Effect of Benznidazole Therapy in Oxidative Stress Biomarkers in Patients with Chagas Heart Disease

Ribeiro,C.M.[1], Budni,P.[1], Farias,M.S.[1], Parisotto, E.B.[1], Pedrosa, R.C.[3], Wilhelm Filho, D.[1], Pedrosa, R.C.[2]
[1] Departamento Ecologia e Zoologia e [2] Bioquímica, UFSC, SC, Brazil
[3] Hospital Clementino Fraga Filho, UFRJ, SC, Brazil.

Introduction: Benznidazole (BZN) is the only drug used for the treatment of chagasic patients in Brazil. There are evidences that BZN acts through covalent modification of macromolecules by reduced nitro intermediates and reactive oxygen species (ROS) generated during drug metabolism. **Objective:** Evaluate biomarkers of oxidative stress after BZN treatment in patients with Chagas' heart disease (CHD). **Methods:** Forty one patients with CHD were selected and biomarkers of oxidative stress were measured before and after two months of BZN treatment (5mg/Kg/day). Patients were divided in four groups according to the modified Los Andes clinical hemodynamic classification in groups IA (n=10), IB (n=20), II (n=7) and III (n=4). The activities of catalase, superoxide dismutase, glutathione reductase, glutathione peroxidase and glutathione-S-transferase, as well as the contents of reduced glutathione (GSH) in red cells, and levels of lipid peroxidation (TBARS) and protein carbonyl (PC) in plasma were determined spectrophotometrically. Comparisons among chagasic groups were carried out by ANOVA, with *post hoc* using the Tukey test. Student *t*-test was used to compare each group before and after BZN treatment. **Results:** After BZN treatment, the activity of GPx was increased in all groups, while SOD, CAT and GST activities were enhanced in all groups excepting in group III. GSH and TBARS levels were not changed, however PC levels showed enhanced levels in all groups excepting in group III. **Conclusion:** Despite the benefit of its tripanocide effect, BZN treatment promoted increases in antioxidant enzyme activities and PC contents in the blood of CHD, especially at the first stages of the disease.

Key words: Chagas Heart Disease, Benzonidazole, Oxidative Stress, Antioxidants