Reviewer's report

Title: Coronary artery bypass grafting in young patients- a perioperative challenge

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Reviewer: Maximilian A Pichlmaier

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A 3.5 year experience with myocardial revascularisation in 126 consecutive patients below the age of 50 is reported. The conclusions are that this is a high risk patient cohort, frequently presenting as emergency with however good results of the operation despite the high proportion of arterial conduits used.

An important topic that undoubtedly deserves attention. Nice series and very respectable results!

General:

You dwell on the long term results and the relevance of the use of arterial conduits but you have elected to show none of your own results. It would be helpful to see a discussion of the reasons why one might not elect to do a complete arterial revascularisation in these patients rather than to assume that they do better afterwards.

Emphasis should be placed on the fact that these tend to be sick patients! Incidentally, with a poor long term outcome for various reasons! – is arterial revascularisation really justified? You may want to change the title of the paper!?

The structure of the paper needs revision. You present results in the methods section and the results section contains interpretations that belong into the discussion.

It would be helpful to the reader to see some form of interpretation of your “short term” results with respect to the results in a matched population of either the more typical age or the same degree of sickness. The difficulty here is of course, that your patient population is very heterogeneous (MVR, Dor, ECLS), a fact that needs discussion and may be a subgroup analysis.

Finally, the English needs some looking over!

Specific:

Introduction:

You compare PCI to CABG but fail to inform the reader, whether these are exclusively elective cases. There may well be a point in intervening a culprit lesion in the acute setting in order to bridge the patient to a complete arterial revascularisation in an elective setting at a later stage!

Methods:
Move the results to the results section.
Change kidney to renal.
Given that you concentrate on the young age of your patients it may be sensible to give median ages with ranges rather than averages.
Results:
Move the interpretation to the discussion.
It may be sensible to exchange ECMO for ECLS nowadays.
Please report 30 day mortality as well as in-hospital mortality!
Discussion:
The reader would like to know how many of your patients were symptomatic with respect to their CAD prior to presenting to your department.
In the discussion of patency and long term results neither the typical prognosis of young patients with complex 3VD nor the results of arterial revascularisation in the acute setting are mentioned but are essential for the interpretation of your results. (2 cases of re do surgery, 12% EF <35%, 9 patients with CPR)
I miss the description of your criteria to decide on which grafts to use. Especially with respect to the results and possible complications of the procedure this is important to the reader. (only 20% were diabetics!)
TAR has not been explained in the text.
You state that these patients are prone to complications – put this into perspective with the results in older patients!
You have a very interesting subgroup – the patients who went onto ECLS support. It may be interesting for the reader to find out more about these patients.

**Level of interest:** An article of importance in its field

**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.

**Declaration of competing interests:**
I have none.