Parasitological and immunological evaluations in the development of visceral leishmaniasis when different infective *Leishmania infantum* inoculums are used in BALB/c mice

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Experimental vaccines to protect against visceral leishmaniasis (VL) have been developed by using BALB/c mice infected with a large (1×10^7 parasites) inoculum of *Leishmania*. Remarkably, prior literature has reported that the poor protection observed is mainly due to the high susceptibility of this strain. To determine factors inherent to mice that might abrogate vaccine-induced efficacy, the present research sought to investigate the impact of the administration of different infective inoculums of *Leishmania infantum* in BALB/c mice, evaluating subcutaneous and intravenous routes of administration as well as parasitological and immunological parameters over different periods of time. This study shows that the injection of a highly infective inoculum in mice, through both subcutaneous and intravenous routes, results in a sustained infection. The mice developed a high parasite load in the liver; however, these values diminished over time. This result did not corroborate with the parasite load in the bone marrow and brain, and proved to be expressively different in the spleen and draining lymph nodes, where the values increased over time. Mice infected with a low dose of parasites (10^3) showed a certain resistance against infection, based mainly on the IFN-γ and oxide nitric production. Considering all the elements, it could be concluded that the models employing high doses (10^7) of *L. infantum* in BALB/c mice can bring about an imbalance in the animals' immune response, thus allowing for the development of the disease at the expense of efficacy within the vaccine candidates.

Keywords: kinetics; infection; BALB/c mice; *Leishmania infantum*.

Financial Support: Programa de Pós-Graduação em Ciências da Saúde: Infectologia e Medicina Tropical, Faculdade de Medicina, UFMG. FAPEMIG. CAPES. CNPq.