Reviewer's report

Title: Risk Factors for Early Postoperative Cognitive Dysfunction after Non-Coronary-Artery-Bypass-Graft Cardiovascular Surgery in a Chinese Han Population

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Reviewer: Brendan Silbert

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The patient group is patients undergoing cardiac surgery other than CABG requiring CBP.
This is not made clear using the term cardiovascular surgery other than CABG. Remove cardiovascular and replace with cardiac.

There have been previous studies looking at valves only but I am unaware of a recent assessment. Therefore a study of this nature is welcomed. However there are major flaws in design

The MMSE examination was designed as a screening tool. It is inappropriate to use this as an assessment for cognition when defining POCD.
Appropriate cognitive batteries for POCD are well described in the literature. They generally involve about 7 or 8 tests covering a variety of cognitive domains. Generally POCD is defined as a z score<1.96 SD below controls on 2 or a composite score of cognition. The test must be administered by trained individuals under the strict control of an experienced neuropsychologist with experience in psychometrics. If the authors wish to move away from conventional definitions of POCD they need to justify this.

Unfortunately the use of the wrong tool undermines the basis of the paper.
Testing 3 to 5 days after surgery is very early and likely to measure residual drug effects, the effect of hospitalisation etc. Generally 6-7 days is the earliest one would attempt this and in reality 3 month testing out of hospital is considered most useful.

Background
Intra-operative hypotension and multiple micro embolization are responsible for POCD is not correct; the cause remains unknown.
The multiple risk factors are also erroneous; the only constant is age and years of education or IQ.

Method
The mixing of 3 muscle relaxants is bad anaesthesia and likely to lead to potentiation of relaxant’s.
Results:
The aim is to measure incidence of POCD but the wrong tool has been used, so one cannot regard the 33% incidence as reflecting the true situation.

Discussion
CBP is now considered to be a minor player. Off pump surgery has been shown to lead to the same incidence of POCD both in large prospective controlled trials and in meta-analysis.

**Level of interest:** Reject as not of sufficient priority to merit publishing in this journal

**Quality of written English:** Not suitable for publication unless extensively edited

**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**
I declare that I have no competing interests