Determination of Thiobarbituric Acid Reactive Substances (TBARS) in Plasma and Lymphomononuclear Cells of Subjects with Different HDL-Cholesterol Concentrations

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The toxic effects of oxygen reactive species are due to the oxidation of components such as lipids, proteins, co-enzymes, thiols, and nucleotides. HDL-Cholesterol (HDL-C), can modify the oxidation balance in plasma, but the effects on cells are unknown. Malondialdehyde (MDA), a secondary product in the oxidative decomposition of polyunsaturated fatty acids, are thiobarbituric acid reactive substances (TBARS). The aim of this study was to evaluate the balance of oxidation products in the plasma of patients with different concentrations of HDL-C and in their lymphomononuclear cells, using TBARS method. Seventy-three asymptomatic adult volunteers of both sexes were classified as Hyper (HDL-C≥68mg/dL), Hypo (HDL-C<40mg/dL) and Controls (Ctl) (≥40 HDL-C<68mg/dL). We measured the total protein of plasma and cells to normalize the TBARS assays. We used the software SPSS 13 for statistical analysis. Adjustments for age, sex and BMI were done since the groups differed significantly in those variables. Results showed lower plasma oxidability in Hyper subjects as compared to Hypo (p≤0.001), but similar to Ctl with no differences among lymphomononuclear cells. This study confirms the presence of increased antioxidant capacity in a background of plasma elevated HDL-C but without cell oxidability repercussions.

Word Keys: oxidative stress, TBARS, malondialdehyde, HDL-cholesterol

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