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Evaluating trends in HIV/HBV Co-infection prevalence in the era of HBV-active antiretroviral therapy

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Co-infection of HIV and HBV has been shown to be associated with rapid progression of liver disease, accelerated end stage liver disease, liver cancer, and mortality in subjects with HIV (2-8). In Nigeria, HIV and HBV are highly endemic with three million people living with HIV and AIDS and 20 million people living with chronic HBV (1). HIV/HBV co-infection prevalence ranges from 11-17.8% (2-8). While HBV is most commonly transmitted horizontally in childhood, there is emerging evidence suggesting sexual transmission of HBV among HIV-infected adults in Africa (10). In the past decade, the introduction of dual HBV-active antiretroviral regimens (tenofovir and emtricitabine or lamivudine) has resulted in high rates of HBV virologic suppression and significant reduction in rate of progressive liver disease and may also be contributing to a decline in HBV incidence in HIV-infected individuals (10, 13-16). Given the significant burden and clinical importance of HBV in HIV-infected individuals in Nigeria, understanding epidemiologic trends associated with HBV infection in HIV-infected populations is necessary.

In this study, we assessed changes in HIV/HBV co-infection prevalence in a large cohort of HIV-infected Nigerian adults (>18) as they enrolled at the APIN Public Health Initiatives-supported HIV clinic at Jos University Teaching Hospital from 2004-2018. We hypothesized that the prevalence of HBV has significantly declined among HIV-infected patients in the era of antiretroviral therapy scale up, through a combination of behavioral changes induced by AIDS prevention programs, the use of dual HBV-active ART, and introduction of the HBV vaccination for infants which was rolled out in 2004. We found that the prevalence of HBV coinfection in newly-enrolled HIV-infected increased over time from 2004 until 2010 after which it started to decline across all age groups and all genders. The significant declines in prevalence rate was verified by statistical modeling using quasi-poisson regression. HBV co-infection was more prevalent in males, age >50, and unmarried individuals. Education was not a predictor of co-infection.

The decline in HBV coinfection prevalence rates after 2010 suggests a possible positive relationship between the use of dual HBV active ART (which was introduced in 2010) and the prevalence of coinfection. These findings, as well as the higher prevalence rates observed among men and unmarried individuals, would also suggest that sexual transmission is a more significant source HBV transmission in African settings than previously thought. Given the relatively late introduction of infant HBV vaccination (2004) in Nigeria, it is unlikely that increased uptake of vaccine contributed to these declines. Finally,

these data highlight the importance of both routine screening HIV-infected patients for HBV as well as the importance of a dual HIV-HBV therapy that can greatly decrease liver disease morbidity and mortality.

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