The association of fat distribution and components of the metabolic syndrome in the mixed ancestry population of South Africa International Diabetes Federation (IDF): 20th World Diabetes Congress Montreal, Canada 18 – 22 October 2009 D-0718 Page 241

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http://www.eubirod.eu/documents/papers/IDFMontreal09abstractbook.pdf

Background: The metabolic syndrome (MS) is currently one of the major challenges facing public health globally. The consensus risk factors are raised triglyceride levels, increased blood pressure, raised plasma fasting glucose or reduced high-density lipoprotein (HDL) levels. The waist circumference and/or waist-to-hip (WHR) ratio are commonly used as indicators of fat distribution and are consequently a measurement for the risk of MS. However, differences in body structure of various ethnic groups have been observed. For example, in Caucasians a larger hip circumference is dissociated with MS. The unique Mixed Ancestry population of South Africa is a combination of European settlers and the indigenous Africans and may therefore have different associations altogether.
The objective of this study was to investigate the association of fat distribution as measured by waist circumference, hip circumference, Body Mass Index (BMI), and skinfold thickness with various components of MS such as blood pressure and lipid levels.

Methods: The Bellville South Study is a cross-sectional and prospective study of the Mixed Ancestry population of South Africa. In this study we analyzed the risk factors for MS in 600 randomly selected Mixed Ancestry individuals. The waist circumference, hip circumference, BMI, blood pressure and lipid levels of the participants were determined. Linear logistic regression analysis was used to study association of fat distribution with lipid levels and blood pressure.

Results: The serum cholesterol, low-density lipoproteins (LDL) and HDL levels were significantly higher in females than in males ($P = 0.01$). Lipid levels increased with age except for the HDL levels in males which were similar for all age groups. In a logistic regression model with BMI, waist circumference, hip circumference and WHR as continuous variables, the waist circumference was associated with higher triglyceride levels ($P < 0.01$) while the hip circumference showed an opposite effect ($P = 0.01$). The reverse was observed with regards to HDL-cholesterol. Waist circumference was negatively associated with HDLcholesterol ($P = 0.007$) whilst the hip circumference was positively associated ($P = 0.020$). Waist circumference, BMI and supra-iliac were positively associated with systolic and diastolic blood pressure ($P < 0.05$), whilst the hip circumference and triceps were negatively associated ($P < 0.05$). Conclusion: As reported in Caucasian and other ethnic groups a larger hip circumference had a protective effect on some components of the metabolic syndrome. The present results suggest that the hip circumference be included in the assessment of the risk for metabolic syndrome in this population.