Author's response to reviews

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

Authors:

qing fan (qing.fan@fdeent.org)
bo chun hu (chunbo.hu@fdeent.org)
min ye (min.ye@fdeent.org)
xia shen (zlsx@yahoo.com)

Version: 7 Date: 31 May 2015

Author's response to reviews: see over
Response:

Dear Tom Rowles,

Thanks for your kind advice. We made the point to point revision according to the comments from you.

**Question 1:** "Park et al (14) reported an approximately 40% reduction in the incidence of coughing during the periextubation period after sevoflurane anesthesia using remifentanil compared to dexmedetomidine. We estimated that a sample of at least 25 patients per group would be required to detect a significant difference among groups at an alpha level of 0.05, with a power of 0.8. ": Do the authors mean that they used an expectation of 40% reduction to the computation of power? This is not clear in the text. Please, state what number was used for the expected change to compute the n=25.

**Answer:** We appreciate your comment. It is inappropriate to compute the power of our study with the incidence of coughing from Park’s study. We addressed how we estimated the sample size for each group based on the rate of smooth extubation from our previous study “In our previous study, we found that the incidence of smooth extubation was 90% in adult patients receiving sevoflurane and remifentanil combination. Based on an estimate of a 25% reduction in the incidence of smooth extubation, we estimated that a sample of at least 22 patients per group would be required to detect a significant difference among groups at an alpha level of 0.05, with a power of 0.8. Twenty-five patients per group were enrolled to provide a potential loss of 10% protocol violation.” Please see page 7, line 1-6 in light blue.


**Question 2:** In this topic, the authors state that "The primary outcome measurement was the effect of dexmedetomidine and remifentanil on the rate of smooth extubation after otologic surgery." : why did the authors use a variable different from the primary outcome to compute the power of the study? This appears inconsistent.

**Answer:** You are right. Park et al. observed the incidence of coughing during periextubation period. It is inappropriate to compute the power of our study with the outcome from Park’s study. We now computed the power of this study with the incidence of smooth extubation. Please see the answer to question 1.
**Question 3:** Please, add to the first paragraph of the Discussion the disadvantages of Dexmedetomidine: lower VT and blood pressure.

**Answer:** We added “The disadvantages of dexmedetomidine included lower tidal volume and blood pressure.” to the first paragraph of the Discussion. Please see page 9, line 6-7 in blue.

**Question 4:** Address within the body of the discussion these potential disadvantages of dexmedetomidine with a few sentences.

**Answer:** We addressed the potential disadvantages of dexmedetomidine within the Discussion part. “However, there was an exception, as one spontaneously breathing patient in Group SD5 exhibited apnea during dexmedetomidine infusion. The underlying reason for this was unclear. Moreover, the mean tidal volume was lower in patients receiving dexmedetomidine. We speculated that in presence of sevoflurane, the respiratory depression caused by sevoflurane and dexmedetomidine may reflect decrease in central respiratory drive mediated by both GABA<sub>A</sub> and alpha-2 adrenergic receptors. The potential disadvantages of dexmedetomidine are hemodynamic changes, such as decrease in heart rate and/or increased or decreased blood pressure, but those adverse effects can be prevented by administering dexmedetomidine over 10 min. In our study, hemodynamic effects were clinically insignificant in patients receiving dexmedetomidine.” Please see page 10, line 14-22 in blue.

**Question 5:** Symbols are inconsistent in the new changes. "Group SR [1.00, 95% CI: 0.86-1.00],"

**Answer:** Thanks, we corrected the symbols into “Group SR (1.00, 95% CI: 0.86-1.00)”, please see page 8, line 9.