Bone turnover markers in HIV-infected patients before starting antiretroviral therapy

Martín-Morales, R; Ruiz, J; Nuñez, E; Márquez, M; Santos, J and Palacios, R

Hospital Virgen de la Victoria, Málaga, Spain.

Purpose
Bone turnover markers (BTM) - aminoterminal propeptide of type 1 collagen (P1NP) and C-terminal telopeptide of type 1 collagen (β-CTX) - are related to bone density and fracture risk. A high prevalence of osteopenia/osteoporosis and hypovitaminosis D has been reported in HIV patients, however there are few data about BTM in this population. Our aim was to analyse the prevalence of elevated serum levels of BTM in HIV patients before starting antiretroviral therapy (ART), and related factors.

Methods
Cross-sectional study of a series of HIV-patients who started ART during June/11–June/12 in our hospital. Patients with presence of diseases or treatments known to affect bone metabolism were excluded. Epidemiological, clinical, and immunovirological data in addition to serum fasting levels of glucose, lipid profile, calcium, phosphate, alkaline phosphatase, 25-hydroxyvitamin D3 (25OHD), parathyroid hormone (PTH), P1NP, and β-CTX were collected. Definitions: hypovitaminosis D if 25OHD < 30 ng/ml, vitamin D deficiency if 25OHD < 20 ng/ml; elevated levels of BTM if β-CTX (ng/ml) > 0.64 (men < 70 years), > 0.85 (men > 70 years), > 0.58 (pre-menopause women), > 0.99 (post-menopause women), or P1NP (ng/mL) > 69.4 (men < 60 years), > 71.1 (men > 60 years), > 55.7 (pre-menopause women), > 61.2 (post-menopause women).

Results
47 patients were included, 91.5% men, median age 37.1 years (30.0–44.3), and 93.6% sexual transmission of HIV (34 HMX, 10 HTX). Median time since the diagnosis of HIV was 3.4 months (1.4–31.7); there were 7 (14.9%) Aids cases, median CD4 count was 277/mm³ (155–433), and HIV-VL 4.8 log₁₀ (4.1–5.2). Median serum 25OHD was 29 μg/L (21.9–41.1), with a prevalence of hypovitaminosis of 52.2%, and deficiency of 17.4%. PTH was in range in all cases. Median serum P1NP was 33.3 ng/mL (24.5–52.5) and β-CTX 0.25 ng/mL (0.20–0.45); five (11.4%) patients presented high levels of BTM: 4 men, median age 37.1 years, median CD4 count 247/mm³, median HIV-VL 5.18 log₁₀, and one with hypovitaminosis D. Elevated BTM were related with no clinical, analytical, immunovirological parameters nor with serum levels of 25OHD nor PTH.

Conclusions
The prevalence of elevated BTM was high in this series of HIV-patients, mostly young men, with short time of HIV infection and with no immunovirologic control. BTM were related with no clinical nor analytical data.

Reference