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Selective occlusion of the hepatic artery and portal vein improves liver hypertrophy for staged hepatectomy

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Introduction : To evaluate the safety and feasibility of a new method of selective occlusion of the hepatic artery and portal vein (SOAP) for staged hepatectomy (SOAPS) in patients with hepatocellular carcinoma (HCC).

Methods : Ten patients with unresectable HCC due to insufficient volume of future liver remnant (FLR) were chosen to undergo SOAPS. SOAP without liver partition was performed in the first stage of hepatectomy. The second stage of hepatectomy, including right hemihepatectomy, right trisectionectomy and left trisectionectomy, was performed when the FLR was sufficient.

Results : None of the patients developed hepatic failure and no deaths occurred following SOAP. The FLR in all patients increased by an average of 144.3 mL after SOAP. The average ratio of FLR to standard liver volume increased from 32.6% to 44.7%. The second stage of hepatectomy was performed 8 to 18 days after SOAP. The average time interval between the two stages was 14.4 days. No in-hospital deaths occurred after SOAPS. The AFP level in 8 patients reduced to normal within two months after SOAPS. Of these 10 patients, 4 patients died of intrahepatic recurrence, lung metastasis or bone metastasis. Six survived to now, and the longest survival time is 40.2 months. Of the 6 surviving cases, 4 patients are without disease.

Conclusions : SOAP can facilitate rapid and sustained FLR hypertrophy. In addition to reported portal vein blood redistribution, hepatic artery blood redistribution is one of the mechanisms of liver hypertrophy in SOAP. SOAPS is safe and effective in patients with unresectable HCC.

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