Reviewer's report

Title: Cardiopulmonary Bypass Has a Modest Effect on Cancer Progression in a Retrospective, Population-based, Propensity Score Adjusted Cohort Study.

Version: 2 Date: 24 July 2013

Reviewer: Wilhelm Mistiaen

Reviewer's report:

TITLE
- This should be more concise

GENERAL COMMENTS
- None

ABSTRACT
- Why was the retrospective data collection terminated in 2004 and why was the date of censorship on December 31, 2006?

BACKGROUND
- Important for both factors mentioned by the authors: IL-10 and TGF-beta activate T-helper cell type 2 and down-regulate cellular immunity. Some other factors deserve mentioning in the immunomodulation by cardiopulmonary bypass: IL-1beta, IL-2 and its soluble receptors, IL-6, IL-8, IL-12 and TNF-alpha. Most of these promote inflammation.
- It might be useful to state that, according to cardiologists, in patients with both diseases, treatment of the heart disease has usually priority, since this is the more lethal disorder on short term.
- The study of Vieira et al (Cancer-related deaths among different treatment options in chronic coronary artery disease: results of a 6-year follow-up of the MASS II study; Coronary Artery Disease 2012, 23:79-84) is also of interest for inclusion in the references. Their conclusion is worthwhile: "Different treatment options for multi-vessel coronary artery disease (CABG with cardiopulmonary bypass, PCI or medical treatment) have similar overall mortality (6-year follow-up): CABG patients had the lowest incidence of cardiac death, but the highest incidence of non-cardiac causes of death, and specifically a higher tendency toward cancer-related deaths".

METHODS
- The authors mention in the key secondary endpoints skin melanoma, NHL and kidney cancer which are susceptible to immune modulation. This is certainly true for chronic immune suppression after transplantation, but does this also apply for short alteration in the immune system such as with cardiopulmonary bypass? This should be commented in the section "discussion".
RESULTS
- Figure 3 should be figure 2 (last paragraph, page 11, second line from bottom)

DISCUSSION
- The strengths and limitations are well presented
- The "association between cardiopulmonary bypass and malignancy is modest at best" and needs confirmation. It seems useful to explain also some other advantages of OPCAB to non-cardiologists. Therefore, this discussion can be strengthened by giving some other reasons (technical issues, organ damage, etc.) why OPCAB should be preferred above ON-pump CABG

CONCLUSIONS
- These conclusions are certainly justified

TABLES
- The terms urgent, emergent and salvage should be defined. These can differ between authors, especially in cardio- surgical journals.

Level of interest: An article of outstanding merit and interest in its field

Quality of written English: Acceptable

Statistical review: Yes, but I do not feel adequately qualified to assess the statistics.

Declaration of competing interests:
I DECLARE THAT I HAVE NO COMPETING INTERESTS