Author’s response to reviews

Title: A comparative study on the efficacy of a retrograde perfusion technique and an antegrade perfusion technique for donor kidney recovery in transplantation in pigs

Authors:

Xiu-wu HAN (xiuwuhan@163.com)
Xu-hui ZHU (bjzxh_728@163.com)
Tao LI (taoli646@163.com)
Yan-sheng LI (lys-fast@163.com)
Hui SHAN (shanhui902@163.com)
Peng ZHANG (peng_njrmc@sina.com)
Bulang He (Bulang.he@health.wa.gov.au)

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Author’s response to reviews:

Cover letter

Dear editors and reviewers,

We deeply appreciate the time and effort you’ve spent in reviewing our manuscript.

The reviewer’s comments and advises on our manuscript are really constructive and valuable. We have carefully revised the manuscript according to reviewer’s suggestions. We have the manuscript revised once more by a editing company. Some changes according to English editing have done and marked. We add some newly studied materials related to our research that could served as supplementary materials (sent via sistem).

We hope that our revised version will be satisfactory for publication in BMC Surgery.

A point-by-point response to the comments

Reviewer reports:
Reviewer 2: The manuscript is improved and contains fewer typos. However the following issues are not addressed and need revision:

1. I am surprised at the warm ischemia time of ~ 3 minutes? The authors responded to my initial query by explaining why it is important to keep WIT limited, which is I understand. I am querying whether you performed the vascular anastomosis completely from start to finish with no further work in ~3 minutes as suggested in Table 1? That seems too low to me, especially if you are completing the venous anastomosis first. In our experience porcine veins are very friable and require care. I suspect you are stating very low values because you are timing only a certain part of the procedure but I cannot tell from the description you have provided?

Reply:

Wrm ischemia time lacks of a consensus definition from the beginning. We can find definition for wrm ischemia time :(1) Ischemia during implantation, from removal of the organ from ice until reperfusion, and (2) Ischemia during organ retrieval, from the time of cross clamping (or of asystole in non-heart-beating donors), until cold perfusion is commenced. In much transplant literature, however, the term "warm ischaemia" is used to describe both of these periods indiscriminately. We also can see in literature using (a) warm ischemia and re-warm ischemia; (b) first warm ischemia and second warm ischemia to describe warm ischemia (Halazun KJ Transplant Proc. 2007). For in vivo perfusion (In situ cooling) of the organs, first warm ischemia may be zero. Our center use a specially designed disposable gauze bag during vessels anastomoses can eliminate the second warm ischemia. The home-made bag, which has been used in our center for almost three decades, consists of three compartments. The middle compartment holding the graft is surrounded by two external compartments filled with flake ice (sterile saline ice). The effect of the bag may be proved by Dr. Dorota Kamińska, who use kidney surface cooling bag, a specially designed disposable polyethylene bag produced by Raguse GmbH (Germany), very similar to ours. His second warm ischemia was “0” in his study (Scientific Reports | 6:36118 | DOI: 10.1038/sr The home-made bag ep36118, page 8, Table 6).

What was our fault is we forget to depict our “gauze bag” in our manuscript. So we added it in Page 8, line 19 to Page 9, line 5. and “first warm ischemia and second warm ischemia” were emphasized.

2. I think it would be useful to include a diagram of the experimental procedures and time points in the methods so that it is clear what is being shown.

Reply:
We added a diagram of the experimental procedures and time points, Fig 1, and changed others accordingly.

3. Magnification needs to be given in the methods for histology

Reply:
Page 10,line14,15.

4. Scores for Day 7 histology are not given as requested?

Reply:
We added a table3 and fig 5, and changed others accordingly.

5. How is tubular dilation assessed in Table 1? A score is given bit it is not clear if tubular dilatation was measured? This looks like a subjective assessment. The other histological parameters should be assessed in the same way and quantified as much as possible as opposed to a subjective assessment (e.g., cells displaying morphological features of apoptosis can be counted; the # of tubules displaying brush border injury can be counted (the severity of brush border injury will require semi-quantitative assessment which is OK), etc.

Reply:
We discuss this issue with pathologist.Tubular dilation assessed by the ratio of dilation with diameter of certain view scope under same magnification.They referenced to Mr.Hosgood’s methods to do the work.Some works we think are kind of semi-quantitative assessment.

6. The authors state the histology on day 7 is "normal". I am a little surprised therefore that the sCr was elevated in both groups (not withstanding that there is only one kidney). Why is the sCr elevated (more than expected after nephrectomy) if there is no histological injury? Histological scores and images should be shown.

I think histological injury surely existed,maybe in more micro-morphologic level.

We added a table3 and fig 5, and changed others accordingly.
Thank you for your kind advises and instructions! I learn a lot from you. Thank you!

Sincerely yours

Xiuwuhan.