

Natural infection of HBV DNA YMDD variant strains in a chronic hepatitis B patient before treatment with lamivudine

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A patient with chronic hepatitis B was infected with HBV-DNA YMDD variant strains naturally before treatment with lamivudine. The patient, female, 52 years old, has never received antiviral therapy. Before hysteromyectomy, she received physical and biochemical examination. Her levels of alanine aminotransferase were higher than 140 μ /L and HBsAg was positive. She was subjected to further examination. Anti-HBe/HBV DNA was positive in the serum and YMDD variant was detected in the region of the reverse transcriptase of HBV, with methionine (M) at HBV codon 552 replaced by isoleucine (I) by direct sequence analysis of PCR products. The patient took 100 mg of lamivudine orally once a day and *Schisandra chinensis* orally at the same time. The levels of HBV DNA were undetectable and those of alanine aminotransferase were normal two months after therapy. Hysteromyectomy was performed successfully.

Lamivudine, a nucleoside analogue, is an effective inhibitor of the viral polymerase for hepatitis B virus (HBV). In clinical trials, lamivudine has been effective in reducing HBV DNA levels in the sera of patients with chronic hepatitis B. However, prolonged treatment with lamivudine for HBV infection can result in the emergence of YMDD motif (tyrosine-methionine-aspartate-aspartate) in the region of the reverse transcriptase of HBV, with methionine (M) at HBV codon 552 replaced by isoleucine (I) or valine (V). The emergence of YMDD motif mutation can result in acute exacerbation in patients during lamivudine therapy.^[1-6,8,9]

The patient was infected with the variant strains of HBV naturally. The HBV DNA YMDD

variant strains existed in the serum of the patient before treatment with lamivudine. Prolonged treatment with lamivudine for HBV infection can result in the emergence of YMDD variants in many patients. In a year, 15%–32% patients developed YMDD variant HBV during treatment with lamivudine.^[8-10] The levels of wild-type HBV species were reduced, but the levels of mutant strains of HBV were increased step by step in patients having prolonged treatment with lamivudine. The levels of HBV DNA reduced in this patient infected by YMDD variant strains of HBV naturally before treatment with lamivudine. It is possible that the hepatitis B virus mutants associated with 3TC administration are replication defective.^[7] We are confronting with the challenges from antiviral therapy in patients with infection of variant strains of HBV naturally.

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