

Poster Abstract – P179

Vitamin D deficiency in a cohort of HIV-infected patients: clinical analysis

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Purpose of the study

Observational studies have noted very high rates of low serum 25-hydroxyvitamin D [25(OH)D3] levels in both general and HIV-infected populations. In HIV-infected patients, low 25(OH)D3 levels are secondary to a combination of usual risk factors and HIV-specific risk factors, like antiretroviral therapy [1]. The objective of our study is to analyse the magnitude of vitamin D deficiency or insufficiency and the role of various factors such as age, sex, ethnicity, season, and antiretroviral medications in our cohort of HIV-infected patients.

Methods

We prospectively collected data on 25-hydroxyvitamin D levels sampled between January 2009 and June 2011 from our cohort of 930 HIV-infected patients. Vitamin D dosage was performed using immunoassay ('Diasorin' - Saluggia, Italy). We divided vitamin D levels into 3 categories: 25-hydroxyvitamin D levels <20 ng/ml were considered deficient, insufficient between 20 and 29 ng/ml. Levels ≥30 ng/ml were defined as normal [2]. Data on demographic features (age, ethnicity, season, heterosexuality vs homosexuality), clinical features and laboratory findings (CD4 cell count, viral load, HAART, BMI) were collected from patients' medical records using our institutional database 'Medical explorer v3r9, 2009'.

Summary of results

Overall, 848 patients were included in our study (Table 1).

	VitD < 20 ng/mL N = 590	VitD 20–29 ng/mL N = 168	VitD ≥ 30 ng/mL N = 90
Sex (male/female)	340/250 (58/42)*†	109/59 (65/35)*	73/17 (81/19)
BMI (kg/m ²)	25.7 ± 5.1*†	24.7 ± 4.1	23.8 ± 3.7
Homo- (and bi-) sexuality vs heterosexuality	169/421 (29/71)*†	68/100 (40/60)*	48/42 (53/47)
Ethnicity (Black/Others)	289/301 (49/51)*†	58/110 (35/65)	21/69 (23/77)
Month of dosage			
Dec, Jan, Feb	197 (33)*†	25 (15)	18 (20)
Mar, Apr, May	223 (38)	67 (40)	33 (37)
Jun, Jul, Aug	102 (17)*	60 (36)	29 (32)
Sep, Oct, Nov	68 (10)	16 (10)	10 (11)
HIV viral load			
Undetectable	162/428 (27/73)*	56/112 (33/67)*	45/45 (50/50)
Detectable	52 112 ± 160 671	337 871 ± 2 294 712	94 547 ± 234 335
Treatment			
EFV	85 (14)*	23 (14)	5 (6)
TDF (alone or in combination)	300/290 (51/49)*	80/88 (48/52)	35/55 (39/61)
HAART (naïve/treated)	116/469 (20/80)*	41/124 (24/74)*	38/52 (42/58)

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Low levels of serum 25(OH)D3 were seen in 89.3% of the study population, from which 69.5% were deficient and 19.8% were insufficient. On univariate analysis, female sex, high BMI, black African, heterosexuality, undetectable viral load and antiretroviral treatment were all predictors of vitamin D deficiency and insufficiency. Treatment with efavirenz and tenofovir were the most associated with low vitamin D levels. On multivariate analysis (multiple linear regression model) only female sex (OR = 1.14; 95% CI 0.84–0.96; $p < 0.001$), dosage during winter months (OR = 1.14; 95% CI 1–1.15; $p < 0.05$) and HAART (OR = 1.12; 95% CI 1.04–1.19; $p = 0.002$) were identified as independent risk factors of low 25(OH)D3 levels.

Conclusion

Vitamin D deficiency is frequent in HIV-infected populations (69.5%). Patients on antiretroviral therapy are at higher risk of vitamin D deficiency. In our cohort, black women and dosage during winter were also independent risk factors for low vitamin D levels.

Conflict of interest

None. All co-authors have participated in, and agree with the content and conclusions.

References

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