Reviewer’s report

Title: Monitoring Sedation for Bronchoscopy in Mechanical Ventilated Patients with Ramsay Sedation Scale versus Auditory Evoked Potentials

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Reviewer: Hitesh Batra

Reviewer’s report:

The authors have conducted a prospective randomized controlled study comparing the use of Ramsay sedation scale and auditory evoked potentials to assess the level of sedation during bronchoscopies performed on mechanically ventilated critically ill patients in an intensive care unit. Patients in the auditory evoked potentials monitoring group had a significantly higher percentage of time at sedation target, higher propofol dose and lower AAI (Alaris AEP Index), MAP and HR. Therefore, the authors have suggested that AEP monitoring may be a more sensitive tool for assessment of sedation during bronchoscopy on mechanically ventilated ICU patients.

Whether targeting deep sedation or the outcomes measured in the study are clinically relevant (or beneficial) and if the potential benefit (of deep sedation and lower HR, MAP and AAI) outweighs the risks (such as hypotension) of higher doses of propofol, is unclear. However, this study does suggest that the use of AEP could have a role in assessment of sedation in patients undergoing bronchoscopy with conscious sedation in an outpatient setting and without mechanical ventilation. In such a setting, it will be easier to define clinically relevant end-points such as patient satisfaction.

Major Compulsory Revisions

1. What was the duration of bronchoscopies in each group?
2. Was Ramsay sedation scale measured in the AEP group as well? It should be noted that assessment of both Ramsay sedation scale and auditory evoked potentials requires external stimuli and each can potentially lead to an increase in AAI. If one group (i.e. the AEP group) received only one set of stimuli while the other group received both, it could be a possible source of confounding.

Minor Essential Revisions

1. There are some minor grammatical errors.

Discretionary Revisions

1. There seems to be good data for a negative correlation between RSS and AAI and this study establishes it as well. However, it’s not entirely clear if RSS of 6 might correlate better with AAI of 25-40 than RSS of 5. How many patients in the RSS group were at RSS 5 Vs 6 prior to the initiation of bronchoscopy? The study
is probably not powered enough for a sub-group analysis, but this could be addressed by a larger study.

2. How was the sedation managed immediately post-bronchoscopy? Fig. 3 shows measurements up to 30 minutes. Was that the duration for which all end-points were measured in each case? It will be helpful to clarify that.

**Level of interest:** An article of limited interest

**Quality of written English:** Acceptable

**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**

I declare that I have no competing interests