

Dear Editor,

First of all, I would like to express my sincerest thanks to you. Your comments on the review helped me to have a more accurate understanding of the issues to be studied in the article, and also made me more clearly recognize the shortcomings in the argument of the article. Thank you very much for your valuable revision suggestions. I fully agree with these suggestions and have revised the article accordingly. Finally, I would like to express my thanks to the editors and reviewers of the article. I am happy to continue to revise articles under the guidance of editors and reviewers. It is hoped that with the joint efforts of everyone, the problems studied in this paper can arouse the attention of relevant social groups, and then promote the solution of relevant problems. Please find my itemized responses in below and my revisions/corrections in the re-submitted files.

Thanks again!

Science editor and Company editor-in-chief

Answer

Thanks for your review and suggestions. We have modified the manuscript according to the reviewer's suggestions. In order to further improve the language quality of the manuscript, we asked the language editor again to polish the language of the manuscript. According to your suggestion, we have added the "Article Highlights" section and edited the

tables and pictures. We hope the modification can meet your requirements. If there is any improper modification, please do not hesitate to contact us, and we will try our best to actively cooperate with you to complete the modification.

Reviewer #1:

1. There has been other similar studies published in literature. Even though the authors have mentioned “Previous meta-analyses also included the limitations of not including all prospective studies and incorporating many retrospective studies, and the results may be biased. We retrieved all the literature about unilateral and bilateral pedicle screw fixation after lumbar fusion in recent years and included the latest randomized controlled trials (RCTs) and prospective cohort studies.” the reviewer feels that studies including prospective ones have been published. Authors could discuss in discussion how this study adds further value to existing literature.

Answer

Thank you for your suggestion. We fully agree with it. We've already added that to the discussion section. In our discussion section we discuss the differences between this study and previous findings and describe the methodological advantages.

2. One of the two primary outcome measures was “safety”. Authors have mentioned that they assessed safety through “complications such as screw loosening, cage migration, infection, psoas, and neural symptoms”. However in results under the heading of “complications” authors have mentioned “Thirteen studies assessed the fusion rate of 918 patients followed up for at least 12 months. There was no significant difference between the two internal fixation methods (RR=1.140, 95%CI [0.792, 1.640], P=0.481, Fig. 4 b).” This is for fusion rate and not complication. Authors have not mentioned any results pertaining to safety as complications. Authors may do needful.

Answer

Thank you for your review. What we have calculated here is the "rate of fusion cage migration", which is our improper expression and we have corrected it in the revision draft.

3. One of the aims of the study was to compare "Safety". However, autos have not discussed this appropriately in discussions and conclusion also has no mention in this regard

Answer

Thank you for your advice. We totally agree with you. In terms of safety, we focused on complications (fusion cage mobility) in this study, and our evidence showed no difference in fusion cage mobility between UPS and BPS, suggesting that UPS is as safe as BPS. However, due to the limitation of follow-up time, our conclusions should be cautious.

4. Inclusion and exclusion criterias could be more clearly stated inorder to clarify how this study is better than previous such studies.

Answer

Thank you for your advice. We have re-edited this section according to PICOS principles.

5. 12 months follow up is a short interval to comment on fusion rates.

Answer

Your suggestion is instructive. Our conclusions are also cautious based on the limited evidence available, which is one of the limitations of this study. Therefore, more high-quality long-term follow-up studies are needed to further explore this topic in the future.

6. Out of 15 studies included, 4 studies were about mis tlf. This creates heterogeneity as it could lead to bias in the secondary outcomes of study particularly the blood loss and hospital stay.

Answer

As you said, the results of our meta-analysis showed heterogeneity, so we adopted the random effects model for data analysis to reduce the impact of clinical heterogeneity or methodological heterogeneity on the results. Thanks for your advice, I have discussed in detail the influence of heterogeneity on the results in the limitation section. We also examined the stability of the study results through sensitivity analysis and a GRADE system to evaluate the level of evidence.

7. The risk of selection and reporting bias was present in almost all the 15 studies. Authors may discuss if this affected the final result.

Answer

Thank you for your advice. We assessed according to the Cochrane Handbook for Systematic Reviews, assessed according to the Cochrane handbook for systematic reviews, The results showed that all studies were rated as low risk in terms of "selection and reporting bias", as shown in Figure 2.

8. The two opening statements of sub heading FUSION RATE and COMPLICATION need explanation for discrepancy in number of patients and number of studies. At two places the following is mentioned. "Eleven studies assessed the fusion rate of 708 patients followed up for at least 12 months." & Thirteen studies assessed the fusion rate of 918 patients followed up for at least 12 months.

Answer

We are very sorry for the confusion caused by our improper expression.

As mentioned above, in the COMPLICATION part, we described the "rate of fusion cage migration", which has been corrected in the revision.

Thank you again for your support to our study, and this research put forward the constructive and valuable advice and guidance.

Reviewer #2:

01 There are some sentences in the text without reference to a previous study (or studies) in order to give evidence to their statements. Without references, these statements would be mere assumptions or allegations by the authors of the manuscript. Therefore, each of the following sentences need at least one reference to back up their statement: “While there is plenty of research exploring two pedicle screw fixations, most studies were limited by their retrospective nature, lack of a comparison group, or inadequate follow-up.” “Previous meta-analyses also included the limitations of not including all prospective studies and incorporating many retrospective studies, and the results may be biased.” “Within aging populations, there is a significant increase in lumbar degenerative diseases (LDD), resulting in great pain and reduced quality of life in patients.” “Early increase of fusion rate and relief of pain, so that patients can move early, can effectively reduce venous thrombosis, pulmonary infection, pressure sores, and other complications.” “Shortening hospital stay and reducing nosocomial infections are particularly important for the recovery of elderly patients.”

Answer

Thank you for your advice. In order to support our statement, we have added relevant references.

02 The following terms were not defined in the Materials and Methods section: “unilateral pedicle screw fixation”, “bilateral pedicle screw fixation”, and “lumbar interbody fusion”.

Answer

Thank you for your advice. "unilateral pedicle screw fixation", "bilateral pedicle screw fixation", and "lumbar interbody fusion". As a professional

term in the field of orthopedics, it has been widely recognized by the peers, and its corresponding treatment mode is fixed and unified. Therefore, we did not repeat the interpretation in this study. At the same time, there is no further explanatory description in previous studies on the same topic (Ren C, Qin R, Sun P, *et al.* Effectiveness and safety of unilateral pedicle screw fixation in transforaminal lumbar interbody fusion (TLIF): a systematic review and meta-analysis. Archives Orthop Trauma Surg 2017; 137: 441-50; Yuan C, Chen K, Zhang H, *et al.* Unilateral versus bilateral pedicle screw fixation in lumbar interbody fusion: a meta-analysis of complication and fusion rate. Clinl Neurol Neurosurg 2014; 117: 28-32; Hu XQ, Wu XL, Xu C, *et al.* A systematic review and meta-analysis of unilateral versus bilateral pedicle screw fixation in transforaminal lumbar interbody fusion. PloS One 2014; 9: e87501.) . Thanks again for your suggestion, we have re-edited the inclusion and exclusion criteria for clearer expression.

03 How many reviewers searched for eligible papers, and disagreements between them were resolved? It is described that two reviewers collected the data, but not how many reviewers searched the literature.

Answer

Thank you for your advice. Two independent researchers searched the papers independently according to the same search strategy, and a third researcher negotiated where there was disagreement. We've added that.

04 There is a plethora of results (fusion rate, complications, subgroups analysis, VAS, ODI, JOA, total blood loss, operation time, length of hospital stay). Yet, the discussion is short.

Answer

Thank you for your advice. We totally agree with you. We have added further explanations of all outcome indicators in the discussion section.

05 Discussion how the limitations of your review could have affected the results.

Answer

Thank you for your advice. We have realized that the limitation part is thin, so we have re-edited this part according to your suggestion. We discuss in detail the limitations of this study and the impact of these limitations on the results.

Thank you again for your support to our study, and this research put forward the constructive and valuable advice and guidance.