

## **CD4/CD8 ratio as a predictor of the response to HBV vaccination in HIV-positive patients: A prospective cohort study.**

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### **Abstract**

#### **BACKGROUND:**

Hepatitis B virus (HBV) and human immunodeficiency virus (HIV) share transmission mechanisms and thus coinfection is frequent. Active immunization against HBV is essential in HIV patients. Reports using standard and reinforced HBV vaccination schedules vary widely in seroconversion rates depending on the characteristics of the included patients. Regional data concerning HBV vaccination in HIV patients are scarce. We aim to determine the serological response to HBV vaccination using standard schedule in HIV-positive patients and to evaluate characteristics that predict seroconversion.

#### **MATERIALS AND METHODS:**

We performed a single centre prospective study of HBV vaccination with standard schedule in HIV-positive patients. Adults with negative markers of HBV infection were included between November 2012 and December 2014. Anti-HBs titres were measured 4-8 weeks after completion of vaccination schedule. Clinical, laboratory values and HIV characteristics were analyzed to determine their association with seroconversion and adherence to the HBV vaccination schedule.

#### **RESULTS:**

The study included 245 HIV-positive patients, 68.9% were male and the mean age was 42.1 years. A total of 80.7% of the patients had undetectable HIV viral loads, 86.1% had CD4 counts >200, and 94.7% were on HAART. The response to vaccination was positive in 62% (95% CI, 56-68%) and mean anti-HBs titres of 646 IU/ml. 85.5% of the responders had anti-HBs titres >100 IU/ml. An age less than 45 years, no tobacco use and a CD4/CD8 ratio >0.4 were associated with seroconversion in multivariate analysis. The seroconversion rates were 86% in

the subgroup of patients who met these criteria. A total of 97.9% of the study population completed the vaccination schedule.

**CONCLUSION:**

The CD4/CD8 ratio was the primary factor associated with positive serological conversion in the multivariate analysis. The seroconversion rates were higher in a selected group of patients who were particularly suitable for the use of the standard HBV vaccination schedule.