

Occult Hepatitis B Virus Infection among Sickle Cell Anaemia Subjects in Lagos, Nigeria

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ABSTRACT

Objective: Hepatitis B virus (HBV) infection remains a major public health problem worldwide. HBV is one of the transfusion transmissible infections. Occult HBV infection (OBI) is the presence of HBV DNA in blood or liver tissue in hepatitis B surface antigen (HBsAg) sero-negative subjects. Thus, the absence of HBsAg in the blood is inadequate to determine the presence of occult HBV infection. This study aimed to determine the seroprevalence of occult HBV infection among sickle cell anaemia (HbSS) subjects in Lagos, Nigeria.

Methods: This was a cross sectional study among 100 consenting adult HbSS patients attending the Haematology out-patient clinic at the Lagos State University Teaching Hospital, Ikeja (LASUTH). All participants were screened for HBsAg using SD Biolin HBsAg rapid kit and those with negative results had HBV DNA Polymerase Chain Reaction (PCR). Data were analyzed by statistical package for social science (SPSS) version 23, $p \leq 0.05$ was considered significant.

Results: The prevalence of occult HBV infection among the HbSS participants was 1%, consisting of 1% prevalence for the surface antigen and 0% prevalence of pre-core and core antigens of the HBV DNA.

Conclusion: The low prevalence (1%) of occult HBV seen in our study shows that it may not be cost effective to routinely screen HbSS subjects for Occult HBV infection using PCR.

INTRODUCTION

Sickle cell anaemia (SCA) is a common haemoglobinopathy in Nigeria affecting about 2% of the population.[1] HbSS is characterized by; Chronic haemolytic anaemia with intermittent hyperhaemolytic crisis, increased susceptibility to infections and vaso-occlusive crisis.[2] HBV infection is of high interest in HbSS patients because they are chronic blood transfusion recipients as a result of their frequent anaemia and as such stand the risk of acquiring HBV infection. Therefore, the need to determine the prevalence of occult HBV infection amongst SCA patient cannot be underestimated. Liver and biliary tract dysfunctions are also common complications of SCA.[3]

Hepatitis B Virus

Hepatitis B virus (HBV) infection remains a major public health problem worldwide.[4] HBV is the only DNA virus with a human only reservoir.[5] It was first identified by Blumberg and colleagues in 1965 as a circular DNA molecule of about 3,200 bases encased within viral specific proteins.[6-

8] HBV is the prototype member of the Hepadnaviridae family that causes acute and chronic liver disease including cirrhosis and primary liver cell carcinoma. There are 10 known genotypes (A-J) of HBV with distinct geographical distribution.[9] HBV E genotype is the most prevalent in Nigeria with a prevalence range of 9% - 39% [10,11] HBV is a transfusion- transmissible infection that can occur despite serum HBsAg negativity.[12,13] Hence, the term occult HBV infection.

Occult HBV

Occult HBV infection is the presence of HBV DNA in blood or liver tissue of HBsAg sero-negative patients [14,15]. Occult HBV infection is manifested by the presence of very low levels ($< 200\text{IU/ml}$) of Hepatitis B Viral DNA (HBV DNA) in the blood or the liver while exhibiting undetectable HBV Surface Antigen (HBsAg) [16]. Most occult HBV infections are asymptomatic and would only be detected by viral screening for HBV DNA. Occult HBV infection may persist in individuals for years before any symptom of overt