

BMC Cancer. 2010 May 20;10:219.

Residual hepatocellular carcinoma after oxaliplatin treatment has increased metastatic potential in a nude mouse model and is attenuated by Songyou Yin.

Xiong W, Ren ZG, Qiu SJ, Sun HC, Wang L, Liu BB, Li QS, Zhang W, Zhu XD, Liu L, Wang WQ, Tang ZY.

Source: Liver Cancer Institute, Zhongshan Hospital, Fudan University, Shanghai 200032, China.

Abstract

BACKGROUND: The opposite effects of chemotherapy, which enhance the malignancy of treated cancers such as hepatocellular carcinoma (HCC), are not well understood. We investigated this phenomenon and corresponding mechanisms to develop a novel approach for improving chemotherapy efficacy in HCC.

METHODS: Human hepatocellular carcinoma cell lines HepG2 (with low metastatic potential) and MHCC97L (with moderate metastatic potential) were used for the in vitro study. An orthotopic nude mouse model of human HCC was developed using MHCC97L cells. We then assessed the metastatic potential of surviving tumor cells after in vitro and in vivo oxaliplatin treatment. The molecular changes in surviving tumor cells were evaluated by western blot, immunofluorescence, and immunohistochemistry. The Chinese herbal extract Songyou Yin (composed of five herbs) was investigated in vivo to explore its effect on the metastatic potential of oxaliplatin-treated cancer cells.

RESULTS: MHCC97L and HepG2 cells surviving oxaliplatin treatment showed enhanced migration and invasion in vitro. Residual HCC after in vivo oxaliplatin treatment demonstrated significantly increased metastasis to the lung (10/12 vs. 3/12) when re-inoculated into the livers of new recipient nude mice. Molecular changes consistent with epithelial-mesenchymal transition (EMT) were observed in oxaliplatin-treated tumor tissues and verified by in vitro experiments. The Chinese herbal extract Songyou Yin (4.2 and 8.4 g/kg) attenuated EMT and inhibited the enhanced metastatic potential of residual HCC in nude mice (6/15 vs. 13/15 and 3/15 vs. 13/15, respectively).

CONCLUSIONS: The surviving HCC after oxaliplatin treatment underwent EMT and demonstrated increased metastatic potential. Attenuation of EMT by Songyou Yin may improve the efficacy of chemotherapy in HCC.

PMID: 20487542 [PubMed - indexed for MEDLINE] PMCID: PMC2880993