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

Poster Presentations

P-81

Cannabinoid receptor type-1 (*CB1*) and its correlation with *CB1* gene polymorphism-1359G/A in ectopic pregnancy compared to the control group

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Background: Ectopic pregnancy (EP) is one of the most important causes of maternal mortality. Novel information could help to identify the signaling pathway and mechanism of fetal transfer disruption and its potential use in the diagnosis and prevention of this disorder.

Objective: This study aimed to evaluate the immunohistochemical expression of the cannabinoid receptor type 1 (CB1) and its association with *CB1 -1359G/A* gene polymorphism (rs1049353) in the fallopian tubes in EP compared to controls.

Materials and Methods: In this case control study, 100 women with EP (cases) and 100 women that underwent abdominal surgery due to the hysterectomy or uterine tubal ligation (healthy controls) were included. Genotyping of CB1-1359G/A polymorphism, tissue expression of CB1 at the protein and mRNA levels were studied using restriction fragment polymorphism, immunohistochemical (IHC) method, and quantitative real-time polymerase chain reaction (qRT-PCR) analysis.

Results: Genotyping showed that in EP, the frequency of AA, AA+AG genotypes, and A allele was significantly higher than healthy control subjects ($p = 0.001$). Also, patients with EP had significantly increased IHC expression of CB-1 compared to the control samples ($p = 0.016$). Patients with AA and AG genotypes had a significantly higher IHC expression of CB-1 compared to the GG genotype. Quantitative real-time PCR analysis showed that patients with EP had significantly increased expression of CB-1 compared to the control samples ($p < 0.001$). Patients with AA and AG genotypes had higher significant mRNA expression of CB-1 compared to the GG genotype.

Conclusion: Based on molecular and cellular analysis of CB1, the frequency of an allele and expression of CB1 were higher in patients with ectopic tubal pregnancy. Identifying the causes of the EP is essential to find effective methods of prevention and treatment of EP. CB1 is likely to be effective in creating innate immunity in humans and can affect the process of EP in the fallopian tube. CB1 is also a pathological valuable factor in identifying the pathway of inflammation during ectopic implantation. However, it is not possible to claim that a single SNP could be the only cause of the EP. In other words, EP is a polygenic disease, but the possible effects of these genetic changes in EP remain unknown. More investigations are required to introduce a risk prediction tool for susceptibility to EP.

Key words: *Cannabinoid receptor type-1, Ectopic pregnancy, Polymorphism, Immunohistochemistry.*

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