Correlation between IDO expression and the mast cell counting in uterus/embryo of female C57BL/6 WT and MIF$^{-/-}$ infected with *Toxoplasma gondii*

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Toxoplasma gondii is an obligate intracellular parasite that belongs to phylum Apicomplexa and can infect a variety of cell types. *T. gondii* presents high seroprevalence, being asymptomatic in imunocompetentes individuals. However, several manifestations of the disease can occur in immunocompromised individuals. Pregnant represents other group of risk for toxoplasmosis; if infection occurs during pregnancy it could result in trans-placental infection and abortion. Indoleamine-2,3-dioxygenase (IDO) has been proposed as an important catabolizer for the aminoacid tryptophan which plays an important role in suppression of T-cell proliferation and therefore important to undertaken the gestational success. The main role of this study was to correlate IDO expression and counting of mast cell (MC) in the uteri of pregnant female infected with *T. gondii*. For IDO quantification, 100μg of total protein from uteri of the pregnant C57BL/6 MIF$^{-/-}$ and C57BL/6 WT was included to 10% polycrylamide gel and transferred to PVDF membranes. The membranes were incubated with goat anti-IDO antibody or with rabbit anti-β-actin. Membranes were incubated with secondary antibody conjugated with peroxidase. Densitometric analysis and membrane documentation were performed in transluminator Chemi Doc-MP System. Data were presented as the relative density of the bands obtained by the ratio between protein of interest and β-actin bands. The MC counting was obtained through of the capture of two uteri slides from each experimental group and analyzed by Kruskall test and multiple comparisons post-test of Dunn. Our results demonstrated pregnant C57BL/6 MIF$^{-/-}$ females infected or non-infected presented significant up-regulation in IDO expression if compared with C57BL/6 WT. Concerning MC counting, our results revealed that pregnant C57BL/6 MIF$^{-/-}$ females infected or not by *T. gondii*, presented higher amount of mast cells if compared with pregnant C57BL/6 WT females. The correlation analysis between IDO and MC counting in pregnant females demonstrated strong positive correlation between these data. These findings of correlation between IDO and MC in the maternal-fetal interface can support the participation of MC in Treg activation and consequent development of tolerance to allogeneic foetus. Thus, significant differences between data from WT and MIF$^{-/-}$ show that MIF can be a key cytokine in the activity of IDO and mast cell down-regulation, which may be associated with gestational lost and abortion in C57BL/6 WT due to *T. gondii* infection.

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