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

Poster Presentations

P-80

Evaluation of the *ALX1* and *PDHX* genes expression in endometriotic tissues of women with endometriosis in comparison with the normal endometrium

Sarshomar S[1, 2], Chitsazian F[2], Ghaffari F[3], Shahhoseini M[2, 4].

1. *Department of Basic Sciences and New Biological Technologies, Science and Culture University, Tehran, Iran.*
2. *Department of Genetics, Reproductive Biomedicine Research Center, Royan Institute for Reproductive Biomedicine, ACECR, Tehran, Iran.*
3. *Department of Endocrinology and Female Infertility, Reproductive Biomedicine Research Center, Royan Institute for Reproductive Biomedicine, ACECR, Tehran, Iran.*
4. *Reproductive Epidemiology Research Center, Royan Institute for Reproductive Biomedicine, ACECR, Tehran, Iran.*

Email: m.shahhoseini@royaninstitute.org

Background: Endometriosis (EMs) is a benign, estrogen-dependent disease and the leading cause of infertility in women of reproductive age. This disease is characterized by the presence of endometrial glandular tissue and stroma outside the uterus. EMs is considered as a multifactor disease affected by genetic, hormonal and environmental factors. Among genetic factors, aristaless-like homeobox1 (*ALX1*) and pyruvate dehydrogenase protein X (*PDHX*) genes are considered in this study. Studies show that upregulation of the *ALX1* gene cause cell proliferation, migration, and invasion in cancer cells. *PDHX* is involved in cellular metabolism and acts as a tumor suppressor gene while maintaining normal homeostasis. Till now, the specific roles of the *ALX1* and *PDHX* in EMs remain unclear.

Objective: In this study, we investigated the expression of the *ALX1* and *PDHX* in endometriotic tissues of women with EMs in comparison to control endometrial samples.

Materials and Methods: In this case control study, ten eutopic and ectopic endometrium tissues (EMs group) as well as ten normal endometrium (as a control group) were collected. Ectopic biopsies were obtained using diagnostic laparoscopy, while the endometrial control samples and eutopic samples were collected via pipelle. RNA extraction and cDNA synthesis were done then the expression of *ALX1* and *PDHX* genes evaluated by quantitative real-time polymerase chain reaction, using designed primers for the candidate gene. Data analysis performed using One-way ANOVA analysis (SPSS software) considered the significant level of $p < 0.05$.

Results: Results showed a significant decrease in the expression levels of the *ALX1* in eutopic endometrial samples from patients compared to normal endometrium ($p = 0.007$). Although the expression of *ALX1* increased in ectopic endometrium tissues of women with endometriosis compared with eutopic endometrium tissues, this increase was not statistically significant ($p > 0.05$). However, *PDHX* mRNA expression in both eutopic and ectopic groups was significantly reduced than in the control group ($p = 0.017$ and $p = 0.021$, respectively), although the *PDHX* mRNA decrease was not statistically significant between the endometriosis group ($p > 0.05$).

Conclusion: It is suggested that deregulation of *ALX1* and *PDHX* genes could be involved in the pathogenesis of endometriosis.

Key words: *Endometriosis, ALX1, PDHX, Gene expression.*