Humoral tolerance to *Trypanosoma cruzi* antigens in congenitally infected mice

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Chagas disease is a major endemic disease in Latin America caused by the protozoan *Trypanosoma cruzi*. The main route for *T. cruzi* transmission is by parasite-containing excreta of blood-sucking insects, however, immigration facilitated world spreading of the disease and other routes, as congenital transmission, acquired greater importance in non-endemic countries. It is known that intrauterine exposure to parasite antigens may induce tolerance or anergy of the progeny to these antigens. Offsprings born to chagasic mothers present decreased resistance to acquired *T. cruzi* infection, showing higher levels of parasitaemia and higher mortality. To investigate this hypothesis, we evaluated 48 mice born to *T. cruzi* infected mothers by serologic tests and qPCR. Twelve animals from progeny (25%) had positive qPCR results, but yielded negative results in serological tests. The challenge immunization with 10^3 trypomastigotes were performed in these offspring mice and resulted in seroconversion of only five animals (41,7%), suggesting the development of humoral tolerance to *T. cruzi* antigens by the other seven littermates (58,3%). Cytokine profile analysis showed higher serum levels of IL-4 and IL-10 among the animals that have seroconverted with no variation in concentration of these cytokines after challenge. qPCR showed that challenge group animals that did not undergo seroconversion had greater difficult to fight infection with higher parasite load. In conclusion, our results show the absence of *T. cruzi* specific antibodies in the progeny exposed to parasite antigens during intrauterine development and point to the fact that diagnosis of congenital Chagas disease carried out mainly by serological tests may have substantial limitations. We suggest PCR as complementary tests with great value for identifying tolerized newborns.