

3rd International Conference on Gastroenterology & Urology

July 28-30, 2014 DoubleTree by Hilton Hotel San Francisco Airport, USA

Clinical significance of galectin-3 and matrix metalloproteinase-9 in hepatocellular carcinoma patients

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Hepatocellular carcinoma is the fifth most common cancer in men and the seventh in women. This cancer varies widely in incidence throughout the world, with rising incidence in Egypt. Hepatocellular carcinoma is the second most frequent cause of cancer incidence and mortality among men in Egypt. This study aimed to estimate the serum levels of matrix metalloproteinase-9 and its substrate galectin-3 to evaluate their diagnostic accuracy and their relation to hepatocellular carcinoma related clinical features. For this purpose serum levels of these biochemical markers were assessed in 50 hepatocellular carcinoma patients, 30 cirrhotic patients in addition to 10 healthy subjects as a control group using enzyme linked immunosorbent assay. In the present study, circulating level of galectin-3, matrix metalloproteinase-9 increased significantly in hepatocellular carcinoma as compared to control group ($P=0.044$ and 0.04 , respectively). However, no significant difference was observed between cirrhotic and hepatocellular carcinoma patients ($P=0.231$ and 0.193 , respectively). Our study found that hepatocellular carcinoma patients with metastatic spread had a significant elevation of both serum galectin-3 and matrix metalloproteinase-9 levels ($P=0.028$ and <0.0001 , respectively). In addition, galectin-3 level significantly increased in hepatocellular carcinoma patients with poor prognosis suffering from portal vein invasion ($P=0.014$). Moreover, matrix metalloproteinase-9 increased significantly with increasing stage of Barcelona-Clinic Liver Cancer Group diagnostic and treatment strategy ($P=0.01$). In Conclusion, matrix metalloproteinase-9 and galectin-3 could be potential prognostic markers. Moreover, they may play a role in hepatocellular carcinoma progression and metastasis. However, they are not useful markers for hepatocellular carcinoma.

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