

Downstream Clinical Implications of Abnormal Stress CMR based on Appropriate Use Criteria

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Background

- Stress CMR is increasingly used in the management of patients with known or suspected coronary artery disease

Background

- Appropriate use criteria (AUC) for stress CMR were developed to provide guidance for physicians and payers regarding the appropriateness of this test in various clinical scenarios.

APPROPRIATE USE CRITERIA

ACCF/AHA/ASE/ASNC/HFSA/HRS/SCAI/SCCT/SCMR/STS 2013 Multimodality Appropriate Use Criteria for the Detection and Risk Assessment of Stable Ischemic Heart Disease

A Report of the American College of Cardiology Foundation Appropriate Use Criteria Task Force, American Heart Association, American Society of Echocardiography, American Society of Nuclear Cardiology, Heart Failure Society of America, Heart Rhythm Society, Society for Cardiovascular Angiography and Interventions, Society of Cardiovascular Computed Tomography, Society for Cardiovascular Magnetic Resonance, and Society of Thoracic Surgeons

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Background

- However, these criteria were created by expert consensus and have never been systematically validated.

Aims

- To assess validity of the AUC by determining the rates of:
 1. abnormal stress CMR
 2. subsequent downstream angiography & revascularization procedures
- as categorized by the recent AUC

Methods: Study Population

- 218 consecutive patients undergoing stress CMR were prospectively categorized based on the 2013 AUC as:
 1. “appropriate”
 2. “may be appropriate”
 3. “rarely appropriate”

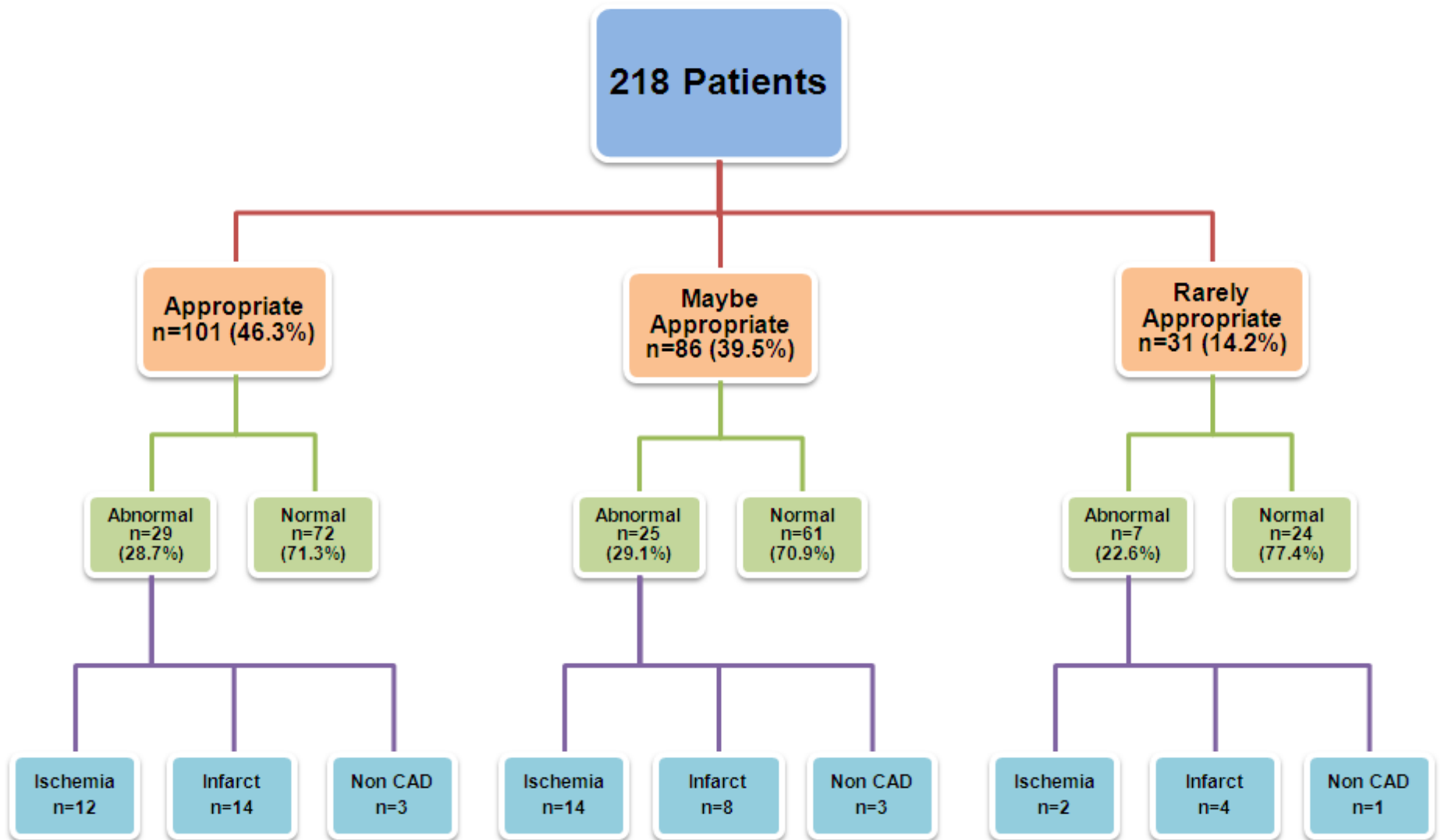
Methods: Follow-up

- Patients were followed for 60 days for the endpoints of:
 1. Coronary angiography
 2. Revascularization

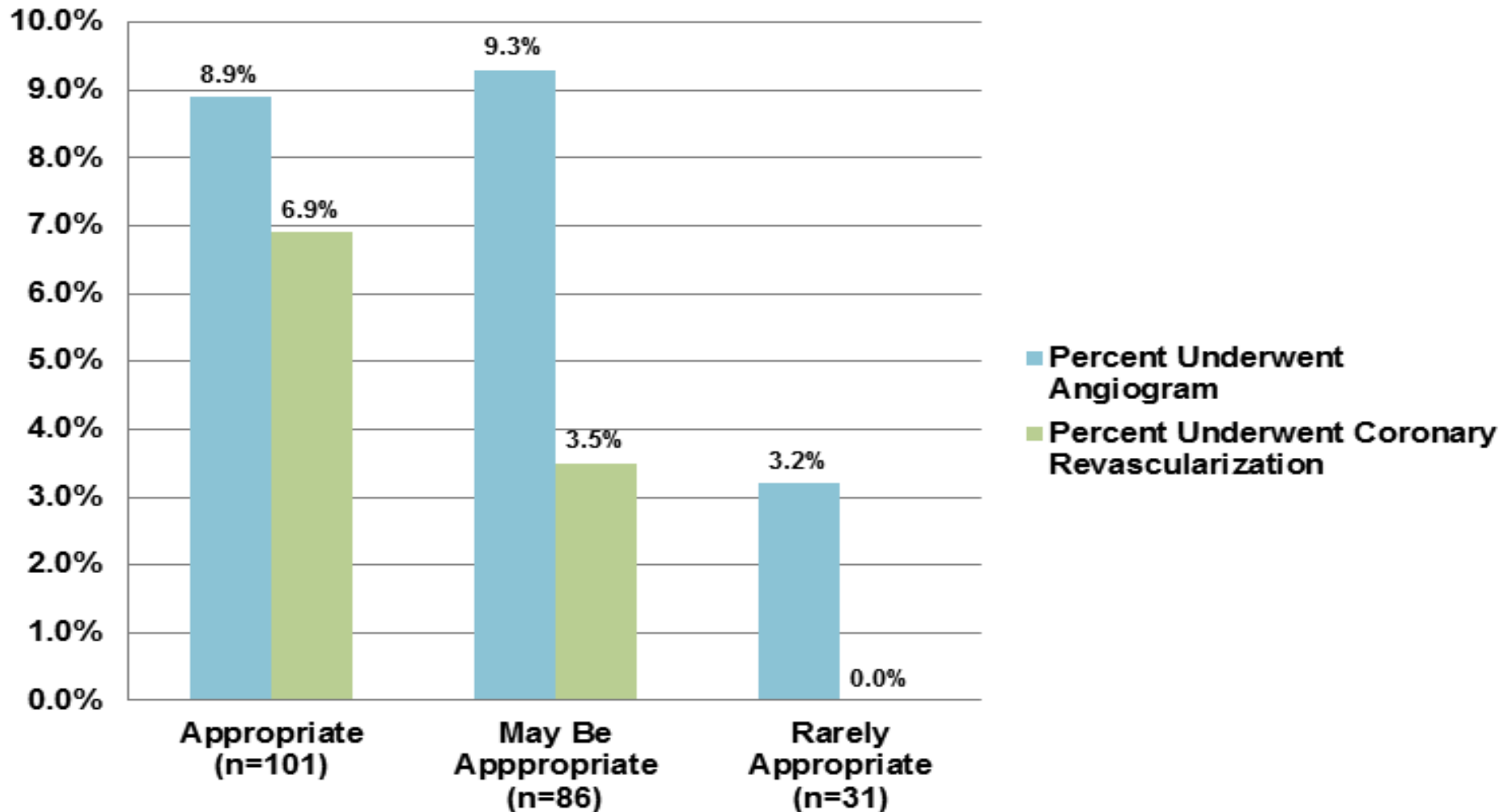
Results: Baseline Characteristics

Age (years)	59.8 ± 13.9
Body Mass Index (kg/m²)	30.8 ± 5.7
Female (%)	55
Smoking current (%)	16
Diabetes (%)	35
Hypertension (%)	74
Hyperlipidemia (%)	56
Known CAD (%)	37
Prior MI (%)	15
Prior CABG (%)	6
Prior PCI (%)	21
Ejection Fraction (%)	63.4 ± 13.5

Results: AUC and CMR Test Results



Results: Downstream Clinical Implications



Conclusions

- “Appropriate” and “may be appropriate” studies have more frequent ischemia than those classified as “rarely appropriate” and are more likely to lead to subsequent cardiac catheterization

Conclusions

- In the “appropriate” group 78% of patients undergoing angiography required revascularization compared with 38% in the “maybe appropriate” group and 0% in the “rarely appropriate” groups

Conclusions

- Our findings provide the first systematic validation of the AUC for stress CMR
- These observations have important implications since the AUC are increasingly used by payers to assess the suitability of reimbursement for CMR procedures

Thank You

Results: Most Common AUC Categories

Criteria Description	N	Classification
Follow-up testing (>90 days) for new or worsening symptoms with history of non-obstructive CAD on coronary angiography (invasive or noninvasive) OR normal prior stress imaging study	32	A
Evaluation of symptoms in patient with intermediate pre-test probability of CAD with an interpretable ECG AND able to exercise	20	M
Newly diagnosed systolic heart failure (resting LV function previously assessed but no prior CAD evaluation)	18	A
Sequential or follow-up testing (≤ 90 days) with uncertain results on prior stress imaging study (not stress CMR) where obstructive CAD remains a concern	18	M
Evaluation of symptoms (ischemic equivalent) post-revascularization (PCI or CABG)	18	A