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FACTORS DETERMINING BONE MINERAL DENSITY LOSS IN CHRONIC HEPATITIS B PATIENTS: IS TENOFOVIR DISOPROXIL FUMARATE THE MAIN CULPRIT?

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Introduction Bone Mineral Density (BMD) loss has been reported in chronic liver disease. In Chronic Hepatitis B (CHB) patients, Tenofovir Disoproxil Fumarate (TDF) is recommended as a first line therapy, in accordance with EASL guidelines. Concerns regarding the long-term safety of TDF have been raised, in particular changes in BMD in HIV patients, but limited data exist on similar changes in HBV treated patients. The aim of this study was to determine the impact of TDF on BMD in an ethnically diverse HBV infected population undergoing long-term treatment with this agent.

Methods In a single centre, CHB patients treated with TDF for a minimum 12 months were prospectively offered a dual x-ray absorptiometry scan. BMD loss was defined by WHO criteria; T-score <–2.5 (osteoporosis) and between –1 and –2.5 (osteopenia). 83 consecutive patients were included (64 males), median age 45 (range 26–64). A control group, 27 patients with CHB (19 males), median age 32 (range 20–61), with no TDF exposure were also examined. Data on ethnicity, BMI, gender, fibrosis stage, comorbidities and drug history were recorded in all subjects.

Results BMD loss was present in 45% of the treatment group (osteopenia 84%, osteoporosis 16%) and in 48% of the control group (osteopenia 85%, osteoporosis 15%). There was no difference in BMD loss when comparing both groups (p=0.45). In the ethnically diverse population studied, there was increased BMD loss in the non-White population (48%, treated group; 50%, controls) compared with the white population (33%, treated group; 40%, controls). By univariate analysis age, gender, fibrosis stage, comorbidities were all significant (p=<0.05, all variables), but particularly ethnicity (p=0.009). At multivariate analysis only ethnicity, BMI and male gender met statistical significance (p<0.015, <0.017 and <0.018 respectively), but not TDF.

Conclusion This results demonstrate the prevalence of reduced BMD in CHB patients of diverse ethnicity, independent of TDF treatment. This cross-sectional study does not exclude the potential for BMD loss with TDF and further longitudinal studies are required to determine its effect on bone over time. Other factors also contribute to BMD loss, namely ethnicity and BMI, and should be given due consideration when selecting a treatment option.

Competing interests None.

Keywords BMI, bone mineral density (BMD), ethnicity, tenofovir (TDF).