Reviewer's report

Title: Osteoporosis, vertebral fractures and metabolic syndrome in postmenopausal women.

Version: 2 Date: 11 August 2014

Reviewer: Reina Armamento-Villareal

Reviewer's report:

Major Compulsory Revisions

Abstract:

1. Results section says that there were significantly more women with MS among the osteoporotic women (27% vs. 11%). In Table 3 of the actual results, there are 13.4% of women with osteoporosis who also have MS and 27.1% of women without osteoporosis have MS. This discrepancy needs to be corrected and what are the actual values here? Accordingly, the authors need to correct the interpretation both in the Abstract and in the Results section (on page 9, first paragraph). Also the 71% reduction in the odds of being osteoporotic (by BMD) in women with MS, is this accurate?

2. Conclusion section: Can the authors state their conclusion clearly?

Methods:

1. The authors had been using the term low physical activity and low calcium intake throughout the tables and the manuscript. I suggest that they provide what constitutes as low activity and low calcium intake. It would be helpful to present the levels of activity as low, moderate or high and the calcium intake by how much (i.e. mg/day) these women were actually taking as both of these variables influence bone health.

2. Do you have the family history in these women? What is the percentage of women with family history of osteoporosis in the osteoporotic and non-osteoporotic group?

3. In the logistic regression analysis is there a particular reason why percentage body fat was not included in the model. Afterall, it was also significantly different between the osteoporotic and non-osteoporotic group in table 3. There are newer data showing that adiposity is an important determinant of BMD, thus, I suggest including body fat in this analysis.

Results:

1. In table 2, women in the non-MS group also had a mean BMI in the obese range and mean waist circumference above the 88 cm cut-off. Although the waist circumference of the metabolic syndrome group is higher than the non-metabolic syndrome group, the BMI is closely similar. What about the lipid levels, BP and blood sugars between the 2 groups. Were they significantly different or similar? I suggest including these variables in the table 2 as well.
2. Data on the women with MS between osteoporotic and non-osteoporotic group in Table 3 needs to be reconciled with the write-up as pointed above.

Discussion

The authors present an extensive discussion of how MS affects BMD but provided limited references. The studies they are alluding to should include references. For instance the second paragraph on page 12, the authors included an discussion on the effect of inflammation and other factors associated with MS on bone health but provided no reference.

Minor:

There is no label on Table 4.

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

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.