

COMMENTARY

Liver function: homogenous or not?

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Received 19 July 2016; accepted 28 July 2016

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The study of Chapelle *et al*¹ confirms that assessment of post-hepatectomy liver failure risk by means of volumetric data alone is insufficient, even when a large future remnant liver (FRL) volume is considered (>40%). They showed that this risk may be reduced with the estimation of FRL function obtained by multiplying FRL volume, based on MRI, by total liver function, based on hepatobiliary scintigraphy with ^{99m}Tc-mebrofenin (HBS). These very interesting results confirm previous data regarding the important place of HBS in a preoperative setting. However, the underlying hypothesis of that work, even if never stated by the authors, is that there is a homogenous spatial repartition of the function (clearance of ^{99m}Tc-mebrofenin from blood pool to hepatocytes) throughout the whole liver. This assumption is valid in native livers, as nicely demonstrated by the authors, but probably wrong following portal vein embolization² (the functional gain is obtained more rapidly than the volumetric gain) or ALPPS^{3,4} (no correlation between volume and function). This limitation to the proposed method is critical since those procedures are actually performed to increase the liver function of the FRL. The only way to take into account this inhomogeneous repartition is to perform Single Photon Emission Computed Tomography (SPECT) and to correlate total liver function, not with volume, but with the actual amount of ^{99m}Tc-mebrofenin in the FRL, as shown previously by the Amsterdam group⁵. Moreover, hybrid SPECT/CT devices may now produce

high quality iodinated contrast-enhanced CT images for delineation of the FRL on SPECT.

References

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