Disturbance of NKT cells subpopulation in endometriosis

Abstract ID : 1710
Soumis par : Karina Carvalho Le 2016-03-15 13:10:37
Nom de la catégorie : SEUD CONGRESS
Typologie : Communication orale / Oral communication
Statut : validé
Autorisation de diffusion : Yes/Oui

Endometriosis, the presence of endometrial-like tissue outside the uterus, is a disease associated with pelvic pain and infertility. The pathogenesis still unknown, however several studies suggest that changes in immune response will be important for understanding the pathogenesis. Natural killer T cells (NKT cells) have important role in infectious disease, allergy, autoimmunity and tumor surveillance. NKT cells differentially express several cell surface antigens used to define conventional T cell subsets and respond to lipid ligands through CD1d restriction. These subpopulations of NKT cells from the blood, CD8+, CD4+, CD4+CD8+(DP) and CD4-CD8- (DN) were diverse in their expression of antigens and cytokines. In this study, we evaluated NKT cells in the context of patients with deep endometriosis (n=21), rectosigmoid/ovarian endometriosis (n=14) and without endometriosis. Flow cytometric assay were performed on Peripheral Blood and the peritoneal fluid. We demonstrated that rectosigmoid/ovarian endometriosis patients have significantly lower in NKT cell frequencies (median 0.03%) in the peripheral blood when compared to individuals without endometriosis (median 0.1%) or deep endometriosis (median 0.1%), p=0.018. In other hand, when we analyzed the subpopulation of NKT cells CD4+CCR7+ observed that rectosigmoid/ovarian endometriosis patients have significantly higher frequencies (median 50%) in the peripheral blood when compared to individuals without endometriosis (median 34%) or deep endometriosis (median 0%), p=0.027. Otherwise, no significant differences were observed in total of NKT cells in the peritoneal fluid. But, the rectosigmoid/ovarian endometriosis patients have significantly higher frequencies (median 54.5%) in the peripheral blood when compared to individuals without endometriosis (median 0%) or deep endometriosis (median 1.13%), p=0.019. We were especially interested to determine the extent of heterogeneity NKT cells subpopulation in peripheral blood and peritoneal fluid. We found a diverse expression of antigens in the NKT cells between blood and peritoneal fluid. However, these results suggest that the rectosigmoid/ovarian endometriosis patients have higher activation and migration receptors in blood and fluid. These patients could have a different release of cytokines by NKT cells. More investigations are needed to define the functional diversity in the blood, fluid and tissue of endometriosis patients.

Mots clefs : NKT cell; rectosigmoid/ovarian endometriosis; deep endometriosis; innate immune
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