Extended Abstract
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Higher resting metabolic rate linked to systolic hypertension in obese subjects with the metabolic syndrome

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Abstract

Background: Multiple factors are involved in the pathogenesis of hypertension in obese individuals. Recent studies have reported a strong association between blood pressure (BP) and resting metabolic rate (RMR). However, it is not known whether this relationship exists for systolic BP (SBP) and diastolic BP (DBP) in obese subjects patients with the metabolic syndrome, in whom several homeostatic mechanisms are impaired. Objective: To evaluate the relationship existing between RMR, to SBP and DBP, Fat Body Mass (FBM), Lean Body Mass (LBM), Body Mass Index (BMI), Blood parameters, in obese subjects with the metabolic syndrome. Methods: Sixty three non-diabetic subjects (27 women, 36 men) who fulfilled the ATPIII criteria for the metabolic syndrome, with a mean age of 50.4±12.5 yrs were evaluated. Mean BMI was 34.6±3.9 kg/m^2; % FBM- 40.9±6.6 %; and LBM- 59±0.7%. Basal RMR was 1875.2±420.1 cal/day. Baseline assessment also included 24h ambulatory blood pressure monitoring, clinical and biochemical profiling, subcutaneous periumbilical fat biopsy, region-defined body composition with DEXA and carotid intima-media thickness. The intervention targeted all assessed risk factors and was implemented through frequent interactions with dietitians, an endocrinologists, and physiotherapist expert for physical activity. Results: At the baseline assessment RMR was significantly related to mean 24 h systolic blood pressure (r=0.3 p<0.05). There were significant inverse correlation between RMR to %FBM (r=0.45, p<0.05). RMR was also positively related to BMI (r=0.37, p<0.05) and fasting triglycerides (r=0.28, p<0.05). Conclusion: This report extends and strengthens previous findings that RMR is independently related to SBP. Prior to this study, the relationship between RMR and SBP in metabolic obese subjects had not been explored. This study expanded the findings of Brock and colleagues by showing that REE was significantly related to SBP, independent of several possible confounders found in metabolic obesity.

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