

Poster presentation

Correlates of spinal deforming index (SDI) in HIV-positive patients naive and on treatment

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Purpose of the study

The increased prevalence of osteopenia and osteoporosis in HIV-infected patients has raised concerns on the heightened fracture risk in this population. In this study we evaluated if pathologic spine bone mineral density (BMD) detected by DEXA was related to a higher risk of vertebral deformity.

Methods

HIV-infected subjects naïve or on stable HAART were included. Vertebral deformities were identified using SDI (according to semiquantitative method by Genant), calculated by summing the deformity grades of all vertebrae (T4 to L4); pathological deformities are defined as follow: grade 1 between 20–25%, grade 2 between 26–40%, and grade 3 > 40%. According to WHO criteria, osteopenia and osteoporosis were diagnosed in patients having spine BMD calculated as $-1 << T\text{-score} << -2.5$ and $T\text{-score} \leq -2.5$, respectively. The correlation between SDI and spine BMD was evaluated by univariate and multivariate linear regression. [Other variables considered: gender, age, current CD4 count, CD4 nadir, BMI, lipid parameters, alcohol intake, smoking habit, physical activity, family history for bone fracture, months of ARV exposure, and co-infection with hepatitis viruses; only the variables with $p << 0.2$ in univariate analyses were included in the final model.]

Summary of results

33 patients, 33.3% females, median age 43 (IQR 37–52) years, median BMI of 23.5 (IQR 20.7–25.3) were ana-

lysed. Twenty-two (66.7%) patients were osteopenic and six (18.2%) were osteoporotic; 12 (36.4%) presented vertebral deformity, with median SDI values of 1 (IQR 1–1.5). Among patients with osteopenia no differences were detected in terms of proportion of vertebral deformity: 66.7% of subjects osteopenic with $SDI \geq 1$ vs. 66.4% in those with $SDI < 1$ (chi-square, $p = 1$). In patients with osteoporosis, vertebral deformity was shown in 33.3% subjects vs. 9.52% in those with $SDI < 1$ (chi-square, $p = 0.08$). In multivariate linear regression analysis, SDI resulted inversely correlated with spine T-score ($\beta = -0.14$; SE 0.13; $p = 0.04$) and BMI ($\beta = -0.11$; SE 0.03; $p = 0.004$) and directly correlated with months of ARV exposure ($\beta = 0.004$; SE 0.002; $p = 0.05$).

Conclusion

Patients with abnormal bone mineral density score at DEXA are at higher risk of vertebral deformity, as detected by SDI. These results should be taken into account in the clinical management of HIV-infected patients.