Reviewer's report

Title: Dexmedetomidine on tracheal extubation in deeply anesthetized adult patients after otologic surgery: a comparison with remifentanil

Version: 3  Date: 30 October 2014

Reviewer: Max Kelz

Reviewer's report:

Fan and colleagues evaluate the effects of varying drug regimens on the quality of tracheal extubation in a small, prospective randomized clinical trial. Seventy-four patients (ASA PS1 or 2) scheduled for ENT surgery were randomly assigned to sevoflurane + remifentanil (SR group), sevoflurane + dexmedetomidine (SD5 group—0.5mcg/kg) or sevoflurane + dexmedetomidine (SD7 group—0.7mcg/kg). They report that the quality of extubation was comparable between the SR and SD7 groups, which were both superior to that of the SD5 group. Moreover, as expected, they demonstrate a decreased respiratory rate in the group assigned to the remifentanil combination together with a higher requirement for postop analgesic rescue.

Major Compulsory revisions:
In general, the conclusions of this work are overstated in light of the study’s small sample size.

1. Critical definitions including the definition of extubation quality, which should be thoroughly discussed in the introduction, are poorly defined. As best I can tell, extubation quality is merely a measure of incidence of coughing. Pushing this definition to an extreme, were one to administer a muscle relaxant on its own, extubation quality as defined by the absence of coughing and laryngospasm, would also be scored as excellent quality, which we know is false.

2. Claims about safety and efficacy must be supported in light of expected incidence of complications. Group sizes of 24-25 subjects yield insufficient power to support or refute safety statements.

3. p.5 line 9, adequacy of airway defined as SpO2> 97% is confounded by intraoperative ventilation which is not specified. If atelectasis develops during the procedure, oxygen desaturation will likely be confounded.

Minor essential revisions:

1. p.3 “remifentanil use reduced sevoflurane requirement by 30%.” What is meant by requirement, hypnotic requirement (if so this is unmeasured)? I suspect that the authors mean to imply that sevoflurane concentrations had to be reduced by 30% to maintain MAP. Please clarify.

2. p.3 line 17, perhaps consider stating that remifentanil and dexmedetomidine share similar potentiating properties including airway reflex suppression and
reducing sevoflurane requirements. Their clinical pharmacology and mechanisms of action are distinct.

3. p.4 line 11 excluded, not rejected.

4. p.4. line 16 were given

5. p. 4 lines 27-29, were the infusions of remifentanil and dexmedetomidine both limited to 10 minutes?

6. Are patients receiving a nasopharyngeal tube (ie: trumpet) to prevent obstruction or is this simply supplemental nasal oxygen (p.5, line 4-5). If the former, what is the mechanism for airway obstruction?

7. How are the variables of obstruction, auscultation of clear breath sounds, assessment of chest wall movement, and ETCO2 scored? Are these binary variables (present/absent) or are they ordinal similar to your coughing scale?

8. Table 2 should report the statistical model, ie” one way ANOVA values not just the p value.

9. Figure 2 should also include data from the intraoperative infusion of SR, SD5, and SD7 periods, ie something in between T0 baseline before anesthesia and T1 time of extubation.

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

**Quality of written English:** Needs some language corrections before being published

**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