**IMPACT OF BETA-ADRENERGIC RECEPTOR POLYMORPHISM ON NON-INVASIVE CAD TESTING**

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A plethora of cardiac non-invasive studies are available for evaluation of patients with suspected coronary artery disease. Physiological testing has relied on exercise or pharmacologic stressors in combination with electrocardiographic monitoring and myocardial perfusion or contractile reserve assessment using radionuclide tracers, echocardiography or magnetic resonance imaging. Non-invasive angiography using computed tomography is now widely available for anatomic assessment of the coronary arteries. The available critical pathways for appropriate use of any specific technique have emphasized local availability and expertise, demographic profile, clinical scenario including pre-test probability, absolute and relative contraindications, as well as cost considerations. The impact of genetic factors on the diagnostic performance of non-invasive diagnostic tests for coronary artery disease has not been widely studied. Functional polymorphisms of the beta-1 (codons 49 and 389) and beta-2 (codons 16, 27, and 164) adrenergic receptors have been shown to affect resting and exercise hemodynamics. Evidence will be presented for the potential impact of these functional polymorphisms of the beta-adrenergic receptor gene on heart rate response to agonists and antagonists during non-invasive testing. Potential impact of genetic variations in adenosine receptor on vasodilator response to exogenous agonists will also be discussed. Incorporation of the genomic data into the early management decisions may streamline diagnosis and treatment of coronary artery disease by allowing a more targeted approach that can reduce unnecessary testing and decrease drug ineffectiveness and toxicity.