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# First report of occult hepatitis B infection among ART naïve HIV seropositive individuals in Maputo, Mozambique

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## Abstract

The prevalence of hepatitis B virus (HBV) infection and human immunodeficiency virus (HIV) infection in Mozambique is one of the highest in the world, though in spite of this the prevalence of occult hepatitis B infection (OBI) is unknown. The clinical impact of OBI is unclear, but it's been related the increase of the risk of HBV transmission through blood transfusion, organ and bone marrow transplantation, HBV reactivation after immunosuppression and risk of progression to chronic liver disease and hepatocellular carcinoma. The aim of this study was to investigate the prevalence of OBI among antiretroviral (ART) naïve HIV-positive patients in Mozambique. Methodology: A cross-sectional study was conducted in two health facilities within Maputo city. All ART-naive HIV seropositive patients attending outpatient clinics between June and October 2012 were consecutively enrolled. Blood samples were drawn from each participant and used for serological measurement of HBV surface antigen (HBsAg), antibodies against HBV surface antigen (anti-HBs) and antibodies against core antigen (anti-HBc) using ELISA. Quantification of HBV DNA was performed by real time PCR. A questionnaire was used to obtain demographics and clinical data. Findings: Of the 518 ART-naive HIV-positive subjects enrolled in the study, 90.9% (471/518) were HBsAg negative. Among HBsAg negative, 45.2% (213/471) had isolated anti-HBc antibodies, and the frequency of OBI among patients with anti-HBc alone was 8.3% (17/206). OBI was not correlated with transaminases levels. A total of 11.8% of patients with OBI presented elevated HBV DNA level. Frequency of individuals with APRI score > 2 and FIB-4 score > 3.25 was higher in patients with OBI as compared not exposed, immune and anti-HBc alone patients. Conclusion: Our data demonstrate for the first time that OBI is prevalent among HIV patients in Mozambique, and will be missed using the commonly available serological assays that measures HBsAg.

## Biography

Awa Carimo is an internist working in Maputo Central Hospital, Mozambique, she has completed her Master thesis from Faculty of Medicine Lisbon University. He has published 3 papers in reputed journals. She worked in Nephrology department from 2011, in Maputo Private Hospital, as a dialysis supervisor. She works in the Mozambican Ministry of Health as a member of national technical group of hepatitis and in the group of revising the national list of essential medicines. She is an assistant teacher in Medicine Faculty, in Universidade Eduardo Mondlane as well as in Instituto Superior de Ciências e Tecnologia de Moçambique.

| Characteristic | Group A Seronegative- anti-HBs /anti-HBc | Group B Seropositive- anti-HBs+/anti-HBc+ | Group C anti-HBc+alone anti-HBs /anti-HBc+/DNA<20 IU/mL) | Group D OBI anti-HBs /anti-HBc +/(DNA≥20 IU/mL) | p-value |
|---|---|---|---|---|---|
| Total, n (%) | 123 (26.1) | 102 (21.7) | 189 (40.1) | 17 (8.3) | |
| Female (%) | 79 (64.8) | 65 (62.4) | 128 (68.1) | 13 (76.5) | 0.567 |
| Median age, years (IQR) | 32 (27–41) | 35 (29–42) | 35 (28–43) | 31 (27–39) | 0.428 |
| WHO clinical stage (%) | | | | | |
| Stage I | 85 (85.5) | 57 (57.4) | 93 (50.3) | 5 (31.3) | 0.535 |
| Stage II | 34 (28.1) | 33 (33.3) | 55 (29.7) | 6 (37.5) | |
| Stage III | 30 (24.8) | 29 (29.3) | 36 (19.5) | 5 (31.3) | |
| Stage IV | 2 (1.7) | 0 (0.0) | 1 (0.6) | 0 (0.0) | |
| ALT (IU/L) (IQR) | 21.8 (16.5–30.7) | 21.4 (14.6–30.1) | 21.7 (16.6–30.9) | 24.7 (16.6–49.7) | 0.493 |
| APRI | | | | | |
| < = 2.0 | 121 (98.4) | 99 (98.0) | 187 (98.9) | 14 (87.5) | 0.017 |
| >2.0 | 2 (1.6) | 2 (2.0) | 2 (1.1) | 2 (12.5) | |
| FIB-4 | | | | | |
| < = 3.25 | 120 (98.4) | 98 (98.0) | 187 (99.5) | 15 (93.7) | 0.309 |
| >3.25 | 2 (1.6) | 2 (2.0) | 1 (0.5) | 1 (6.3) | |
| Leucocyte count ($10^3$ cells/$mm^3$) (IQR) | 4.7 (3.8–5.7) | 4.5 (3.7–5.5) | 4.8 (3.8–5.8) | 4.3 (3.7–5.3) | 0.581 |
| Lymphocyte count ($10^3$ cells/$mm^3$) (IQR) | 2 (2–2) | 2 (1–2) | 2 (1–2) | 2 (1–2) | 0.190 |
| CD4+T cell count (cells/mm3) (IQR) | 391 (211–538) | 322 (204–477) | 355 (202–517) | 334 (86–543) | 0.457 |

ALT-alanine aminotransferase; anti-HBc+ – antibody against HBV *core* antigen; anti-HBs+ – antibody against HBV surface antigen; CD4+ T–lymphocyte T with CD4+ phenotype; DNA–deoxiribonucleic acid; HBsAg–HBV surface antigen; HBV–hepatitis B virus; HIV–human immunodeficiency virus; IQR–interquartile range; IU/L–International Units per litre; OBI–occult hepatitis B virus infection; WHO–World Health Organization

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## Publications

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