Reviewer’s report

Title: Magnesium sulfate reduces the rocuronium dose needed for satisfactory double lumen tube placement conditions in patients with myasthenia gravis

Version: 1 Date: 06 Jun 2019

Reviewer: Sanjana Malviya

Reviewer's report:

Thank you for the opportunity to review this prospective randomized, blinded single institution study of whether the use of magnesium sulfate is associated with reduced dose of non-depolarizing neuromuscular blocker or improved intubating conditions in patients with myasthenia gravis undergoing thymectomy. The authors found that use of magnesium is associated with a better intubation conditions for these patients and with a lower requirement for non-depolarizing neuromuscular blockers; Overall, the study is well-designed. My areas of concern regarding this study are as follows:

Major concerns:

Discussion: I question the significance of reducing the dose of non-depolarizing NMB in this patient population. It is true that NMB has been associated with increased risk of failed extubation and postoperative respiratory failure in the studies that you acknowledge. However with the approval and prevalence of Sugammadex as a reversal option for Rocuronium in several studies and case series, high doses of magnesium may not be necessary in this patient population. You acknowledge this fact in the first part of the discussion, however I believe that as the price of Sugammadex falls, the importance of lowering the dose of non-depolarizing NMB will be overstated.

Methods: Further details regarding the method of titration are needed. It is questionable whether the incremental rocuronium doses (0.05 mg/kg) were too small given the fact that the onset of action of rocuronium is delayed at low doses. Furthermore, the recovery from neuromuscular blockade is quicker at lower doses raising the concern whether return of twitches had already started to occur by the time the last dose of rocuronium was administered. Previous dose finding studies of rocuronium in patients with myasthenia gravis have used up to 0.15 mg/kg of rocuronium and efforts were made to complete the titration of doses within 10 min due to the potential confounding effect of recovery from previously administered incremental doses. (Fujimoto M. Eur J Anesthesiol 32:672, 2015)

Methods/Discussion: In the paragraph that acknowledges the side effects of magnesium, the two papers cited provide information about magnesium dosing from 30-50 mg/kg only; Please provide rationale for why you selected 60 mg/kg and acknowledge in detail the expected side effects of magnesium at these doses.

Table 1: please comment on whether the two groups were similar or different.
Minor concerns:
- The English throughout the paper could be revised further; in several instances, there are statements that imply causation. The title of the paper "magnesium sulfate decreases the dose of Rocuronium" is an example of such a statement.

**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 am able to assess the statistics

**Quality of written English**
Please indicate the quality of language in the manuscript:

Needs some language corrections before being published

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