Reviewer's report

Title: Comparison of a loading dose of dexmedetomidine combined with propofol or sevoflurane for hemodynamic changes during anesthesia maintenance: a prospective, randomized, double blind, controlled clinical trial

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Reviewer: Hartmuth Nowak

Reviewer's report:

Introduction

Han et al. performed this RCT, where a total of 84 patients were included. The aim of this study was to investigate the hemodynamic effects of a loading dose of dexmedetomidine under general anesthesia.

The authors showed that dexmedetomidine increases blood pressure in patients receiving propofol and decreases heart rate in patients receiving propofol or sevoflurane, respectively.

Merits

The authors investigated this issue in a prospective RCT with randomization to 2 intervention and 2 control groups. Only patients with a normal baseline blood pressure, heart rate and without cardioactive or hypertensive medication were included. The methods were described accurately; the results and conclusions are well argued.

Limitations

There are different limitations in this study and some unanswered questions. These need to be edited before this work is suitable for publication:

- A dosage of 4-6mg/kg/h propofol was used. Were there individual differences or differences between groups in dosage of propofol before application of dexmedetomidine?

- A concentration of 1-2% of sevoflurane was maintained for anesthesia. Did you observe any differences in concentration between patients or groups before application of dexmedetomidine?
Was the dosage of remifentanil adjusted during maintenance of anesthesia, or was it still 0.3 µg/kg/min at time of remifentanil infusion.

How do you explain the differences in anesthesia and operation time between propofol and sevoflurane groups? What kinds of operation procedures were performed? Did they have any impact on fluid balance, how was the hemodynamic stability during anesthesia?

Unfortunately anesthesiologists were not blinded because it was obvious if propofol or sevoflurane was used. Nevertheless, wasn't it possible to blind the anesthesiologists whether dexmedetomidine or placebo was used? In my understanding this is not a double-blind trial.

To my opinion the possible explanations of the hemodynamic effects of dexmedetomidine with propofol or sevoflurane, respectively, are not well discussed. Why does sevoflurane block the effects of dexmedetomidine on blood pressure and propofol does not. As far as I know both substances can decrease blood pressure by vasodilatation.

In the whole text there are some careless mistakes (e.g. abstract, methods: eight-four; methods, two test groups, line 6: stop DEX; discussion: line 22: loading does DEX; discussion: line 55: evidence of evidence-based medicine) please improve your manuscript.

Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

Yes

Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.

Yes

Are the conclusions drawn adequately supported by the data shown?
If not, please explain in your comments to the authors.

Yes
Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?
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I am able to assess the statistics

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Please indicate the quality of language in the manuscript:

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