Reviewer’s report

Title: REDUCING KIDNEY MOTION: OPTIMIZING ANESTHESIA AND COMBINING RESPIRATORY SUPPORT FOR RETROGRADE INTRARENAL SURGERY: A PILOT STUDY

Version: 0 Date: 27 Apr 2019

Reviewer: Mario Sofer

Reviewer's report:

This study aimed to assess the influence of a new anesthesiological approach on mobility of kidneys during RIRS as subjectively evaluated by two surgeons. The drawbacks of the design is the lack of a comparison group and that objective criteria were not used (operative time, stone free, hospitalization, etc.). However, searches for reducing renal movements during RIRS are important and should be applauded. Therefore, this study can be considered for publication after major revisions.

ABSTRACT

- Background: delete first sentence.

Correct to: "One of the greatest challenges presented with RIRS is the potential for movement of the stone within the operative field associated with diaphragm and chest respiratory excursions due to mechanical ventilation. To overcome this challenge, we propose in this pilot study a new general anesthesia technique combining HFJV with SVMV. Data regarding safety, feasibility and surgeons' impression was assessed."

- Methods: describe the technique, inly the name of it is mentioned!

- Conclusions: soften the statement. "…appears to provide better and…."  

BACKGROUND

- The content of first paragraph is routinely used in many articles. The second sentence is confusing, dealing with RIRS in regards of unfavorable factors for SWL.

I suggest beginning this section from the second paragraph deleting the first one.

- add "mechanical ventilation" when first using in the text followed by abbreviation (MV).
- The aim of the study is to optimize RIRS. Therefore change to "...high frequency jet ventilation (HFJV) during RIRS..."

- move to Discussion section: "Popiolek et al. was the first to present HFJV in RIRS during the 2017 World Congress of Endourology, demonstrating the true necessity of stabilization of the operative field." And correct the references list accordingly.

- "Therefore, HFJV remains a suboptimal approach toward anesthesiologic support during RIRS." This statement is an assumption of the authors without support in the literature. Fact that HFJV has clinical use. Please delete it.

- Efficacy was not assessed. Please delete it.

- Consider re-editing the last paragraph in: In order to further improve monitoring and safety during anesthesia as well as intraoperative conditions for performing effective RIRS we propose a modified technique of GA, referred to as combined respiratory support (CRS). It implies HFJV with small volume mechanical ventilation (SVMV). We present here a pilot study to assess efficacy, safety and feasibility of CRS during RIRS.

METHODS:

- How reference 6 is related to any of the statements in the first paragraph? Please delete it from here.

- In the background effectiveness is also mentioned as an aim of the study. Please add it as a primary outcome purpose or delete it from background section.

- Since converting from MV to HFJV implies changing the connections within airways, it would be interesting to assess the anesthesiologist impression with this technique in comparison to the standard GA. Anesthesiologists are not servants but part of the team.

- if performing dusting we cannot talk about fragments □. Maybe change to: ...a fragment was deliberately left to be extracted for calculi composition analysis.

- mention if the procedures were performed with UAS and which

RESULTS:

- delete "...and included.."

- This section is really somewhat laconic, but I understand that according to the study design there is no much to add.
"…after the application of CRS (2.1 2.3 2.6 and 3.7 3.8 4.0, p<0.0001, respectively) (Table 2)." The data in the parentheses is not understandable.

Since we are anesthesiologists it is not clear to us what is the significance of changes in the ventilation monitoring between the standard and CRS methods. I'm not sure that all these data is needed at all.

Please add stone free rates and how they were assessed.

DISCUSSION:

- delete "due to advancements in endoscopic technology". This is not the sole reason.

- All the second paragraph is a repetition from the Background section. It should be deleted either from here or from Background section!! I suggest leaving it only here and starting the Discussion section with it.

- "The periodic apnea technique has been proven.." No, it was not proven! Reference 3 is only a presentation of the technique, with no comparison, no outcomes in terms of successful treatments. We just may say that it was proposed.

- correct: "The technique of general anesthesia with.... was previously described by Kourmpetis et al........ LV was associated with better fragmentation, removal, and processing rates but not operating rate. Although end-tidal CO2 in the LV group was 50 mmHg this finding was not associated with clinical side effects. However, this level of end-tidal CO2 is defined as mild hypercapnia and may cause possible negative health consequences.21

- Discuss the disadvantage of using HFJV: ex. expensive ventilation machines, demanding effort of anesthesiologist, etc.

- Discuss the MOSES technology in the context of stabilizing stones during processing.

CONCLUSIONS:

- correct: "Our impression is that According to the urologist assessment the novel combined respiratory approach consisting of HFJV and SVMV provides better conditions for stone dusting through reduced respiratory kidney motion and is not associated with adverse health effects or complications. Further larger sample studies are needed to confirm these findings and elucidate its effect on stone free rates."
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

Yes

Does the work include the necessary controls?
If not, please explain in the ‘Comments to Author’ box below.

NA

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):

I have been able to assess all of the statistics in this manuscript (please refer to checklist above)

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:

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.

None

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/](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