



# Letter to the editor regarding “O-arm navigation versus C-arm guidance for pedicle screw placement in spine surgery: a systematic review and meta-analysis”

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Dear Editor,

We read with great interest the article entitled “O-arm navigation versus C-arm guidance for pedicle screw placement in spine surgery: a systematic review and meta-analysis” by Feng et al. [1]. This study revealed that navigation coupled with O-arm imaging displayed a better accuracy outcome in pedicle screw placement compared to conventional C-arm fluoroscopy in thoracic and lumbar spine surgery. This research is valuable and instructive for clinical practice. Nevertheless, we have some methodological issues to communicate with the authors.

Firstly, the authors did not provide a detailed description of the other search sources except for the three databases mentioned in this article. The outcomes would be more convincing if the authors could expand the search, like clinical trial registration platforms, NLM Gateway, GoogleScholar, and SAGE and BIOSIS previews, as well as gray and non-English published literature.

Secondly, two errors were found in the article: (1) The number of studies providing preparation time of screw placement should be three instead of five, while the number of studies providing insertion time of screw placement should be five instead of three. (2) The fixed effect model was shown in Fig. 7 which is inconsistent with the random effect model described in the paragraph of this article.

Thirdly, high inter-study heterogeneity could not result in a definite conclusion according to *Cochrane Handbook for Systematic Reviews* [2]. The heterogeneity was high in this article between the operation time ( $I^2 = 98\%$ ) and screw insertion time ( $I^2 = 84\%$ ). Possible source of heterogeneity should be explored by sensitivity analyses and meta-regression

analyses in this study. In addition, the reliability of meta-analysis may be weakened by different types of spinal segments and surgical methods [3]. Consequently, the subgroup analysis should be performed based on the above factors.

Finally, it would be more convincing if the publication bias of all included studies was evaluated by funnel plots, Begg’s test, and Egger’s test.

We sincerely appreciate Feng et al. [1] for providing us this significant systematic review and meta-analysis. These results can provide guidance for surgeons in making optimal clinical decisions. However, further prospective studies with larger sample size and more scientific design methods should be conducted to solve this issue.

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## Compliance with ethical standards

**Conflict of interest** The authors declare that they have no conflict of interest.

## References

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