Systemic leukocyte profile and histopathological changes in the gastrointestinal tract of experimentally infected mice with *Trypanosoma cruzi* by oral route

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Chagas disease, caused by protozoan *Trypanosoma cruzi*, is endemic in almost all countries of Latin America. In Brazil, vector and transfusion transmission was controlled by epidemiological surveillance, becoming oral infection the main mechanism of transmission of the disease in the country. The gastrointestinal tract is the gateway to parasite by this route of infection, however, little is known about the involvement of these organs and the parasitological and immunopathological profile related to oral route. Based on this, the aim of this work was to evaluate systemic profile leukocyte and the histopathological changes in the gastrointestinal tract of infected mice with *T. cruzi* Berenice-78 strain in acute and chronic phases. Mice were distributed in three experimental groups: uninfected control; infected by intraperitoneal route (IR); infected by oral route (OR). The inoculum was $1x10^5$ metacyclic trypomastigote forms by gavage (OR) or intraperitoneally (IR). Mice from each group were necropsied on days 14, 21, 28, 35, 42 and 180 post infection (DPI). Parasitemia curve and survival rate were analyzed; Phenotyping of mononuclear cells (monocytes, $CD4^+$ T, $CD8^+$ T and B lymphocytes) of peripheral blood was perfomed by flow cytometry; Tissue parasitism was quantified by real-time PCR technique; Inflammatory process, using Hematoxylin & Eosin staining and collagen neoformation, using Masson's Tricromic staining. IR group showed a peak of parasitemia in 24^{th} DPI (530,754 trypomastigotes/0,1mL of blood). OR group showed a slightly higher parasitemia, also in 24^{th} DPI (628,085 trypomastigotes/01mL of blood). The survival rate of orally infected animals was 47.63% and in IR group was 87.75%. Regarding to immune response, there was a reduction in the percentage of monocytes at 14^{th} DPI in OR group whereas in IR group there were no changes in their percentages. Regarding to lymphocytes, an earlier reduction of $CD4^+$ T lymphocytes and B lymphocytes in peripheral blood was observed in OR group. Whereas $CD8^+$ T lymphocytes increased at 21^{th} DPI in both IR and OR groups. The tissue parasitism increased in OR group at 28^{th} DPI in stomach, duodenum and colon. In relation to inflammatory infiltrate, an increase at 28^{th} DPI in both infected groups was observed in stomach. In duodenum, this increase only occurred in OR group. In colon, there were no significant differences between the number of inflammatory cells throughout the infection in animals of OR group. There were no significant differences in collagen neoformation. Therefore, these data suggest that oral infection is capable of triggering a distinct parasitological, pathological and immune response profile compared to intraperitoneal route, suggesting that the route of inoculation interferes on course of *T. cruzi* infection. In addition, the present study revealed that the oral infection pathway presents a greater tissue parasitism in organs of the gastrointestinal tract evaluated during the acute phase. Therefore, these data reinforce the greater severity of the disease regarding the oral route of infection.