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OXIDATIVE STRESS PARAMETERS AND PRO-ATHEROGENIC LIPOPROTEINS IN INDIVIDUALS WITH FAMILIAL HYPERCHOLESTEROLEMIA CARRYING GENETIC VARIANTS AT THE LDL-RECEPTOR

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ABSTRACT

Familial Hypercholesterolemia (FH) is an autosomal dominant genetic disorder characterized by high levels of cholesterol in the low-density lipoprotein (LDLc) fraction in the blood. The accumulation of LDLc in the artery walls causes endothelial injury and favors atherosclerosis. Atherosclerosis, in turn, is associated with an oxidative stress profile. In this study, the aim was to compare serum levels of total antioxidant capacity (TAC), advanced oxidation protein products (AOPP), total oxidative status (TOS) and oxidative stress index (OSI) in individuals with FH and healthy controls. Two groups were used: 1) Patients with FH carrying genetic variants in the *LDLR gene* (n = 38); 2) A control group (n = 31), matched by sex and age. Measurements were performed in a standardized and automated manner at BS 380® (Mindray Shenzhen, China). The Mann-Whitney test was used to compare the groups and the results as median and interquartile range with a P value of *<0.050.* The levels of AOPP [40 (50) μmol/L] and TOS [55 (103) μmol H2O2 equivalent/L], in addition to the OSI indices [0.107 (0.224)], which showed higher values in the HF group compared to the control group [13 (78) μmol/L, 33 (25) μmol H2O2 equivalent/L, and 0.067 (0.076), respectively; all $p < 0.001$)]. There was no difference in TAC levels between the HF group [493 (483) μmol Trolox equivalent/L] and the control group [531 (355) μmol Trolox equivalent/L, $p= 0.738$]. These findings suggest that oxidative stress is related to HF, since high levels of LDLc are observed in individuals with a pro-oxidant profile.

Keywords: Oxidative stress. Antioxidant. Familial hypercholesterolemia. LDL receptor.

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