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Three-year outcomes of chronic hepatitis B and HIV infection after antiviral therapy initiation in Tanzania

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Background: Hepatitis B virus (HBV) is a disease of global consequence, infecting >7% of individuals in Tanzania. In addition, HIV affects >4% of individuals in Tanzania with an estimated 5-17% having HBV/HIV co-infection. Little is known about the long-term safety and efficacy of antiviral therapy in HBV/HIV mono-infected individuals and HBV/HIV co-infected individuals in this setting.

Methods: Subjects enrolled between 9/13 and 4/15 into a longitudinal cohort study of liver disease in HIV, HBV and HIV/HBV co-infection at a Management and Development for Health (MDH) supported HBV clinic in Dar es Salaam, Tanzania were included in this study. Subjects were followed for 36 months at annual study visits. Virologic, serologic and clinical outcomes were assessed. Liver fibrosis score (AST to Platelet Ratio Index, or APRI) and creatinine clearance were modelled using mixed effects models.

Results: 502 subjects were enrolled [165 HBV mono-infected, 273 HIV mono-infected, and 65 HBV/HIV co-infected (median age 36, 43% male)]. Most subjects with HBV were HBeAg negative (83.5%), with low median HBV viral loads (591 IU/mL). 85.1% HIV subjects achieved undetectable HIV RNA and 89.2% HBV subjects achieved undetectable HBV DNA. Baseline APRI for all subjects was 0.27 (IQR 0.20). Declines in APRI were significant from baseline to year 1 in HBV mono-infected and HIV/HBV co-infected subjects; no significant changes were noted in HIV mono-infected subjects. Lower baseline APRI, older age, male sex, and alcohol use were associated with lower odds of a â‰¥30% decline in APRI during follow-up in multivariable analyses.

Baseline creatinine clearance (CrCl) for all subjects was 115.1 mL/min (IQR 56.3) declining to 104.2 (IQR 43.8) at year 3. Unadjusted CrCl models showed a significant decline in HBV mono-infected subjects (p = 0.01) and significant increase in HBV/HIV co-infected (p = 0.005) subjects. No significant changes in CrCl were seen in HIV mono-infected subjects. During the study period, 47 (9.4%) subjects died [HIV/HBV 13 (20.0%), HBV 4 (2.5%), HIV 30 (11.1 %)], with deaths significantly higher in HIV mono and co-infected patients as compared to HBV mono-infected patients (p = < 0.001). All deaths were liver related in HBV mono-infected patients. Median HBV viral load (2.8Ã—106, p = < 0.001) and percent of subjects who were HBeAg positive (75%, p = < 0.001) were higher in HBV mono-infected subjects who died as compared to HBV mono-infected subjects who survived. Most deaths in HIV and HIV/HBV co-infected occurred within the first year of follow up and were due to OIs.

Conclusions: In this Tanzanian cohort, antiviral therapy was associated with high rates of virologic suppression and improvement in APRI score among HBV mono-infected and HIV/HBV co-infected subjects. Although overall mortality was low in the HBV mono-infected cohort, all deaths were liver-related and occurred in patients with more active HBV infection at baseline, suggesting the need for closer monitoring of these individuals at follow-up. Higher mortality was seen in HIV mono and co-infected groups, despite most patients achieving HIV viral suppression. Significant declines in creatinine clearance were observed in HBV mono-infected subjects that require further exploration.

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