Reviewer's report

Title: Vitamin D supplementation and hip fracture risk. A systematic review and meta-analysis of randomised controlled trials and observational studies

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Reviewer: shivani sahni

Reviewer's report:

Report to the authors:

Overall comments: The objective of this paper by Lai et al. is very exciting and timely. This paper attempts to summarize high quality data from randomized controlled trials and case-control studies of vitamin D, PTH and hip fracture. The paper is well written and methods are appropriately described. The discussion section is also well-written. I have some minor essential revisions for this paper.

Minor Essential Revisions:
1. Background, page 3, last line: “this is the first meta-analysis of observational studies on this topic”. I think it would be more appropriate to use the word case-control studies instead of just observational studies since, which can be misunderstood since the authors did not use cohort data in the meta-analysis. Same problem in the strength and weakness section on page 11, 1st paragraph.
2. Statistical Analysis and presentation of results, page 6: 5th line, please give a couple of lines on how you conducted the sensitivity analysis.
3. Statistical Analysis and presentation of results, page 6: Last few lines of the first paragraph: Please specify the level of H statistic that you used and define I2 statistic.
4. Discussion, strengths and limitation, page 11: One limitation could be measurement error in serum vitamin D measurements and misclassification bias. Another limitation could be publication bias.
5. The title of the paper may not be appropriate. Authors only state vitamin D supplementation without any mention of serum vitamin D but then they included the term meta-analysis of observational studies, which examined only serum vitamin D. Its confusing… If the authors prefer to highlight the results from RCTs then I suggest they drop the term observational studies from the title or re-think the title of the paper.

Level of interest: An article of importance in its field

Quality of written English: Acceptable

Statistical review: Yes, and I have assessed the statistics in my report.
Declaration of competing interests:

I declare that I have no competing interests