Reviewer's report

Title: Demographic determinants and effect of pre-operative angiotensin converting enzyme inhibitors and angiotensin receptor blockers on the occurrence of atrial fibrillation after CABG surgery.

Version: 2 Date: 7 December 2009

Reviewer: Jeff Healey

Reviewer's report:

Shariff and colleagues have re-submitted their work examining post-operative atrial fibrillation among 757 patients without prior AF, over 2 years that had isolated, on-pump CABG. This is an important clinical problem.

Major Compulsory Revisions:

The authors work does provide important insights into the problem of post-CABG atrial fibrillation. Specifically, it provides an estimate of the rate of this complication and the clinical characteristics that predict post-operative AF (age and history of hypertension). The methodology for ascertainment of AF are not as rigorous as some studies, which may explain the relatively low rate (19%) of post-operative atrial fibrillation; however, this is still acceptable as it perhaps provides an estimate of more clinically relevant AF (As evidenced by the substantially increased length of stay among AF patients).

The main weakness of this paper is that the authors seem intent on making this a paper on the effect of ACE and ARBs on post-op atrial fibrillation, and despite previous reviews, continue to overstate their abstract, title and conclusions. Although the first sentence of the abstract's conclusion is appropriate for the data, the second sentence is not. The authors have simply added "though this was not statistically significant", but have left their rather unfounded (based on their own data) conclusion intact. Far too much emphasis in the title, abstract and discussion is given to the non-significant findings regarding ACE and ARB.

As previously stated, the authors' data are worthy of publication; however the format must be adjusted significantly. Either the focus of the manuscript should be taken off ACE/ARB and directed more at the general predictors of post-CABG AF; or the authors should collect additional data to explore the ACE/ARB effect. In either case, additional information should be given in the methods section regarding how post-CABG AF was diagnoses (i.e. Was this ONLY symptomatic AF? Was brief AF discovered on telemetry included?, etc)

Other major issue

As stated in the previous review, a sample size calculation is not standard for a retrospective study, but if properly done, the authors should have used to make an appropriate statement - i.e. Based on our sample size, we excluded a 20% reduction in post-CABG AF with ACE or ARB (rather than saying such a
reduction existed but was not significant). I do have concerns regarding the "sample size" calculation in the methods section as the authors say they are looking for a 20% reduction effect - specifically 0.32 to 0.12. The specific rates actually correspond to a 62.5% relative risk reduction, which actually would translate into a sample size of approximately 70 patients per group - as the authors have written. I believe the authors have confused relative and absolute risks....the talk about "a smaller relative risk reduction of -0.15" and then a difference in proportions of -0.20. These statements are incongruent. They also mention "reduction effect" which is not a standard statistical term. In any event, a 20% absolute decrease in AF is HUGE and probably not realistic. A 25% RELATIVE RISK REDUCTION from their overall rate of approximately 20% post-CABG AF would require over 1800 patients to have 80% power, but this is assuming equal numbers of ACE/no-ACE. This is perhaps the main reason that they have not found the difference that they were looking for. This sample size section should either be removed completely or re-written in a standard fashion.

**Level of interest:** An article whose findings are important to those with closely related research interests

**Quality of written English:** Acceptable

**Statistical review:** Yes, and I have assessed the statistics in my report.

**Declaration of competing interests:**

I declare that I have no competing interests