Implantation can only take place in a receptive uterus. In humans, the uterus becomes receptive during the mid-secretory phase of the menstrual cycle, commonly known as the window of implantation. Several efforts have been made to find the best way to evaluate the endometrial receptivity and improve the outcome of assisted reproductive technology. The endometrial immune profile focuses on the IL-15 and IL-10 environment during the window of implantation. In the mid-luteal phase, endometrial and thrombo-embolic endometrial cells secrete IL-15, TNF-α, IL-18, and TWEAK at specific levels. Increased IL-15 allows the recruitment and activation of uNK cells, whereas IL-15 and mature uNK cells secrete IL-18 that can help to maintain a proangiogenic and Th2 cytokine production and lead to a predominantly Th2 balance. This equilibrium promotes immunotrophism and angiogenesis, while inhibiting inflammatory and cytotoxic pathways. According to a previous study the endometrial immune profile is established by a step-by-step procedure that considering the IL-15/10/TWEAK mRNA ratio (reflecting local angiogenesis and possibly a Th1 deviation), then the CD56+ cell count (reflecting uNK cell mobilization), and finally the IL-18 and IL-10 mRNA ratio (predictive of uNK cell reactivation and IL-18 cytokines activation). This study reported that the Endometrial profile was dysregulated in 41.7% of the RIF patients compared to controls; over activation was disproved in 44.6% and low activation in 25%. We previously reported that an abnormal increase in peripheral blood NK levels, cytokines imbalance, and TNF weak inducer of apoptosis (TWEAK) were analyzed by quantitative RT-PCR. The collected endometrial tissue was used for routine pathology evaluation and endometrial analysis. mRNA was extracted from the endometrial tissue and converted into cDNA. IL-15, IL-10, fibroblast growth factor-inducible 14 (FGF14) and TIMP weak inducer of apoptosis (TWEAK) were analyzed by quantitative RT-PCR. In addition, peripheral blood immunophenotype, NK cytotoxicity, and intracellular cytokine expression were analyzed by flow cytometry.

**RESULTS**

**Figure 1. Endometrial Immune Profile**

**Figure 2. Endometrial Immune Profile among the groups**

**Figure 3. Association between endometrial immune profile and peripheral blood immune profile**

**Figure 4. Conception cycle outcome**

**Figure 5. Association between reproductive failure and conception cycle outcome**

**Figure 6. Association between cycle types and conception cycle outcome**

**Figure 7. Association between over-immune endometrial activation and conception cycle outcome**

**Figure 8. Association between low-immune endometrial activation and conception cycle outcome**

**Figure 9. Association between endometrial immune profile and conception cycle outcome**

**Figure 10. Association between peripheral blood immune profile and conception cycle outcome**

**CONCLUSIONS**

Dysregulated endometrial immune profile is associated with infertility, RPL, and RIF. The endometrial gene expression is not correlated with the peripheral blood immune profile therefore we speculate the endometrial gene expression study may detect local dysregulated endometrial immune responses. Lower peripheral blood NK cytotoxicity levels are associated with successful conception cycles. The pregnancy rate after the personalized immune treatment of over active endometrial immune profile is similar to that of women with normal endometrial immune profile. Further study is needed for the therapeutic modality of low peripheral blood immune profile.