DESCRIPTIVE STUDY OF GENETIC FREQUENCIES AND BIOMARKERS OF OXIDATIVE STRESS IN CHAGAS DISEASE.

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Introduction:

It has been suggested that host genetic factors, environmental factors and the variability of Trypanosoma cruzi (Tc) could be the main determinants of the prevalence of Chagas disease (CD). Since only one third of those chronically infected develop symptoms, it would emphasize the importance of genetic factors in the susceptibility and development of Chronic Chagasic Cardiomyopathy (MCC).

Objective:

A descriptive study of the genetic frequencies (FG) of superoxide dismutase (SOD-Mn Ala9Val) and catalase (CAT C262T) polymorphisms and activity of plasmatic enzymes of oxidative stress, superoxide dismutase (SOD) and catalase (CAT).

Materials and Methods:

Three groups were analyzed: chagasic without MCC (ECsinMCC n: 25), chagasic with MCC (MCC n: 33) and normal controls (CN n: 55). The molecular characterization and genotyping was performed by PCR-RFLP and SOD and CAT activities by spectrophotometric methods.

Results:

			ECsinMCC	MCC	CN
GF (95% CI)	CAT C262T	CC	0.84	0.70	0.64
		CT	0.16	0.30	0.36
	SOD-Mn Ala9Val	Ala-Ala	0.36	0.35	0.85
		Ala-Val	0.46	0.30	0.15
		Val-Val	0.18	0.35	0.00
SOD (USOD/gHb)			2590 ± 188	3270 ± 233	895 ± 214
CAT (K/gHb)			332 ± 41	316 ± 68	185 ± 28

Table I. The study of SOD-Mn Ala9Val and CAT C262T GF of chagasic patients and CN. The activities of SOD and CAT showed significant differences ($p < 0.01$) between chagasic patients and CN.

For the statistical study, analysis of variance was performed according to a classification criterion, Kruskal Wallis was applied. The level of significance was set at $p < 0.05$.

Conclusion:

In the studied population, there is a difference between the analyzed groups of the SOD-Mn Ala9Val polymorphism, but not in the CAT C262T polymorphism, which could associate the genetic alterations of SOD-Mn as a risk factor in the pathogenesis of MCC. Differences in the production of oxidative stress biomarkers could be the result of the present polymorphisms.