The effect of lamivudine- versus tenofovir-containing antiretroviral regimen on hepatitis B infection in a cohort of HIV infected long term survivors

Aura Temereanca\textsuperscript{1,2}, Luminita Ene\textsuperscript{3}, Adelina Rosca\textsuperscript{2}, Camelia Grancea\textsuperscript{2}, Claudia Dita\textsuperscript{2}, Carmen Diaconu\textsuperscript{2}, Cristian L. Achim\textsuperscript{4}, Simona Ruta\textsuperscript{1,2}

\textsuperscript{1} Carol Davila University of Medicine and Pharmacy, Bucharest, Romania
\textsuperscript{2} Stefan S. Nicolau Institute of Virology, Bucharest, Romania
\textsuperscript{3} Dr Victor Babes Hospital for Infectious and Tropical Diseases, Bucharest, Romania
\textsuperscript{4} University of California at San Diego, La Jolla, California, USA
HIV accelerates progression of HBV disease, HIV/hepatitis B virus (HBV)-coinfected patients having an increased risk of cirrhosis and liver-disease-related death.

![HIV/HBV Coinfection: Effect on Liver-Related Mortality](image)

HIV/ HBV COINFECTION IN ROMANIA

Total cumulative number of cases 1985-2015

21, 263 HIV +

1779 children HIV-HBV
1118 adults HIV-HBV

Source: Compartment for Monitoring and Evaluation of HIV/AIDS Infection in Romania INBI “Prof.Dr.M.Balș”
Objectives

- to evaluate the prevalence and on treatment evolution of hepatitis B infection as well as the efficacy of lamivudine- versus tenofovir-containing antiretroviral regimen in a cohort of heavily-treated HIV infected long term survivors patients.
• 48% males
• median age: 24 years
• median duration of HIV infection: 13 ys
• median time on cART: 12 years
• 96.8% 3TC; 24.7% TDF–HIV ARV regimen
• median HIV viral load: 2.17 log10 copies/mL
• median CD4 count: 481 cells/mm³

200 HIV infected patients
ARV treated

Prevalence of HBV markers

- 65% total anti-HBc-Ab
- 52.6% HBsAg
- 32% anti HBs+ resolved infection
- 15.4% Isolated antiHBc Ab

\[ 78\% \text{ Detectable HBV DNA} \]

\[ 18\% \text{ HBV DNA >}10^{3} \text{ IU/ml} \]

\[ \text{COBAS TaqMan HBV test, v2.0, (Roche, USA)} \]

\[ \text{reverse hybridization line probe assay INNO LiPA Genotyping, Innogenetics, Belgium} \]

None of the patients
HBV DNA >10^3 IU/ml
Results

HIV/HBV coinfected patients

- None of the patients had clinical signs of hepatitis

- 24.7% had elevated transaminase levels

APRI score (Aspartate Aminotransferase-to-Platelet Ratio Index)

The majority of the coinfected individuals showed no sign of liver fibrosis (APRI score <0.5), only 3.4% had severe fibrosis (APRI score >1.5)

HBV DNA was directly correlated with APRI score (p=0.002)
79.3% of the chronic HBsAg carriers are currently receiving a dually active drug: TDF for a median time of 3 years / 3TC for a median time of 5 years.

**Group of patients receiving 3TC vs. group of patients receiving TDF**

There is no significant difference between the groups receiving 3TC or TDF regarding: CD4 cell count, HIV viral load, HBV viral load or hepatic fibrosis.
HBV resistance-associated mutations were found in 85.7% of lamivudine-treated participants vs. 25% of tenofovir-treated participants (p=0.04).
Patients currently not receiving an HBV active drug had a significantly higher median HIV viral load (p=0.01) and a lower median CD4 count (p=0.02) compared with those receiving 3TC or TDF; the median HBV viral load (p=0.04) and the percentage of severe liver fibrosis (p=0.01) were significantly higher in this subset of subjects.
Conclusions

- We found a high prevalence of asymptomatic HBV chronic carriage in our cohort of HIV infected long term survivors.

- Dually active antiretrovirals have an important role in delaying progression of liver disease in HIV/HBV coinfected patients, regardless of the drug type.

- Tenofovir-containing cART is preferred for HIV-HBV coinfection due to a better resistance profile relative to lamivudine therapy.
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DISCUSSIONS

In depth analysis on the therapeutical regimens – those on tenofovir have had flares of ALT and were put on tenofovir? Had a worse status in terms on HIV infection and were switched to TDF etc

Despite long terms regimens including lamivudine, resistance mutations were present in a very low number of patients

Longitudinal follow-up (or quantitative HBV DNA determination) is needed in order to document the real healthy carrier status, progression of liver disease

Longitudinal studies in order to see if there is a prophylactic effect of LAM/TDF on HBV infection in those who are HBV negative

HBV vaccination – documented? No vaccine, Low seroconversion rate, wanning over time?