Reviewer’s report

Title: Response to cholinesterase inhibitors might affect life-span in Alzheimer's disease

Version: 2 Date: 9 July 2014

Reviewer: Yian Gu

Reviewer’s report:

1. Major Compulsory Revisions:

1.1 The author may want to make a clearer statement of the study goal. It is unclear whether the study aims to examine the association between response to ChEI, or the dosage of ChEI, and the life-span. It seems both have been examined. But the tables (2 and 3) seems to just focus on the 'response to ChEI', and the discussion have too many of the other covariates (education, male, etc.). All these make the study goal very confusing.

2. Minor Essential Revisions

2.1 The paper needs a clear hypothesis.

2.2 The authors mentioned in the last sentence of the first paragraph of page 15 '...with no increase in survival in the severe disease stage.' However, no data of 'severe disease stage' were available in this study, so such a statement is not supported by the findings of the study.

2.3 The study did not examine whether 'specific agent' was associated with lifespan, while it was mentioned in the 'introduction' of the abstract. It would be interesting to see whether the three types of ChEI have different relationship with lifespan of the patients.

2.4 The outcome measure should be the lifespan, rather than the response to ChEI measures.

2.5 On page 16, the last sentence of the first paragraph, 'A higher education could be a risk factor in AD....'. Right before this sentence, the authors mentioned '... a higher education level....... later detection of the disease.' Higher education, as a major cognitive reserve factor, should not be considered as a risk factor for developing AD. The author probably wanted to mean 'a higher education level was associated with worse prognosis in AD?'

Discretionary Revisions

3.1 In the last paragraph on page 16: The study found 'higher dose ....exhibited... extension in life-span'. This finding does not support 'the importance of optimizing the ChEI dose for each individual with AD'. This would just lead to a suggestion of 'higher dose would be beneficial as long as the patients can tolerate'.

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: None.