

Answering Reviewers

Question 1: Age is a major impact factor in liver volume measurement. Ten-year interval interpretation for the liver volume measurement may be a better presentation if possible.

Answer: Thanks for your suggestion. To validate the precise impact of age on liver volumes, we used 8-year interval interpretation as a presentation for the liver volume measurement and established another new formula based on age stratification: $SLVa = 857.088 \times BSA - 21.228 \times Age - 205.070$ (aged between 18 and 26, value of Age was 1; aged between 27 and 34, value of Age was 2; and so on). Then we compared the difference of SLV, SLVa and TLV. Consistent with our expectation, the mean Error between SLVa and TLV was 3.63%, which was not significant different with the mean Error between SLV and TLV (4.17%, $p=0.283$). Therefore, considering that the partial regression coefficient ($-2.246/\text{year}$) was very small, we considered that the effect of this variable in adults was negligible. Thus, age was excluded from our final formula, as previously reported by Vauthey (Vauthey J. Body surface area and body weight predict total liver volume in Western adults. *Liver Transplantation* 2002;8:233-240). These results were added to the discussion of the revised manuscript.

Question 2: Couinaud's segment of liver is a useful anatomical geography for resection guides of the tumor resection or location. The author may try to apply the current data to measure of the liver volume with the Couinaud segment individualize from segment 1 to segment 8.

Answer: It is a great suggestion. It's a limitation of the present study. In addition to TLV, the liver segmentation proposed by Couinaud is used in everyday clinical practice, which divided the liver into 8 operatively relevant segments based on the anatomy of the portal vein (PV) and hepatic vein. Some studies reported the change of volume in different locations of liver could hint of some liver diseases. However, because the volume measurement of different liver sections was not included in the previous study design and limitation of our volume detection method, the exact volume of Couinaud's 8 operatively relevant segments has been unable to obtain. Our further

prospective study will continue to propose the range of normal value of the volume of the 8 liver segments and investigate the correlation between the volume of different liver segments and body indices. This limitation was added to the discussion of the revised manuscript.