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### LOSS OF WEIGHT IN THE ERA OF HAART IS ASSOCIATED WITH ELEVATED PBMC PROVIRAL DNA LEVELS

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**OBJECTIVE:** Loss of weight continues to be seen in HIV<sup>+</sup> subjects in developed countries despite widespread availability of potent antiretroviral therapy. Catabolic cytokines such as TNF- $\alpha$  are often elevated in these subjects. Residual HIV infection in cells of the monocyte/macrophage (M/M $\Phi$ ) lineage have been demonstrated in antiretroviral-treated HIV-infected individuals with undetectable plasma HIV-1 RNA by PCR. We hypothesize that weight loss in the era of HAART may be secondary to residual HIV infection in (M/M $\Phi$ ) with resultant increases in catabolic cytokine production and release.

**METHODS:** PBMC proviral DNA copies/cell (assessed by real-time PCR), select plasma cytokine levels (assessed by ELISA) and weight records over the first year of follow-up were available and analysed in a subset of 67 HIV<sup>+</sup> subjects participating in the Hawaii Aging with HIV longitudinal cohort study.

**RESULTS:** 17.0% had weight loss >10%, 14.9% had weight loss from >5% to 10%, 61.7% maintained stable weight with less than 5% gain or loss, and 6.4% demonstrated weight gain. PBMC proviral DNA levels were higher in those with weight loss >5% compared with those with stable or increasing weight (median 8.9 vs 0.9 copies/10<sup>6</sup> cells;  $P=0.006$  by Mann–Whitney). Proviral DNA levels remained higher in the 52% of subjects with plasma HIV RNA levels <50 copies/ml (median 8.9 vs 0.5 copies/10<sup>6</sup> cells,  $P=0.028$  Mann–Whitney). Analysis in selected specimens to ascertain HIV DNA in subsets of PBMCs demonstrated that the majority of proviral DNA copies in PBMCs were in activated (CD14<sup>+</sup>/CD16<sup>+</sup> by flow) macrophages. A correlation was demonstrated between proviral DNA levels and sTNFR<sub>II</sub> levels ( $r=0.72$ ,  $P=0.043$ ) ( $n=8$ ).

**CONCLUSIONS:** Weight loss in the era of HAART may be driven by residual HIV infection in cells of the monocyte/macrophage lineage.

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