The Impact of Diabetes on Acute Coronary Syndrome Outcomes in Clopidogrel Treated Patients

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Clopidogrel, a thienopyridine antiplatelet agent, is commonly prescribed in patients with acute coronary syndrome (ACS) undergoing percutaneous coronary intervention (PCI). The use of clopidogrel reduces the risk of restenosis or recurrent myocardial infarction after cardiac stent placement by approximately 20-30%. Despite this effectiveness, there is significant variability in patient response reported in the literature. Individuals with diabetes mellitus (DM) may not respond to the same extent as other patients due to a variety of mechanisms, including low antiplatelet bioavailability, increased platelet turnover, and upregulated P2Y12 receptor signaling. The purpose of this study is to investigate the effectiveness of clopidogrel at preventing recurrence of ACS in diabetic and non-diabetic patients. Data were extracted from the Robert Wood Johnson University Hospital Somerset patient discharge database. All consecutive patients admitted with acute coronary syndrome between January 2015 to July 2018 (n = 1556) were extracted using International Classification of Diseases 10 (ICD-10) codes. Patients were excluded if they were transferred to a different hospital, admitted into hospice care, admitted to a psychiatric unit, left against medical advice, or were prescribed an antiplatelet other than clopidogrel. All comorbidities were identified using ICD-10 codes and the Charlson Comorbidity Index (CCI) was calculated for each patient. The primary endpoint was defined as readmission with recurrent acute coronary syndrome or death within 30 days of initial presentation. Data were stratified by DM diagnosis (DM = 213; no DM = 348). Mean age (DM, 74.4 years versus no DM, 73.4 years; $p > 0.05$) was similar between groups; however, patients in the diabetes group had significantly greater comorbidity versus those without DM (mean CCI, 4.6 ± 2.1 versus 2.5 ± 1.8, $p < 0.001$; respectively).

There was no significant difference in primary endpoint between patients with and without DM (16.4% versus 13.2%; OR = 1.29; 95% CI = 0.80 – 2.08; p = 0.293). Lack of significance remained after adjusting for age, CCI, and obesity. Further data collection and analysis is underway.