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MAGE-1 AND MAGE-3 MRNA EXPRESSIONS AS MOLECULAR BIOMARKERS IN PATIENTS WITH HEPATITIS C VIRUS-RELATED HEPATOCELLULAR CARCINOMA

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Introduction The melanoma antigen (MAGE) family members are tumour-specific antigens exclusively expressed in neoplastic cells. Therefore, the present work was designed to study the expression of MAGE-1 and MAGE-3 mRNAs in the peripheral blood and cancerous tissues of patients with hepatitis C virus (HCV)-related hepatocellular carcinoma (HCC).

Methods 30 patients with HCV-related cirrhosis (15 patients with HCC and 15 patients without HCC) and 15 healthy subjects were enrolled in the present study. Expression of MAGE-1 and MAGE-3 mRNAs in peripheral blood samples, HCC specimens and surrounding non-neoplastic liver tissues, were studied by a reverse-transcription PCR (RT-PCR) with the specific primers after RNA extraction. The sensitivity and specificity of MAGE-1 and MAGE-3 mRNAs as markers for diagnosis of HCC have been assessed by plotting a receiver-operating characteristic (ROC) curve.

Results In HCC patients, the positive rate of MAGE-1 and MAGE-3 mRNA expression was 53.3% and 33.3% in peripheral blood samples respectively, while the positive rate was 53.3% and 40.0% in HCC tissue samples, respectively. By contrast, MAGE-1 and MAGE-3 mRNA were not detected in the adjacent non-neoplastic liver tissues or in the peripheral blood samples of cirrhotic patients without HCC and healthy subjects. No relationship was found between MAGE-1 and

MAGE-3 mRNA expression and age, gender, Child-Pugh score, tumour size, clinical stage and histopathological grade ($p>0.05$). The sensitivity and specificity of MAGE-1 mRNA as a marker for the diagnosis of HCC was 53.3% and 100% respectively while MAGE-3 mRNA has a sensitivity of 40% and a specificity of 100%.

Conclusion MAGE-1 and MAGE-3 mRNA are highly expressed in HCV-related HCCs and may play a role in hepatocarcinogenesis. These tumour-specific antigens can be used as molecular markers for early diagnosis of HCC and detection of disseminated tumour cells and may act as a potential target for immunotherapy in HCC patients.

Competing interests None.

Keywords hepatitis C virus, hepatocellular carcinoma, melanoma antigen genes.