The anthropometric variables in HIV positive male and female patients in Drakenstein region (Western Cape, South Africa)

Student: Theodore Nel

Supervisor: Faadiel Essop

Background: Highly active antiretroviral therapy (HAART) has extended life expectancy and enhanced the well-being of HIV-positive individuals. Since there are concerns regarding HAART-mediated onset of cardio-metabolic diseases in the long-term, we evaluated the anthropometric profile of black HIV-infected individuals in a peri-urban setting (Western Cape, South Africa).

Methods: A cross sectional study design was followed to describe the gender differences in different HAART treatment groups. HIV-positive patients (n = 44 males, n = 102 females; 20–40 years) were recruited for three groups: 1) control (HIV-positive, HAART-naïve), 2) HIV-positive (<3 years HAART), and 3) HIV-positive (>3 years HAART).

Results: All participants underwent comprehensive anthropometric and bio-electrical impedance analyses. No significant differences were observed in the male treatment groups. HAART-naïve females are mostly overweight (73.90 ± 2.79). This is followed by a period of muscle wasting seen in the triceps skinfold (29.30 ± 2.19 vs 20.63 ± 1.83; $p < 0.01$), muscle mass (22.23 ± 0.46 vs 19.82 ± 0.54; $p < 0.01$), and fat free mass (49.40 ± 1.08 vs 44.16 ± 1.21; $p < 0.01$) upon HAART initiation (<3 years HAART). Thereafter all parameters measured had levels similar to that seen for the female HAART-naïve group. Females on <3 years HAART exhibited significantly decreased body cell mass ($p < 0.01$), protein mass ($p < 0.01$), muscle mass ($p < 0.01$), fat free mass ($p < 0.01$), and fat mass ($p < 0.001$) versus matched HAART-naïve controls. The W:H ratio for the female treatment groups placed the females overall at a higher risk for developing cardiovascular disease compared to the males.

Conclusions: This study found striking gender-based anthropometric differences in black South African HIV-positive individuals on HAART. We also conclude from this observational study that no significant differences were found in the different male treatment groups. All female body composition parameters initially showed lower values (<3 years HAART). The female treatment group (>3 years HAART) displayed values similar to that seen in the HAART-naïve group. Higher W:H ratios in females receiving longer-term HAART potentially increases their risk for the future onset of cardio-metabolic complications.

Public Citation: Nell TA, Kruger MJ, Beukes DC, Calitz E, Essop R, Essop MF. Distinct gender differences in anthropometric profiles of a peri-urban South African HIV population: a cross sectional study. BMC Infectious Diseases (2015) 15:85. DOI 10.1186/s12879-015-0836-9