Reviewer’s report

Title: Comparison of surgical field visibility during propofol or desflurane anesthesia for middle ear microsurgery

Version: 0 Date: 15 Feb 2019

Reviewer: Smita Prakash

Reviewer's report:

The authors have compared the surgical field visibility in 80 patients given propofol/remifentanil and desflurane/remifentanil anaesthesia. Effect site target-controlled infusion of propofol and remifentanil was used. Effect site concentration was 2-6 μg/ml for both propofol and remifentanil. Whereas for patients in the DR group, anesthesia was maintained with 4-8% desflurane and an effect site concentration of 2-4 μg/ml for remifentanil. The authors found that the surgical field visibility was better in the PR group than in the DR group (P < 0.001). Requirement for remifentanil was higher in the PR group (850 (488/1330) μg) than in the DR group (258 (143/399) μg, P < 0.0001. The authors have concluded that PR anesthesia results in better surgical conditions and more remifentanil consumption than DR anesthesia during middle ear surgery.

Major concerns:

1. As remifentanil consumption in PR group was considerably higher, 850 μg versus 258 μg, how have the authors concluded that PR anesthesia is superior to DR anesthesia in terms of better surgical field visibility? The superior surgical field visibility conditions were likely the result of increased remifentanil usage in PR group.

2. The effect site concentration for remifentanil in the two groups is different. To clearly prove that PR is superior to DR, the effect-site concentration of remifentanil in the two groups should have been kept same. Degoute et al found that remifentanil combined with propofol enabled controlled hypotension, reduced middle ear blood flow and provided good surgical conditions for tympanoplasty. They reported reduction in middle ear blood flow in a range of 25% and dryness of the operative field obtained by a reduction in HR, BP and microcirculatory autoregulation. It is possible that the difference in remifentanil requirement between the two groups is responsible for better surgical field visibility scores in PR group compared with DR group.

3. How was blinding of the surgeons achieved?

4. Please write the study hypothesis in Introduction
Other points:

Abstract:

Please state the number of patients studied

Please write American Society of Anesthesiologists physical status I and II

Please write remifentanil consumption mean (range)

Brief methodology may be mentioned in abstract

Introduction

Page 3, line 22: "changes to general anaesthesia" this is not clear. Please clarify or else delete

Page 3, line 34: "consistent with findings that surgical scores..." Please clarify which scores are being referred to here.

Page 4, line 28: please write ASA as above

Page 4, line 34: please be specific with regard to exclusion criteria

Page 4, line 40: please consider writing as: Upon arrival to the operating room, non-invasive blood pressure, pulse oximetry, .....BIS monitoring was established.

Page 4 line 54: maintained with PR or DR. Please write complete study drug names here.

Page 4 line 54: Please clarify whether maintenance was with oxygen in air or oxygen and nitrous oxide

Page 5, line 40: Please describe Boezaart grading scale.

Page 5 line 47: Do the authors mean 10 minutes after skin incision?

PACU time is described as between end of surgery and Aldrete score>9. It should be described as between extubation or arrival in PACU till Aldrete score....

Results

Page 7 line 13: please write exact p value instead of P<0.05

Page 7 line 35: Table please give ref for ephedrine requirement

Page 7 line 5: surgery scores... please clarify

The authors mention that average propofol effect site concentration mcg/ml 3.4(0.6).
What was the average remifentanil effect site concentration? Please mention in results

Discussion
Page 8 line 23: This has been stated for the first time in discussion and should be mentioned in results too.
Page 8 line 40-47: Not clear, please clarify

The authors may also compare their results with those of other studies on the subject.
The authors mention that average protocol effect site concentration mcg/ml 3.4(0.6).
What was the average remifentanil effect site concentration? Please mention in results

Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.
No

Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.
Unable to assess

Are the conclusions drawn adequately supported by the data shown?
If not, please explain in your comments to the authors.
No

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.
Not relevant to this manuscript

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