Antibiotic Prophylaxis and the Clinical Meaning after Transcatheter Treatment for Hepatocellular Carcinoma: Indicated?

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(Hepatocellular carcinoma (HCC) is one of the most common malignancies worldwide (1). With advances in imaging diagnostics, together with the understanding of high-risk patients, the cancer can be often detected at an early stage now (2). Surgical treatments including hepatic resection and liver transplantation are considered as the most effective treatment for HCC. However, it is still not rare to find patients in whom HCC is diagnosed at an advanced stage of the disease. Less than 20% of HCC patients have been treated surgically (3). Interventional treatments have been applied to the patients with inoperable HCC. Transarterial embolization (TAE) and transarterial chemoembolization (TACE) have a common treatment option for patients with unresectable HCC for the purpose of palliation. Some recent reports concluded that TACE impacted on the survival rate of HCC patients (4, 5). Transcatheter treatment of HCC is reportedly accompanied by post-procedure infectious complications (6). Patients with HCC often have hepatic functional damage and decreased resistance to bacterial infection. Once post-procedure infectious complications have occurred, the condition of some patients will deteriorate, with a subsequently undesirable outcome. Therefore, administration of prophylactic antibiotics is widely performed in patients being treated for HCC.

Primary infection of HCC after TAE has been reported at an incidence of 0 to 5.3% (7, 8), and occurs mostly on the basis of ischemic injury (9). Hence, Castells et al reported that, in patients with liver cirrhosis and HCC, prophylactic administration of antibiotics after TAE is not necessary to prevent post-procedure infection, because the majority of patients in their study had Child’s Class A cirrhosis (10). However, patients with cirrhosis and HCC should be considered at risk of developing bacterial infections due to their compromised state. In fact, patients with cirrhosis who have acute complications, such as variceal hemorrhage, or who are admitted because of ascet decompensation are recommended to receive prophylactic antibiotics aimed to reduce the probability of infective complications (11).

In this issue of Internal Medicine, Ebisutani et al document an open randomized prospective study of oral versus intravenous administration for antibiotic prophylaxis in transcatheter treatment of hepatocellular carcinoma. They conclude that the results of peroral administration of LVFX for the prevention of post procedure infectious complications in patients receiving TACE/TAI for HCC are not inferior to those of intravenous administration of CEZ (12).

Hence, administration of prophylactic antibiotics might decrease the overall prevalence of infectious complications of TAE, but it does not decrease the prevalence of liver abscess (6).

However, some authors report hepatic abscess formation as a potential complication of TAE. TAE causes ischemia and increases the risk of infection. Hepatic infarcts act as a nidus for bacterial colonization by organisms that enter through the portal vein (13, 14). In particular, previous studies have shown that hepatic abscesses are increasingly likely to form after TAE treatment in patients with a history of biliary reconstructive surgery (7, 15).

These facts provide a rationale for administering prophylactic antibiotics in patients with cirrhosis submitted to TAE. Pretreatment of patients at high risk includes a powerful broad-spectrum antibiotic that has extensive coverage against gram-positive and gram-negative bacteria. A potent broad-spectrum antibiotic regimen and bowel preparation eliminates the occurrence of liver abscesses after TAE treatment in patients with a history of biliary reconstructive surgery.

Furthermore, Chen et al reported that old age, large tumor size (>5 cm) and p ervious biliary tract disease are risk fac-
tors for liver abscess after TAE (7). Large necrotic tumor masses may lead to infection because of the inherent lack of immune capabilities and the propensity for colonization. Although TAE is an effective alternative to surgery in patients with HCC, it has therapeutic limitations in controlling the disease. In order to achieve better effects for large HCC, repeated TAE or TAE in combination with localized therapy such as partial hepatectomy, percutaneous ethanol injection therapy (PEIT), or percutaneous radiofrequency ablation (RFA) has been widely introduced.

Randomized studies are needed to establish antibiotic use in HCC patients undergoing TACE/TAI and other multidisciplinary treatment. Although the results are promising, more evidence is required and further studies are necessary on the cost-benefit analysis because these results are of prime importance in justifying the treatment strategy for patients with HCC.

References


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