PTX3 variant associated with hepatocellular carcinoma in patients with chronic hepatitis C

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Introduction and objectives: Hepatitis C virus (HCV) is the main cause of chronic liver disease, cirrhosis and hepatocellular carcinoma (HCC) worldwide. The risk for the development of HCC increases with the severity of liver inflammation and fibrosis. Long pentraxin 3 (PTX3) is a soluble pattern-recognition receptor produced by phagocytes and nonimmune cells at sites of inflammation or injury. The aim of the present study was to determine the association of PTX3 polymorphisms in patients with HCV and HCC caused by HCV. Materials and Methods: A total of 524 patients from the Gastrohepatology Service of the Oswaldo Cruz University Hospital/Liver Institute of Pernambuco (Recife, Northeastern Brazil) were consecutively selected from August 2010 to November 2014. Liver biopsies were evaluated by a single expert pathologist and assessed according to the METAVIR scoring system. Hepatocellular carcinoma caused by HCV was diagnosed by ultrasound, computerized tomography, magnetic resonance imaging, arteriography and tumor biopsy. Two polymorphisms (rs1840680 and rs2305619) in the PTX3 gene were determined by real-time PCR. Results: Among the 524 HCV-infected patients, 210 cases were classified as mild fibrosis and, 218 as severe fibrosis, while 96 had HCC. All groups assessed in this study were found to be in Hardy-Weinberg equilibrium. Our data showed a significant association between PTX3 polymorphisms and HCC occurrence in univariate and multivariate analysis (p=0.024). Age, male sex and diabetes were also considered as independent predictors of HCC occurrence. Conclusions: Polymorphisms at PTX3 seems to be a risk factor for HCC occurrence in chronic hepatitis C. This is the first study to evaluate PTX3 in the context of hepatitis C.

Keywords: HCV, HCC, PTX3