BACKGROUND: Elevated levels of inflammatory markers such as interleukin (IL)-6 are associated with HIV-associated non-AIDS morbidity and death, even with viral suppression on ART (Kulier 2008, Duprez 2012, Tenorio 2013).

Methods: Studies in non-HIV populations have shown that inflammatory markers levels are modified by lifestyle factors such as body mass index (BMI), smoking and physical activity (Marques-Vidal 2005). In general, it is unclear which of the lifestyle factors are driving the levels of inflammatory markers in HIV populations.

Traditional risk factors such as substance use, obesity, triglycerides, cholesterol and fasting glucose levels are likely increased in HIV-infected individuals, and may be causally related to inflammation.

The objective of this analysis was to assess correlations between a panel of inflammatory biomarkers and selected demographic and metabolic covariates in a well-treated HIV-infected adult population.

RESULTS: The study population consisted of the controls from ACTG NWCS 220, which was a nested case-control study of HIV-infected individuals from the ACTG-ALLRT cohort.

All controls were virally suppressed at year 1 and had event-free follow-up time greater than the case (events were non-AIDS deaths and non-accidental causes of death). Controls were matched for age, sex, baseline CD4 T-cells (<50 cells/mm³), ART regimen at entry (<50 kg/m², whether protease-inhibitor containing or not, and whether abacavir was being taken or not) and categories of metabolic markers.

Stored plasma at year 1 following ART initiation was tested for: 1) IL-6 (hsIL-6, R&D Systems, Minneapolis, MN); 2) soluble CD40 ligand (sCD40L, R&D Systems); interferon-gamma, inducible protein 10 (CCL3/IP-10, DRT/R&D Systems); interferon-tau (IFN-τ, DRT/R&D Systems); interferon-related genes (IFN-γR1, IFN-γR2, IFN-γ) R&D Systems); 5) sTNFR-2 (RT2, R&D Systems); and 6) Dimer (Diagnostica Stago, Parsippany, NJ).

Spearman correlations were used to analyze associations between biomarkers at year 1 and selected factors.

ABSTRACT: Correlates of inflammatory markers after one year of suppressive antiretroviral treatment (ART).

CONCLUSIONS: Increased age, increased central obesity and smoking are associated with increased levels of soluble inflammatory markers, even with viral suppression on ART.

IL-6, a strong predictor of morbidity/mortality in HIV disease, is associated with a number of factors which may contribute to non-AIDS morbidity. Future studies should focus on determining how metabolic and other traditional risk factors relate to IL-6, and whether the impact of IL-6 on disease progression is independent of these factors.

REFERENCES


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