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EDITORIAL

Factors for the recurrence of hepatocellular carcinoma after hepatic resection

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Abbreviations

HCC Hepatocellular carcinoma
HBV Hepatitis B virus
HCV Hepatitis C virus

Hepatocellular carcinoma (HCC) accounts for 90% of primary liver cancers and is mainly caused by chronic viral hepatitis infection and metabolic disorders, such as non-alcoholic steatohepatitis or alcoholic hepatitis. Although the development of antiviral therapies for chronic hepatitis B virus (HBV) and hepatitis C virus (HCV) infection can be expected to gradually reduce the number of HCC cases caused by viral hepatitis, HCC is still the sixth most common cancer worldwide and the third most common cause of cancer-related deaths by GLOBOCAN [1]. Owing to the development of various screening methods and guidelines for the management of chronic liver dysfunction, HCC can be identified in the early stages by regular screening. The detection of early-stage HCC allows patients to be recommended for curative treatment with hepatic resection or local treatments such as radiofrequency ablation and microwave coagulation [2–4]. However, even if HCC is treated with curative treatment, the recurrence rate of HCC is higher than that of other malignancies such as colon cancer and gastric cancer. According to previous reports, the incidence of HCC recurrence at 5 years (intrahepatic and distant) after curative-intent liver resection was estimated at 60–70% in major Western centers [5, 6]. Therefore, it is important to identify patients at high risk of HCC recurrence after curative treatment to provide careful screening.

Currently, the prediction of clinical factors for HCC recurrence after curative hepatic resection has been performed by several laboratories. Fang et al. measured splenic volume from preoperative CT images and analyzed the association between preoperative splenic volume and the HCC recurrence rate after hepatectomy [7]. In particular, the difference in the recurrence-free survival rate between the higher and lower splenic volume groups was more significant 3–5 years after hepatectomy. Ivanics et al. also analyzed the risk factors for HCC recurrence after curative-intent liver resection [8]. As many factors were associated with the outcomes after liver resection, they implemented multistate modeling for the prediction of HCC recurrence using patient and tumor characteristics. This calculation system may be useful for tailoring prognostic estimates for individual patients based on their clinicopathological characteristics. However, neither of these studies analyzed the impact of perioperative blood transfusion on HCC recurrence.

Nakayama et al. conducted an interesting study to clarify the association between blood product transfusion and the prognosis of HCC patients after curative liver resection [9]. They analyzed the incidence of HCC recurrence in 1,481 patients and identified that recurrence-free

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survival and overall survival rates in patients who were transfused with blood products, especially red blood cells, during surgery or the postoperative stay in the hospital were significantly poorer than those in patients without any blood product transfusions. Blood product transfusions remain an independent risk factor for increased major surgical and medical complications [10, 11]. In the operation of malignancies, blood transfusions might inactivate host anti-cancer immunity and provide a preferable environment for growing tumor cells in the host. Considering this, the conclusions of the study by Nakayama et al. are acceptable. However, recent antiviral therapies for chronic HBV and HCV infections have greatly improved, leading to not only a reduction in the incidence of HCC and its recurrence [12–15] but also a prolongation of survival in patients with and without HCC [16, 17]. According to a report by Chien et al. the cumulative HCC recurrence rate in chronic hepatitis B patients during nucleotide/nucleoside analog therapies, or chronic hepatitis C patients who achieved HCV eradication via antiviral therapies, was lower than that in patients with non-alcoholic steatohepatitis [12]. Regardless of the kinds of antiviral drugs (e.g., between entecavir and tenofovir treatment in chronic HBV infection [18], or between interferon and direct-acting antiviral treatment in chronic HCV infection [19], the HCC recurrence rate has improved in cases experienced after the development of antiviral therapies in 2000. In the study by Nakayama et al. more than 65% of the patients were carriers of HBV and/or HCV. If they compared the HCC recurrence rate among patients with and without the experience of antiviral therapies, the impact of perioperative blood product transfusions on HCC recurrence could be changed because the necessity of blood transfusions might be reduced during or after surgery due to the improvement of liver function. To clarify the impact of antiviral therapies on chronic HBV and HCV infections, we expect to perform further analyses to determine whether antiviral therapies could contribute to the reduction of HCC recurrence by avoiding perioperative blood transfusions.

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