

9th Yazd International Congress and Student Award on Reproductive Medicine with 4th Congress of Reproductive Genetics

Oral Presentations

O-26

Alternation of interleukins expression from fallopian tube epithelial cells after co-incubation with spermatozoa

Mohammadi R¹, Mousavi SO¹, Sabbaghian M², Zandieh Z³, Maadani T¹, Aflatoonian R¹.

1. Department of Endocrinology and Female Infertility, Reproductive Biomedicine Research Center, Royan Institute for Reproductive Biomedicine, ACECR, Tehran, Iran.

2. Department of Andrology, Reproductive Biomedicine Research Center, Royan Institute for Reproductive Biomedicine, ACECR, Tehran, Iran.

3. Shahid Akbarabadi Clinical Research Development Unit (ShACRDU), Iran University of Medical Science, Tehran, Iran.

Email: r.aflatoonian@gmail.com

Background: Fallopian tubes are important places in which spermatozoa are saved until fertilization with oocytes occurs. The immune system in the reproductive tract has an important role in overcoming pathogens while preparing a safe environment for allogenic spermatozoa. Interleukins are among the most important variables of the immune system which provide effective response in normal and pathological conditions. Therefore, many scientists are interested in better understanding of the role of interleukins in reproductive immunology.

Objective: The aim of this investigation was to find out more details about the role of interleukins in the interaction between spermatozoa and fallopian tube epithelial cells. Therefore, the expression of different interleukins from the fallopian tube cell line (OE-E6/E7) which had co-incubated with spermatozoa was

investigated by PCR array.

Materials and Methods: We collected sperm samples from 10 healthy men. All samples were checked to ensure they have normal features according to WHO guidelines. Simultaneously, we cultured epithelial cell line in 6-well plates and incubated until 70% of each well was covered by the epithelial cells. Cells without spermatozoa were analyzed as the control group. The cells and the spermatozoa were co-cultured for 24 hr. Then, the cells were washed and followed by RNA extraction and cDNA synthesis. PCR array was performed to evaluate the transcriptomic changes of different interleukins. To confirm our results, the concentrations of IL-10 and IL-1 β were also analyzed by ELISA.

Results: The results of our investigation indicated that the expression of some interleukins in the vicinity of sperm significantly changes. It has been shown that anti-inflammatory interleukins including IL-9 ($p = 0.02$) and IL-10 ($p \leq 0.01$) from fallopian tube epithelial cells were significantly upregulated in the presence of spermatozoa. However, the expression of pro inflammatory interleukins such as IL-16, IL-17, IL-1A, and IL-1B was significantly ($p < 0.05$) lower in the case group than the control group. Moreover, the concentration of IL-10 in the case group was higher than the control. Although, the concentration of IL-1B in the case group was lower than the controls.

Conclusion: This study indicates that spermatozoa modulate the expression of interleukins from OE-E6/E7. Moreover, altered genes expression might have increasing survival chance of spermatozoa in fallopian tubes' microenvironment.

Key words: Fallopian tube, Spermatozoa, Interleukins, PCR array.