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Distinct features of uterine and circulating gamma/delta T cells during first trimester healthy human pregnancy

Introduction: During the 1st trimester of healthy human pregnancy there is an alteration of immune parameters in the pregnant uterus. At that time peripheral blood characteristics serve as an appropriate control of decidual immunotolerance. While our knowledge on NK cell function during gestation improves continuously, the mystery of the role of gamma/delta T cells in pregnant uterus or in peripheral blood of pregnant women is not completely solved. Here we are going to compare some phenotypic characters of decidual and peripheral gamma/delta T cells during the first trimester of healthy human pregnancy.

Methods: Peripheral and decidual lymphocytes from healthy pregnant women undergoing elective pregnancy termination at 6-12 weeks gestation were used in this study. We detected the presence of peripheral and decidual Vdelta1+ and Vdelta2+ gamma/delta T cell populations and their CTLA4 expression by Flow Cytometry. CTLA4 is a cell surface molecule and recent results indicate that it is a powerful negative regulator of T cell activation. We also investigated the co-expression of different CD markers (CD56, CD4, CD8) on the different gamma/delta T cell populations.

Results: Our results revealed an increased proportion of gamma/delta T cells among lymphocytes in the decidua, which are dominantly Vdelta1+. In our hands, decidual gamma/delta T cells preferentially express CTLA4. Among decidual Vdelta2+ T cells we detected a significant increase in CTLA4 expression compared to periphery, while no differences were found in the case of Vdelta1+ T population. Moreover, decidual gamma/delta T cells show a decreased CD4 or CD8 and an increased CD56 co-expression. In the decidua, in contrast to CD56+ gamma/delta T lymphocytes, CD4+ and CD8+ gamma/delta T cells preferentially express CTLA4 molecule.

Conclusion: Increased CTLA4 expression by decidual Vdelta2+ T cells could play a part in the control of these potentially cytotoxic lymphocytes. Our results show that decidual gamma/delta T cells form a unique cell population which differs from their peripheral counterpart, indicating that decidual gamma/delta T cells are able to play a role in the maintenance of pregnancy.

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