

## Dear Editor

Thanks for the valuable comments from you, the assistant editor and reviewers carefully.

We tried our best to revise the manuscript. The point to point responds to the reviewer's comments are listed as following:

Reviewer #1: Good study.

Response: Thank you.

Reviewer #2: There are two major concerns about this manuscript: 1. Though the authors provided Non-Native Speakers of English Editing Certificate, there are too many mistakes to believe it was edited. This manuscript must be edited by a native English speaker. 2. What are the limitations of this formula? That is, is there any condition that might reduce the accuracy of this formula?

Response: 1. According to the reviewer's comment, we have corrected the sentence. Furthermore, we have had the manuscript polished with a professional assistance in writing. 2. We added some limitations when using this formula in the section of DISCUSSION.

Reviewer #3: This is an interesting manuscript which describes a well designed study to non-invasively determine portal pressure. Evidently, using the formula described here there is a very good correlation to portal pressure as measured by classical invasive methods.

Response: Thank you.

Reviewer #4: There were several queries and points to be revised in this report. First of all, there were several incorrect presentations; for example, no presentation 'B' and 'C' in Figure 1. Middle figure in Figure 1, was 'p-value' correct? In the Text, 'Figure 1A' was stated two times in the different session. One of them was incorrect? It was necessary to add the space between data and +. Before resubmission, careful check is necessary in all of manuscript. 1. Next, several invasive approaches were performed in patients with HCC. In addition, the informed consent was waived. Was the assessment for portal hypertension routinely performed for patients with HCC in hospital? Some comments should be added in the text to avoid the ethical problem. 2. Portal vein flow is change to opposite direction in patients with advanced portal hypertension; from liver to spleen. How about the estimated PPG in such a case? In other words, how about ePPG-PPG in patients with high PPG? 3. Child-Pugh and MELD scores at baseline were missing. Authors should add them in Text or Table. 4. It is necessary to add the explanation or the referred paper about CT-based portal pressure score.

Response: 1. The study population included in this study is liver cancer patients with portal hypertension. Portal pressure is the gold standard for the diagnosis of portal hypertension. Portal pressure measurement is routinely performed in our center. 2. The population of this study was patients with liver cancer and cirrhosis who visited our center, so a portal pressure was routinely measured to understand the severity of portal hypertension. Before the measurement, the patient will be informed of the purpose of the measurement and signed an informed consent form, and the patient data will be recorded in the electronic medical record. This study is a retrospective study that directly retrieves the patient's pressure data from the electronic medical record. 3. Thank you for your valuable suggestions. In this retrospective study, we did not specifically consider the direction of blood flow. This may be a confounding factor in this study. However, PPG is mainly related to blood flow velocity and blood flow in this study. But in the future we will conduct further related research. 3. Child-Pugh and MELD scores at baseline were added in Table 1. 4. We add the explanation or the referred paper about CT-based portal pressure score in this paper in reference 18.