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Abstract (oral session)

Increasing incidence of hepatitis D virus super-infection among HIV-infected patients with hepatitis B virus coinfection in Taiwan

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Objectives Super-infection with hepatitis D virus (HDV) in HIV-infected patients with hepatitis B virus (HBV) coinfection may increase risk for hepatitis flares and chronic hepatic complications. In this prospective observational study, we aimed to determine the incidence of and factors associated with recent HDV super-infection among HIV/HBV-coinfected patients without injection drug use in Taiwan, where the prevalence of chronic HBV infection among HIV-infected patients was 18 to 20%. **Methods** Between 1992 and 2011, HIV/HBV-coinfected patients were enrolled who had serial blood samples available to estimate the incidence and timing of HDV seroconversion. HDV-specific IgG was determined in all of the archived blood samples and plasma HDV viral load was determined for the patients who were seropositive for HDV-IgG. A nested case-control study (2 controls for 1 case) was conducted to identify associated factors with recent HDV seroconversion. Phylogenetic analysis was performed using HDV sequences amplified from HDV seroconverters and seropositive patients at baseline. **Results** During the study period, 338 HIV/HBV-coinfected patients were enrolled, including 257 male homosexuals, 45 heterosexuals, and 37 infected through other routes. After exclusion of 8 HDV-seropositive patients at baseline, 330 HDV-seronegative patients were followed for 4.11 years (IQR, 1.59-8.17). After 1736 person-years of follow-up (PYFU), 14 (4.24%) had HDV seroconversion, resulting in an overall incidence rate of 8.10 per 1000 PY. The rate increased from 0 in 1992-2001, 2.02 in 2002-2006 to 12.40 per 1000 PY in 2007-2011 ($P < 0.05$). In the nested case-control study, we found that more patients with recent HDV infection had elevated aminotransferase levels and syphilis than those without seroconversion. There were no differences in risk behavior for HIV transmission, CD4 or plasma HIV RNA load, plasma HBV DNA load, receipt of lamivudine or tenofovir, or anti-HCV seropositivity between the case and control patients. Recent HDV infections were caused by HDV genotypes 2 (n=2) and 4 (n=7). No cluster of HDV sequences was identified in the co-infected patients. **Conclusions** In the era of combination antiretroviral therapy, the overall incidence of recent HDV infection in HIV/HBV-coinfected patients was 8.10 per 1,000 PYFU, which increased significantly from 1992-2001 to 2007-2011. HDV superinfection was associated with hepatitis flares and syphilis despite treatment with lamivudine or tenofovir.