Chronic Stress and Non-AIDS Diseases—Is There a Link?

July 27, 2009 By Tim Horn

Chronic stress may increase the risk of non-AIDS, age-related health problems in people living with HIV, according to a team of Spanish researchers presenting intriguing new data at the Fifth International AIDS Society (IAS) Conference on HIV Pathogenesis, Treatment and Prevention on Tuesday, July 21, in Cape Town.

High blood levels of certain inflammatory chemicals called cytokines—notably interleukin-6 (IL-6) and tumor necrosis factor-alpha (TNFa)—have been associated with a spectrum of age-related conditions including cardiovascular disease, osteoporosis, type 2 diabetes and certain cancers.

Higher-than-normal levels of these cytokines have been documented in people living with HIV, as have high rates of early onset age-related diseases. While most research conducted to date has focused on the potential roles of HIV and antiretroviral (ARV) therapy on these abnormalities, another known risk factor may be involved: chronic psychological stress.

Stress has been linked to increased IL-6 and TNFa in studies involving HIV-negative individuals. In turn, Carmina Fumaz, MA, of the Germans Trias i Pujol Hospital in Barcelona and her colleagues hypothesized that stressed-out HIV-positive people may also be more likely to have elevated levels of inflammatory cytokines and, therefore, a greater risk of age-related manifestations.

To explore this possibility, Fumaz's group evaluated 21 HIV-positive individuals with undetectable viral loads for at least 12 months while on antiretroviral therapy, all with CD4 counts that never fell below 200 cells. Blood levels of IL-6 and TNFa were measured, as were each individual's stress level, using the standardized Perceived Stress Scale (PSS).

Study volunteers averaged 40 years of age. Eighty-one percent were men, and the average CD4 count upon entering the study was 564 cells.

Forty-seven percent of the participants had evidence of chronic stress, with an average PSS score of 15.5; a score above 14 was considered evidence of chronic stress.

Patients with stress had significantly higher average levels of IL-6 (13 picograms/milliliter) and TNFa (5.1 pg/mL) when compared with subjects without chronic stress (IL-6: 1.1 pg/mL; TNFa: 2.4 pg/mL). These differences between the two groups were statistically significant, meaning they

were too great to have occurred by chance.

Among the individuals with chronic stress, Fumaz's group pointed out, IL-6 levels averaged more than six times the level of 2.5pg/mL, a well-defined cutoff associated with accelerated decline of physical function.

"The impact of chronic stress on the premature appearance of aging-related pathologies through immune dysregulation merits further research," the authors concluded in their published abstract.

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