

 **IMAGING AND DIAGNOSTIC TESTING**

INABILITY OF DIFFERENT MODALITIES OF STRESS TESTING IN PREDICTING CORONARY ARTERY DISEASE IN OBESE SUBJECTS

ACC Poster Contributions
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Authors: *Anitha Rajamanickam, Samir Kapadia, Rubin Bahuva, Thadeo Catacutan, Alraies Chadi, Ali Usmani, Sam Butler, Stephen Ellis, James B. Young, Manuel Cerqueira, Cleveland Clinic, Cleveland, OH*

Background Noninvasive stress testing (ST) is used frequently for risk stratification in obese patients but the overall accuracy in comparison to coronary angiography (CA) and frequency of nondiagnostic studies has not been widely reported. The purpose of this study was to retrospectively compare the accuracy of different ST in patients with Body Mass Index (BMI) ≥ 30 .

Methods Between 1994 and 2009 we identified 5,273 ST in patients with BMI ≥ 30 who had CA within 1 year post ST. A stenosis of $>70\%$ or percutaneous intervention in a subsequent CA was considered a true positive ST. 388 were nondiagnostic. BMI of 30 to <35 , 35 to <40 and >40 were classified as BMI Groups I, II and III respectively.

Results: (See Table)

The ST specificities were very low for all modalities except for ECG and decreased with increasing BMI while sensitivities stayed fairly constant with the exception of ECG. Overall ST sensitivity was 84 % and specificity was 24%. With increasing BMI there were a higher number of false positives. PET and pharmacological SPECT had the best sensitivities and fewer nondiagnostic tests. Pharmacological ST had better sensitivities in comparison to exercise ST.

Conclusion ST in obese patients has comparable and acceptable sensitivity but very low specificity which declines with increase in BMI and may be due to post test referral bias to coronary angiography which excludes a large number of true positives. Further evaluation is needed to identify optimal methods of noninvasive ST for assessment of CAD in obese patients.

Test Type	Non Diagnostic	Sensitivity	Specificity	Positive Predictive Value	Negative Predictive Value
Exercise ECG (n=321)	205 (39%)	.19	.64	.61	.36
Exercise Echo (n=886)	75 (7.8%)	.82	.26	.36	.74
Exercise Nuclear (n=1081)	43 (3.8%)	.85	.26	.56	.62
Pharmacologic Echo (n=50)	4 (7.4%)	.87	.11	.45	.50
Pharmacologic Nuclear (n=2020)	61 (2.9%)	.90	.22	.45	.75
PET Scan (n=527)	0	.96	.05	.46	.56