

CARDIOVASCULAR OUTCOMES IN PATIENTS WITH CELIAC DISEASE: AN INSIGHT FROM THE NATIONAL INPATIENT SAMPLE

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Original research

Introduction: Cardiovascular disease remains the leading cause of death in the US. Coronary artery disease alone accounted for approximately 13% deaths in the US in 2016. Some studies have suggested an increased prevalence of CAD in chronic inflammatory conditions such as celiac disease (CD). Chronic subclinical systemic inflammation and decreased absorption of cardio-protective nutrients and drugs due to inflammation has been postulated as the pivotal mechanism for increased risk of CAD. The aim of our study is to assess the outcomes of CAD in patients with CD

Methods: This is a retrospective observational study that reviewed de-identified data by using ICD9-CM codes for acute myocardial infarction (primary diagnosis) and celiac disease (secondary diagnosis) from Nationwide Inpatient Sample from years 2007 to 2014. The primary outcome was in-hospital mortality and the secondary outcomes were length of hospital stay (LOS), costs of admission, and complications. Multivariate regression analysis was used to adjust for confounders. All p values were two-sided with < 0.05 as the threshold for statistical significance.

Results: We identified a total of 8,036,307 acute myocardial infarction (AMI) hospitalizations from year 2007-2017 of which 5917 (0.07%) had a secondary diagnosis of CD. We found that number of acute myocardial infarction related admissions in the CD patients has risen more than threefold from 2007 to 2017. After adjusting for age, gender, race, Charlson Comorbidity index and hospital level characteristics, the all-cause mortality for patients with CD+AMI was 0.6% as opposed to 0.8% in non-celiac disease patients ($p=0.004$). LOS was also longer in the arm of patients with celiac disease (5.1 days vs 10.2 days, $p=0.036$). Mean hospitalization showed a reduction trend in celiac disease patients (\$ 68,400 vs \$ 72,184, $p=0.27$). Complications in celiac disease patients were not statistically significant from the comparative arm; hemodynamic shock (3.2% vs 2.65, $p=0.271$), prolonged mechanical ventilation >72 hours (0.6% vs 1.2%, $p=0.071$).

Discussion: Our study provides valuable epidemiological data about the prevalence of cardiovascular outcomes in CD patients. We found that the number of acute myocardial infarction related admissions in the CD patients has increased between study year 2007 to 2014. However, the odds of in-hospital mortality in these patients are lower than the patients without CD which could be due to inability to judge the severity of comorbidities from administrative database such as ours. The results of our study add to the current literature that though the CD-related systemic inflammation is associated with an increasing number of AMI hospitalizations, these patients have comparatively favorable outcomes than controls; though it surely adds an extra cost to the hospitalization.