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**Presentation Title:** Should Vitamin D Be Prescribed with Tenofovir/FTC?

**Keywords:** HIV, Tenofovir, Bone

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**Background:** Abnormalities of bone and calcium are common in HIV patients. Tenofovir (TDF) decreases bone density in children and causes skeletal lesions in fetal primates. Secondary hyperparathyroidism (shPT) indicates abnormal calcium metabolism. We hypothesized that TDF is associated with shPT. **Methods:** An IRB approved prospective cross-sectional study with medical record review and interviews was done on 36 HIV-infected men taking anti-retroviral therapy (ART) with GFR>60 and normal serum calcium. PTH was assayed by Immulite 2000, ULN = 65 pg/ml. A  $p \leq 0.05$  was considered significant by two-tailed t-tests. TDF was always used with FTC. **Results:** Men on TDF were compared to men on non-TDF ART. Mean PTH was above normal in the TDF group and was higher than in the non-TDF group ( $79 \pm 32$  vs  $54 \pm 34$ ;  $p=0.03$ ). Among men with low vitamin D, PTH was much higher in the TDF group ( $87 \pm 30$  vs  $57 \pm 35$ ;  $p=0.02$ , Fig 1), although the groups did not differ in age, BMI, years of HIV infection, CD4<sup>+</sup>T cells, fraction with undetectable HIV, or GFR (not shown). In the TDF group, PTH levels were far higher with low than with sufficient vitamin D ( $87 \pm 30$  vs  $43 \pm 15$ ;  $p=0.002$ , Fig 1). **Conclusions:** TDF/FTC appears to be associated with shPT in patients with low vitamin D, but not in patients with sufficient vitamin D, suggesting that adequate doses of vitamin D supplements along with TDF may prevent shPTH, a serious condition linked to bone loss and cardiovascular disease (NIDA016156; DDK066939).

