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Mitomycin-C chemotherapy as a maintenance treatment in
patients with multiple liver colo-rectal metastases**

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Background: New treatments are being investigated in patients with multiple or unresectable liver metastases, usually characterized by poor prognosis. Based on the predominant arterial blood supply of hepatic neoplasms, liver trans-arterial chemotherapy administers Mitomycin-C is characterized by a high liver extraction rate. Low-frequency 13.56 MHz deep hyperthermia (Oncotherm-EHY 2000) treatment of liver cancer is another possible treatment for liver metastases.

We evaluated the feasibility, the effectiveness and toxicity of capacitatively coupled low-frequency 13.56 MHz deep hyperthermia as a maintenance therapy following hepatic trans-arterial chemotherapy with Mitomycin-C in patients affected by liver metastases from colo-rectal cancer.

Patients and methods: From February 2009 to June 2010, we enrolled 15 patients with liver metastases from colo-rectal cancer. Median age was 66,5 years (range 48-78), male/female 9/6. ECOG PS was 1 or 0. All patients enrolled were heavily pre-treated with systemic chemotherapy with final hepatic progression of disease and were not eligible for surgery. Patients enrolled had not extra-hepatic disease. Patients received several course of liver trans-arterial 35 mg of Mitomycin-C chemotherapy (mean 3 course; range 1 to 5). Treatment was performed under angiography guide and general anesthesia. Deep electro-hyperthermia (DE-Y) (Oncotherm-EHY 2000) was achieved by arrangements of capacitative electrodes with a radiofrequency field of 13.56 Mhz (RF-DHT) at 80- 100 W equivalent to 41 °- 44° C for 60 minutes, 3 times/week for 3 weeks. Patients received several course of this schedules until progression disease. Median number of EHY cycles was 4 (range 2-9), total DE-Y applications were 527.

Results: DE-Y treatment following hepatic trans-arterial chemotherapy with Mitomycin-C of liver metastases is beneficial on clinical conditions of treated patients with an excellent compliance on out-patients. 3 patients had skin reaction after application of DE-Y. In 2 pts we observed cutaneous hyperemia on the area of treatment and mild burn on the skin; all symptoms disappeared after local steroid therapy, treatment was interrupted until resolution. According to modified RECIST criteria we observed 1 complete response, 11 partial response and 3 progression disease. With special references to DE-Y median maintenance time until disease progression it was 5 months range 3-14 months).

Conclusions: The feasibility, the good tolerability and the preliminary data of efficacy of this procedure make it an interesting option in the therapeutical strategy for heavily pre-treated patients with advanced metastatic liver disease. Further randomized studies comparing the combination between DE-Y treatment following liver trans-arterial Mitomycin-C chemotherapy versus trans-arterial Mitomycin-C alone in these heavily pre-treated patients with metastatic liver disease are required to further confirm our preliminary data.