Reviewer's report

Title: Enhanced external counterpulsation in treatment of refractory angina pectoris: two year outcome and baseline factors associated with treatment failure

Version: 1 Date: 22 June 2008

Reviewer: Poay Huan Loh

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This is an observational study investigating the effectiveness and safety of EECP treatment in patients suffering from refractory angina. Eighty-six consecutive patients were included. Eight patients did not complete the treatment and was excluded from the analysis. The remaining 78 patients were divided to responder and non-responder in order to identify the baseline characteristics that were associated with treatment response. The immediate and 2-year response of EECP was meant to be reported.

The finding of improvement in angina control in the majority of the patients immediately post EECP is consistent with all previous studies and does not add any further information to the literature, so is the safety of EECP treatment.

A few main fundamental problems can be observed in this report:

Major Compulsory Revision:

1) Missing data:

Taking into consideration that 13 patients did not complete the follow-up, Table 2 clearly showing missing data on GTN usage. Only data on 77, 72 and 50 patients were reported at before EECP, after EECP and 6-month follow-up respectively. There should have been 78 patients at pre-EECP and immediately post-EECP and at least 65 patients at 6 months follow-up. Further, one of the aims of the study is to investigate the 2-year outcome of EECP treatment. Table 2 only report data up to 6 months!

Since it is clear that there are missing data and 13 patients did not complete the full 2-year follow-up period, the authors must report the number of patients at each follow-up interval in Figures 1 and 2. It is acknowledged that the authors did explain that patients who did not complete the study and who were alive at the end of the study were included in the analysis. However, it has not been made clear that whether the remaining 65 had complete CCS data for all follow-up interval such that there was no missing data in Figures 1 and 2.

The presence of unexplained missing data in any study will make reviewers and readers wonder about the validity of the study. Perhaps this report is a retrospective data analysis of the centre’s experience in EECP treatment and not a planned study designed to follow patient prospectively at the follow-up intervals described in the method?
Minor Essential Revision:
1) Data presentation:
Comment on Figures 1 and 2 as above.
Data on CCS class in the Results section were presented as continuous data. This is fundamentally incorrect as CCS class is categorical/ordinal data and not continuous data. The same is said on the author-defined GTN usage groups in the Results section.

2) Writing:
It is recommended that the manuscript is reviewed/amended by someone familiar with writing clinical manuscript in English before submission. There are multiple fundamental grammatical errors throughout the manuscript. For example:
‘None of the patients worsened their anginal status after EECP treatment’ may be better phrased as ‘Anginal status did not worsen in any of the patients after EECP treatment’.

3) Other comments:
It would be interesting if the authors can provide information on the proportion of patients suffering from left ventricular dysfunction of heart failure. This is a known factor that is associated with poorer response to EECP.
It is unnecessary to report ‘antidiabetic agents’ as a factor to be associated with non-responder as the authors had reported that there were more diabetics among the non-responder.
Exploring baseline characteristics that are associated with a certain outcome by dividing patients into 2 groups is not an ideal method. This is perhaps best to be done using regression model. However, the small number of patient in the study precludes the use of such method and this is one of the limitations of the study.
In the first paragraph, line 6 of Discussion, the authors should make it clear that ‘………… The reduction in anginal symptoms lasted for at least two years in those with baseline CCS 3 and 4.’

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 interest.