Participation of Tryptophan in the infection of human placental explants by *Trypanosoma cruzi*

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The infection by *T. cruzi* induces a complex immune response that involves effectors and regulatory mechanisms such as indoleamine 2,3-dioxigenase. The physiological importance of tryptophan metabolism in the human placenta is that indoleamine 2,3-dioxigenase enzyme participates in regulating feto-maternal immunology tolerance, hence in placenta is crucial in the prevention of immunologic rejection of the fetal allograft. Aim: To analyze the participation of tryptophan in the infection of human placental chorionic villi by *T. cruzi*, in-vitro. Methods: Women have signed informed consents. Chorionic villi explants of human placentas (n=4) were treated with different concentrations (medium, 10mg, 20mg and 40mg) of L-tryptophan and D-tryptophan (as control), for 3hs and/or infected for 24hs with 150.000 and 1.000.000 trypomastigotes Tulahuen strain of *T. cruzi*, then culture media were changed. Placental explants and their respective culture media were analyzed at 72hs using Student t test, ANOVA and correlation analysis (r). Results: According to PCR and microscopical analysis, all explants were positive to infection by *T. cruzi*, but with different parasite charge determined by qPCR. Indoleamine 2,3-dioxigenase modified its expression at 3hs, but there were not significantly differences respect to controls in the subsequent times of cultures ($p>0,05$), according to western blot and indirect ELISA. Parasite viability was quantified in culture media at 72 hs of cultures with decreased viability respect to controls ($p<0.05$). Conclusion: Different concentrations of tryptophan at the beginning of the invasion of chorionic villi by *T. cruzi* do not avoid the infection of placental explants. However, tryptophan-indoleamine 2,3-dioxigenase system would participate limiting the sustained infection in the placental tissue according to qPCR data. These results could explain, at least in part, the low incidence of congenital Chagas transmission.

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