Myeloperoxidase Evaluation As A Biomarker On Obesity

Tostes, A.F. ¹, Schemberger, J.A. ¹, Parabocz, G.C. ¹, Ribas, J.T. ¹, Santos, F.A. ¹, Borba, L.M. ¹, Vellosa, J.C.R. ¹

¹Universidade Estadual de Ponta Grossa, PR, Brazil

Introduction: Obesity is a chronic disease and is directly associated with subclinical cardiovascular disease. The aim of this study was to evaluate serum myeloperoxidase (MPO), High sensitive C reactive protein (Hs-CRP) and Total Antioxidant Capacity (TAC) according to the Body mass index (BMI - kg/m²).

Material and Methods: Serum MPO (ELISA Kit), Hs-CRP (turbidmetric Kit) and TAC (ABTS Method) were measured to different groups: 45 subjects with BMI <25 (control group), 43 subjects with BMI = 25.0 to 29.9 (OW group), 41 subjects with BMI = 30.0 to 34.9 (OI group), 30 subjects with BMI = 35.0 to 39.9 (OII group), 15 subjects with BMI>40.0 (OIII group). Other Biochemical, physiological and hematological parameters were analyzed too (Data not shown).

Results: There were observed significant increasing in blood pressure, white blood cell counting, serum creatinine, fasting glucose, HDL cholesterol, and ratio of triglycerides to HDL cholesterol for all groups compared to control. MPO (ng/mL; Mean ± SD) was not statistically significant: control 104±41; OW 112±49; OBI 108±51; OBII 122±81; OBIII 129±54. Hs-PCR (mg/L; Mean ± SD) was statistically significant for all groups compared to control (ANOVA and Tukey post hoc test): control 2.1±2.1; OW 2.8±2.8; OBI 4.9±4.7; OBII 5.7±8.3; OBIII 9.2±9.4. TAC (inhibition %) was statistically significant for all obese groups compared to control (chi-square (χ²) test): control 55.9; OW 58.2; OBI 58.5; OBII 58.6; OBIII 60.5.

Conclusions: Serum levels of MPO did not provide information about significant laboratory differentiation between groups. Serum antioxidant capacity is improved proportionally to BMI probably as an attempt from the organism to react to a presumable oxidative stress or due metabolites with antioxidant properties elevation on serum, such as uric acid. HS-CRP and other evaluated biomarkers have demonstrated a significant increasing in inflammation and cardiovascular risk for higher BMI.

Keywords: myeloperoxidase, TAC, chronic inflammation, obesity.

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