Reviewer’s report

Title: Silent Cerebral Infarct After Cardiac Catheterization as Detected by Diffusion Weighted Magnetic Resonance Imaging: A Randomized Comparison of Radial and Femoral arterial approaches.

Version: 4  Date: 13 March 2007

Reviewer: Thomas Floyd

Reviewer’s report:

General:
- This is a high risk group for sure because of the systemic nature of atherosclerosis in patients with aortic stenosis, and the study may therefore have great value in assessing risk in this particular group.

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Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached)
- Page-4-A reference or references for the cumulative effect of ischemic brain injury would be helpful. These exist in the general study of vascular dementia—or the like, but do not exist in any form to demonstrate that cumulative burden from procedures adds to or leads to long-term cognitive impairment.

- Page-4-There is no clear connection between emboli and cognitive impairment after surgery, only an association.

- There should be some discussion for the non MRI educated, of why DWI is being used, its sensitivity to ischemia relative to other techniques. Why is DWI a reasonable surrogate for stroke?

- If TRA is associated with a lower incidence of complications than TFA, please give references and discuss the important complications. TFA is so widely used in most institutions-why is this?

- How many centers are involved and are they all academic, private, etc?

- Stroke should be an endpoint, even a secondary one. You are powering for new ischemic lesions but you will have to report stroke so that one may tell just what is the ratio between the surrogate and the clinical outcome of stroke.

- The cognitive assessments need to be administered in alternate forms on successive administrations to minimize learning effect. You may mask cognitive impairment otherwise. Repeating the cognitive testing so close to the time of the procedure may be unwise. Narcoric and sedative effects may linger. Iscemic lesions if they cause cognitive impairment of any consequence, will cause deficits that are longer lasting and should be detected at 4 weeks or longer. Cognitive assessments need to be blinded to the occurrence of DWI-lesions and should be assessed in all subjects at all time points. Aging, time, etc may cause the same changes in those who have not experienced new lesions.

- There is no plan for how the cognitive test will be assessed. Change scores, etc. The plan does not reflect a high level of involvement from a neuropsychologist well versed in this topic.

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Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct).
- There are several grammatical errors that are minor and can be worked on with the editor.

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Discretionary Revisions (which the author can choose to ignore)

What next?: Unable to decide on acceptance or rejection until the authors have responded to the major compulsory revisions

Level of interest: An article whose findings are important to those with closely related research interests
Quality of written English: Needs some language corrections before being published

Statistical review: Yes, but I do not feel adequately qualified to assess the statistics.