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### **Hepatitis B: Correlation of Precore/Core Gene Mutations With Serological Profiles Of Patients Co-Infected With Human Immunodeficiency Virus-1 In Kwazulu-Natal, South Africa**

**Peter N Matsapola**

National Health Laboratory Service, South Africa

**H**epatitis B virus (HBV) is a major global public health concern. Hepatitis B virus was discovered in 1965, and is a small DNA virus that infects hepatocytes of humans. Despite the HBV vaccine being included in the EPI schedule and availability of effective treatment, over 1.9 million people are chronically infected with HBV in South Africa. Investigation at a molecular or sequence level can help determine and characterise the various combinations of mutations underlying serological abnormalities. This study aimed to identify mutational changes within the Precore/Core region of HBV, and investigate their impact on the serological profiles of HBV/HIV co-infected patients in the province of KwaZulu-Natal, South Africa. This study made the assumption that Core gene mutations have an effect on serological profiles of patients, and therefore treatment for these patients may be affected. This was a cross-sectional analysis of prospectively collected data conducted in a tertiary/quaternary hospital (Inkosi Albert Luthuli Central Hospital, Durban), KwaZulu-Natal province, South Africa. One hundred and fifty South Africa participants were enrolled, and were infected with HIV and co-infected with HBV. Plasma samples were obtained from all participants for serological and molecular testing, respectively. PreCore/Core gene PCR products were sequenced using Next Generation Sequencing platform. Serological analysis of the patients reflects that there is a correlation between the serological profiles of the patients and the mutations observed in the preCore/Core region. Interpretation of the serological markers reveals that some patients have a typical clinical picture of HBV infection, while others show a deviation to the normal HBV infection clinical picture. Hepatitis B virus infections can persist for years or even decades. Thus, mutations accumulate and become clinically significant. Mutations of HBV have frequently been described, and certain mutations may have serious implications at different levels.

#### **Biography**

Peter Matsapola is an accomplished Scientist with a diverse background in virology, specifically focusing on hepatitis B virus (HBV) research, diagnostic techniques, and enteric and environmental research. With an unwavering passion for understanding infectious diseases and their impact on public health, Peter Matsapola has made significant contributions to the field through his extensive research and expertise.

u25158016@tuks.co.za

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