Reviewer's report

Title: Epidural anesthesia and postoperative analgesia with ropivacaine and fentanyl in off-pump coronary artery bypass grafting

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Reviewer: Daniel Reuter

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Kirov and colleagues investigated the role of three different regimens for postoperative pain management in off-pump coronary artery bypass surgery. They compared in a prospective study in 91 patients the effects of general anesthesia plus conventional postoperative pain therapy, general anesthesia combined with epidural anesthesia using continuous application of rocuronium plus fentanyl, and general anesthesia combined with epidural anesthesia, which postoperatively allowed additional and patient controlled bolus applications.

The authors found that during surgery, providing those different forms of anesthesia led to no relevant inter-group differences regarding hemodynamics. Due to the use of epidural anesthesia, the need for colloids was higher in the EI and PCEA groups. Regarding postoperative gas exchange, there was a slight improvement visible in those groups receiving epidural anesthesia at timepoints 18 hrs (paO2/FiO2 ratio). As also stated in the results section, duration of mechanical ventilation was reduced in the PCEA group.

This is an interesting study dealing with the question, whether the use of epidural anesthesia, and in a second step, epidural anesthesia combined with a patient controlled mode of application is beneficial in off-pump cardiac surgery – in the light of the fact that the so far published studies on that field were quite heterogeneous in their results. The manuscript is well written. I have some concerns, which need clarification.

Major concerns:

1. You point out as major finding of your study the improvement of gas exchange and the resulting shortening of duration of mechanical ventilation. Please provide those data (you only mention that there was a reduction in the PCEA group of 32 %, and a tendency to decrease in the EI group).

2. Please comment on the clinical relevance of this shortening.

3. What is your explanation that those beneficial effects can be seen only in the PCEA group, and not (statistically relevant) in the EI group? The management perioperatively was the same for the EI and PCEA group. The difference must then be the postoperative management. PCEA will potentially optimize pain therapy. So please provide these data. Was additional pain medication besides EI, or besides EI+PCEA necessary? Was there a difference in use between
those two groups, or compared to the control group?

4. When and how often was the VAS assessed? It is interesting that you did not find a difference here between the groups. This equality would be moreover an argumentation to skip the concept of EI or EI+PCEA in cardiac surgery procedures.

5. Did you assess a potential motor blockade caused by ED, e.g. Bromage score? If so, please report.

Level of interest: An article whose findings are important to those with closely related research interests

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