OPEN PEER REVIEW

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Peer Review Report for "Application of Diffusion Tensor Imaging in Obstructive Nephropathy"

Author(s): Hua-Jian Xu, Hanwen Zhang, Juan Yu, Fan Lin, Yi Lei

Review Timeline:

Submit Date: 30 Mar 2021
Revised Date: 2 Aug 2021
Accepted Date: 15 Aug 2021

Revision (0)

Here, you can see the **Reviewers**, **Associate Editors** and **EICs'** comments from the beginning to the end of the revision process.

REFEREE: Reviewer | Revision (0)

24 Apr 2021

Dear AE,
Overall, the methodology of the study is relatively acceptable but requires modifications that are briefly:
1. The title of the manuscript does not clearly and completely state its purpose and it must be edited.
2. It must be written in full format before a word is used in acronym form.
3. Why were not all the samples of the experimental and comparison group used in different MRI imaging times? While, this procedure reduced the statistical power of the study.
4. What was the reason for repeating the imaging of the comparison group; while, this group did not receive any intervention? Why not use the baseline measurement of the experimental group for comparison?
5. The code of ethics of the project should be mentioned in the section of ethical considerations.
6. In the statistical analysis section, it was stated that the values were compared in pairs between the control group and the intervention at different times; First, the normality distribution of data should be checked, and then, instead of one-way analysis of variance, paired t-test or Wilcoxon test should be used, depending on the normality of the data.
7. What is the meaning of SNK method in statistical analysis and where was the result presented?

8. Where Spearman correlation coefficient results are presented in the figure or table.
9. In the results section, section 4-2 (1 @ 2), should refer to a table or figure.
10. In the method, it was mentioned that in different times of imaging, 2 samples of the control group were used but in the tables, only one value was presented for the control group? In addition, the sample number of each group must be written in parentheses for different times in tables.
11. In Table 1-3-2-3, in addition to the significance level, the value of each group should be written.
Thanks.

REFEREE: Reviewer | **Revision** (0) 24 Apr 2021

Dear AE,
Thanks for submitting the manuscript.
I think it is an interesting and good idea for further researches in human cases.
Thanks.

REFEREE: Associate Editor | **Revision** (0) 24 Apr 2021

Dear EIC,
Minor revision considering the methodologic review.
Thanks.

REFEREE: EIC | **Revision** (0) 25 Apr 2021

Dear authors,
Your article needs Minor Revision.
Regards

OPEN PEER REVIEW

Revision (1)

Reply to Reviewers

Ideally, the reviewing process can significantly improve the submitted manuscripts by allowing the authors to take into account the advice of reviewers. Author(s) must reply to all reviewers' comments in a separate Word file, point by point. A "**Reply to Reviewers**" document is submitted along with revised manuscript during submission of revised files, summarizing the changes that the authors made in response to the reviewers' comments. The responses to reviewers' comments specifies how the authors addressed each comment the reviewers made.

You can read the authors' responses to the reviewers' comments in the next page.

Reviewers' Comments:

Reviewer 1:

Dear author :

Thank you for submitting the manuscript.

I think it interesting and good idea for further researches in human cases.

A: Thank you for your affirmation of our research.

In fact, DTI is widely used in central nervous system imaging as a kind of MR technology. It is not widely used in the genitourinary system. Through more experiments and accumulation of clinical experience, I believe this technology can be better applied.

Reviewer 2:

Overall, the methodology of the study is relatively acceptable but requires modifications that are briefly:

Q1. The title of the manuscript does not clearly and completely state its purpose and it must be edited.

A: Thanks for your suggestion, we decided to simplify the title and use ‘Application of Diffusion Tensor Imaging in Obstructive Nephropathy’ as the title.

Q2. It must be written in full format before a word is used in acronym form.

A: We apologize to you for this problem. We have modified and added full format.

Q3. Why were not all the samples of the experimental and comparison group used in different MRI imaging times? While, this procedure reduced the statistical power of the study.

A： Your question is excellent. We also considered this issue at the beginning of the experiment.Because the purpose of the experiment is to use DTI to monitor the microscopic changes of renal obstruction at different time points, it needs to be compared with pathology and immunohistochemistry. Therefore, a part of rat kidneys need to be taken out for pathological and immunohistochemical analysis at each time

point, so the rats without time point comparison cannot be the same batch of the control group.

Q4. What was the reason for repeating the imaging of the comparison group; while, this group did not receive any intervention? Why not use the baseline measurement of the experimental group for comparison?

A: This question is an adjustment made after our pre-test. Because it was found in preliminary experiments that some rats have DTI parameter changes after surgical stress. Therefore, setting the sham operation group as the control group is more rigorous.

Q5. The code of ethics of the project should be mentioned in the section of ethical considerations.

A: Our section of ethical considerations is marked green in the article.

Q6. In the statistical analysis section, it was stated that the values were compared in pairs between the control group and the intervention at different times; First, the normality distribution of data should be checked, and then, instead of one-way analysis of variance, paired t-test or Wilcoxon test should be used, depending on the normality of the data.

A: We have discussed with statistical experts. This experiment is to compare the data of the experimental group with the control group. When it conforms to the normal distribution, the Bonferroni test in the one-way analysis of variance can be used, which contains a similar method of the t test.

This compares the data at a certain time point in the experimental group with the control group, and also compares within the group at different time groups in the experimental group.

Q7. What is the meaning of SNK method in statistical analysis and where was the result presented?

A: SNK is suitable for pairwise comparison of multiple means. The results are in Table1-1, Table1-2, Table1-3, Table2-1, Table2-2, Table2-3.

Q8. Where Spearman correlation coefficient results are presented in the figure or table.

A: The result is displayed in the legend of table3.

Table 3 shows data analyzed by Spearman's rank correlation. The correlation coefficient between the expression of α-SMA and duration of obstruction was 0.869 (P=0.000), indicating that α-SMA expression increased with the prolongation of hydronephrosis and increasing severity of renal tubulointerstitial lesions. The correlation coefficient between the grade of renal tubulointerstitial lesions and duration of obstruction was 0.924 (P=0.000), indicating that the severity of renal tubulointerstitial lesions increased with the prolongation of the water accumulation, especially on the 3rd day.

Q9. In the results section, section 4-2 (1 @ 2), should refer to a table or figure.

A: The reviewer's suggestions are very necessary. Therefore, we have added Figure 3.

Q10. In the method, it was mentioned that in different times of imaging, 2 samples of the control group were used but in the tables only one value was presented for the control group? In addition, the sample number of each group must be written in parentheses for different times in tables.

A: This suggestion is very good. The preoperative group scans are actually used as baseline data and only used to calibrate the data, but the control group should be the sham operation group. The data of the preoperative group has been deleted according to the reviewer's opinion. The number of samples in each group has been added in the table.

Q11. In Table 1-3-2-3, in addition to significance level, the value of each group should be written.

A: The specific values are already in Table1-1, Table1-2, Table2-1, Table2-2. Therefore, there is no repeated mention in the article.

Thanks to the editors and reviewers for supporting our research!

OPEN PEER REVIEW

Revision (1)

Here, you can see the **Reviewers**, **Associate Editors** and **EICs'** comments from the beginning to the end of the revision process.

REFEREE: Reviewer | **Revision** (1) — 12 May 2021

Dear AE,
Thanks from dear authors for explanations and editions in the manuscript according to comments. At present, this draft is acceptable according to methodology.
Thanks.

REFEREE: Associate Editor | **Revision** (1) — 12 May 2021

Dear EIC
Based on the authors' answers to the reviewers' comments, the reviewer(s) have recommended publication.
Kind regards.

REFEREE: Reviewer | **Revision** (1) — 17 May 2021

Dear AE,
The study is reviewed carefully. According to comments and revisions by the author, this manuscript is accepted.
Thanks

REFEREE: Associate Editor | **Revision** (1) — 28 Jul 2021

Dear EIC
The reviewer(s) have recommended publication, but also suggest some minor revisions to the manuscript. Therefore, I invite the author to respond to the reviewer(s)' comments and revise his manuscript.
Kind regards,

REFEREE: EIC | **Revision** (1) — 30 Jul 2021

Dear authors,
Your article needs Minor Revision.
Regards

OPEN PEER REVIEW

Revision (2)

Reply to Reviewers

Ideally, the reviewing process can significantly improve the submitted manuscripts by allowing the authors to take into account the advice of reviewers. Author(s) must reply to all reviewers' comments in a separate Word file, point by point. A "**Reply to Reviewers**" document is submitted along with revised manuscript during submission of revised files, summarizing the changes that the authors made in response to the reviewers' comments. The responses to reviewers' comments specifies how the authors addressed each comment the reviewers made.

You can read the authors' responses to the reviewers' comments in the next page.

Reviewers' Comments:

Reviewer 1:

Thanks from dear authors for explanations and editions in the manuscript according to comments. At present, this draft is acceptable according to methodology.

A: I would like to express my heartfelt thanks to two reviewers for taking the time to review this manuscript. Thank you for your recognition of our research.

Reviewer 2:

This paper is ok.

A: I would like to express my heartfelt thanks to two reviewers for taking the time to review this manuscript. Thank you for your recognition of our research.

Associate Editor's Comments:

Associate Editor 1:

The manuscript can be accepted.

A: Thanks to Associate Editor for approving this manuscript.

Associate Editor 2:

Q1. Please add full term of abbreviations in the first time [in abstract and full paper separately]

A1: Thank you very much. Associate Editor made many suggestions on the format of the manuscript. We add full term of abbreviations in the abstract section. (Page 1, ‘Abstract’)

Q2. The authors mentioned: “Liu YM's reserach” it seems better format is: “Liu’s research”. Please follow this format in all paper [initial name is not necessary]

A2: We have revised the name format of the cited article. (Page 2, ‘Background’ part, Paragraph 3, Line 11)

Q3. Please add objective part to the paper before method section.

A3: We add objective part. (Page 3, ‘Objective part’)

Q4. Please add numbers to titles and subtitles as follows: 1-background. 2-objectives. 3-materilas and methods. 3.1-Experimental animals. 3.2-Establishment of animal model. …….

A4: We add titles and subtitles. (Full text)

Q5. Please add the manufacturer data of SPSS.

A5: We add the manufacturer data of SPSS. (Page 7, ‘Statistical analysis’ part, Paragraph 1, Line 2)

Q6. The result section of 2.2 [Statistical analysis of DTI parameters] including ADC and FA results only address the tables. It is better the authors add a brief of the tables findings in these sections. This question could be proposed for part 2.3 [Pathological results] too.

A6: We have explained and supplemented the results of these parts remembering the table. (Current sections 4.2 and 4.3)

Q7. References are not in format. For example, references 3-6 do not have jornal names. And journal names should be abbreviated.

A7: We are sorry for our mistakes. We have added the journal titles of all articles and abbreviated the journal titles. (‘References’ part)

Q8. Please change p-value of 0.000 to <0.001

A8: We will replace all expressions of 0.000 with <0.001. (Full text and all tables)

Q9. There is a part [There was no significant difference in the ADC between the experimental group and ……] at the end of tables 1-1 to 1-3. This part is footnote of

these tables. Please add in these tables that this is footnote of these tables. This sentence could be proposed for tha part after tables 2-1 to 2-3. [I mean this part: Table 2-1 shows that there was no significant difference in the ADC between …]. In addition, the part [Table 3 shows data analyzed by Spearman's rank correlation ….] should be footnote of table 3.

A9: We have changed PS to Footnote. At the same time, we moved the latter part of Table 2 and Table 3 to the main text. (All tables)

Thanks to the editors and reviewers for supporting our research!

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Revision (2)

Here, you can see the **Reviewers**, **Associate Editors** and **EICs'** comments from the beginning to the end of the revision process.

REFEREE: Associate Editor | **Revision** (2) 15 Aug 2021

Dear EIC
Based on the authors' answers to the reviewers' comments, the reviewer(s) have recommended publication.
Kind regards.

REFEREE: EIC | **Revision** (2) 15 Aug 2021

Dear authors,
Your article is acceptable for the publication in IJR.
Regards