Liver stiffness and virologic outcomes after introducing tenofovir as part of antiretroviral therapy in lamivudine-experienced adults with HIV and hepatitis B virus (HBV) co-infection in Ghana: four-year follow up of the prospective HEPIK cohort

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ABSTRACT BODY:

Introduction

Until recently lamivudine was the only available agent to treat hepatitis B in the context of HIV infection in sub-Saharan Africa. Tenofovir is gradually becoming available although access remains far from universal. Long-term outcomes of introducing tenofovir as part of antiretroviral therapy (ART) in subjects previously extensively exposed to lamivudine as the sole HBV-active agent in the region are unknown.

Methods

We report from a prospective cohort of HIV/HBV co-infected adults attending for HIV care in Kumasi, Ghana, where HBsAg prevalence is 14%. HBsAg-positive subjects were invited to attend for transient elastography (TE) and blood sampling before the introduction of tenofovir (T0) as part of ART, and within 1 year (T1) and 4 years (T2) of starting tenofovir. Adherence and alcohol consumption were determined by a questionnaire-based interview.

Results

Overall 178 patients underwent evaluation at T0/T1, of whom 98 (55%) also attended for assessment at T2. Remaining patients were lost to follow up (50; 28%); had died (10; 6%); declined to attend (17; 10%); or were excluded due to pregnancy (2; 1%) or invalid TE (1; 1%). Of the 98 subjects, 94 had started tenofovir-based ART and had received tenofovir for median 4 years (IQR 3.8, 4.1), while continuing previous lamivudine (Table 1). By multivariable linear regression, female gender, no history of alcohol excess, and higher HBV DNA level, higher liver stiffness, and lower platelet count at T0/T1 were significant predictors of decreasing liver stiffness between T0/1 and T2. No treatment-emergent resistance mutations in HBV polymerase were observed by Sanger sequencing among subjects with HBV DNA>100 IU/ml at T2; one subject showed M204V+V173L+L180M at both T0 and T2.

Conclusions

This is the first report of the long-term impact on liver stiffness and virologic parameters of introducing tenofovir as part of ART in extensively lamivudine exposed HIV/HBV co-infected patients in sub-Saharan Africa. Significant reductions in liver stiffness and improved HBV control were observed at four years.