Author's response to reviews

Title: The Effect of Preoperative Liver Dysfunction on Cardiac Surgery Outcomes

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Reviewer 1

1. I think you should add details linked with propensity matching: We have included the data requested.

2. Can you identify patients who had off pump CABG – In our database we did not separate CABG patients into who had On versus Off pump CABG. There are many published studies that have reviewed the differences between On and Off pump CABG. At this time the data still appears controversial and I did not focus on the significance of cardiopulmonary bypass for the procedures. The valvular surgery patients all required cardiopulmonary bypass.

3. If possible can you get details on the severity of LD to see which patients had worst outcomes – One of the limitations of our study is that we did not have the Child’s Pugh class or MELD score to determine the severity of liver dysfunction for each patient. I agree that it would have most likely shown that the patients with more severe LD had worse outcomes. Our main goal was to first establish that LD had an impact on outcomes of patients after CABG. The goal of the next project will be to look at the severity of LD and its impact on outcomes.

Reviewer 2
The group without LD is labelled as noncomplicated throughout which is not the same as no liver dysfunction- I agree that this may be confusing but we decided to label the patients without liver dysfunction as noncomplicated in order to avoid simply referring to them as patients without liver dysfunction. I have made the change and the patients will no longer be identified as “noncomplicated”.

The study does not differentiate between the various levels of the spectrum of liver dysfunction, e.g. that caused from congestion from heart failure vs end stage liver disease i.e. cirrhosis. There is no stratification for severity of dysfunction (Child Pugh or MELD) - I agree with your comments. One of the main limitations of the study is that I did not identify the severity of the liver dysfunction (Child Pugh or MELD). Our main goal was to first establish that LD had an impact on outcomes of patients after CABG. The goal of the next project will be to look at the severity of LD and its impact on outcomes.

The 3rd paragraph of introduction reads like a proposal for initiation of the study rather than describing the premise of an already conducted study - I agree with your comments and I have adjusted the 3rd paragraph.

Pg. 6 line 13 - The conclusion that there is 'higher than stated overall risk' has no basis in the absence of stratification of results – I agree and I have removed this line.

Pg. 6, lines 14-23. Did the present study include transcatheter interventions? If so, the results are again not meaningful without stratification (as the authors themselves acknowledge) - The study did not include transcatheter interventions for coronary or valvular disease.

6. Pg. 7, line 57. 'Although sometimes infrequent' does not convey any meaning – I agree, the line will be removed.

Sentence at Pg. 8, line 14-18 about renal dysfunction is ambiguous – I revised the sentence.

8. Pg. 9. When economic costs are considered, it appears from the manuscript, liver dysfunction has been considered as a postoperative complication after cardiac surgery and is not in keeping with the objectives of the study. It would be useful to see this issues addressed in any revisions – The presence of liver dysfunction is not intended to be a complication of cardiac surgery but rather one of the risk factors of our patients. I will revise the paper to make sure that this is clear.