Reviewer’s report

Title: Preference for wine is associated with lower hip fracture incidence in post-menopausal women

Version: 1 Date: 20 May 2013

Reviewer: Sharon Brennan

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Preference for wine is associated with lower hip fracture incidence in post-menopausal women
Kubo et al

Reviewers comments:

This study investigates associations between the consumption of different types of alcohol and hip fracture incidence in 115,655 post-menopausal women from the Women’s Health Initiative (WHI). The question has been relatively well defined. The size of the sample population is large, and various sensitivity analyses were performed. With respect, please find my concerns regarding this manuscript presented below.

Major Compulsory/Essential revisions:

Overall:
1. I query whether the associations between a preference for wine consumption and the lower incidence of hip fracture is due to the likelihood that women with higher educational attainment are those that prefer wine (data presented in Table 1), and this is the same group of women that have lower fracture incidence anyway (see for instance Brennan et al (Bone 2011) and Zingmond et al (Osteoporosis International 2006).

2. The authors refer to ‘liquor’ throughout the manuscript, and it appears they suggest that liquor is another type of alcohol. Please clarify. Do the authors mean ‘liqueur’? Please clarify ‘hard liquor’ for non-US readers.

Abstract:
3. Further information should be included in the abstract; the year of data collection and the country from where the population were recruited.

4. The conclusion should be reworded for clarity.

Introduction:
5. Reference should be made to the US guidelines of moderate alcohol consumption, which state one drink per day for women (Dietary Guidelines for Americans).

Methods:
6. A greater level of information regarding the WHI should be provided, especially
regarding differences in the recruitment between the CT and OS cohorts, and what the interventions were in the CT cohorts.

7. More information is required about the FFQ used – is this tool validated? Is there an appropriate citation?

8. Please provide information in this manuscript concerning the ascertainment process for hip fractures, rather than stating they were “...centrally adjudicated as previously described”.

Results:

9. It would be helpful for the reader if univariable associations are also presented.

10. Please make it clear what the contribution of education was to the overall model.

11. Table 1 should include the level of alcohol consumption, ie did educated women drink less (which just happened to be wine)? This issue should also be considered within the analytical model.

12. The authors refer to a Cox Proportional Hazards (PH) model showing similar results. Given that a Cox PH is a much stronger study design, these results should definitely be shown. There is no mention made of the Cox PH methodology in the methods section.

13. Given that women with greater educational attainment are not only more likely to drink wine, but also more likely to have greater financial resources to undergo a hip replacement if needed, please consider a sensitivity analyses that excluded any women with hip replacement post-baseline. This would form part of the Cox PH.

14. Table 2: Consistency is required with regards to the 95%CI presented; there are various instances where only one decimal point is provided rather than two.

15. Were any of the women institutionalised/admitted to nursing home on a fulltime basis at the one or three year follow ups? If so, how were these treated in analyses? Did any of the women attend a falls prevention program during the study period?

16. Given different inclusion criteria between the WHI CT and OC cohorts, were the associations shown in Table 3 similar when stratified by these two groups? Were the interactions tested?

Results/Discussion:

17. Please clarify the categories of Wine (yes vs no) presented in Table 3. Ie, does the ‘no’ group include those that consumed other types of alcohol? (The title of this table requires clarity). If the ‘no’ group does include other alcohol consumers, is it possible that they could be something in this group that increased the likelihood of fracture, rather than those who consumed wine having a reduced risk of fracture? The authors themselves allude to this possibility in their abstract background when referring to the different components of alcohol types and the differential influence on hip fracture. Also, were the differences inherent in red vs white wine considered?
18. One or more serving of alcohol (regardless of type) is a cut point that refers to moderate alcohol consumption according to US standards. Do the statistical associations hold when categorising alcohol consumption as two or more glasses per day, especially given that the Dietary Guidelines for Americans suggest that consuming more than the moderate amount of alcohol (ie two or more) increases the risk of injuries from falls. This is an important issue to consider when investigating alcohol consumption in context of fracture risk (Vestergaard et al, Scandinavian Journal of Public Health, 2006), and associations between falls and socioeconomic status (West et al, Public Health 2004).

19. The authors make a brief mention in their limitations section that wine drinkers may differ by other characteristics that could include incident fracture. This is an important point and worthy of greater discussion. For instance, Farahmand et al (Osteoporosis International 2000) observed that whilst educational attainment was not associated with hip fracture in women, employment, income, type of housing and marital status were significantly associated with hip fracture independent of other risk factors.

Authors contributions:

20. Please clarify whether all authors approved the final version of this manuscript for submission.

Discretionary revisions:

Title:

21. The title is slightly misleading, as it refers to a ‘preference for wine’, but does not indicate a comparator.

Results:

22. Figure 1: Please clarify what ‘form’ means, in the box labelled ‘Excluded due to missing form’.

END

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.