

POSTER PRESENTATION

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Tenofovir use is associated with low vitamin D levels in a Spanish HIV cohort

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Background

Several studies have shown a high frequency of vitamin D deficiency among HIV patients. Several studies have ascribed these low levels of vitamin D to antiretroviral treatment, especially efavirenz. Tenofovir has been related to changes of bone mineralization in SIV-infected rhesus monkeys and with loss of bone mineral density in children. Adequate vitamin D stores have the potential of an improvement of immune status, lessening of cardiovascular risk and beneficial effects on certain neoplastic disorders.

Methods

Cross-sectional study of 94 adult HIV outpatients in Leganés (Madrid, Spain) performed in 2008. Risk factors for vitamin D deficiency (< 20 µg/L) were examined using logistic regression.

Results

Median age was 44 years (IQR 40 to 48); 69.1% were males, 93.6% whites, 6.4% black race. Mean CD4+ cell count was 446 cells/µL (IQR 312 to 586). Viral load was below 50 copies/mL in 78.7%. Median 25(OH)D level was 17.7 µg/L (IQR 11.9 TO 24.3). 87.2% of patients had 25(OH)D < 30 µg/L (suboptimal), 57.4% had 25(OH)D < 20 µg/L (deficient) and 19.1% < 10 µg/L (severely deficient). Factors associated with low levels of 25(OH)D were heterosexual vs. IVDU HIV-risk group (OR 13.3, 95% CI 2.4-74.1, p=0.003), season (spring vs. summer; OR 16.8, 95% CI 3.4-82.1, p=0.0001), age >45 vs < 45 years (OR 10.5, 95% CI 2.4-46.6%, p=0.002), CD4+ cells nadir <200 vs >200 cells/µL (OR 4.1, 95% CI 1.01-17.6, p=0.049), and tenofovir vs. abacavir therapy (OR 12.7, 95% CI 1.8-87.1,

p=0.01). Black race is underrepresented to draw conclusions. In this sample, no association of low 25(OH)D with efavirenz was found.

Conclusions

Despite low latitude, low levels of vitamin D are almost universal in our sample of HIV outpatients with satisfactory immunologic and virologic response to ART. Increasing age, less insolation season, heterosexual risk group, and CD4+ nadir were associated with lower levels. Tenofovir use was associated with lower levels of 25(OH)D. Further studies on causality of this association and the need of control bone-mineral density in tenofovir-treated patients seems warranted.

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