A Budget Impact Analysis of CYP2C19 Testing in Patients with Acute Coronary Syndromes (ACS) Receiving Percutaneous Coronary Intervention (PCI)

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Acute Coronary Syndrome

Acute coronary syndrome (ACS) is a collection of clinical diagnoses characterized by the sudden onset of myocardial ischemia. The subtypes of ACS include unstable angina, non-ST-elevation myocardial infarction (NSTEMI), and ST-elevation myocardial infarction (STEMI). ACS is responsible for nearly 1.4 million hospitalizations annually and represents nearly half of all deaths due to cardiovascular disease.

For patients who survive an initial ACS episode, to reduce the chance of a recurrent cardiovascular event, clinical guidelines call for dual anti-platelet therapy for at least 12 months. Clopidogrel is the most frequently prescribed anti-platelet agent along with aspirin; however, patients with loss-of-function variants for CYP2C19 have higher rates of adverse cardiac outcomes compared to prasugrel or ticagrelor.

Objectives

To estimate the financial impact of CYP2C19 genotyping in ACS patients who receive PCI and coronary stents treated with clopidogrel, prasugrel, or ticagrelor in a managed care setting.

Methods

A budget impact model with a one-year time horizon was developed to estimate the financial impact of CYP2C19 genotyping in a 1,000 patient cohort.

Important economic benefits may be realized by using a genotype-guided approach to reserve prasugrel or ticagrelor use for patients with reduced-function CYP2C19 alleles.

References