Reviewer’s report

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

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Reviewer: Weihong Tang

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This study evaluated the association between atrial fibrillation (AF) and hyperuricemia in 11,956 individuals recruited from a rural population in China. The authors reported a statistically significant association between the prevalence of AF and hyperuricemia in both men and women in univariate analysis. But the association remained significant only in men after adjustment for other cardiovascular and AF risk factors. The study design that recruits participants from a general population in rural China makes the data unique and interesting. The data analysis appears to be appropriate. The finding is interesting and adds to the literature on the association between AF and hyperuricemia.

Major comments:

1) Some AF cases were diagnosed based on a history of physician-confirmed AF and the medical history was ascertained during a face-to-face interview with the participants. The accuracy of self-reported AF history is of concern especially in participants recruited from a rural area in China. Please clarify this issue.

2) Quality index for laboratory measurements (e.g. coefficient of variation and/or repeatability), especially for serum uric acid measurement, should be provided.

3) A formal statistical test should be conducted to evaluate whether the different association of AF with hyperuricemia between men and women is statistically significant.

4) Waist circumference is included in the definition of metabolic syndrome and also correlates with serum uric acid level. Therefore, waist circumference should be included in the multivariate adjustment analysis.

Minor comments:

1) Page 5, line 96. It would be better to replace “should be” by “were”.

2) Page 7, line 146. Please clarify what “at each SUA level” means or use better wording.

3) Page 8, line 159-160. It states that hyperuricemia group had a higher prevalence of familial AF. This is inconsistent with what’s shown in Table 1.

4) Page 9, line 183. It would read better to add “observed” between “only” and “in”.
Level of interest: An article of importance in its field

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.