Abstract

Background: Increasingly growing evidence exists of the involvement of oxidative stress mechanisms in Parkinson's disease. Lower levels of GSH in the substantia nigra, an increase in iron buildup, an increase in the byproducts of lipid peroxidation and alterations in the mitochondrial complex I have been described. However, few studies have been made of levels of antioxidants in the peripheral bloodstream and of the influence of the intake of nutrients on the development of this disease. Methods: In a group of 79 patients afflicted with idiopathic Parkinson's disease and a control group comprised of 107 subjects, compared by age, sex and place of residence, the lowered levels in the plasma of glutathione (GSH), malon dialdehyde (MDA), uric acid, tocopherol, -carotene, lycopene and different iron metabolism parameters were studied. Likewise, the intake of certain antioxidants was estimated based on a dietary survey. Results: Significant differences (p 0.001) were found in the plasma levels of GSH between cases (0.10 mol/ml 0.06) and controls (0.29 mol/ml 0.12). Likewise, the plasma levels of uric acid were lower (p 0.05) in the cases (4.96 mg/ml 1.96) than in the control groups (5.39 mg/ml 1.13). No significant difference was found in the plasma levels of MDA, tocopherol, -carotene and lycopene. With regard to iron metabolism, significantly higher ferritine and transferrin values were found in the patients with EP than in the control group, showing a lower transferrin saturation percentage (p 0.05). The iron showed no significant changes between cases and control groups. Conclusions: The results of this study support the possible involvement of oxidative stress in the pathogenesis of Parkinson's disease and reveal, in turn, alterations in some peripheral blood parameters in keeping with known findings in the substantia nigra.

Keywords