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Molecular epidemiology of Hepatitis B virus in Morocco

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Background: Morocco is an intermediate area for chronic HBV infection. However, little is known about HBV genetic variability.

Purpose: To determine the prevalence of HBV genotypes/subgenotypes and variants in the HBV surface (S), core promoter (CP) and precore (PC) regions and to define their eventual association with severity of liver disease.

Methods: A cohort of 200 patients at different stages of chronic HBV infection was included. HBV genotypes/subgenotypes, HBsAg subtypes and mutations in the HBV S, CP and PC regions were determined by direct sequencing of amplified regions and phylogenetic analysis.

Results: HBV subgenotype D7 and A2 were the most two prevalent (70.8% and 10%). In the Major Hydrophilic Region (MHR) of HBV S region, a significant prevalence of mutations was found (15%) and the marked substitution was P120T/S, with a rate of 3.7%. The occurrence of MHR variants was significantly associated with advancing age of patients (> 40 years) ($p=0.003$). Five high frequency mutations were found in the CP region, including G1757A (47.9%), C1766D (47.9%), A1762T/G1764A (33.8%) and T1753V (28.1%), while the most common mutations in the PC region were G1896A (59.1%) and G1899A (46.4%). A1762T/G1764A and T1753V were significantly prevalent in patients at advanced liver disease including liver cirrhosis and hepatocellular carcinoma, compared to patients at low HBV infection activity ($p=0.00003$, $p=0.016$, respectively). Patients with multi-mutations in CP region (≥ 4) were more likely to have liver cirrhosis or hepatocellular carcinoma ($p=0.000008$).

Conclusion: Predominance of subgenotype D7 and a significant prevalence of variants in the HBV S and CP/PC regions. Mutations A1762T/G1764A and T1753V in the CP region were associated with severity of HBV-related liver disease.

Biography

Dr. Soumaya Benjelloun is a head of Viral Hepatitis Laboratory, Pasteur Institute of Morocco. His research interests include the genetic variability of hepatitis viruses and its impact on disease progression; Host and viral factors in hepatitis B and C; Genetic and epigenetic mechanisms involved in liver carcinogenesis and Co-infection with hepatitis viruses in patients living with HIV/AIDS in Morocco. This study was conducted in collaboration with Pr. Abdellah Essaid El Feydi (Head of Service Médecine C, CHU Ibn Sina, Rabat, Morocco) and his collaborator Pr. Rajaa Afifi.