Reviewer's report

Title: Decreased fracture incidence with traditional Chinese medicine therapy in patients with osteoporosis: A nationwide population-based cohort study

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Reviewer: Ye-Seul Lee

Reviewer's report:

This paper explores the effect of TCM to the decrease of osteoporotic fracture rate. The use of nationally representative cohort from NHIRD provide a large number of patients to be included in the cohort, and a 10 years+ longitudinal observation. The results seem interesting, however, a few critical issues need to be addressed.

1. From the Kaplan-Meier curve, the difference in survival rate appears to be already present in the initial weeks. Is this due to immortal time bias? Please explain how the survival time in the TCM and non-TCM user cohorts was calculated.

2. Evidently, there is a huge difference in the comorbidity between TCM and non-TCM users, e.g. COPD. Frequency matching often does not support the results when there is a big gap between the two groups. What was the reason for choosing frequency matching in this study?

3. Please explain why the economic status of the patients were not included in the sociodemographic factors. The accessibility of healthcare and the everyday management of osteoporosis often depend on the patients' economic levels (and/or their occupation).

4. Please explain how the cohorts in this study is free from selection bias. For instance, the less comorbidity of cancer in TCM users might imply that the overall health status is better in TCM groups. The higher comorbidity of COPD might imply that TCM users might include more smokers. Without controlling for, or providing answers to, these issues, the study doesn't seem to support that the higher survival rate is due to the effect of TCM.

5. Furthermore, simply adding the comorbidities as the covariates in the Cox hazards ratio may not control the results very well, especially in the Kaplan-Meier curve. Please explain how you controlled for the patient severity between the two groups, despite the differences in the comorbidities.
Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

Yes

Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.

Yes

Are the conclusions drawn adequately supported by the data shown?
If not, please explain in your comments to the authors.

No

Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

I am able to assess the statistics

Quality of written English
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