ANALYSIS OF BIOMARKERS OF INFLAMMATION AND OXIDATIVE STRESS IN CHAGAS DISEASE.

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INTRODUCTION

The pathophysiologic factors that control the formation and perpetuation of heart inflammation in chagasic patients were not yet fully clarified. Chronic inflammatory processes induce oxidative/nitrosative stress and lipid peroxidation.

OBJECTIVES

Descriptive study of biomarkers of oxidative stress: enzymatic activity of superoxide dismutase (SOD), catalase (CAT), glutathione peroxidase (GPx), lipid peroxidation (MDA/TBARS) and tumor necrosis factor alpha (TNFalpha) as a marker of inflammation.

MATERIALS AND METHODS

Samples of serum / blood were analyzed of chagasic individuals without cardiomyopathy (ECsinMCC: 45), chagasic with MCC (MCC: 48) and controls (CN: 65) underwent cardiovascular examination, electrocardiogram, chest radiography and supplementary examinations. All gave their consent. SOD, CAT, GPx and MDA/TBARS were analyzed by spectrophotometric methods (Kits Ransel Labs); TNFalpha by ELISA (BD).

RESULTS

	MCC	ECsinMCC	CN
SOD (USOD/g Hb)	3600±750	2710±190	890±310
CAT (K/g Hb)	316±68	332±41	185±28
GPx (U/g Hb)	98±17	102±20	61±11
MDA/TBARS (mmol/ml)	4.34±1.52	3.39±1.20	2.33±0.60
TNFalpha (pg / ml)	33.3±7.2	26.1±6.8	7.7±2.4

TABLE: Arithmetic averages and standard deviation of SOD, CAT, GPx, MDA/TBARS and TNFalpha (p <0.01) for each study population.

For the statistical study analysis of variance was performed and Kruskal Wallis. Level of significance was set at p <0.05. The results show for SOD, MDA/TBARS and TNFalpha significant differences (p <0.01) between MCC, ECsinMCC and CN.

DISCUSSION

Increased activity of biomarkers of oxidative stress and inflammation in MCC is observed. The persistence of the parasite, would maintain an active and cronic inflammatory process, that depending on the immunogenic or immunological characteristics induced by environment, would predominate a cellular response with specific cytokine production. The TNFalpha selectively would induce Mn-SOD. Further research should be done with more patients to clarify these pathophysiological aspects in the MCC.