Correspondence

Letter by Xue et al Regarding Article, “Perioperative Dexmedetomidine Improves Outcomes of Cardiac Surgery”

To the Editor:

The retrospective study by Ji and colleagues\(^1\) showed that perioperative dexmedetomidine use was associated with a decrease in postoperative mortality up to 1 year and decreased the incidence of postoperative morbidity in patients undergoing cardiac surgery, though patients receiving dexmedetomidine presented with a higher incidence of a history of myocardial infarction, congestive heart failure, low ejection fraction, renal failure, and dyslipidemia. The results of this study are important because the reduction in in-hospital, 30-day, and 1-year mortality is relatively large (≈151%–191%). However, this retrospective search for statistical association of dexmedetomidine use with postoperative mortality and morbidity would have been complicated by the fact that the 2 treatment groups were unmatched and may have been tainted by selection bias. Furthermore, association does not prove causality, even when propensity score analysis is used.

The authors have adjusted the preoperative risk factors that can affect postoperative mortality and morbidity, but significant imbalances in the procedural characteristics and postoperative medication care between groups might have biased final analysis of their results. Compared with the patients receiving dexmedetomidine, longer perfusion and cross-clamp times and greater use of intra-aortic balloon pumps in patients not receiving dexmedetomidine may have meant a more complex procedure, more severe myocardial ischemia-reperfusion injury, and worse outcomes. Moreover, treatment with cardiovascular drugs is associated with improved in-hospital outcomes after cardiac surgery.\(^2\) Because of significant unmatched preoperative medication use, we would like to know whether there was any imbalance in postoperative medication use between the groups and whether the confounder had a significant role in their short- and long-term outcomes.

The trial design of the study by Ji et al\(^1\) did not include details about anesthesia management. Consequently, it is difficult to estimate the extent to which interventions by anesthesiologists might have influenced outcomes. The perioperative transfusion is also a significant confounder. It has been shown that transfusion in patients undergoing cardiac surgery is strongly associated with increased early and late mortality, and patients receiving transfusion are consistently identified as being at higher risk for postoperative complications in all categories.\(^3\) Thus, we cannot exclude the possibility that imbalances in anesthesia management and perioperative transfusion between the groups contributed to the findings.

Based on the findings from previous animal studies, the authors attributed a benefit of dexmedetomidine on postoperative mortality to its cardioprotection. However, extrapolation of results from animal experiments to clinical practice must be done with caution. A meta-analysis showed that perioperative dexmedetomidine use did not result in a statistically significant improvement in cardiac outcomes in patients undergoing noncardiac surgery.\(^4\)

Finally, in the study by Ji et al\(^1\) dexmedetomidine was only used during a short period from initiation of cardiopulmonary bypass to 24 hours after surgery. This dosage regimen may be inadequate to realize optimal cardioprotection. Le Manach and colleagues\(^5\) showed that delayed postoperative myocardial infarction occurred 74±39 hours postoperatively and myocardial infarction occurred 54±35 hours after the first abnormal postoperative troponin level. Thus, it is recommended that the dosage regimen for dexmedetomidine should ensure adrenergic blockade for ≥72 hours postoperatively and preferably longer to provide cardioprotection.\(^6\)

Disclosures

None.

References


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Fu Shan Xue, Yi Cheng and Rui Ping Li

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