Lipodystrophy-Related Waistline Increases Are Linked to Decreased Mental Functioning

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New data published in the February 14 issue of Neurology suggest that an expanding waistline associated with lipodystrophy is associated with decreased mental functioning, whereas general weight gain has a protective effective against neurocognitive decline in people living with HIV. The contradictory—and largely unexplained—findings come from an ongoing study exploring the various affects of HIV and antiretroviral therapy on central nervous system functioning.

“Interestingly, bigger waistlines were linked to decreased mental functioning more than was general obesity,” said lead author J. Allen McCutchan, MD, of the University of California at San Diego, in an accompanying news announcement. “This is important because certain [antiretroviral] drugs cause weight gain in the center of the body that is most dramatic in the abdomen, neck, chest and breasts.”

The Central Nervous System HIV Antiretroviral Therapy Effects Research (CHARTER) study was started in 2002 to explore how neurological complications of HIV have changed in the years since combination antiretroviral (ARV) therapy became widely available. In addition to exploring general trends—such as the decreasing prevalence of AIDS-related dementia and the rise of mild problems such as HIV-associated neurocognitive decline (HAND)—CHARTER aims to determine if the central nervous system complications of HIV are affected by different histories and ARV regimens.

CHARTER’s latest report involves 130 people living with HIV undergoing various neurological tests and laboratory examinations at six participating clinics in the United States. The study participants included in the analysis averaged 46 years of age and had been living with HIV for about 13 years, most of whom were receiving ARV treatment.

Evidence of neurocognitive impairment (NCI), such as reduced memory or concentration, was documented in 40 percent of the study participants.

In one analysis conducted by McCutchan’s team, four factors were found to be associated with NCI: older age, a longer time living with HIV, diabetes (notably in those older than 55) and an increased waist circumference. People with NCI had waist circumferences that averaged 39 inches, compared with 35 inches for those without memory difficulties.

An increase in body mass index (BMI)—a sign of generalized weight gain and obesity—was not associated with an increased risk of NCI. In fact, it was associated with a 30 percent lower risk of neurocognitive impairment in the study.

McCutchan and his colleagues made sense of this discrepancy with the use of a second model looking at both waist circumference and BMI measurements together. When waist measurements increased in lockstep with hip measurements, as is usually the case with general obesity, BMI increases and the risk of NCI were lower. However, when waist measurements increased whereas hip measurements either decreased or stayed the same—as often occurs in people with HIV-related lipodystrophy—the risk of NCI was higher.

The authors point out this has been observed before. “Recent studies have identified nonlinear effects on cognition by central obesity as measured by [waist circumference] or waist to hip ratio (WHR),” they write in their Neurology report. “In a cross-sectional study of 7,163 normal and overweight women aged 65 to 80 without dementia, increased WHRs…were associated with greater risk of cognitive impairment than were higher BMIs. BMI had the most pronounced association with poorer cognitive functioning in women with less central obesity (WHR). In contrast, for women with the highest WHR, cognitive scores actually increased with BMI, suggesting that more general increased body mass was protective.

“This observation is consistent with the protective effect of high BMI that we found when [waist circumference] was entered into our second model,” McCutchan and his colleagues explain.

“As in HIV-uninfected persons, central obesity, but not more generalized increases in body mass (BMI), was associated with a higher prevalence of NCI in HIV-positive persons,” the authors conclude. “Avoidance of antiretroviral drugs that induce central obesity might protect from or help to reverse neurocognitive impairment in HIV-infected persons.”

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