Reviewer's report

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

Version: 1 Date: 5 February 2014

Reviewer: Johanna Dwyer

Reviewer's report:

Discretionary revisions and comments
The use of a moving average intake is interesting (line 151 on).

Some of the findings are counterintuitive, such as the group with high cholesterol levels in blood with low SFA intakes.

What are dihydroflavonols? May want to include other names as well.

Line 116: say why trial was terminated (for favoring MedDiet?)

Line 91: chronic degenerative disease

Line 84: with respect to nutrients, the MedDiet is...

Ref 15 is incomplete

Explain or reference Nelson Aalen estimates; this is an unfamiliar technique for some readers of this journal.

Major Points

1. How complete was the food table used for polyphenols, and when there were missing values what defaults were used?

2. Since the associations found were not linear, why didn't the authors use splines or fit the data to the curvilinear function that seems to exist, instead of tests for trend.

3. In the interpretation of the final model, how is one to rule out the effects on outcomes of other possible causes, such as PUFA, etc. On pg 11 lines 230-237 was it just associations with lignand and other polyphenols or all that came out to be attenuated? The explanation of results with model 3 needs expansion, at least for this reviewer. It is difficult to envision how much of the effect was actually "left" after the other constituents of diet were taken into account. What about multicollinearity, such as the effects of alcohol in wines vs stilbenes?

4. This is really not a observational longitudinal study with an hypothesis as stated in lines 88-93, and again line 122 and 245, as it is described, but rather a reanalysis of an intervention study, isn't it? Given that the polyphenols are known to be high in the MedDiet what is unique about showing that they are high?

5. With so many covariates, was there a danger of overadjustment?

6. The discussion is too long and overly speculative and needs to be edited down.
Quality of written English: Needs some language corrections before being published

Statistical review: Yes, but I do not feel adequately qualified to assess the statistics.

Declaration of competing interests:

I received a one time fee and travel expenses from Ocean Spray Cranberries for attending a meeting in 2013