Long-Term Outcome In Patients with Normal Cardiac Perfusion Tests

The Problem

A cardiac perfusion stress test is a study that combines exercise tolerance testing and nuclear imaging to evaluate blood flow to heart muscle. MIBI is a low level isotope used to highlight the heart muscle and evaluate its blood supply. This test is used to diagnose coronary artery disease.

➢ Negative predictive value of long-term outcomes in patients with normal cardiac perfusion studies has not been well established

➢ Identifying co-morbid conditions associated with falsely negative cardiac perfusion stress tests may improve the predictive value of the test and the quality of care for our patients

Aim/Goal

Determine if any co-morbid conditions or other patient demographics exist which improve the negative predictive value for cardiac perfusion stress tests in patients with normal cardiac perfusion stress tests.

The Team

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The Interventions

➢ Chart review of 570 randomly selected patients with a normal MIBI from 1998, after exclusion criteria, 452 patients were included in the study
➢ 10 year review of outcomes were categorized as:
  o cardiac events (none, angina, NSTEMI)
  o cardiac procedures (stent, CABG)
  o death (cardiac, other)
➢ Patient demographic information collected includes: age, gender
➢ Co-morbidities include: diabetes, kidney disease
➢ Statistical analysis performed to determine if specific patient demographics or co-morbidities significantly impact the negative predictive value for cardiac perfusion tests

The Results/Progress to Date

10 Year Follow-up for Patients with a Negative Cardiac Perfusion Test

Outcome	n	% patients
No cardiac event	399	88%
Other Death	8	2%
Stent	17	4%
CABG	13	3%
Angina	9	2%
Cardiac Death	4	1%
NSTEMI	2	0%

452

Cardiac Event ⟹ 45 patients (10%)

Lessons Learned

➢ Patient age and gender had no impact on the negative predictive value of cardiac perfusion studies

➢ Presence of kidney disease decreases the sensitivity of a perfusion study compared to patients with diabetes. This may be due to the fact that kidney disease is more systemic in large vessel disease, which is characterized by greater degrees of medial thickening and calcification than microvascular vessels in diabetes

Next Steps/What Should Happen Next)

➢ Futures studies may be conducted to compare the sensitivity of perfusion studies, cardiac catheterizations, or computed tomography (CT) cardiac angiogram for patients with kidney disease

For More Information Contact
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