

ACR Appropriateness Criteria[®]

Dyspnea—Suspected Cardiac Origin

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Abstract

This article discusses imaging guidelines for five dyspnea variants: (1) dyspnea due to heart failure, ischemia not excluded; (2) dyspnea due to suspected nonischemic heart failure, ischemia excluded; (3) dyspnea due to suspected valvular heart disease, ischemia excluded; (4) dyspnea due to suspected cardiac arrhythmia, ischemia excluded; and (5) dyspnea due to suspected pericardial disease, ischemia excluded.

The American College of Radiology Appropriateness Criteria are evidence-based guidelines for specific clinical conditions that are reviewed annually by a multidisciplinary expert panel. The guideline development and revision include an extensive analysis of current medical literature from peer reviewed journals and the application of well-established methodologies (RAND/UCLA Appropriateness Method and Grading of Recommendations Assessment, Development, and Evaluation or GRADE) to rate the appropriateness of imaging and treatment procedures for specific clinical scenarios. In those instances where evidence is lacking or equivocal, expert opinion may supplement the available evidence to recommend imaging or treatment.

Key Words: Appropriateness Criteria, Appropriate Use Criteria, AUC, cardiac arrhythmia, dyspnea, heart failure, ischemia, pericardial disease, valvular heart disease

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Disclaimer: The ACR Committee on Appropriateness Criteria and its expert panels have developed criteria for determining appropriate imaging examinations for diagnosis and treatment of specified medical condition(s). These criteria are intended to guide radiologists, radiation oncologists and referring physicians in making decisions regarding radiologic imaging and treatment. Generally, the complexity and severity of a patient's clinical condition should dictate the selection of appropriate imaging procedures or treatments. Only those examinations generally used for evaluation of the patient's condition are ranked. Other imaging studies necessary to evaluate other co-existent diseases or other medical consequences of this condition are not considered in this document. The availability of equipment or personnel may influence the selection of appropriate imaging procedures or treatments. Imaging techniques classified as investigational by the FDA have not been considered in developing these criteria; however, study of new equipment and applications should be encouraged. The ultimate decision regarding the appropriateness of any specific radiologic examination or treatment must be made by the referring physician and radiologist in light of all the circumstances presented in an individual examination.

ACR Appropriateness Criteria® Dyspnea—Suspected Cardiac Origin Variants 1 to 5 and Table 1.

Variant 1. Dyspnea due to heart failure. Ischemia not excluded.				
Radiologic Procedure	Rating	Comments	RRL	
X-ray chest	9		☼	
US echocardiography transthoracic resting	9		○	
US echocardiography transthoracic stress	9		○	
Tc-99m SPECT MPI rest and stress	9		☼☼☼☼	
Rb-82 PET heart stress	8		☼☼☼	
MRI heart function and morphology without and with IV contrast	8		○	
MRI heart with function and vasodilator stress perfusion without and with IV contrast	8		○	
CTA coronary arteries with IV contrast	8		☼☼☼	
Arteriography coronary with ventriculography	8		☼☼☼	
MRI heart with function and inotropic stress without and with IV contrast	7		○	
US echocardiography transesophageal	5		○	
MRI heart function and morphology without IV contrast	5	This procedure may be appropriate but there was disagreement among panel members on the appropriateness rating as defined by the panel's median rating.	○	
MRI heart with function and inotropic stress without IV contrast	5	This procedure may be appropriate but there was disagreement among panel members on the appropriateness rating as defined by the panel's median rating.	○	
CT heart function and morphology with IV contrast	5	This procedure may be appropriate but there was disagreement among panel members on the appropriateness rating as defined by the panel's median rating.	☼☼☼☼	
CT coronary calcium	5		☼☼☼	

Note: Rating scale: 1, 2, 3 = usually not appropriate; 4, 5, 6 = may be appropriate; 7, 8, 9 = usually appropriate. CTA = CT angiography; IV = intravenous; MPI = myocardial perfusion imaging; RRL = relative radiation level; SPECT = single-photon emission computed tomography; US = ultrasound.

Variant 2. Dyspnea due to suspected nonischemic heart failure. Ischemia excluded.				
Radiologic Procedure	Rating	Comments	RRL	
X-ray chest	9		☼	
US echocardiography transthoracic resting	9		○	
MRI heart function and morphology without and with IV contrast	9		○	
MRI heart function and morphology without IV contrast	8		○	
US echocardiography transesophageal	5		○	
CT heart function and morphology with IV contrast	5		☼☼☼☼	
US echocardiography transthoracic stress	3		○	
Tc-99m SPECT MPI rest and stress	3		☼☼☼☼	
Rb-82 PET heart stress	3		☼☼☼	
MRI heart with function and inotropic stress without and with IV contrast	3		○	
MRI heart with function and inotropic stress without IV contrast	3		○	
MRI heart with function and vasodilator stress perfusion without and with IV contrast	2		○	
CTA coronary arteries with IV contrast	2		☼☼☼	
Arteriography coronary with ventriculography	2		☼☼☼	
CT coronary calcium	1		☼☼☼	

Note: Rating scale: 1, 2, 3 = usually not appropriate; 4, 5, 6 = may be appropriate; 7, 8, 9 = usually appropriate. CTA = CT angiography; IV = intravenous; MPI = myocardial perfusion imaging; RRL = relative radiation level; SPECT = single-photon emission computed tomography; US = ultrasound.

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