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Letter to the Editor

Tumour burden score for hepatocellular carcinoma:

Is it an authentic prognostic marker?

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Dear Editor:

We read the paper "Hepatocellular carcinoma tumour burden score to stratify prognosis after resection" with interest published in a recent issue of *British Journal of Surgery*[1]. In this elegant, multi-center study including 1,053 patients with hepatocellular carcinoma (HCC) undergoing surgical resection, authors demonstrate that tumour burden score (TBS) is correlated with cancer stage as a marker of tumor burden. Although their findings are interesting, some concerns may deserve further discussion.

We have alternatively proposed another useful marker, total tumour volume (TTV), to represent tumour burden specifically for HCC by using the following mathematical equation:

Tumour volume $(cm^3) = 4/3$ x 3.14 x (maximum radius of the tumour nodule in cm)^3

TTV is the sum of the tumour volumes of every nodule:

TTV (cm^3) = Tumour volume of (tumour nodule 1 + tumour nodule 2 + ... + tumour nodule N)

Our data showed that TTV, as a continuous variable, is a feasible prognostic marker for patients with HCC undergoing locoregional therapy[2,3]. In addition, its association with α-fetoprotein can be used to predict post-operative tumour recurrence of HCC[4]. Moreover, TTV-based cancer staging system was shown to have a better prognostic accuracy for HCC from early to late stages[5]. The reason for its excellent predictive power is because TTV is highly linked with aggressive tumour behavior including vascular invasion, metastasis, liver dysfunction and performance status. All these features make TTV an authentic candidate to

represent tumour burden for HCC.

Therefore, although TBS may appear as a surrogate marker for surgical HCC, a more in-depth evaluation of TBS for HCC patients undergoing different treatments and a direct comparison with TTV are urgently required to consolidate their application in clinical practice. Further studies from international cohorts are needed to address this issue.

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