Hospital Length of Stay and Mortality in Patients with Inflammatory Bowel disease and Atrial Fibrillation

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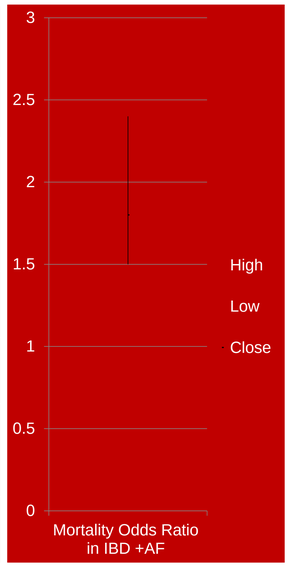
Introduction

Proinflammatory markers such as interleukin (IL)-6 have been closely associated with various pathological processes, such as oxidative stress, apoptosis, and fibrosis that promote formation of atrial fibrillation (AF). These markers are characteristically elevated in inflammatory bowel disease (IBD). It has been shown that AF has a higher prevalence in IBD. It is important to analyze the effect of comorbid AF and IBD on hospital length of stay and mortality.

Methods

The National Inpatient Sample (NIS) database, representing roughly 20% of all inpatient admissions, was used to identify patients with a primary or secondary diagnosis of Crohn's disease and Ulcerative Colitis from 2012 to 2014. The sample was analyzed to assess for LOS, Charlson comorbidity index (CCI), length of stay (LOS) and inpatient mortality among patients with or without history of AF. The sample was weighted to calculate national rates. Categorical variables were analyzed via Chi square test and continuous variables via T-test. Multivariable logistic regression analysis was used to assess the primary outcome of inpatient hospital mortality, with the analysis adjusted for age, sex, race and CCI.

	IBD Patients	IBD + AF Patients
Caucasian	73.4%	86%
Black	12%	4.2%
Hispanic	5%	2.1%
Asian	0.9%	0.5%
Native American	0.4%	0.4%
Other	2.3%	1.4%



	IBD Patients	IBD + AF Patients
Mean age of patients (p<0.001)	43.5 years	70 years
Charlson comorbidity index [CCI] (p<0.001)	1.2	3.9
Hospital length of stay (p<0.05)	4.4 days	5 days
Mortality rates (p<0.001)	0.1%	0.9%

References

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Results

A total of 249045 patients from the 2012-2014 NIS database were admitted for IBD; of those 3.9% had history of AF. The average LOS was 4.7 days, rate of and mortality during hospitalization was 0.2%. AF was associated with older patients (mean age 70 vs. 43.5 years, p< 0.001) and higher CCI (3.9 vs. 1.2, p< 0.001) when compared to non AF patients. AF was also associated with increased hospital LOS (5 days vs. 4.4 days, p< 0.05) as well as higher mortality rates (0.9% vs. 0.1%, p< 0.001) when compared to non AF patients. After adjusting for possible confounders including age, sex, race and Charlson comorbidity index, the mortality rate was significantly higher in the AF group (odds ratio 1.8, p< 0.001, 95% CI 1.5-2.4).

Discussion

Our study found that hospitalized patients with comorbid IBD and AF had higher mortality rates as well as increased hospital LOS. IBD leads to a chronic inflammatory state promoting systemic inflammation. It has been proposed that this pro-inflammatory state leads to the development of AF in IBD patients. Given the higher incidence of AF in IBD patients compared to the standard population, and the increased mortality and hospital LOS associated with the two conditions, further studies should be done to explore the cause of mortality and any intervention that could improve outcomes.