



Clinical efficacy of liver resection combined with adjuvant microwave coagulation for patients with hepatocellular carcinoma: a promising approach to minimize recurrence?

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Comment on: Zhang T, Wang M, Zhang X, *et al.* Analysis of the clinical efficacy of liver resection combined with adjuvant microwave coagulation for patients with hepatocellular carcinoma. *Ann Transl Med* 2020;8:585.

Submitted May 28, 2020. Accepted for publication Jun 11, 2020.

doi: 10.21037/atm-2020-114

View this article at: <http://dx.doi.org/10.21037/atm-2020-114>

We read with great interest the article of Zhang *et al.* (1) concerning the clinical relevance of liver resection associated with adjuvant microwave coagulation for patients with BCLC stage A hepatocellular carcinoma (HCC). At present, liver resection is performed as a curative measure for the treatment of HCC in a subgroup of patients with no extra hepatic disease. The goals of surgical approach for HCC is to obtain a compromise between R0 resections with negative margin and preservation of adequate function of the future remnant liver. Due to the improvement of the safety of surgical resection, the role of hepatectomy for HCC has increase including selected patients with preserved liver function and small tumors (alternative of ablation), tumors within Milan criteria (alternative of transplantation), and patients with lesion >5 cm and huge HCC.

As high rate of postoperative recurrence is observed following resection, international guidelines are very restrictive concerning indication to surgical treatment, also considering that the ideal treatment for HCC on cirrhotic liver is liver transplantation (2). Nevertheless, the practical attitude of hepato-biliary centers around the world often are in disagreement with the BCLC flow chart, especially in the presence of macrovascular thrombosis because of higher survival rates reported after surgical resection in comparison to systemic palliative treatment (3). To minimize recurrence and prolong overall survival different strategies have been adopted, the most accepted one is the anatomical liver resection that should be in theory considered the gold

standard of resection, based on the concept of intrahepatic portal spread of the disease (4-8). Other adjuvant treatments, such as interferon (IFN)-a, chemokine-induced killer cells, transcatheter chemoembolization (TACE) and anti-hepatitis B virus (HBV) agents, sorafenib and anti-PD-1 antibodies failed to improve recurrence-free survival (RFS). Microwave coagulation was proposed as an adjuvant therapy. In this study, the authors reported that liver resection associated with intraoperative adjuvant microwave coagulation had a better result than treatment with liver resection alone. This approach should ideally minimize intrahepatic spreading of tumoral cells during and after resection (9), optimizing as well the transection line with lower blood loss as reported in other studies (10). The concept is interesting but there are several biases to consider, in particular the fact that no specific report is present concerning the type of resection in the two groups and no information about histology of the specimens, especially the microvascular invasion? The same consideration has to be done to intraoperative blood loss and transfusions, as they are known risk factors of recurrence. In conclusion, the Achilles's heel of liver resection for HCC is recurrence. Different methods have been proposed but at present no one demonstrated its efficacy. The clinical relevance of liver resection associated with adjuvant microwave coagulation could be one potential approach but further studies are needed to consider this strategy in routine clinical practice. Multidisciplinary meeting is essential in the management of patients with

HCC to propose and coordinate the optimal therapeutic strategy possible for these high-risk patients.

Acknowledgments

Funding: None.

Footnote

Provenance and Peer Review: This article was commissioned by the editorial office, *Annals of Translational Medicine*. The article did not undergo external peer review.

Conflicts of Interest: All authors have completed the ICMJE uniform disclosure form (available at <http://dx.doi.org/10.21037/atm-2020-114>). The authors have no conflicts of interest to declare.

Ethical Statement: The authors are accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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Cite this article as: Felli E, Cherkaoui Z, Pessaux P. Clinical efficacy of liver resection combined with adjuvant microwave coagulation for patients with hepatocellular carcinoma: a promising approach to minimize recurrence? *Ann Transl Med* 2020;8(18):1123. doi: 10.21037/atm-2020-114