



## Hepatitis B virus prevalence, risk factors and genotype distribution in HIV infected patients from West Java, Indonesia



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### ARTICLE INFO

#### Article history:

Received 31 October 2013

Accepted 19 January 2014

#### Keywords:

HBV

HIV

Indonesia

### ABSTRACT

**Background:** Indonesia currently faces both an increasing HIV incidence and a high hepatitis B virus (HBV) burden.

**Objective:** The objective of our study is to examine the prevalence, risk factors, and genotypic distribution of HBV infection among HIV infected patients in West Java, Indonesia.

**Study design:** A cross sectional study was conducted among a cohort of HIV infected patients in 2008. Demographic and disease related variables were compared between HBV negative and positive patients. Logistic regression was applied to determine risk factors for HBV co-infection. HBV and HIV genotyping was performed in co-infected patients.

**Results:** Of 636 HIV-infected patients, the rate of HBV co-infection was 7%. The proportion of males was higher in HBV/HIV co-infected patients than in HIV mono-infected patients (93% vs. 72%,  $P=0.001$ ). A history of injecting drug use (IDU), but not tattooing, was associated with HBV co-infection [ $P=0.035$  OR 2.41 (95% CI 1.06–5.47)]. In the HIV and HBV treatment naive patients, CD4 cells counts  $<50$  cells/mm<sup>3</sup>, HIV-RNA plasma  $\geq 10,000$  copies/ml and AST level above normal were more often found in patients with high HBV-DNA levels ( $\geq 20,000$  IU/ml) as compared to those with low HBV DNA ( $<20,000$  IU/ml) ( $P<0.05$ ). As in the general population, B3 was the dominant subtype in HBV co-infected patients.

**Conclusion:** The prevalence of active HBV infection and the genotype distribution among HIV infected individuals is similar to the overall population in Java. However, an increased prevalence was observed in men with a history of IDU, underlining the need for routine HBV screening and monitoring.

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### 1. Background

The worldwide number of people living with HIV is currently approximately 35 million. Estimates suggest that approximately 2–4 million of these HIV-infected patients also have a chronic HBV (hepatitis B virus) infection [1]. Co-infection with HIV and HBV can accelerate the progression of liver diseases resulting in fibrosis and hepatocellular carcinoma [2,3]. On the other hand, the progression of HIV-associated diseases and immunological and virological responses to Highly Active Antiretroviral Therapy (HAART) do not

generally appear be affected by the presence of HBV [4–8]; although some studies reported that in regions in which HBV is highly endemic and many HBV-infected patients have advanced immunosuppression due to HIV, HIV–HBV co-infected patients have a significantly lower HIV treatment success rate [9].

In Indonesia, hepatitis B infection is endemic and the HIV epidemic expanded significantly in recent years [10]. Low social economic background was associated with HBV infection in this country [11], while HIV infection was majorly driven by injecting drug use in all provinces, except Papua [12]. However, the prevalence, risk factors, as well as genotypic distribution of HIV–HBV co-infection in Indonesia have not been investigated using a large study cohort. Because the impact of HIV–HBV co-infection varies among countries worldwide, understanding these epidemiological factors is particularly relevant. Therefore, in this study we investigated HBV co-infection in a large cohort of HIV infected patients

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