LETTER TO THE EDITOR

HCC chemoembolization: Still a challenge

To the Editor:

Chen QW et al. have reported the good results of radiofrequency associated with chemoembolization in the treatment of hepatocellular carcinoma (HCC) [1].

Here, we refer to the complications correlated with this procedure. It is well known that ischemic tissue necrosis after chemoembolization can cause a ‘transient cytolysis’, usually with a mild clinical impact [2,3]. A more severe, sometimes life-threatening, complication is represented by the irreversible ischemic damage of a significant portion of the liver parenchyma, causing a real ‘post-embolization syndrome’. Its basic patho-physiology is equivalent; the main difference consists in its evolution toward a progressive sub-acute hepatic failure, usually appearing with classic symptoms, such as encephalopathy, ascites, jaundice, congestion of gastro-esophageal varices, etc. Other adverse events, strictly correlated with the procedure of arterial catheterization and chemoembolization, like direct injury of the hepatic artery, or indirect of the portal or hepatic vein, and of the biliary tree, have a more acute onset and a precipitating course.

The diagnosis, essentially clinical, of this ‘post-embolization syndrome’ demands to be confirmed by cross-sectional examinations in compute tomography (CT) or magnetic resonance, which demonstrate the presence of an evident area of liver ischemia. The treatment is equivalent to that commonly adopted in case of hepatic failure. However, this complication must be evaluated before any attempt of chemoembolization. Therefore, for each HCC nodule we consider essential a complete radiological study, which includes a selective arteriography to precise its vascular pattern and a CT to estimate the amount of liver tissue, that is likely to become ischemic after the procedure of chemoembolization. Today, they are greatly facilitated by the cone-beam CT technology, which allows, in the same session, a selective arteriography and a liver CT with a three-dimensional reconstruction [4–6]. It is also possible to estimate, with an adequate software, the volume of the cone ischemic effect due to chemoembolization on the liver parenchyma, still functioning [7,8]. This diagnostic strategy is supported by some anatomo-functional considerations. First, in liver cirrhosis the arterial flow is increased, in front of a decreased portal venous component. Second, the peripheral branches of the hepatic artery can behave as terminal, being not always provided of an adequate collateral network. Third, the distribution of the peripheral branches of the hepatic arteries does not always match, especially in cirrhosis, with the equivalent partition of the liver into segments and sub-segments [9,10]. Besides, the necrosis of a HCC nodule can induce thrombosis of an adjacent branch of the portal or hepatic vein (Fig. 1).

All these general considerations are especially actual for big HCC nodules, placed at the center and involving two or more segments, and where the cone ischemic effect of chemoembolization can be more extended. Clearly, the estimated cone ischemic effect must be integrated with the clinical and laboratory data for each patient. In our experience, absolute mathematical formulae, predictive of the hepatic function worsening, are difficult to be adopted. Practically, we found that Child—Pugh A patients usually support chemoembolization of an entire liver segment, that becomes dangerous in Child—Pugh C patients. Between these two opposites, there are different clinical situations, where any therapeutic decision must be tailored individually.
Figure 1  Child B cirrhotic patient. (A) RM (arterial phase): two HCC peripheral nodules, with a diameter < 2.5 cm in the VI segment (arrows). (B) Selective arteriography: two distinct arteries feed almost exclusively the peripheral nodules (arrow), without significant cone effect on the neighboring parenchyma; chemoembolization followed without complications. Child A cirrhotic patient. (C) CT: a unique HCC peripheral nodule, with a diameter > 4 cm, in the right lateral segment (arrow). (D) Selective arteriography (lateral view): two distinct feeding arteries (arrows), with a cone effect, calculated of little entity and projecting only on the surrounding parenchyma; chemoembolization followed without complications.

Disclosure of interest

The authors declare that they have no competing interest.

References


