Reviewer’s report

Title: Dual kidney transplantation offers a safe and effective way to use kidneys from deceased donors older than 70 years

Version: 0 Date: 24 Jul 2019

Reviewer: Research Square

Reviewer's report:

"STATISTICAL REVIEWER ASSESSMENT:

Is the study design appropriate for the research question (considering whether the analyzed population accurately reflects the design and whether you see any problems with control/comparison groups, e.g., likely confounders)?
No - there are minor issues

Are methodologies adequate and well implemented (considering whether assumptions are addressed and whether analyses are robust)?
No - there are minor issues

Are the analyses adequately communicated (considering whether reporting details are adequate and whether figures and tables are well labeled and described)?
Yes - important reporting details are present, analyses are adequately communicated, figures and tables are well labeled and described

Does the interpretation accurately reflect the analyses without overstatement (considering whether limitations/bias are acknowledged and whether accurate descriptors, e.g., 'significant', are used)?
Yes - interpretation accurately reflects analyses, limitations/bias are acknowledged, accurate descriptors are used

Could an appropriately REVISED version of this work represent a statistically sound contribution?
Probably - with minor revisions

STATISTICAL REVIEWER COMMENTS:

You're proposing that "dual kidney transplantation offers a safe and effective way to use kidneys from deceased donors older than 70 years" via your research and even through your title. This means your donor and recipient groups both were equal in number (i.e., 242 as you mentioned). Also, it seems that the recipients had both kidneys damaged to have dual kidney transplantation. Did you check whether the recipients had only one kidney damaged and was transplanted only one from the donor? This would strengthen your proposition as mentioned in your title.
The authors have applied Kruskal Wallis test, Wilcoxon rank sum test, Fisher's exact test, Kaplan-Meier analysis, Cox proportional-hazards regression, and Generalized Estimating Equation (GEE) for their continuous and categorical variables. Application of these robust and relevant tests have strengthened the trustworthiness of their findings.

The authors have not elaborated upon the normality checking of their sample (to be discussed with the P-P plot or the Q-Q plot). Clarify the issues of the application of Kruskal Wallis test and posthoc analysis with Wilcoxon rank sum test and the application of Fisher's exact test specifically. Statistical tests without sample size calculation have decreased credibility of the findings. Other comments have been given with this peer review.

REQUESTED REVISIONS:

ADDITIONAL REQUESTS/SUGGESTIONS:
General comments:
Use past tense in the last paragraph of Introduction section.
Mention the associated p value when you mention 'significant' or 'not significant'.

Specific comments:
Introduction: Elaborate upon the 'extremely marginal donors'. This also applies to the

Materials and methods:
Study design:
Although the authors have not mentioned clearly, it seems that it was randomized controlled trial (RCT) or even seems that it was historical cohort study. First of all, clarify the issue. Then also mention in the trial procedure how you ensured randomization in the donor (although deceased) and recipient groups. Also, elaborate upon the clinical trial registry and the organization of the data safety and monitoring board (DSMB) for the present study (provided that it was clinical trial).
Mention the basis of sample size calculation.
Clarify the 'our hospital'.
Elaborate upon the basis for such waiver of the requirement of the written informed consent from the deceased person's family member and the recipient/recipient's caretaker.

Statistical analysis:
You've mentioned "Continuous variables were analyzed with by the Kruskal Wallis test and post-hoc analysis was performed by the Wilcoxon rank sum test." Kruskal Wallis test is the non-parametric counterpart of one-way ANOVA (i.e., parametric test with comparison of ≥3 means) whereas Wilcoxon rank sum test is the non-parametric version of paired t-test (i.e., parametric test with comparison of 2 means of the paired group). This has created confusion. It also seems that you tried to confirm the variation pairwise with Wilcoxon rank sum test. Wouldn't it inflate p value? Did you go through Bonferroni correction procedure while doing posthoc analysis? Clarify the issue.
You've mentioned "Categorical variables were analyzed by Fisher's exact test." Mention clearly the conditions for its application. Why didn't you choose chi square test or log-linear test? Did you check the individual expected cell frequency in the contingency table?

Discussion:

Cite references to support the statement "Although we did not utilize this approach, use of mTOR inhibitor to lower doses of calcineurin inhibitors represents a potential way to improve outcomes."

Ethics, consent and permissions:

Elaborate upon the reason why this was retrospectively approved for its ethics ground even you were already aware of your study design and knew that being a clinical trial it required ethics approval prior to the initiation of your study.

References: Rewrite reference 13 clearly.

Please confirm that you have included your review in the ‘Comments to Author’ box?

As a minimum standard, please include a few sentences that outline what you think are the authors’ hypothesis/objectives, their main results, and the conclusions drawn. Your report should constructively instruct authors on how they can strengthen their paper to the point where it may be acceptable for publication, or provide detailed reasons as to why the manuscript does not fulfill our criteria for consideration. Please supply appropriate evidence using examples from the manuscript to substantiate your comments. Please break your comments into two bulleted or numbered sections: major and minor comments.

Please note that we may not be able to use your review if no comments are provided.

Please only upload as attachments annotated versions of manuscripts, graphs, supporting materials or other aspects of your report which cannot be included as text in the ‘Comments to Author’ box.

Yes

Are the methods appropriate and well described to allow independent reproduction of experiments?

Please state in the ‘Comments to Authors’ box below what you think are the strengths and weaknesses of the methods (study design, data collection, and data analysis), and what is required, if anything, to improve the quality of reporting

No
Does the work include the necessary controls?
If not, please explain in the ‘Comments to Author’ box below.

No

Are you able to assess the statistics?
- Are the statistical test(s) used in this study appropriate and well described?
- Is the exact sample size (n) reported for each experimental group/condition (as a number, not a range)?
- Are the description of any error bars and probability values appropriate?
- Are all error bars defined in the corresponding figure legends?
- Has a sample size calculation been included, or a description and rationale about how sample sizes were chosen?

Please can you confirm which of the following statements apply to your statistical assessment of the manuscript (Please include details of what the authors need to address in the ‘Comments to Author’ box):

There are statistical tests that I am unable to assess and recommend seeking additional advice (please specify which tests these are in the ‘Comments to Editor’ box)

Are the conclusions drawn adequately supported by the data shown?
If not, please explain in the ‘Comments to Author’ box below.

Yes

Quality of written English
Please indicate the quality of language in the manuscript:

Acceptable

Should the manuscript be highlighted for promotional activity?
Articles that are deemed of interest to a broad audience can be promoted in a variety of ways. This could be through email updates, postings on the BioMed Central homepage, social media, blogs and/or press releases. Please indicate in the text box below whether you think this manuscript should be considered for promotional activity, indicating your reasons why (e.g. what is the most newsworthy aspect of the research).

No
Declaration of competing interests
Please complete a declaration of competing interests, considering the following questions:

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5. Do you have any other financial competing interests?

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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.

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