

ASSESSMENT OF *in vitro* SUSCEPTIBILITY OF *Leishmania guyanensis* ISOLATES TO ANTIMONIAL AND THE RELATIONSHIP WITH THE THERAPEUTIC RESPONSE

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Abstract:

Leishmaniasis is a disease caused by an intracellular protozoan that is characterized by a large spectrum of clinical manifestation, including visceral and cutaneous forms. In Brazil, most cases of leishmaniasis occur in the Amazon region and *L. guyanensis* is associated approximately 90% of these cases. Studies conducted in Latin America have reported contrasting figures related to the efficacy of Sb(V) therapy against cutaneous leishmaniasis. Patients infected with *L. guyanensis* from the state of Amazonas presented higher failure rates to Sb(V) therapy (73.7%) when compared to patients infected with *L. braziliensis* from the state of Bahia (49.2%). However, only a few studies have been conducted to evaluate the *in vitro* susceptibility of the parasites to the drug. In this study we aim to evaluate the *in vitro* sensibility of *L. guyanensis* isolates obtained from patients that presented different treatment outcome to antimonial, here named as failed (F) and cured (C) groups. The first step was to determine the growth curves by cultivating *Leishmania* promastigotes in Schneider medium with and without the addition of a sub lethal dose of trivalent antimony. For determining the susceptibility to trivalent antimony, promastigotes were grown in culture medium adding different doses of antimony. Cell viability was determined using the Alamar Blue reagent and the IC₅₀ estimated by linear regression. For testing the susceptibility of amastigotes form to pentavalent antimony, different concentrations of antimony in cultured peritoneal macrophages infected with amastigotes were used. After 72 hours, the slides were Giemsa stained and the number of infected cells and the number of amastigotes/cell were determined by light microscopy. Our results show a statistically significant difference between the IC₅₀ between the two groups: F and C. However, tests using the amastigotes infected macrophages did not show any association. The growth curves were also significantly different when the strains from group C and F were compared. Strains from treatment failure had a significant reduction in the early times, but tend to increase the number of cells in later times. The results obtained so far indicate that the strains from patients who presented therapeutic cure are more susceptibility to trivalent antimony than the strains from patients failing therapy. Financial support: FIOCRUZ; FINEP/MCT; CNPq; FAPERJ.

Key words: *Leishmania guyanensis*, antimonial, susceptibility, drugs