Reviewer's report

Title: Alterations in plasma soluble vascular endothelial growth factor receptor-1 (sFlt-1) concentrations during coronary artery bypass graft surgery: relationships with post-operative complications

Version: 1 Date: 7 February 2008

Reviewer: Philippe Van der Linden

Reviewer's report:

This observational study assessed the possible relationship between plasma concentration of the soluble form of the vascular endothelial growth factor receptor (sFlt-1) and the occurrence of postoperative complications in patients undergoing coronary artery bypass graft surgery (CABG). The authors reported that patients having presented haematological, cardiovascular and/or respiratory complications exhibited lower level of sFlt-1 at the end of the extracorporeal circulation than those with uneventful surgery. They concluded that neutralization of vascular endothelial growth factor receptors by sFlt-1 could be beneficial in reducing the incidence of postoperative complications in CABG patients.

Although interesting, this study presents several weaknesses that hampers clear interpretation of the data

Major compulsory revisions

1. The authors analyzed samples taken more than 10 years ago that underwent three freeze-thaw cycles: could these cycles have modified the concentration of the different proteins they measured? Did all the samples undergo the same number of freeze-thaw cycles?

2. Statistical analysis is not adequate: as sFlt-1 has been measured repeatedly over time, a two-way analysis of variance for repeated measured followed by pairwise comparisons appears more adequate.

3. On page 4, the presence of complications was defined as the inability to wean patients from the ventilator at the 24th post-operative hour: 4 patients presented transient complications but were successfully weaned from the ventilator at the 24th post-operative hour: why were these patients included in the â##complicatedâ## group? According to authorsâ## definition, these 4 patients belong to the â##uncomplicatedâ## group.

4. Did the authors use well-defined criteria to wean patients from the ventilator?

5. Definitions of cardiovascular complications are very vague: how was evaluated the circulating blood volume before deciding to give vasoactive agents? Could the authors define the Murray Lung Injury Score and provide a reference?

6. Difference in postoperative complications might be related to differences in pre-operative risk and surgical procedures: could the authors provide information on preoperative demographics and per-operative characteristics?
7. From figure 2, it appears that difference in sFlt-1 levels between the two groups of patients was only transient and observed during extra-corporeal circulation before aortic cross clamp release. Could it be related to differences in aortic cross-clamping time or to differences in the severity of aortic atherosclerosis?

8. How were the patients selected? Were they selected on a consecutive manner? Did they give informed consent?

9. As the authors did not measure per- and post-operative levels of vascular endothelial growth factor in their patients, discussion of their results is highly speculative. In addition, data provided did not support the conclusion statement.

Minor essential revisions

1. Time points presented in the abstract and in the patients and methods sections did not correspond to those presented in the legend of Figure2: please correct

2. Patients and methods: did the patients receive corticoids?

Discretionary revisions

1. Patients and methods: could the authors provide information about anticoagulation and heparin neutralization? Was the same protocol applied to all patients?

2. Was the blood collected at the end of the extracorporeal circulation reinfused to the patients after being treated by the cell saver?

3. Did the patients receive allogeneic blood products? If yes was allogeneic blood exposure rate different between the uncomplicated and the complicated groups?

What next?: Unable to decide on acceptance or rejection until the authors have responded to the major compulsory revisions

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

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

Statistical review: Yes, and I have assessed the statistics in my report.