Author's response to reviews

Title: Laparoscopic versus open catheter placement in peritoneal dialysis patients: A Systematic Review and Meta-Analysis

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Author's response to reviews: see over
Dear Dr. Henderson,

We are pleased to submit the revised version of our manuscript (REF 1574628543624677), “Laparoscopic versus open catheter placement in peritoneal dialysis patients: A Systematic Review and Meta-Analysis” for consideration in BMC nephrology.

We have made changes to the manuscript based on reviewers’ suggestions. Key changes include the Discussion section and grammar. We would like to thank the reviewers for their close reading of the manuscript and for helpful suggestions to improve the presentation of the manuscript. Our detailed responses to the reviewers’ comments are listed below. The paper has been significantly revised, and we use red color to highlight the amendments in the revised manuscript.

In addition, this revision has been partially edited by a Canadian professor.

Yours Sincerely,

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Responses to the comments of the editor:
Can you please ensure that your reporting adheres to the PRISMA guidelines for correctly reporting systematic reviews. Please can you update and include a copy of the PRISMA flow chart and checklist when submitting your revised manuscript.
Answer: We have followed the PRISMA guidelines, and used the PRISMA flow chart in Figure 1.

Can you please revise your manuscript to include the following three separate section. These should appear in the following order after the Conclusions section.
Answer: We have added the sections of competing interests, authors' contributions, and acknowledgements after the conclusion section.

- General Formatting
Please also ensure that your revised manuscript conforms to the journal style (http://www.biomedcentral.com/info/ifora/medicine_journals). It is important that your files are correctly formatted.

**Answer:** We have followed the journal style to format the manuscript correctly.

**Responses to the comments of reviewer 1:**

**Major Compulsory Revisions**

1. I do not agree with your discussion in the “limitations of this study”, because not all the studies had a larger proportion of patients with a history of abdominal surgery in the laparoscopic group (e.g. reference 3 shown in Table 1). In addition, a small sample size does not justify the lack of familiarity with catheter implantation techniques. To my knowledge, most authors cited in your references are familiar with catheter implantation using either laparoscopic or open methods.

**Answer:** We have revised the discussion section in page 12. Not all the studies but the observational studies had a larger proportion of patients with a history of abdominal surgery in the laparoscopic group because laparoscopy takes the advantage of entrance to abdominal cavity under direct visualization, and it is superior to open surgery for patients with a history of abdominal surgery. Also, we delete the sentence “the number of catheter placements performed by individual surgeons was relatively small; thus surgeons were often unfamiliar with best-demonstrated practices in catheter implantation”.

2. The cited references are questionable in the Results section, page 7, sub-heading 3.2 (Study Quality), “[4, 6]” and on page 9, sub-heading 3.3.2 (RCTs, subgroup analysis), “[5, 10, 14]”. On the basis of my understanding of the manuscript, the method of sequence allocation concealment is also used in reference 3 but the RCTs do not include references 10 and 14.

**Answer:** This is our negligence, we have changed “[4, 6]” in the Results section, page 7, sub-heading 3.2 (Study Quality), to [3, 4, 6], for the method of sequence allocation concealment is also used in reference 3, and changed “[5, 10, 14]” on page 9, sub-heading 3.3.2 (RCTs, subgroup analysis) to [3, 5, 6], for early and late complications were mentioned in these references.

3. The word “relapse” is rather ambiguously used in the last sentence of the Conclusion section. Please clarify.

**Answer:** Thanks for the Dr. Jwo’s suggestion. “relapse” has been changed to ”reduce” in our revised manuscript.

**Minor Essential Revisions**

1. Typographic errors should be carefully revised. For example, in the Materials and Methods section, page 5, sub-heading 2.3 (Exclusion criteria), “Studies” should be corrected to “studies” and in the Results section, page 8, sub-heading 3.3.1 (Observational studies), “exit and” should be corrected to “exit site and”.
Besides, the language in this manuscript should be checked and corrected by a native English-speaking specialist.

**Answer:** We have done it. Many grammatical or typographical errors in this manuscript have been checked and corrected by us as well as a Canadian professor.

**Discretionary Revisions**

1. It is common knowledge that procedure-related early peritonitis can be prevented by the use of prophylactic antibiotics in PD patients, but most cases of peritonitis involve late-onset catheter-related peritonitis and are frequently related to the contamination caused by catheter usage or enteric bacterial translocation after initial catheter implantation. The authors have not clarified this issue in the analysis and discussion.

**Answer:** Thank you very much for the suggestion. Patients in the two groups were given antibiotic prophylaxis in most of the studies. Postoperative antibiotics were not prescribed only in one study. Use of prophylactic antibiotics before catheterization was found to be effective in reducing procedure-related peritonitis. We have discussed the use of prophylactic antibiotics in the revised manuscript.

2. The question of when to begin PD is another issue that needs further investigation, and the authors have not analyzed it here. It is established that a delayed start (#1 week) can help avoid exit-site/subcutaneous tunnel infection and dialysate leakage in early non-healing wounds, but it is still doubtful for the prevention of peritonitis that you have not discussed in the text.

**Answer:** Tsimoyiannis et al believed that laparoscopy allowed immediate start dialysis without fluid leakage and permitted simultaneous performance of other laparoscopic procedures. We have added Tsimoyiannis et al’s view in the revised manuscript (page 11, line 14). However, it is still not quite clear whether a delayed start can prevent peritonitis. It is a good question, and maybe we can conduct such studies in our center.

3. How did you analyze the data obtained by Crabtree et al. (table 1)? Crabtree et al. further classified the laparoscopic procedures into basic and advanced procedures according to accessory procedures of rectus sheath tunneling, selective prophylactic omentopexy, and selective adhesiolysis. They compared the complications of these 2 types of laparoscopy and showed that the overall complication rate in basic laparoscopy was equivalent to that in open surgery but was much higher than that in advanced laparoscopy (ref. 10).

**Answer:** Crabtree et al. divided laparoscopic catheterization into basic laparoscopy and advanced laparoscopy. The complications in Crabtree showed that mechanical flow obstruction was 1 in 200 implantation procedures in the advanced group, which was significantly less than that in the open dissection and basic laparoscopic groups. So we classified the complications in basic laparoscopy and advanced laparoscopy and made subgroup analysis. The random-effects statistical model revealed significant heterogeneity. The results showed that laparoscopy did not reduce complications. What is more, patients in one of the observational study were children, and it would
affect the stability of results. In order to reduce the heterogeneity, we also conducted a further research, and made subgroup analysis, but got the same conclusion. We have added our subgroup analysis result in the Discussion section.

Responses to the comments of reviewer 2:
One of the key issues with laparoscopy is less pain and less scarring yet this is not mentioned in the article.
**Answer:** We accept Dr. Siddiqui’s comment and have added that “Compared to traditional peritoneal dialysis catheter placement, laparoscopic catheter placement has smaller scar, less pain, and quicker recovery. This approach is safe, feasible, and completely visible.” in the Discussion section,

However if the initial argument in the introduction and discussion is not more balanced on revision I would advise against publication.
**Answer:** We have rewritten the discussion.

Minor comments
**Introduction:**
The first sentence should be reworded to say “for patients with end-stage renal disease”.
The use of PD has not been defined in the manuscript. When using peritoneal dialysis first you should have PD in brackets.
Delete the “the” in “the catheter”
The sentence starting “Review aims to assess…” is poorly worded.
“Several authors…” needs a reference
The last sentence in the introduction says laparoscopic versus surgical when the title says lap versus open
**Answer:** We have revised the problems above, and the spelling and syntax errors have been checked and corrected, Thank you.

**Methods**
Why were studies restricted to the English language?
**Answer:** It is our error to confuse the concept, and we have corrected it. There were no language restrictions when we search the documents. Just a coincidence, all the studies included finally were written in English,

There are multiple grammatical and spelling errors
**Answer:** We have paid attention to this issue and revised the grammatical and spelling errors in the abstract and text with the help of a Canadian professor.

Studies can be analyzed qualitatively and quantitatively. To exclude studies based upon lack of quantitative data goes against PRISMA guidelines.
**Answer:** We have revised the Figure 1.and Exclusion criteria section, and it adhere to PRISMA guidelines now.
Data extraction
Multiple grammatical and spelling errors
Answer: We have revised the grammatical and spelling errors.

Who were the independent extractors?
Answer: We have added the independent extractors’ names (H.X. and J.C) in the article.

The use of the Newcastle Ottawa score is good
Figure 1 needs replacing with the PRISMA diagram
Answer: We have replaced Figure 1 with the PRISMA diagram.

There needs to be a more balanced argument for and against the use of the laparoscope in particular what the suggested advantages are and what authors say to counter those advantages and propose disadvantages in order that the reader can decide for himself.
Answer: It is a good suggestion, and we have added the argument for and against the use of the laparoscope in the discussion section. Compared to traditional peritoneal dialysis catheter placement, laparoscopic catheter placement has smaller scar, less pain, and quicker recovery. This approach is safe, feasible, and completely visible. Dialysis tube can be fixed under laparoscope, and the catheter position is more precise. Laparoscopic catheter placement is also suitable for patients with a history of abdominal surgery or with abdominal adhesions. Omentum can be fixed and trimmed, and postoperative complications may be reduced under laparoscopy. The above advantages induced the interest of clinicians on the laparoscopic approach. On the other hand, this approach has potential problems including advanced technique, high cost, and relatively high anesthesia risk. Weighing the pros and cons, which surgical approach to choose depends on the specific conditions and clinicians.

There are no statistics for the operation time or hospital stays in the main Manuscript
Answer: We have added the statistics in Table 1.

In the discussion the authors should make a softer statement about the conclusions made by Crabtree et al. The conclusion is far too strong for the number of studies included.
Answer: We are sorry for our hard words and poor expressions. We have rewritten our statement.