Reviewer's report

Title: Stroke with atrial fibrillation or atrial flutter: descriptive population-based study from the Brest Stroke Registry.

Version: 1  Date: 1 February 2015

Reviewer: Peter L Thompson

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This study which evaluates the prevalence of atrial arrhythmias is well conducted and the methods described indicate a well-considered observational study design. The fact that this is a community wide study enhances the significance of the data. The conclusions that there is a high prevalence of atrial arrhythmias in patients who experience a stroke is generally well supported by the data presented, however, there are several revisions required on the data presented:

Major compulsory revisions

1. The authors do not comment on why the study presents data collected in 2008. As this was nearly 7 years ago, there is the possibility that the information is out of date, particularly as the arrival of the NOAC’s have been accompanied by new guidelines and extensive education programmes driven by the pharmaceutical industry to alert physicians to the need for recognising and anticoagulating patients with atrial fibrillation. A comment clarifying the gap between the conduct of the study and its presentation and whether this affects current relevance should be included.

2. The Conclusion in the last sentence of the Abstract that there is a higher prevalence of AF in stroke than 20 years ago is not justified by the data. Firstly, there is reference to only one study from 1992 to support this statement, and it is unclear how representative was that study. Secondly, the methods of ascertaining AF prevalence were very complete in the current study and there is no data presented to confirm that the same extensive methods of checking for AF were used in the 1992 Oxfordshire study. The Discussion also refers to other studies in which the prevalence of AF was much higher (refs 14, 29, 30), and the discrepancy between these reports, the current report and the 1992 Oxfordshire study need clarification.

Minor Essential revisions

3. The authors appear to have decided to include the AF prevalence for all types of strokes in the overall data, Discussion, and Abstract. It is confusing why this has been done as there is clearly enough detail presented in the Methods and in Figure 2 to distinguish thrombotic from haemorrhagic and undetermined stroke. Obviously the prevalence for thrombotic stroke is of far more relevance than the prevalence in haemorrhagic stroke, and the reasons for including all strokes in the conclusions and Abstract needs to be clarified.

4. While the term “cardiac arrhythmias” is well defined in the Methods and text of
the manuscript, the choice of the term may lead the casual reader to conclude that the study covers all cardiac arrhythmias including ventricular arrhythmias. For clarity, the title and references in the manuscript could be rewritten as “atrial arrhythmias” or “atrial flutter/fibrillation”, but of course this remains the prerogative of the authors. At the least, the selective use of the term “cardiac arrhythmias (CA)” should be explained in the last line of the “Background” in the Abstract.

5. The data on under-treatment with anticoagulants and the adverse consequences of this are concerning and in line with many other studies. (Nieuwlaat R, et al the Euro Heart Survey on Atrial Fibrillation. Eur Heart J. 2005;2622:2422-2434). The relevance of this 2008 data to current treatment patterns needs a comment.

**Level of interest:** An article of importance in its field

**Quality of written English:** Acceptable

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

**Declaration of competing interests:**

'I declare that I have no competing interests'