

Prognostic Significance of CD44 Expression in Hepatocellular Carcinoma Following a Potentially Curative Treatment

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Abstract

Background/Aim: Liver resection and liver transplantation offer the best chance of survival in hepatocellular carcinoma (HCC), but tumor recurrence still occurs frequently, warranting patient stratification according to the risk of recurrence. Enrichment in stem cell markers is currently a possible risk stratifying strategy. The prognostic significance for HCC recurrence of CD44, a well-established stem cell marker, is still controversial. The aim of our study was to investigate the prognostic significance of CD44 expression in hepatocellular carcinoma following a potentially curative treatment.

Methods: CD44 expression was investigated by qRT-PCR and immunohistochemistry in 31 patients who underwent a potentially curative treatment for HCC. Multivariate survival analysis was conducted using Cox proportional hazards model. Patient HCC related death according to CD44 expression was investigated by Kaplan Meier method.

Results: mRNA quantification has indicated a significant down regulation of CD44 in tumoral vs nontumoral tissue in 35.7% of cases and a significant up-regulation of gene expression in 9.5% of cases. Immunohistochemistry has indicated positive CD44 staining in both tumoral and non-tumoral tissue, mainly in non-parenchymal cells and also in a subset of tumoral hepatocytes. CD44 relative gene expression was the only independent predictor of early tumor recurrence, independent of clinical variables as well as for one-year tumor related death.

In **conclusion** our study brings new evidence for the negative prognostic significance of CD44 expression in hepatocellular carcinoma, indicating a subgroup of patients that need aggressive follow-up after a potentially curative treatment, independent to the kind of surgical treatment performed (liver transplantation or liver resection).

Key words: hepatocellular carcinoma, liver resection, liver transplantation, prognosis, CD44