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THE PREDICTION OF THE NEED FOR CORONARY ARTERY BYPASS SURGERY IN PATIENTS PRIOR TO CORONARY ANGIOGRAPHY

ACC Poster Contributions
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Tuesday, April 05, 2011, 9:30 a.m.-10:45 a.m.

Session Title: Stress Echocardiography in special populations and CAD
Abstract Category: 33. Stress Echocardiography
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Background: Clopidogrel given at least 2 hours prior to percutaneous coronary intervention (PCI) lowers the risk of ischemic complications of the procedure. However, most patients undergo ad-hoc PCI and are not pretreated with clopidogrel. Pretreatment with clopidogrel of all patients undergoing coronary angiography who would be a candidate for PCI is not done because of the potential need for coronary artery bypass surgery (CABG). A prediction model to determine whether or not patients are likely to need CABG prior to coronary angiography would be clinically beneficial so appropriate patients can receive pretreatment with clopidogrel.

Methods: All 3954 patients undergoing coronary angiography at Mayo Clinic between 1/1/2001-12/31/2008, who had also undergone a stress echocardiogram in the preceding 6 months of the procedure, were included in our evaluation (n=3954).

Results: The primary endpoint of CABG within 6 weeks post angiogram was observed in 534 (13.5%). A multivariable logistic regression model for CABG using sex, age, diabetes, hyperlipidemia, resting EF, magnitude of ST depression, number of abnormal segments on stress echocardiogram, and METS score had acceptable discriminatory ability (c-statistic=0.725). The model was converted to an integer scoring system for clinical use ranging from 1 to 36. Predicting CABG for a score ≥22 had an NPV of 94%, PPV of 16%, sensitivity of 88% and specificity of 29%.

Conclusions: Pretreatment with clopidogrel in the appropriate patients prior to coronary angiography can be facilitated using a model of clinical and stress echocardiography variables. This prediction model can discern those patients at greater risk of going on to CABG and likely to be harmed by pretreatment with theinopyridines. This model can also predict those patients likely to benefit from clopidogrel pretreatment who will subsequently go on to ad-hoc PCI. A scoring system can be implemented, incorporating stress echo variables, to determine a Risk Score that would help facilitate the decision on pretreatment with clopidogrel. Further prospective studies are needed to confirm the effectiveness of this model in varying populations.