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TÍTULO: REINFECTIONS WITH STRAINS OF *TRYPANOSOMA CRUZI*, OF DIFFERENT BIODEMES AS A FACTOR OF AGGRAVATION OF MYOCARDITIS AND MYOSITIS IN MICE.

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Introduction - Early studies on the clinical manifestations in patients chronically infected with *Trypanosoma cruzi* in endemic areas, emphasized the importance of re-infections in the maintenance of parasitism and in the severity of cardiac lesions. An investigation on the influence of multiple infections in the pathology of experimental infection in mice and intensity of tissue lesions in mice with multiple infections with the combination of strains of three different biodesmes was performed. **Materials and methods:** 1st inoculation

120 Swiss Webster mice were inoculated with the Colombian strain of *T. cruzi* (Biodeme Type III: *T. cruzi* I). **Inoculum:** 50,000 blood forms; 21 control mice with single chronic infection with the Colombian strain were maintained for histopathological study in the 50, 80, 130 days post-infection; 58 surviving mice infected with the Colombian strain, 50 days after first infection, were divided in two groups: 1st group - 38 mice were first re-inoculated with the 21 SF strain followed by the Y strain; 2nd group - 20 mice were first re-inoculated with the Y strain, followed by the 21SF strain. **Histopathology:** Mice were sacrificed, sections of the myocardium and skeletal muscles embedded into paraffin and 5 micra sections stained with Hematoxylin & Eosin were obtained. **Morphometry:** Quantitative evaluation of the inflammatory infiltrates of the heart and skeletal muscle were counted using a light microscope Zeiss Axio Vision 3.1 program. **Statistical analysis:** ANOVA non-parametric and Dunnett's multiple comparative tests were applied. **Significance:** $p < 0.05$. **Results of histopathology -** An intensification of inflammatory lesions in the myocardium and skeletal muscles was demonstrated in mice with triple sequential infections with the Colombian+21SF+Y strains, when compared with mice with single chronic infection with Colombian strain, with predominance in the myocardium. **Morphometric evaluation:** 1st group (Col-SF-Y) significant increasing in the number of inflammatory cells in the myocardium ($p < 0.05$). In the skeletal muscle the increasing was not significant ($p > 0.05$). 2nd group (Col-Y-SF): significant increasing of inflammatory cells in the skeletal muscle ($p < 0.01$); in the myocardium it was not significant ($p > 0.05$). **Conclusion -** The hypothesis that multiple infections potentiate and intensify the inflammatory response, could explain the results obtained in the present study. Influence of *T. cruzi* strains that differed in its tropism and pathogenicity is evident, considering aggravation of inflammatory lesions and their predominance either in the myocardium or skeletal muscles, depending on the sequence of inoculations.