



Reply to "Application of contrast-enhanced intraoperative ultrasonography in the decision-making about hepatocellular carcinoma operation"

Matteo Donadon, Guido Torzilli

Matteo Donadon, Guido Torzilli, Liver Surgery Unit, Third Department of Surgery, University of Milan School of Medicine, IRCCS Istituto Clinico Humanitas, Via Manzoni 56, 20089, Rozzano, Milan, Italy

Author contributions: Donadon M and Torzilli G wrote this paper.

Correspondence to: Guido Torzilli, MD, PhD, Associate Professor, Director, Liver Surgery Unit, Third Department of Surgery, University of Milan School of Medicine, IRCCS Istituto Clinico Humanitas, Via Manzoni 56, 20089, Rozzano, Milan, Italy. guido.torzilli@unimi.it

Telephone: +39-2-82244502 Fax: +39-2-82244590

Received: April 29, 2010 Revised: May 28, 2010

Accepted: June 4, 2010

Published online: August 14, 2010

2010; 16(30): 3857-3858 Available from: URL: <http://www.wjgnet.com/1007-9327/full/v16/i30/3857.htm> DOI: <http://dx.doi.org/10.3748/wjg.v16.i30.3857>

TO THE EDITOR

The recent paper by Wu *et al*^[1] entitled "Application of contrast-enhanced intraoperative ultrasonography in the decision-making about hepatocellular carcinoma operation" published in the January issue of *World Journal of Gastroenterology* reports some experiences of the authors in contrast-enhanced intraoperative ultrasound (CEIOUS) for hepatocellular carcinoma (HCC). This paper raises a couple of questions that, we believe, need to be asked about.

First and foremost, the authors did not mention any of the previously performed and published studies on the same topic on the application of CEIOUS for HCC^[2-7]. Such studies not only represent the first pioneer investigations on CEIOUS, but up to now they are the cornerstones of this new intraoperative imaging modality, which needs to be confirmed or confuted by further studies performed by other groups. In this sense, Wu *et al*^[1] have lost this opportunity.

Second, it is unclear to the readers how the authors defined a lesion as malignant based on the CEIOUS findings. This is a pivotal point. Yet, CEIOUS for HCC requires a kind of classification to interpret its findings in order to make the correct diagnosis. In particular in case of cirrhotic liver, where the finding of multiple subcentimetric nodules is common, the typical arterial phase might not be very clear because some of those nodules are high-grade dysplastic nodules or early HCC with no anticipated standard contrast enhancement. Indeed, we proposed a classification that, we believe, could help in this sense, even if it probably requires some refinements^[8].

Third, the reported value of specificity for CEIOUS is very high compared with that for intraoperative ultra-

Abstract

The use of contrast-enhanced intraoperative ultrasound for hepatocellular carcinoma has been already proposed as a novel technique to stage the disease during surgical resection. In the herein presented "letter to the editor", the authors underline some important points, which have been raised following paper published in the January issue of *World Journal of Gastroenterology*.

© 2010 Baishideng. All rights reserved.

Key words: Hepatocellular carcinoma; Liver surgery; Contrast-enhanced intraoperative ultrasound; Cirrhosis

Peer reviewers: Marko Duvnjak, MD, Department of Gastroenterology and Hepatology, Sestre Milosrdnice University Hospital, Vinogradska Cesta 29, 10 000 Zagreb, Croatia; Dr. Orhan Sezgin, Professor, Gastroenteroloji Bilim Dalı, Mersin Üniversitesi Tıp Fakültesi, Mersin, 33190, Turkey

Donadon M, Torzilli G. Reply to "Application of contrast-enhanced intraoperative ultrasonography in the decision-making about hepatocellular carcinoma operation". *World J Gastroenterol*

sound (IOUS) and contrast-enhanced magnetic resonance imaging (CEMRI). The impression is that the authors calculated the specificity by adding the value of CEMRI and IOUS. When CEIOUS was performed on the same population of patients who had CEMRI and IOUS, its results in terms of sensitivity and specificity might be biased by the previous radiological findings. Only a true blind performance of different diagnostic methods might allow a true comparison in terms of diagnostic accuracy.

Finally, we thank that Wu *et al.*^[1], because our group, developed and supported the study of CEIOUS performed many years ago, both for HCC^[2,4-6] and for colorectal liver metastases^[9]. Thus, any new study on the same topic further sustains its use.

REFERENCES

- 1 **Wu H**, Lu Q, Luo Y, He XL, Zeng Y. Application of contrast-enhanced intraoperative ultrasonography in the decision-making about hepatocellular carcinoma operation. *World J Gastroenterol* 2010; **16**: 508-512
- 2 **Torzilli G**, Del Fabbro D, Olivari N, Calliada F, Montorsi M, Makuuchi M. Contrast-enhanced ultrasonography during liver surgery. *Br J Surg* 2004; **91**: 1165-1167
- 3 **Torzilli G**. Adverse effects associated with SonoVue use. *Expert Opin Drug Saf* 2005; **4**: 399-401
- 4 **Torzilli G**. Contrast-enhanced intraoperative ultrasonography in surgery for liver tumors. *Eur J Radiol* 2004; **51** Suppl: S25-S29
- 5 **Torzilli G**, Olivari N, Moroni E, Del Fabbro D, Gambetti A, Leoni P, Montorsi M, Makuuchi M. Contrast-enhanced intraoperative ultrasonography in surgery for hepatocellular carcinoma in cirrhosis. *Liver Transpl* 2004; **10**: S34-S38
- 6 **Quaia E**, Calliada F, Bertolotto M, Rossi S, Garioni L, Rosa L, Pozzi-Mucelli R. Characterization of focal liver lesions with contrast-specific US modes and a sulfur hexafluoride-filled microbubble contrast agent: diagnostic performance and confidence. *Radiology* 2004; **232**: 420-430
- 7 **de Groot MC**, van Grootheest AC. Contrast-enhanced ultrasonography during liver surgery (Br J Surg 2004; **91**: 1165-1167). *Br J Surg* 2005; **92**: 121-122; author reply 122
- 8 **Torzilli G**, Palmisano A, Del Fabbro D, Marconi M, Donadon M, Spinelli A, Bianchi PP, Montorsi M. Contrast-enhanced intraoperative ultrasonography during surgery for hepatocellular carcinoma in liver cirrhosis: is it useful or useless? A prospective cohort study of our experience. *Ann Surg Oncol* 2007; **14**: 1347-1355
- 9 **Torzilli G**, Botea F, Procopio F, Donadon M, Balzarini L, Lutman F, Calliada F, Montorsi M. Use of contrast-enhanced intraoperative ultrasonography during liver surgery for colorectal cancer liver metastases - Its impact on operative outcome. Analysis of a prospective cohort study. *Eur J Cancer* 2008; **6**: 16-23

S- Editor Wang YR L- Editor Wang XL E- Editor Ma WH