

## GUIDELINES FOR JOURNAL CLUB REVIEWERS

### BACKGROUND

- » Briefly describe why this study is being done (and why it should be done). What are the authors trying to do, and did they accomplish it?
- » Is this important (new, useful, or practical) information? » How persuasive is the writing?

### METHODS

- » Briefly comment on the study's design:
  - Are inclusion/exclusion criteria clearly defined?
  - Are diagnostic criteria and endpoints defined in an unambiguous, reproducible, non-circular, prospective manner? Are there any potential biases? Are investigators blinded? Should they have been?
- » Is there a control group? Is a control group necessary?
  - Do the authors state or imply a primary hypothesis? Secondary hypothesis?
  - Are the statistical methods appropriate for the data? Is there evidence that a power calculation was performed to determine the required sample size? (Is there any statistical validation?)
- » How could you do it better?

### RESULTS

- » Briefly comment on major findings of the study. It is not necessary to review the results in detail since Journal club participants have already thoroughly read the study; it is only necessary to highlight the key points.

### DISCUSSION AND CONCLUSION

- » This is the most important part of the presentation! The following questions should be answered:
  - What conclusions do the authors draw from the data? Are these conclusions the same as the primary/secondary hypotheses or has there been post hoc analysis? Are their conclusions justified?
  - What conclusions do you draw from the data?
  - How should the results of this study be applied clinically? (Should we change our practice?)
  - Does this work suggest the need for further research? If so, describe what form this should take.

## **Journal Selection for February 2010**

### **Incremental Value of Adenosine-Induced Stress Myocardial Perfusion Imaging With Dual-Source CT at Cardiac CT Angiography**

*Radiology. 2010; 254(2):410-419*

*Rocha-Filho JA, Blankstein R, Shturman LD, Bezerra HG, Okada DR, Rogers IS, Ghoshhajra B, Hoffmann U, Feuchtner G, Mamuya WS, Brady TJ, Cury RC*

**OBJECTIVES:** First, to assess the feasibility of a protocol involving stress-induced perfusion evaluated at computed tomography (CT) combined with cardiac CT angiography in a single examination and second, to assess the incremental value of perfusion imaging over cardiac CT angiography in a dual-source technique for the detection of obstructive coronary artery disease (CAD) in a high-risk population.

**METHODS:** Institutional review board approval and informed patient consent were obtained before patient enrollment in the study. The study was HIPAA compliant. Thirty-five patients at high risk for CAD were prospectively enrolled for evaluation of the feasibility of CT perfusion imaging. All patients underwent retrospectively electrocardiographically gated (helical) adenosine stress CT perfusion imaging followed by prospectively electrocardiographically gated (axial) rest myocardial CT perfusion imaging. Analysis was performed in three steps: (a) Coronary arterial stenoses were scored for severity and reader confidence at cardiac CT angiography, (b) myocardial perfusion defects were identified and scored for severity and reversibility at CT perfusion imaging, and (c) coronary stenosis severity was reclassified according to perfusion findings at combined cardiac CT angiography and CT perfusion imaging. The sensitivity, specificity, negative predictive value (NPV), and positive predictive value (PPV) of cardiac CT angiography before and after CT perfusion analysis were calculated.

**RESULTS:** With use of a reference standard of greater than 50% stenosis at invasive angiography, all parameters of diagnostic accuracy increased after CT perfusion analysis: Sensitivity increased from 83% to 91%; specificity, from 71% to 91%; PPV, from 66% to 86%; and NPV, from 87% to 93%. The area under the receiver operating characteristic curve increased significantly, from 0.77 to 0.90 ( $P < .005$ ).

**CONCLUSIONS:** A combination protocol involving adenosine perfusion CT imaging and cardiac CT angiography in a dual-source technique is feasible, and CT perfusion adds incremental value to cardiac CT angiography in the detection of significant CAD.

**PMID:** [20093513](https://pubmed.ncbi.nlm.nih.gov/20093513/)

## Questions and Topics for Discussion

- » **What were the aims of this study?**
- » **What potential benefits are there to adding perfusion assessment to CT examination?**
- » **What was the population? Does this raise any issues regarding reported results?**
- » **Were any sacrifices made in the protocol to allow for perfusion imaging? Are there any scanner requirements to replicate this protocol?**
- » **Was incremental benefit noted with perfusion imaging? What was the reference standard? Are there any issues with the statistical analysis?**
- » **What next?**

*PLEASE SHARE YOUR THOUGHTS WITH OUR READERS.*

Submitting the opinions and conclusions reached at your Journal Club meeting after reviewing the article couldn't be easier:

- » By e-mail to: [kirschj@thepreparedminds.com](mailto:kirschj@thepreparedminds.com)
- » By fax to: (954) 689-5115 | C/O Jacobo Kirsch, MD
- » By using the 'Contact Us' form in the website

Prepared by the editors from ThePreparedMinds.com

Michael Bolen, MD  
Cleveland Clinic  
Cleveland, OH

Juan C Brenes, MD  
Cleveland Clinic Florida  
Weston, FL

Eric E. Williamson, MD  
Mayo Clinic  
Rochester, MN