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Eficacia y toxicidad de los antimoniales pentavalentes (Glucantime® y Pentostam®) en un modelo animal de leishmaniasis cutánea americana: aplicación de la luminometría
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Abstract

The pentavalent antimonial compounds Glucantime® and Pentostam® are the first line drugs used in anti- Leishmania treatment. However, no in vivo studies have compared the efficacy and toxicity of these drugs where host variability has been controlled. Biochemical studies of Leishmania have detected differences between the two drugs with regard to DNA topoisomerase I inhibition, a phenomenon that possibly impacts treatment efficacy. To evaluate the clinical efficacy, hamsters were infected intradermally in the right hind foot with 106 promastigotes of a wild type or luciferase-transfected Leishmania panamensis. At three weeks post-inoculation, the animals were treated intramuscularly with either Glucantime® or Pentostam® (30, 60 or 120 mg SbV/kg per day for 20 days). To evaluate parasitological efficacy a luminometry assay was standardized for quantitation of amastigotes in hamster tissues. To evaluate toxicity, hamsters were treated intramuscularly with Glucantime® or Pentostam® (120, 160 or 240 mg SbV/kg per day for 20 days). Animals inoculated with either of the parasite strains and treated with either drug, showed a similar rate of lesion reduction, as compared to untreated controls ($p<0.01$). Parasite burden was also comparable, and no significant differences were found in the cure rate. No renal or hepatic alterations occurred as evidenced by normal serum levels of creatinine, aspartate aminotransferase, alanine aminotransferase and amylase. Hamsters treated with 120 mg SbV/kg per day for 20 days or higher doses of Pentostam® showed macro- and microscopic signs of inflammation at the site of injection. These effects were absent in the animals treated with Glucantime®. The results confirmed clinical observations regarding the similar efficacy of the two drugs, as well as the higher local toxicity of Pentostam®

Keywords

hamster, Leishmania panamensis, leishmaniasis/treatment, pentavalent antimonials, Glucantime®, Pentostam®, luminometry, transfection