Reviewer's report

Title: Polyphenol intake and mortality risk: an observational study within the PREDIMED trial

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Reviewer: Shoichiro Tsugane

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The authors investigated the association between polyphenol intake and total mortality using data from a randomized controlled feeding trial to assess the effects of Mediterranean Diet on primary prevention of cardiovascular disease among elderly men and women at high cardiovascular risk. They found an L-shaped association between total polyphenol intake and total mortality. The inverse association persisted for stilbenes and lignans among the subclasses. The manuscript is methodologically sound and generally well-written. This reviewer has several comments as follows.

Major Compulsory Revisions:

1. Although the authors emphasized a long follow-up, an approximately 4.8 year follow-up is relatively short to assess a mortality endpoint and is subject to reverse causation. The ill-health conditions leading to death may influence diet. Therefore sensitivity analysis excluding subjects who died during the first one- or two-year follow-ups should be done and described in the manuscript. Alternatively dietary data of one or two years before death may be excluded.

2. Although the number of deaths was not sufficient to conduct a cause-specific analysis, the authors should at least show the finding on cardiovascular mortality. Moreover, the major causes of death should be shown.

3. p12 line 260-262: It is too early to make such a strong dietary advice based on the sub-analysis of this data set.

4. p6 line 115-117: The reasons of the trial termination should be briefly mentioned.

5. Since the study was based on a dietary intervention study, the diet after the intervention was rather for a short-term and might be different from their original dietary habits. It may be more informative to show the association between baseline diet and mortality.

Minor Essential Revisions:

There are several English errors.
e.g. neither total polyphenol intake or the different - neither ... nor ...
Quality of written English: Needs some language corrections before being published

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.