Reviewer’s report

Title: Assessing the effect of a partly unobserved, exogenous, binary time-dependent covariate on survival probabilities using generalised pseudo-values

Version: 1 Date: 02 Aug 2017

Reviewer: Tianmeng Lyu

Reviewer’s report:

Please see the following comments:

1. About the property of equation (5): in section A of the Appendix, what is the definition of \( \tilde{T}_k \)? Could you elaborate the reason why the vector \(((\tilde{T}_k - z, D_k), Z_k)\) are i.i.d. for \( k=1,\ldots,r \) considering that the distribution of the failure time is different between patients who have donors available and then receive SCT and patients who don't have donors after t*search(the control group)?

2. Page 6, line 38-41, "the by log-transformation linked cumulative hazards can be compared", the wording is confusing.

3. Page 6, line 45-50, if the cumulative hazard ratio \( H_1/H_2 < 1 \), then \( H_1 < H_2 \), which implies \( S_1 > S_2 \), so it should be "cumulative hazard ratio below 1 implies a higher survival probability"?

4. Page 14, line 22-32, "In patients with a donor this is equivalent to the probability that a 0->1 transition at time \( w_i \)" is a little bit confusing. Did you mean "probability of actually observing a 0->1 transition at \( w_i \) conditioning on the waiting time would be \( W=w_i \) if observed"? otherwise "being uncensored and free of 0->2 transition" doesn't mean "a 0->1 transition at \( w_i \)?

5. In page 15, line 5, "with \( x_{i}(1i)=0 \) for i=1,\ldots,n", here n represents the number of subjects without donors instead of the number of total subjects as in other sections?

6. In the footnotes of Table 1 (page 29), (13) seems confusing. Is there a typo? Did you mean that "n represents the total sample size; 25% patients don't have a donor available; among those who have a donor available, the waiting time is either not observed, or observed at w=0.5, 1 and 3."?

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.

Yes

**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**
Please indicate the quality of language in the manuscript:

Acceptable

**Declaration of competing interests**
Please complete a declaration of competing interests, considering the following questions:

1. Have you in the past five years received reimbursements, fees, funding, or salary from an organisation that may in any way gain or lose financially from the publication of this manuscript, either now or in the future?

2. Do you hold any stocks or shares in an organisation that may in any way gain or lose financially from the publication of this manuscript, either now or in the future?

3. Do you hold or are you currently applying for any patents relating to the content of the manuscript?

4. Have you received reimbursements, fees, funding, or salary from an organization that holds or has applied for patents relating to the content of the manuscript?

5. Do you have any other financial competing interests?

6. Do you have any non-financial competing interests in relation to this paper?

If you can answer no to all of the above, write 'I declare that I have no competing interests' below. If your reply is yes to any, please give details below.

I declare that I have no competing interests.
I agree to the open peer review policy of the journal. I understand that my name will be included on my report to the authors and, if the manuscript is accepted for publication, my named report including any attachments I upload will be posted on the website along with the authors' responses. I agree for my report to be made available under an Open Access Creative Commons CC-BY license (http://creativecommons.org/licenses/by/4.0/). I understand that any comments which I do not wish to be included in my named report can be included as confidential comments to the editors, which will not be published.

I agree to the open peer review policy of the journal