

## ABSTRACT

Hepatitis B virus (HBV) infection can lead to diverse clinical spectrum of liver disease including fulminant hepatitis, chronic hepatitis, cirrhosis and hepatocellular carcinoma (HCC). HBV is currently classified into 8 genotypes (A to H) and 4 HbsAg-subtypes which are adw, ayw, adr, and ayr. Previous studies showed that HBV genotypes and subtypes showed a distinct geographic and ethnic distribution. Additionally, HBV genotypes may influence the clinical manifestation of chronic hepatitis B infection, development of HCC and response to antiviral treatment. The aim of the present study was to investigate the differentiation of HBV genotypes and subtypes distribution among different clinical status of chronic hepatitis B in Pekanbaru. The design of present study was analytical cross sectional. HBV genotype was examined based on homology of S gene from this study with that of GenBank Database. Gene S was generated by amplification using polymerase chain reaction (PCR) method, followed by DNA sequencing using dye-labelled terminator method.

A total of 52 of chronic hepatitis B sera was examined in this study, which was obtained from 10 of HBsAg-positive blood donors, 12 of chronic hepatitis B active patients, 10 of liver cirrhosis patients and 20 of HCC patients. The results showed that genotype C (59.6%) was the major genotype identified, followed by genotype B (40.4%). Based on clinical status, genotype C was predominantly found in blood donor (70%) dan liver cirrhosis patients (70%). While in chronic hepatitis B active and HCC, genotype B and C were comparable. Adr (59.6%) was the major HBsAg-subtype found in all subjects, followed by adw subtype (38.5%) dan ayw subtype (1.9%). Based on statistical analysis, there was no significant difference in the distribution of HBV genotypes and subtypes among blood donor, chronic hepatitis B active patients, liver cirrhosis patients and HCC. However, the distribution of HBV genotype was significantly different between cirrhotic-HCC patients and non cirrhotic-HCC patients. Genotype C (88.9%) was predominantly detected among cirrhotic-HCC patients, while genotype B (72.7%) was mostly identified among non cirrhotic-HCC patients ( $p=0.01$ ).

**Keywords:** chronic hepatitis B, genotype, subtype, liver cirrhosis, hepatocellular carcinoma