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Oral Presentations

O-51
GM3-synthase (*hST3Gal V*) gene expression in endometriotic tissues

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Background: Endometriosis is a gynecological disease, affects 10%-15% of women in their reproductive ages under the influence of hormonal, genetic, epigenetic, and environmental factors. According to Sampson's theory, endometrial cells are implanted and proliferated outside the uterine cavity, attacking the pelvic structures and causing chronic inflammation. Hence endometriosis can be considered benign cancer. Changes in the cell surface glycosylation is a common phenotype observed during cell differentiation, tissue development cancers, and oncogenesis, a key feature associated with the potentiality of cancer cells for metastasis and invasion. Studies are indicative of changes in the expression of the human ST3 beta-galactoside alpha-2,3-sialyltransferase 5 *(hST3Gal V)* gene, which encodes the GM3 synthase enzyme (the producer of the GM3 ganglioside).

Objective: In this study, we examined changes of *hST3gal V* gene expression in ectopic and eutopic endometrial tissues of women with endometriosis compared with the control group.

Materials and Methods: Samples were collected from 20 women with endometriosis (10 eutopic and 10 ectopic samples) and also 10 normal endometrium samples were enrolled as the control group. Ectopic biopsies were obtained with the use of the laparoscopic procedure, eutopic and control biopsies were obtained with the use of pipelle. RNA extraction and cDNA synthesis were performed for all samples and then gene expression levels were measured by real time-PCR, using designed primers for *hST3Gal V* and also *GAPDH* as the housekeeping gene. Data analysis performed using One-way ANOVA as the statical method. Values were expressed as mean ± SEM and the results were considered significant at the level of $p < 0.05$.

Results: Results showed that the *hST3Gal V* gene expression was reduced in eutopic samples than control group ($p = 0.538$) gene and *hST3Gal V* gene expression in ectopic samples was reduced than both eutopic and control groups ($p = 0.696$ and $p = 0.153$, respectively).

Conclusion: Results shows a decrease in the gene expression profile of *hST3Gal V* in endometriotic samples. Since GM3 ganglioside is a substrate for the extension and branching of other gangliosides, it seems that the lower expression of the *hST3Gal V* gene can be involved in the etiology of the disease. This study is limited by the number of samples in each group. Further studies with larger samples numbers can provide more accurate results in this regard.

Key words: *Endometriosis, hST3Gal V, Gm3 Synthase, Ganglioside, Gene expression.*