Thinning Agents

Michael McGee, Pharm.D. Candidate; Carrie Vogler, Pharm.D.; Robert Robinson, MD

SIUe Southern Illinois University Edwardsville School of Pharmacy

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Introduction

- Proton pump inhibitors (PPIs) and histamine receptor-2 antagonists (H2RAs) are widely used by a large number of patients
- One indication is reducing the risk of ulcers in high risk patients, such as those on blood thinning agents (antiplatelet/anticoagulant therapy)
- Several studies have determined PPIs to be inappropriately prescribed
- 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 blood thinning agents

Methods

- IRB approved retrospective chart review of a 500 bed teaching hospital
- Inclusion Criteria:
  - Any patient 18 years old or older discharged on a PPI or H2RA in combination with blood thinning agents as well as patients only discharged with blood thinning agents to serve as a placebo arm
- Data Collected:
  - Patient demographics
  - Comorbid conditions (Prior MI, CHF, etc.)
  - Medications at discharge
  - Hospital admissions within last year
  - Emergency department visits within last 6 months
- Data Analysis: Descriptive statistics and multivariate logistic regression

Results

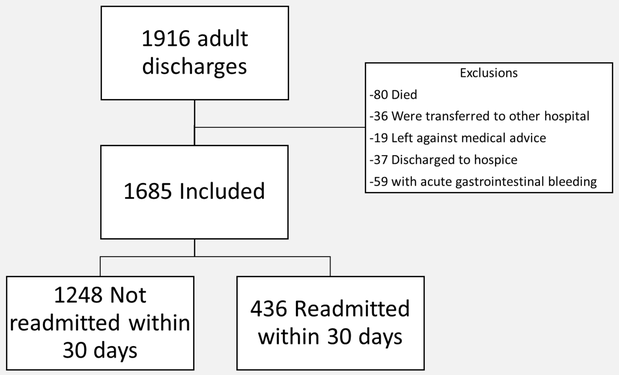
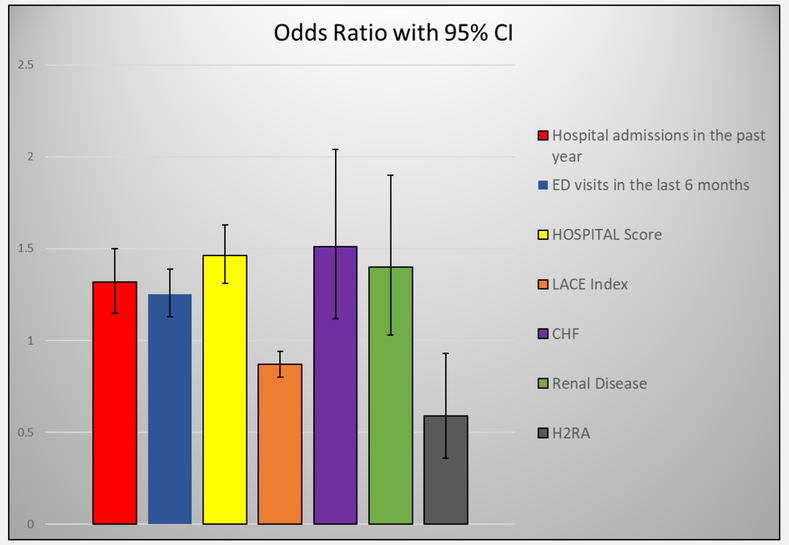


Table 1: Baseline characteristics of the study population by 30-day readmission status

	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
Chronic lung disease	352 (28%)	143 (33%)	0.070
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
Renal disease	237 (19%)	142 (33%)	< 0.001
Cancer	89 (7%)	41 (9%)	0.126
Metastatic cancer	27 (2%)	17 (4%)	0.050
Antiplatelet Drugs (%)			
Aspirin	541 (43%)	158 (36%)	0.009
$P2Y_{12}$ inhibitor	156 (13%)	44 (10%)	0.181
Dual antiplatelet therapy	134 (11%)	36 (8%)	0.139
Anticoagulants Drugs (%)			
Warfarin	168 (14%)	90 (21%)	< 0.001
DOAC	71 (6%)	18 (4%)	0.210
Acid Secretion Inhibitor (%)			
Proton pump inhibitor	534 (43%)	188 (43%)	0.904
H2 Receptor Antagonist	139 (11%)	34 (8%)	0.048
Drug combinations			
Warfarin + PPI	38 (3%)	32 (7%)	< 0.001
DOAC + PPI	20 (2%)	6 (1%)	0.741
Aspirin + PPI	77 (6%)	16 (4%)	0.049
$P2Y_{12}$ Inhibitor + PPI	92 (7%)	29 (7%)	0.616
DAPT + PPI	76 (6%)	23 (5%)	0.534
Warfarin + H2RA	13 (1%)	12 (3%)	0.011
DOAC + H2RA	10 (1%)	2 (1%)	0.464
Aspirin + H2RA	77 (6%)	16 (4%)	0.049
$P2Y_{12}$ + H2RA	23 (2%)	3 (1%)	0.092
DAPT + H2RA	19 (2%)	2 (1%)	0.085



Discussion

- Hospital admissions in the last year, ED visits within the last 6 months, HOSPITAL score, chronic heart failure (CHF), and renal disease all had increased risk of 30-day readmission
- H2RA use and a low LACE score may show lower risk for 30-day readmission
- PPI use alone was not associated with increased risk of 30-day readmission
- Aspirin and warfarin combination therapy with both PPIs and H2RAs were both associated higher 30-day readmission

Conclusion

- This data shows that aspirin and warfarin use in combination with both PPIs and H2RAs lead to a higher rate of 30-day readmission rates
- Difficult to determine clinical significance due to study limitations (low sample size, confounding variables, and differences in baseline characteristics)