Reviewer’s report

Title: Use of local anaesthetics and adjuncts for spinal and epidural anaesthesia and analgesia at German and Austrian University Hospitals: An online survey to assess current standard practice

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Reviewer: Dan Benhamou

Reviewer’s report:

The article submitted by Whalen and colleagues describes drugs and techniques used for neuraxial anesthesia in academic departments in Germany and Austria. This study has many weaknesses which limit its usefulness.

What was the goal of the study? This is not clearly stated. If the goal is to gain some knowledge on practice in these two countries, then the information might be useful at the national but not necessarily at the international level. It would be more logical to submit those data to a German Journal, except if the authors are in the position to explain the relevance of these data for an international readership. This should be added in the Introduction section.

The authors evaluated only a limited fraction of German and Austrian institutions, namely only academic departments and it is not explained the authors restricted their analysis to this limited sample. Overall only 33 institutions responded, a number which in itself is limited and precludes analyses and comparisons.

As the authors themselves state, the survey does not explain the choices made by anesthesiologists.

Moreover data are surprisingly presented. For some surgical procedures, the authors indicate the percentage of patients who receive regional anesthesia and the type of drugs that are used but in some other circumstances we are given only the distribution of drugs that are used. For example, for short urological procedures, we are taught that 60% of responding units are using regional anesthesia and that bupivacaine is the local anesthetic of choice. By contrast, for cesarean delivery, data on drugs are provided but the proportion of women who receive neuraxial anesthesia is not indicated. This would have been useful as previous papers showed that in the nineties, general anesthesia remained widely used for cesarean delivery in Germany. The reviewer believes that this is of more relevance to safety and good practice than the relative use of ropivacaine or bupivacaine. Similarly, having some knowledge on the proportion of women who receive epidural for labor pain relief would have been interesting.

There are also insufficiencies in the design and presentation of data. For example, who responded to the questionnaire? A single person, presumably the department head but how can we ensure that responses really reflect the real world. Was there a need to look at local statistics to define percentages or do the results reflect only the perception of the responder? Moreover, in some (if not
most institutions, the chairman does not practice in every subunit and has no clear knowledge of anesthetic attitudes in every subspecialty. How can he (she) answer precisely in this context?

Questions are not precise enough. For example, for postoperative epidural analgesia in major procedures, the authors state that ropivacaine concentrations vary between 0.16 and 0.75%. Obviously, this range does not reflect only the concentrations which are used for epidural infusion (or PCEA techniques) but also includes the concentration of the bolus injection. Information provided is thus difficult to analyze.

Cesarean delivery is not separated in two major categories (i.e. scheduled and emergency) which is a clinically relevant distinction with different anesthetic strategies.

Data presented in Figures and Tables are unclear. There are 4 Tables but it is unclear as to what they refer. Also, Figure 4 is said to describe practices for vaginal delivery (see legend on Page 18) although most parts of the graph refer to high concentration bupivacaine or ropivacaine (0.5%), suggesting that this Figure rather refers to epidural for cesarean delivery.

The reviewer agrees that the various choices are more linked to local history and experience rather than in science as we know that the outcome benefits of regional anesthesia are very difficult to demonstrate and may be balanced by other problems. Thus providing a picture at a given moment in a limited number of institutions has a very limited usefulness.

Additional questions and comments

1. The abstract states that 33 of the 39 hospitals responded. This is not indicated in the Results section of the article. Because 6/39 represent 15 % of institutions, it would be useful to know if non responding hospitals are “similar” to responding ones and if not how the differences should be taken into account in the analysis.

2. The sentence on Page 8 (last sentence, bottom of the page) is in contradiction with the first sentence of the Conclusion: one states that there is a certain agreement while the other states that practices vary widely. Please modify and be consistent.

3. It would have been interesting to know why prilocaine is not widely used although it is available in the two countries.

4. Using a mixture of mepivacaine with bupivacaine is a surprising proposition and does not reflect the practice of most experts throughout the world.

5. The paragraph (Page 9, bottom of the page) discussing the cardiovascular stability of ropivacaine is also surprising. The articles referenced to support this fact describe studies in isolated organs and do not take into account the much more important effect of local anesthetics on the sympathetic system. The reviewer is unaware of studies showing convincingly that spinal ropivacaine is better for high risk patients.

6. Why lipophilic opioids are used widely only in cesarean delivery patients is not discussed while it is likely that the use of such combinations would be useful for
spinal or epidural in any other surgical procedure. A better knowledge on the barriers to the change in practice would have been interesting.

7. The paragraph on UK practices (Page 11) is too long and has no real relevance to the present study. Moreover, the almost unique use of fentanyl is simply related to the fact that sufentanil is not commercially available in the UK.

8. Regarding cesarean delivery patients, it is also unclear as to how many patients receive a spinal anesthetic and how many receive an epidural.

**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