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Oral Presentations

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Endometrial scratching affects gene expression of *NLRP3* in patients with unexplained repeated implantation failure: A randomized control trial

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Background: Alternative strategies have been used to augment success rate of implantation in IVF/ICSI cycles in unexplained repeated implantation failure patients. Endometrial scratching is one of these procedures. It seems scratching can affect *NLRP3* gene expression which has an important role on receptivity of endometrium. *NLRP3* is an intracellular sensor that detects a broad range of harmful sterile or infectious stimuli, resulting in the formation and activation of the *NLRP3* inflammasome

Objective: In the present study, we investigated whether gene expression of *NLRP3* (*NOD*-, *LRR*- and *pyrin domain-containing protein 3*) is affected by endometrial injury during proliferative phase of menstrual cycle before embryo transfer.

Materials and Methods: Twenty women with unexplained repeated implantation failure who failed to conceive during three or more IVF/ICSI cycles and embryo transfer were selected. The patients randomly classified into two study groups (N = 10 in each group). In the intervention group (not in the control group), endometrial scratching was done on day 9-13 in the proliferative phase of the preceding menstrual cycle. Then, endometrial biopsies of the intervention and control groups were performed in the luteal phase (on 19-21 day). The RNA of all samples was extracted and cDNA synthesis was performed. The expression of *NLRP3* was quantified by quantitative real-time PCR.

Results: *NLRP3* gene expression from all samples was investigated. Relative expression of *NLRP3* was lower in the intervention samples compared to the controls.

Conclusion: The inflammasome components are suggested as a novel family of endometrial biomarkers. This result is in consistent with other studies that showed dysregulated inflammasome activation has involved in the disruption of maternal-fetal immune-tolerance and in pregnancy complications.

Key words: Endometrial scratching, *NLRP3*, Unexplained repeated implantation failure.