Reviewer’s report

Title: Hemodynamic Effects of Peri-Operative Statin Therapy in On-Pump Cardiac Surgery Patients

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Reviewer: Alexander Kulik

Reviewer’s report:

Popov et al. performed an observational study to evaluate the hemodynamic effects of perioperative statin therapy in patients undergoing on-pump cardiac surgery. The authors noted that patients who were treated with statins had significantly lower indexed systemic vascular resistance after surgery. I have a number of questions and comments for the authors.

Major Compulsory Revisions

1) The premise for the current study is based on the belief that statins have pleiotropic properties that contribute to a decrease in systemic inflammation. The authors hypothesized that patients treated with statins could have less inflammation after surgery and therefore less vasodilation and altered hemodynamic parameters postoperatively. Does any experimental laboratory or animal data exist to support this hypothesis that statins can impact hemodynamic parameters in the presence of an inflammatory process?

2) The authors compared hemodynamic parameters between patients who did and did not receive “perioperative statins”. How exactly did the authors define perioperative statin therapy? i.e. 48 hours before surgery? 1 week before surgery? statin therapy within 24 hours after surgery? This needs to be clarified in the Abstract and Methods.

3) The authors state in the Abstract and Methods that “categorical variables were compared with Student T tests”. The term “categorical” should be changed to “continuous”.

4) Outside of a randomized trial, it is difficult to compare hemodynamic parameters in an observational study such as this one since there are so many confounding variables which are nearly impossible to control for, even if sophisticated statistical techniques are used. Factors such as preoperative antihypertensive medication use (i.e. ACE-inhibitors) and postoperative vasopressor/vasodilator use strongly interfere with the objective of evaluating the hemodynamic impact of statin therapy after cardiac surgery.

5) The Discussion section is disorganized and difficult to follow. It is poorly written.

6) A number of spelling and grammatical errors needed to be corrected.
Level of interest: Reject as not of sufficient priority to merit publishing in this journal

Quality of written English: Needs some language corrections before being published

Statistical review: No, the manuscript does not need to be seen by a statistician.