



Reply to the letter to the Editor

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Dear Editor,

We have read with interest the comments of Dr. Ozalper concerning mainly some methodological aspects of our study.

Dr. Ozalper cites the paper by Uslu, *et al.* that showed that the measurement of liver elasticity by adopting a subcostal site, rather than an intercostal site, provides a more accurate assessment of liver fibrosis severity. This observation could be of interest; nevertheless there are many differences between the study of Uslu, *et al.* and our study.

First, to assess liver elasticity Uslu *et al.* employed real-time elastography (RTE) and not Acoustic Radiation Force Impulse elastography (ARFI). Thus, in the absence of head-to-head studies, the results obtained using one technique cannot be translated to the other. Second, Uslu, *et al.* did not report the median number of portal tracts sampled, in order to establish the accuracy of RTE in predicting the severity of liver fibrosis. Finally, it is important to note that in our study only HCV positive liver transplanted patients have been enrolled while the population studied by Uslu, *et al.*¹ enrolled 39 immune-competent patients of whom only 13 presented chronic HCV related hepatitis. The intercostal approach used in our study employing ARFI technique is still considered the best approach² when the elastogram ROI is positioned trying to include the biopsy site, to get a better correlation between the two methods.³

In our study the median (IQR) number of portal tracts obtained from liver biopsies was 10 (8-14); as suggested by AASLD guidelines⁴ it could be considered not sufficient to make a precise evaluation of liver fibrosis stage. As demonstrated by Colloredo, *et al.*⁵ the length of liver biopsy can be considered a surrogate measure of the number of portal tracts; thus either the number of portal tracts or the length of liver biopsy should indicate the quality of a liver biopsy

sample. It has been demonstrated that the reduction of portal tracts sampled in liver biopsy is associated with the underestimation of liver fibrosis stage. In our series 38/51 (74.5%) of the patients presented an Ishak fibrosis stage ≤ 2 . On these basis, an average increase of 1 portal tract (from 10 to 11) in our liver biopsies, would have potentially led to a decrease in the percentage of patients classified as having an Ishak 0-2 score of about 9% (4 patients). The fact would have not substantially changed our results.

We agree that the potential use of ARFI in the evaluation of the spleen could be of great interest. In our series this approach has been applied but the data were not useful to discriminate patients with and without significant fibrosis; thus these results were not shown in the paper. The possible explanation of the low accuracy of ARFI in evaluating the spleen in our patients probably resides in the persistence of the hyperkinetic hemodynamic splanchnic circulation, characteristic of patients with cirrhosis, even after whole liver transplantation; the fact conditions both the volume and the congestion of the spleen.^{6,7}

REFERENCES

1. Uslu A, Batur A, Biyik M, Acikgozoglul S. Real-time elastography and comparison of intercostal and subcostal approaches. *Eur J Gen Med* 2015; 12: 109-13.
2. Paparo F, Corradi F, Cevasco L, Revelli M, Marziano A, Molini L. Real-time elastography in the assessment of liver fibrosis: a review of qualitative and semi-quantitative methods for elastogram analysis. *Ultrasound Med Biol* 2014; 40: 1923-33.
3. Friedrich-Rust M, Wunder K, Kriener S, Sotoudeh F, Richter S, Bojunga J, Herrmann E, et al. Liver fibrosis in viral hepatitis: noninvasive assessment with acoustic radiation force impulse imaging versus transient elastography. *Radiology* 2009; 252: 595-604.
4. Rockey DC, Caldwell SH, Goodman ZD, Nelson RC, Smith AD, American Association for the Study of Liver D. Liver biopsy. *Hepatology* 2009; 49: 1017-44.

5. Colloredo G, Guido M, Sonzogni A, Leandro G. Impact of liver biopsy size on histological evaluation of chronic viral hepatitis: the smaller the sample, the milder the disease. *J Hepatol* 2003; 39: 239-44.
6. Piscaglia F, Zironi G, Gaiani S, Mazziotti A, Cavallari A, Gramantieri L, Valgimigli, M, et al. Systemic and splanchnic hemodynamic changes after liver transplantation for cirrhosis: a long-term prospective study. *Hepatology* 1999; 30: 58-64.
7. Bolognesi M, Sacerdoti D, Bombonato G, Merkel C, Sartori G, Merenda R, Nava V, et al. Change in portal flow after liver transplantation: effect on hepatic arterial resistance indices and role of spleen size. *Hepatology* 2002; 35: 601-8.

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