Reviewer’s report

Title: Dexmedetomidine versus remifentanil in postoperative pain control after spinal surgery: a randomized controlled study

Version: 2

Date: 19 November 2014

Reviewer: Luc Quintin

Reviewer’s report:

Joo et al are to be commanded for their elegant study which encroaches on a very important issue: postoperative pain and chronic pain. As the design and results are sound, this referee will only attempt at having “naive” questions and suggestions to improve further on the ms.

Competing interest and authors contributions are now on the first p in most journals, unless required so by BMC.

P 2 abstract line 26: I would stick to remifentanil group and dexmedetomidine group throughout ms although the two drugs are quite long. There are many abbreviations which make the ms difficult to read.

L 31-sq and 39-sq: please state that you are using hydromorphone.

35-sq and 39-sq: I would give the results for the two most important points in the time course: e.g. early PACU upon arrival (acute pain) and late interval (almost chronic pain).

40: PONV is mentioned in the ms but not mentioned in the abstract. Is this deliberate?

54: nobody knows whether dex is highly selective: there are no data. The only data I could find are on medetomidine (1). So please delete this comment which trails from one paper to the next with no scientific basis.

55: shorter: do you compare with clonidine? if so say so.

82: to make life easy for the lay anesthesiologist, I would suggest to give an example (e.g. 70 mcg for 70 kg.min-1)

same for 84.

91: is 40<BIS<60? in other words is BIS not too low but in a reasonable interval? this may have an impact on anti-nociception, although most people behave as if the two systems (hypnosis vs. anti-nociception) are totally separated.

113: we need a reference for the post anesthesia recovery score? aldrete?

139: as the reader has the data delineated in full in fig 3, there is no point to repeat in full in results. I would give only two time interval: early PACU, late 48 h
interval. But I would give the doses of hydromorphone in mg.kg-1.h-1 or something like that. Your dilution may not be the same as the dilution used in the next hospital with a different electric syringe.

142 : table 3 should be in the ms not in the electronic supplement.

145 : insert 148-150 : « this is the first….PACU » before « this study suggests…remifentanil ».

in addition, this study demonstrates rather than suggests. I am usually rather dubitative. Here your data appear as clear cut.

150-1 : do you mean chronic pain vs. acute pain when you mention pathological pain and acute physiological pain ? unclear to me.

165-168 : excellent from a pathophysiological stand point. However you are not very clear when cursory reading is used : do you mean that the intracellular potential is higher thus the cell responds more easily to incoming stimuli ? I suspect so. But you have to be crystal clear for speed reading.

177-sq : 250 min as context sensitive half life after an 8 h infusion would make circa 4 h* 5-9 half lifes= circa 20-24/40 h. You are looking 48 h later. So I agree. However this is too cursorily explained for speed reading.

179 : what do you mean : not the factor ? Ok so what is the factor ? OIH ?

182 : state OIH in full here. the reader has forgotten what it is : speed reading again.

192 : « OIH may …..surgery ». unnecessary. Delete.

3 references are missing
The first one I know of re : the effect of alpha-2 on pain using in vivo electrophysiology at a cellular level (2).

The second one deals with the affective-emotional effect (alalgognosia) of alpha-2 : (3), indeed your very topic.

The third one should be on the first use of alpha-2 as the only intraoperative antinociceptive agent, as you do : (4). “give back to caesar, what is to caesar……”.

