DO PATIENTS WITH ABNORMAL STRESS ELECTROCARDIOGRAMS AND NORMAL STRESS IMAGING HAVE ENDOTHELIAL DYSFUNCTION?

ACC Moderated Poster Contributions
McCormick Place South, Hall A
Sunday, March 25, 2012, 9:30 a.m.-10:30 a.m.

Session Title: Does the Exercise ECG Have a Role in 2012?
Presentation Number: 1155-459

Authors: Scott Robert Sobieraj, Amber Butler, Joann Petrini, Teresa Daniele, Danbury Hospital, Danbury, CT, USA

Background: It is common to have patients with an ischemic stress electrocardiogram (ECG) while having normal nuclear or echocardiographic imaging. We consider these tests low risk, however, the true significance of this disparity between imaging and ECG tracings is not known. Small vessel coronary artery disease (CAD) and endothelial dysfunction (ED) have been suggested as causes of these ischemic ECG changes. We hypothesize that patients with ischemic ECG changes and normal stress imaging will have evidence of ED.

Methods: Eligible patients were identified at the time of stress test interpretation. A total of 73 patients were included in the study. Of those, 44 patients had ischemic stress ECGs (cases) and normal imaging and 29 patients had stress tests interpreted as normal (controls). All patients had their ED assessed using the EndoPAT 2000 (Itamar Medical) within four weeks of their stress test. An abnormal EndoPAT result was a Reactive Hyperemia Index (RHI) of less than 1.67 or less. Differences in proportions were assessed using one tailed Fisher exact chi-square and statistical significance was assessed at p<0.05.

Results: There were no significant differences between the study groups in key demographic and medical risks. Among patients with ischemic stress ECGs, 25% had ED compared to 37.9% of those with normal stress ECGs, though the difference was not statistically significant. While rates of ED were higher for smokers compared with non-smokers, the differences between study groups were not statistically significant.

Conclusions: The findings of this study suggest no association between ischemic stress ECGs and ED, as determined by EndoPAT testing. A larger study looking at these factors as well as other cardiovascular risk markers may shed further light on the subject. The trend of increased rates of ED in patients who smoked requires more investigation into the CAD/ED relationship.