Hepatitis B virus Basal core promoter mutation and DNA load correlate with expression of hepatitis B core antigen in patients with chronic hepatitis B.

ABSTRACT:

Background: Expression of intrahepatic hepatitis B core antigen (HBcAg) is related to the immunopathogenesis of hepatitis B virus (HBV) infection. This study investigated the role that HBV genotype and basal core promoter (BCP) mutation play in the expression of HBcAg.

Methods: A total of 70 hepatitis B e antigen (HBeAg)-positive patients with chronic hepatitis (genotype B in 52 patients and genotype C in 18 patients; BCP mutation T1762/A1764 in 16 patients) were enrolled. Clinical, virologic, and histologic features were compared with regard to localization and expression of intrahepatic HBcAg. The effects that HBV genotype and BCP mutation T1762/A1764 had on expression of HBcAg were further evaluated by in vitro assays.

Results: Cytoplasmic, mixed cytoplasmic/nuclear, and nuclear localization of intrahepatic HBcAg was found in 38 (56.7%), 25 (37.3%), and 4 (6.0%) patients, respectively; HBcAg was not discernible in 3 patients. A total of 58 (82.9%) of these patients expressed a high level of HBcAg. In multivariate analysis, cytoplasmic localization of HBcAg correlated only with a low HBV load in serum ([Formula: see text]) and BCP mutation ([Formula: see text]). A high expression level of HBcAg also correlated with a high HBV load in serum ([Formula: see text]) and with BCP wild-type sequence ([Formula: see text]). In vitro assays indicated that the HBV BCP mutant strain had lower subcellular expression of HBcAg than did the BCP wild-type strain.

Conclusions: HBV BCP mutation and HBV load, but not genotype, contribute to the expression of intrahepatic HBcAg.

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