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The Editor  
Journal Hepatology Research

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Dear Editor

**Re Do multifrequency bio-impedance spectroscopy and transthoracic echocardiography aid assessment of volume status in patients with chronic liver disease**

We wish to submit a revised paper to the journal, and wish to thank the reviewers for their thoughtful comments. In reply to the specific comments:

Reviewer 1

- (1) The definition of compensated group is unclear. Ascites is one of decompensated symptoms, however, authors described 65% of compensated group had ascites. The stricter criteria of compensated group should be described, or it is advisable that the expression of compensated group may be changed.

We compared two groups of patients, those with stable chronic liver disease who were being assessed for either liver transplantation or for TIPS. The decompensated patients were those acutely admitted to hospital with decompensation due to acute haemorrhage, sepsis, or volume depletion. As such we would prefer to continue to use the term "decompensated"

- (2) It seems that it would be better to describe not only the mean values of Child Turcotte Pugh score but also the number of each stage of Child Turcotte Pugh score.

We have provided this data as requested.

## Reviewer 2

- 1) The purpose of this article is to compare echocardiography with MF-BIS about volume assessment of cirrhotic patients. So the conclusion has to follow with this purpose.

Patients at risk of, or who have hepatorenal syndrome are thought to be intravascularly deplete and standard management would include volume expansion with albumin solutions. Transthoracic echocardiography is typically undertaken in patients with chronic liver disease to exclude cirrhotic cardiomyopathy and pulmonary hypertension. Transthoracic echocardiography measurements can be used to estimate cardiac filling pressures and dimensions, and as such may provide an assessment of intravascular volume. We were unable to demonstrate any significant differences in transthoracic echocardiographic derived variables between the groups. We had not set out to directly compare transthoracic echocardiography and multifrequency bio impedance spectroscopy, but rather review their helpfulness in assessing patient volume status. We have therefore altered our summary statement

- 2) ) Authors should show the data of healthy population about ECW/TBW

Normal healthy control data is presented in the legend for table 3.

- 3) If possible, please show which part of ECW/TBW is most important to manage cirrhotic patients (trunk or leg).

Compared to normal healthy subjects the greatest difference in ECW/TBW was in the trunk, followed by legs.

- 4) About ECW/TBW data, were there any difference between compensated patients with or without ascites, and decompensated with or without ascites?  
Please show more in detail

Table 4 details differences in those patients with clinically detectable ascites. Subdividing patients into 4 groups reduces power due to the smaller numbers in each group. The ECW/TBW ratio for the decompensated group - ascites total  $0.416 \pm 0.004$  vs no ascites  $0.405 \pm 0.005$ , trunk ascites  $0.425 \pm 0.004$  vs no ascites  $0.409 \pm 0.007$ , R leg ascites  $0.413 \pm 0.003$  vs no ascites  $0.403 \pm 0.004$ , and left leg with ascites  $0.414 \pm 0.004$  vs no ascites  $0.408 \pm 0.005$ .

- 5) Is it possible to distinguish decompensated patients from compensated by MF-BIS?

The ratio of ECW/TBW was greater in the decompensated group for total volumes, and segmentally for the trunk and legs but not the arms. However this is a small

study and requires further work, but measurement of MF-BIS appears better able to distinguish decompensated patients from stable patients with cirrhosis than transthoracic echocardiography.

Conflicts of Interest      The authors have no conflicts of interest

The contents of this paper have not been published or presented in part or abstract form.

With many thanks

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