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Percutaneous electro chemotherapy of hepatocellular carcinoma at hepatic hilum: A feasibility study

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Background & Aims: In the treatment Hepatocellular Carcinoma infiltrating the hepatic hilum (hh-HCC), surgery and loco-regional therapies are uneffective and can be unsafe for possible damage to structures at the hepatic hilum. Electrochemotherapy (ECT) is a non-thermal ablation technique able to induce cancer cells necrosis without affecting stromal structures, biliary ducts and vessels next to the tumor. We evaluated the feasibility, efficacy and safety of ECT in a series of patients with hh-HCC.

Materials & Methods: 15 patients (13M, 2F; 43-85 year, mean: 61 year), 11 in Child-Pugh-A, 4 in Child-Pugh-B-class, with biopsy proven hh-HCC (diameter range: 2.5-5.5 cm; mean: 3.6 cm) underwent ECT. 7 patients had complete right and/or left portal vein tumor thrombosis (PVTT), 2 patients showed partial right PVTT, 6 patients had a hh-HCC next to main portal vein bifurcation. All patients underwent endoscopy for evaluation of gastro-aesophageal varices (GEV) within 3 months before treatment. ECT was performed with insertion of 4-6 electrode-needles connected to a generator (Cliniporator Vitae - IGEA, Carpi, Italy) under general anesthesia plus myorelaxation. 8 minutes after i.v. injection of Bleomicin (15,000 IU/m2), high voltage electric pulses were delivered. All patients underwent control of the efficacy by contrast-enhanced-MDCT 4 weeks after treatment and follow-up CT controls every 6 months thereafter.

Results: Endoscopy detected grade-F1-GEV in 6 and F2-GEV in 9 patients. No perioperative major complication occurred. 2/15 (13%) patients died because of hemorrhage from GEV at 4 and 5 weeks after treatment. Both 2 patients had PVTT. Post-treatment CT showed complete absence of enhancement of the treated nodule and/or PVTT in 11/13(85%) and partial necrosis in 2/13(15%) cases. The follow-up ranged from 9 to 28 months (median: 14 months). Follow-up-CT showed local progression of the tumor in the 2 cases of partial response. 4 patients dropped-out the follow-up at 6, 9, 10 and 12 months because of death from liver failure in 3 and hemorrhage from gastroaesophageal varices in 1 case, respectively. In these 4 patients, 6-months-CT confirmed complete necrosis and absence of local recurrence. In the other 7 patients, no local recurrence was detected at CT during follow-up. In 4 patients with PVTT, 2 with partial and 2 with complete PVTT, the imaging showed a patent portal vein during follow-up. Other 3 patients showed a persistent avascular non-tumoral shrinked thrombus. During follow-up, intrahepatic recurrences in other segments were detected in 4/13 (31%) patients.

Conclusions: ECT seems to be a feasible and effective treatment for local control of hh-HCC, with a good safety profile. Patients with PVTT and GEV>F1 are at high risk for short-term hemorrhage from GEV after ECT (13% in our series).

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