Reviewer's report

Title: Serum S-100beta and NSE levels after off-pump versus on-pump coronary artery bypass graft surgery

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Reviewer: Antonio Miceli

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In the manuscript Serum S100b and NSE levels after off-pump versus on-pump coronary artery bypass graft surgery, Zheng et al evaluated the S100 and NSE profile of patients undergoing either on or off-pump surgery. They found that these brain markers increased in both surgical strategies, but on-pump CABG surgery was associated with higher NSE and S100b levels when compared with off-pump surgery, especially in the first 24 hours.

The manuscript is interesting and well written. However, there are several points which need to be addressed:

Major issues:

1. Half of your introduction does not say anything regarding your study as it refers to common phrases well known by our readers. Introduction should be a brief review of literature, introducing your study. This part should be removed.

2. In the introduction section authors state the superiority of OPCAB vs on pump surgery, citing just 1 reference (11). There have been published important trials such as ROOBY trial and the BEST BYPASS trial which have reported different conclusions. Please reformulate your sentences.

3. The aim of your study was to evaluate brain markers after off pump vs on pump surgery. However, looking at you results section, you spend only 4 rows (page 7 line 156-159) to describe the potential differences. This should be the essence of your study. My suggestion is to describe your results at different times: 0, 6, 24, 48 and 72 hours. In addition, you might create a single graph using on Y axis the means at different times. This may help the readers to understand what happens during surgery.

4. Which technique was used in on-pump surgery? Single or double cross clamp technique? How many patients underwent the "no touch technique"? This is important bias your your study.

5. If possible, a metaregression would improve the quality of your results and evaluate whether off-pump surgery really reduces the brain markers relapse.

6. What about neurological events? Are described in your selected studies. Please, if possible, try to identify a relationship between higher marker levels and neurological events.
7. In the discussion section authors should give a perspective. What do authors suggest to reduce brain markers release?

Minor issues:
1. Figure 2 is too chaotic and should be splitted in at least two or better figures.
2. Please report the initial letter of authors who selected the studies

Level of interest: An article of importance in its field

Quality of written English: Acceptable

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