Reviewer's report

Title: Gender-specific association between hyperuricemia and atrial fibrillation in rural China: a cross-sectional study

Version: 2

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Reviewer: Alvaro Alonso

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In this manuscript, the authors explored the association of hyperuricemia with prevalence of atrial fibrillation (AF) in approximately 12000 individuals in a rural area in China. The authors found that hyperuricemia was associated with increased prevalence of AF in men but not in women.

Major compulsory reviews:
- The authors chose to present their findings as showing that hyperuricemia was associated with AF prevalence in men but not women. However, they did not test for effect modification by sex and, therefore, it is unclear whether the results between men and women are statistically different (they are not). I believe the correct interpretation of the data is that hyperuricemia is associated with AF prevalence in the entire sample. This association may be restricted to men, but the authors’ data does not provide enough evidence to indicate that’s the case.
- In addition to reporting the association between hyperuricemia and AF prevalence, the authors should consider exploring the association between serum uric acid as a continuous variable and AF prevalence.
- The discussion needs to provide some evidence about the validity of self-reported physician-diagnosed AF.
- The Introduction and the Discussion should clarify what this study is adding to the existing literature showing consistently that hyperuricemia is associated with higher prevalence and incidence of AF.

Minor essential revisions:
- Abstract, Include the number of AF cases
- Abstract, Include p-value of heterogeneity for the sex-specific results
- Introduction: in addition to cross-sectional studies of SUA and AF, there have been prospective studies that the authors should cite (e.g. Tamariz et al, PMID: 21855838; Nyrnes et al, PMID: 23994780; others)
- Results, prevalence of AF by SUA level. Indicate how many of the 139 AF cases were identified from ECGs and how many from self-report
- Figure 1. Instead of using a grid pattern, I suggest to the authors using flat colors (e.g. dark color and white)
Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Acceptable

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:
I declare that I have no competing interests