The Impact of Weight Gain and Sex on Immune Activation Following Initiation of ART

Sara H. Bares1, Laura M. Smeaton2, Vincent Vu3, Sarah E. Scott1, Beth A. Smith4, Catherine Godfrey4, Grace A. McComsey4

1University of Nebraska Medical Center, Omaha, NE, 2Harvard T.H. Chan School of Public Health, Boston, MA, 4Division of AIDS, NIAID, Bethesda, MD, 3University Hospitals Cleveland Medical Center and Case Western Reserve University School of Medicine, Cleveland, OH

Background

• Immune activation persists despite suppressive antiretroviral therapy (ART) and may also differ by sex or body composition.
• We hypothesized that weight gain, sex and BMI would be associated with changes in immune activation following ART initiation and explored these relationships in a selected subset of women and men who had initiated ART in two large randomized ACTG trials (A5202 and A5257).

Methods

• A purposeful sampling design selected participants who achieved virologic suppression on ART and either maintained weight or had stable weight over time, if these differences vary by levels of the other 2 factors, and whether these differences persist after adjustment by age, or pre-ART CD4 and viral load.
• To test if changes from baseline levels in selected inflammatory markers differ by whether person later gained weight or had stable weight over time, and explore if these differences persist after adjustment for sex, age, pre-ART BMI category, CD4 count and HIV-1 RNA.

Objectives

• To test if baseline biomarker levels differ by sex, baseline BMI category or whether person later gained weight or had stable weight over time, if these differences vary by levels of the other 2 factors, and whether these differences persist after adjustment by age, or pre-ART CD4 and viral load.
• To test if baseline BMI concentrations and changes from baseline to week 96, adjusting for baseline BMI, pre-ART CD4 and viral load.

Results

• While pre-ART BMI was similar between gainers and maintainers (overall and within sex), gainers had significantly lower pre-ART CD4 versus maintainers.
• In adjusted models among those with normal pre-ART BMI, pre-ART IL-6, sTNF-RII, IL-6, and sCD163 were higher for gainers versus maintainers.
• Association of weight gain on week 96 changes of these 4 biomarkers differed by sex; women who gained weight had smaller declines in biomarkers compared to men who gained.
• For sTNF-RII and IL-6, the association between weight gain and changes in these biomarkers also varied by pre-ART BMI.

NOTE: Similar changes were noted for the other biomarkers

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