DETERMINATION OF BODY COMPOSITION IN PATIENTS WITH METABOLIC SYNDROME, BY BIO-IMPEDANCE METHOD USING DIFFERENT DEVICES

C. Constantin, G. Stan, C. Serafinceanu, D. Cheta

N Paulescu Institute, Bucharest, Romania

Introduction: The study of body composition by bio-impedance is a used method with different devices. The results may influence the therapeutic choice.

Method: 51 patients (22m/29w) with metabolic syndrome (IDF2005), admitted in the "N.Paulescu" Institute, were included in this study. Their mean age was 55.17±10.98years. Their body composition was examined, using next devices: In Body 3.0, Omron BF 500, BCM-Fresenius Medical Care. Weight, BMI, fat-tissue, intra- and extracellular liquid volumes were determined. Data were statistically processed using SPSS 15.0 (T-Student test).

Results: As reference the results of In Body3.0 were used, where total body water(TBW) was 42.12±8.38L, distributed as following: 28.21±5.52L intracellular body water(IBW) and 13.89±2.98L extracellular body water(EBW). Results of BCM-Fresenius: TBW=37.47±7.76L, IBW=20.4±4.23L and EBW=17.4±3.26L (p=0.204 for TBW, p=0.441 for IBW, and p=0.59 for EBW). Results for BMI(kg/m²) were similar: 30.41±4.55(In Body) and 30.48±4.55(Omron,p=0.086). Determined weight: 84.2±14.54 kg(In Body) and 84.42±14.56 kg(Omron) (p=0.098). The percentage of fat tissue was 31.99±7.67%(In Body), 35.14±10.03%(Omron,p=0.0906), 38.29±8.05%(Fresenius,p=0.199), with a higher value for women than men: 35.31±6.46%(In Body), 40.82±7.48%(Omron,p=0.271) and 41.6±6.64% (Fresenius,p=0.283, for women), 27.34±6.69%(In Body), 27.28±7.12%(Omron,p=0.003) and 33.85±7.83% (Fresenius,p=0.297 for men). Resting Metabolism Rate(kcal/day):1452.94±211.25(In Body) and 1653.52±241.82(Omron,p=0.304).

Conclusions: Under water weighting and DEXA (dual-energy-x-ray absorptiometry) are considered to be "gold standard" procedures for determining body composition, but they are inaccessible and expensive. As the differences in the results are statistically significant, bio-impedance stands yet approachable alternative in clinical practice, but data could be limited helpful in determining body composition in patients with MS. The device could influence the behavior in clinical practice.

DO METABOLIC FACTORS GOVERN THE RISK FOR BREAST CANCER-ASSOCIATED LYMPHEDEMA (BC-L)?

S. Rockson[1], I. Wapnir[2], C. Chow[2], V. Bali[1]

[1]Stanford University School of Medicine, Division of Cardiovascular Medicine, Stanford, United States of America, [2]Stanford University School of Medicine, Department of Surgery, Stanford, United States of America

Among the systemic factors associated with lymphedema risk following axillary lymph node dissection (ALND), hypertension and obesity have been consistently identified. Since insulin resistance (IR) is also associated with breast cancer-associated lymphedema (BC-L), we studied insulin sensitivity in 23 breast cancer survivors with and without BC-L. Ratios of limb volume were calculated with the truncated cone approximation. The presence of LE was defined as a ratio>1.1 and was confirmed by measuring the bioimpedance ratios (BR) in each patient. 13 patients were BC-L + and 10 were BC-L -. The groups were matched for age, BMI and elapsed time since ALND. Insulin sensitivity was assessed by quantitation of steady state plasma glucose (SSPG) during octreotide infusion and further confirmed with oral glucose tolerance test (OGTT). Average SSPG values were not significantly different in BC-L + (129±58) *vs.* BC-L- (168±67) but abnormal values >180 were statistically much more frequent in the BCL- group (Chi square=7.333, P< 0.007). Plasma glucose (PG) values were signficantly higher in BC-L- patients at T=30 and 60 mins, respectively (P< 0.02). There was a strongly positive correlation between the BR and the 60 min PG (r=0.7), indicating an inverse relationship between prevailing PG and the presence of edema. Therefore, paradoxically, the risk of BC-L appears to be inversely related to the patients' measured insulin sensitivity. The results are nevertheless strikingly significant, suggesting that further investigation of these phenomena will shed insight into the mechanisms of risk.

MONOCYTE CHEMOATTRACTANT PROTEIN-1 (MCP-1) IS ELEVATED IN THE METABOLIC SYNDROME

B. Loughrey[1], D. Mc Cance[2], I. Young[1], L. Powell[1]

[1]School of Medicine, Dentistry and Biomedical Sciences, Queen's University, Belfast, United Kingdom, [2]Royal Victoria Hospital, Belfast, United Kingdom

Aim: To evaluate the effect of atorvastatin on serum MCP-1 in people with the metabolic syndrome (MS).

Methods: 43 subjects with MS (IDF criteria), mean age 49.8 ±7 years (67% male), were compared to 23 lean controls, mean age 46.3 ±7.1 years (57% male). Exclusions included: diabetes, statin treatment, and C-reactive protein (CRP) >10 mg/L. MS subjects were randomised to atorvastatin (10 mg/day) or placebo for six weeks. Fasting blood was collected for lipid profiles, glucose, hsCRP and serum MCP-1 (High Sensitivity Cytokine Array I biochip; Randox Laboratories).

Results: The metabolic syndrome subjects differed significantly from the lean subjects in the following respects: mean BMI (32.2 vs 23.7 kg/m², p< 0.001); LDL (3.4 vs 3 mmol/L, p< 0.05); HDL (1.3 vs 1.9 mmol/L, p< 0.001); triglycerides (2.1 vs 0.8 mmol/L, p< 0.001); and glucose (5.7 vs 5 mmol/L, p< 0.001). They also differed in median pre-treatment CRP (2.2 vs 1.0 mg/L, p< 0.001) and MCP-1 (265.8 pg/mL vs 183.9 pg/mL, p< 0.01). Spearman's rank correlation coefficient showed significant correlations between BMI and CRP (p< 0.001), as well as BMI and MCP-1 (p = 0.01), but not between CRP and MCP-1. Neither CRP nor MCP-1 correlated with age. Atorvastatin treatment had no significant effect on either CRP or MCP-1. There was a small but significant rise in both CRP and MCP-1 in the placebo group, which was probably a chance finding.

Conclusion: This study confirms that MCP-1 is elevated alongside CRP in obese subjects with the metabolic syndrome.

METABOLIC SYNDROME IS ASSOCIATED WITH SILENT BRAIN INFARCTION IN NONDIABETIC ADULTS

H.-M. Kwon[1], B.-J. Kim[2], Y.-S. Lee[1], B.-W. Yoon[2]

[1]Seoul National University Boramae Hospital, Seoul, Korea, Republic of, [2]Seoul National University Hospital, Seoul, Korea, Republic of

Aims: Metabolic syndrome (MetS) is associated with an increased risk of the subsequent development of cardiovascular disease or stroke even among persons without diabetes. MetS was found to be significantly associated with silent brain infarction (SBI) in neurologically healthy people. However, information is scant regarding its relationship of MetS to the SBI in nondiabetic adults. Therefore, we conducted a cross-sectional study.

Methods: We studied 1,029 healthy consecutive elderly subjects aged ≥65 who underwent MRI of the brain as part of their routine health check. Exclusion criteria were as follows: history of a stroke or TIA, history of diabetes, or taking antidiabetic medications. We examined associations between full syndrome (at least 3 of the 5 conditions) as well as its components and SBI by controlling possible confounders.

Results: One hundred fifty subjects (14.6%) were found to have one or more SBI on MRI. Age was found to be significantly related to SBI prevalence (OR, 1.09; 95% CI, 1.05-1.13). MetS was significantly associated with SBI (OR, 2.02; 95% CI, 1.36-2.99). The components model of MetS showed a strong significance between high blood pressure (OR,