Reviewer’s report

Title: Association of neuromuscular reversal by sugammadex and neostigmine with 90-day mortality after non-cardiac surgery

Version: 1 Date: 25 Jan 2020

Reviewer: Réka Nemes

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Manuscript Number: BANE-D-19-00777

Full Title: Association of neuromuscular reversal by sugammadex and neostigmine with 90-day mortality after non-cardiac surgery

L63: the second half of the sentence is difficult to interpret, probably missing punctuation

L68-69: "with an incidence as high as"

L69: "found" would be more appropriate than "determined"

L110: the dose of neostigmine is not needed to be mentioned here. Either delete it or also add the dose of sugammadex.

L113-125: Excuse me, but the description of intraoperative neuromuscular monitoring is still confusing. "TOF monitoring" is not an unambiguous term as the TOF response can be interpreted objectively with a neuromuscular monitor or subjectively by the examiner. Please use the terms quantitative (objective) neuromuscular monitoring or qualitative (subjective) neuromuscular monitoring.

- If I understand it correctly the clinicians used peripheral nerve stimulators (subjective monitoring) at the end of surgery to determine the dose of the reversal agent (L113-116).

- Was monitoring continued after reversal administration to check the effect of the reversal agent and to decide on patient's readiness for safe extubation?

- What do you mean by intraoperative TOF monitoring (L122)? Objective of subjective evaluation of TOF stimulation?

There's plenty of literature showing that subjective monitoring guided neostigmine reversal is not a safe practice and can lead to very high incidence of residual blockade and various complications. This would deserve more attention in the discussion as well.

L141: "data on intraoperative TOF monitoring" - please be more specific, what type of monitoring

L176: "Sugammadex" - capital letter not needed

L177: the verb "affect" would be more appropriate instead of "associated"
L226: "compared to Q1 group" is duplicated

L231-232: "This association was significant in the PS matched cohort" BUT not in the entire cohort. Please correct.

L154: please add references.

L302-303: please consider using "affect" instead of "associated"

L305: consider using the term "peripheral nerve stimulator"

L315-316: neostigmine is not meant to reverse deep block! TOFC1 is moderate block for which objective monitoring guided (0.5-0.7 ug/kg) neostigmine reversal should be used.

Table 1. Please be more specific with data on intraoperative neuromuscular monitoring.

Table 4. Neostigmine Q3 line: "n" is missing

Table 4. Please list the distribution of different sugammadex dosages (n) for each quartile

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?
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

I recommend additional statistical review

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