Editorial

Concerns about how to simultaneously determine microvascular invasion and pathological response after transarterial chemoembolization before hepatocellular carcinoma surgery

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Microvascular invasion (MVI) is classified as the strongest risk factor for recurrence and poor prognosis after surgical treatment of hepatocellular carcinoma (HCC). The same results after liver transplantation reflect how MVI reflects the poor prognosis of HCC (1,2).

However, MVI can only be evaluated via microscopic examination of the entire surgical specimen, limiting its use as a prognostic factor for treatment allocation in real practice, regardless of its clinical importance (3). Therefore, predicting MVI prior to the treatment stage is very important regarding selection of optimal treatment.

In this study, since the degree of response after transarterial chemoembolization (TACE) can only be confirmed by postoperative pathological results, it may also be difficult to apply it to determine the direction of treatment before surgery. Additionally, TACE as a neoadjuvant therapy for resectable HCC is not recommended, as the therapy is ineffective and the delay in surgery can turn a resectable HCC to unresectable (4,5).

Since both MVI and degree of response after TACE are known predictors of poor outcome after surgery, it does not appear that they are mutually opposed to each other. Of course, I would like to encourage this study to prove the relationship between the two proportionally for the first time.

This is very important finding in this study which is the incidence of MVI in patients with complete pathological response (PR) was absent and the incidences of MVI gradually increased with decreasing percentages of tumor PR.

As authors suggested, there is still no direct evidence to indicate incomplete TACE induces MVI. Yang *et al.* (6) suggested TACE can be speculated to kill well-differentiated HCC cells while leaving behind those HCC cells which exhibit more aggressive behaviors, such as tumors with MVI and epithelial-to-mesenchymal transition can further promote formation of MVI and enhance HCC invasion and metastasis.

In order for the results of this study to stand out more meaningfully, there are two important points to be addressed in clinical practice. This is to clarify which patients had MVI before surgery and whether it is possible to know in advance which patients would have poor PR if TACE was performed. If the two risk factors coexist, we can assume a scenario in which surgical treatment is excluded or a more aggressive method is selected even if surgery is performed.

On post-TACE computed tomography (CT) imaging, a lack of residual contrast enhancement, a decrease in lesion size, a high lesion density with accumulation of ethiodized oil, and a diffuse distribution of ethiodized oil throughout the lesion correlated with near-complete lesion necrosis

upon histopathological analysis (7-9).

Author (6) suggested that patients with PR of <60% were shown in this study to have poorer long-term survival outcomes after liver resection, these patients should be closely followed-up, and post-operative adjuvant treatment using TACE or molecular targeted agents should be discussed with these patients.

In this respect, there are significant research findings. For patients with MVI, a resection margin of >1 cm resulted in better 5-year recurrence and overall survival than a resection margin under 1 cm (10).

However, it should be recognized that the responsiveness after TACE may have limitations in determining the selection of a patient's surgical treatment, since there are many groups that do not undergo TACE before surgery in the case of resectable HCC.

It is necessary to conduct a study to determine the direction of surgery by selecting a group that responds well by performing TACE in patients in whom resection is difficult or the effect of surgical treatment is ambiguous.

In this case, if MVI can be predicted at the same time, it can be much more useful in selecting patients. Going one step further, we also suggest a study to find out the response by performing TACE on patients with MVI predicted.

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