

Poster presentation

A central body fat distribution is related to increased renal arterial resistance index and renal function impairment in HIV-1 infected patients

PF Grima*, P Grima and R Chiavaroli

Address: "S. Caterina Novella" Hospital, Infectious Diseases Unit, Galatina, Italy

* Corresponding author

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Purpose of the study

HIV-infected patients receiving antiretroviral therapy often develop changes in body fat distribution. Central fat accumulation is usually due to visceral as opposed to subcutaneous fat and this condition correlates with dyslipidemia, insulin resistance and increased cardiovascular risk. Recent studies conducted on obese patients have demonstrated a significant association between obesity and renal damage. The purpose of our study was to investigate if, in HIV-infected patients, central fat distribution may be associated with renal function abnormalities.

Methods

68 consecutive HIV-infected patients were enrolled into two groups: lipodystrophy with central fat accumulation ($n = 20$); and no lipodystrophy ($n = 48$). HIV-negative healthy subjects served as controls ($n = 10$). Clinical data were recorded, including serum creatinine level and creatinine clearance. The thickness of visceral fat was determined with 3.75 MHz ultrasonographic transducer at two reference points: peri-renal fat diameter and visceral abdominal fat. We monitored renal function by measuring the intrarenal resistive index by duplex doppler ultrasonography. Creatinine clearance was measured by Cockcroft-Gault equation.

Summary of results

Patients with central adiposity had statistically significant ($p < 0.0001$) reduction of creatinine clearance (89.35 ± 11.76) than HIV+ patients who have not developed lipo-

hypertrophy (108.43 ± 12.8) and control subjects (109.28 ± 13.36). Moreover, patients with central adiposity had statistically significant ($p < 0.0001$) increase of resistance index (0.66 ± 0.054 for right and left kidney) than HIV+ patients who have not developed lipohypertrophy (0.57 ± 0.03 and 0.58 ± 0.03 for right and left kidney) and control subjects (0.51 ± 0.03 and 0.51 ± 0.03 for right and left kidney). We further found a positive correlation between intrarenal arterial resistive index and thickness of omental ($r = 0.45$ for both right and left resistive index, $p = 0.0001$) and peri-renal ($r = 0.45$ for right resistive index and $r = 0.41$ for left resistive index, $p = 0.0006$) adipose tissue.

Conclusion

HIV-1 infected lipodystrophic patients with central fat distribution are at risk of diminished renal filtration, with positive correlation between intrarenal arterial resistive index and thickness of omental and peri-renal adipose tissue. This might indicate that fat distribution is important for renal function abnormalities and resistive index may be one of the markers for renal outcome.