Reviewer's report

Title: Retrospective evaluation of the effect of carotid artery stenosis on cerebral oxygen saturation during off-pump coronary artery bypasses grafting in adult patients

Version: 3
Date: 13 September 2015

Reviewer: Stefano Romagnoli

Reviewer's report:

The study deals with the near infrared spectroscopy (NIRS) monitoring during off-pump coronary artery revascularization in patients with or without carotid artery stenosis (>50%).

The study has some major issues that lead to significant concerns. Conceptual and technical aspects have to be carefully addressed.

Please find a point-by-point list of major and minor aspects

Major

Abstract:

the degree of stenosis is a key factor for the interpretation of the results. The threshold of 50% must be indicated in the abstract.

Abstract:

“In multiple logistic regression analysis, CAS was not associated with an increased risk of cerebral desaturation (OR 0.226, 95% CI 0.088–0.580, p < 0.001) . . . “ With an OR of 0.226 we could speculate that CAS is protective vs cerebral desaturation. It sounds quite strange. A comment is mandatory (perhaps the operator may have paid more attention to hemodynamics and oxygen delivery in patients with CAS. This could be a bias related to the retrospective nature of the study).

“In our hospital, pulmonary artery catheter is used routinely in cardiac surgery because pulmonary catheter is educational devised to understand hemodynamic status for residents.” It is opinion of the reviewer that in this sentence there one grammatical error “devise” vs “device” and a conceptual error: in the respect of any local habit, current recommendations from the literature discourage the use of PAC except in selected clinical conditions characterized by complex packages of disease, co-morbidities and surgery. Your patients had a mean LVEF of 58 [41 – 61]% Routine use is now not indicated also in cardiac surgery patients (Schwann NM, Hillel Z, Hoeft A, Barash P, Möhnle P, Miao Y, Mangano DT. Lack of effectiveness of the pulmonary artery catheter in cardiac surgery. Anesth Analg. 2011 Nov;113(5):994-1002). A so extensive use (ROUTINE in CABG) of PAC in patients without clear indications (e.g. pulmonary hypertension, right ventricular dysfunction) needs a comment.
Thermodilution technique for CO estimation become unreliable with in presence of tricuspid regurgitation (as stated in the comment). The reviewer has great concerns about the accuracy of ThD during heart malposition for coronary revascularization (marginal, right …).

Table 1 and table 2 are contradictory about LVEF:

(Table 1) Patients with CAS: LVEF Range 41-61 %
(Table 2) Patients #6 has 20% LVEF and # has 22

Two patients (#1 and 6), both with 80% stenosis, received complete stenting. They should be excluded from the CAS group.

Conclusions:

“In patients with CAS as well as those without CAS, increasing cardiac output in addition to maintaining MAP within normal ranges appears to be a better strategy for preventing a decrease in cerebral oxygenation during off-pump CABG”. The prevention of cerebral desaturation by increasing CO should be demonstrated but this is over the aim of the study. The sentences should be rephrased in a more blunted way.

Minor

Abstract:

- “In both patients with and without CAS, decreases in rSO2, decreased cardiac index, and increased CVP were observed during anastomosis.” Check of grammatical errors.

Method

“In our hospital, simultaneous carotid endarterectomy and CABG are not performed routinely in patients with CAS, irrespectively of symptomatic or asymptomatic.”. This is more a comment than a method.

List of annreviations

Level of interest: An article of limited interest

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

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

Declaration of competing interests:

I declare that I have no competing interests