Nevirapine vs efavirenz in virologically supressed patients: differences in lipoprotein subclasses and inflammatory biomarkers

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Background
The interaction between lipid disturbances and inflammatory markers is not well known in patients on antiretroviral therapy (ART). As nevirapine (NVP) is associated with a better lipid profile than efavirenz (EFV), we investigated the relationships between lipid profiles, lipoprotein subclasses and inflammatory biomarkers in patients with prolonged viral suppression with either NVP or EFV and no obvious clinical inflammation.

Methods
122 clinically stable HIV-infected patients with HIV-1 RNA <20 copies longer than 6 months on NNRTI therapy were studied. 72 (59%) were on EFV and 50 (41%) on NVP. Any potentially inflammatory co-morbid diseases (concurrent viral hepatitis, diabetes, hypertension, chronic liver or renal diseases), or statin treatment, were exclusion criteria. Inflammatory biomarkers included hsCRP, LpPLA2, sCD40L, IL-6, IL-8, t-PA, MCP-1, p-selectin and VCAM-1. Lipoprotein subclass measures (VLDL, LDL, IDL and HDL particle number and size) were obtained by the use of proton nuclear magnetic resonance spectroscopy.

Results
82% were male; median age 45 years. Median CD4 count 550/μL (IQR 324). Median time since HIV diagnosis 96 months (IQR 102) and accumulated time on ART 50 months (IQR 101). Patients on NVP had higher time since HIV diagnosis (126.9 [66.7] vs. 91.3 [6.6] months, p = 0.008) a prolonged time on ART (89.6 [54.6] vs. 62.3 [52.2] months, p = 0.01) and were older (47.7 vs. 40.7 years, p = 0.001) than those on EFV. NVP-treated patients presented increased HDL-c (55.8 [16] vs. 48.8 [10.7] mg/dL, p = 0.007) and apoA1 levels (153.4 [31.9] vs. 141.5 [20.5] mg/dL, p = 0.02), and reduced apoB/apoA1 ratio (0.68 [0.1] vs 0.61 [0.1], p = 0.003) than EFV-treated patients. No differences in inflammatory markers or lipoprotein subclasses were found between NVP and EFV. In patients with extreme lipid values (less favorable: 75th percentiles of LDL, small/dense LDLp and small HDLp, or more favorable: HDL p75 and apoB/apoA1 ratio p25), no consistent differences in inflammatory biomarkers were found.

Conclusions
Patients with prolonged viral suppression on NVP present significantly higher HDL and apoA1 levels and reduced apoB/apoA1 ratios than those on EFV, but no differences were found in lipoprotein particles nor inflammatory biomarkers. Relationships between lipid parameters and inflammatory biomarkers in NNRTI-treated patients are complex and do not show a linear relationship in this study.

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