Role of matrix metalloproteinases and their tissue inhibitors in spread of endometriosis

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Objective: to determine molecular and biological features of various forms of endometriosis by character of expression of matrix metalloproteinases-2 and 9 (MMP-2, MMP-9) and tissue inhibitors 1 and 2 (TIMP-1, TIMP-2).
Materials and methods: 69 women have been examined: patients with various forms of endometriosis (the main group, n = 46) which have been subdivided into 3 subgroups: 1a subgroup (n=15) with superficial forms of external genital endometriosis; 1b subgroup (n=15) with endometrioid cysts; 1c subgroup (n=12) of patients with deep infiltrative endometriosis. The women of reproductive age (control group n=23) who have come for planned expeditious treatment apropos not endometriosis - associated pathology. Average age was of 36,8 ±8,5 years, varied from 18 to 60 years. The immune histochemical research has been executed on operational and biopsy material. As primary specific antibodies have been used monoclonal antibodies to the examined markers. System of detection "Ultra Vision LP Value HRP Polymer" (Lab Vision, the USA) has been applied.
Results: The content of MMP2 in eutopic endometrium is reliably ($p<0,01$) higher in group of control (0,57±0,31), than in groups with endometriosis. The MMP-2 level in the endometrioid center is higher in subgroup 1b (0,33±0,19), than in subgroup 1a (0,12± 0,05) and 1c (0,28±0,13). The MMR-9 level in eutopic endometrium of control group is significantly higher, than in groups with endometriosis. But in the centers of MMR-9 expression the leader is the group of endometrioid cysts ($p<0,05$).
The TIMP1 level in native endometrium didn't differ significantly in groups, the lowered expression in group 1a (superficial endometriosis) has been noted. The content of TIMP1 in the endometrioid centers is higher in subgroup 1b (0,73±0,57) that is statistically higher in comparison with subgroup 1a (0,13±0,72) and subgroup 1c (0,22±0,19) which can tell about activization of expression of TIMP in response to the increased synthesis of metalloproteinases in the same centers. The TIMP-2 level in eutopic endometrium in our research is reduced without reliable distinctions in subgroup 1b (0,17± 0,23), and in subgroup 1c (0,23± 0,14) and 1b (0,2 6±0,2). However in the endometrioid centers substantial increase of the TIMP 2 level is expressed in subgroup 1b (0,54±0,28).
Conclusions: Tissue proteolysis,which is carried out by enzymes from family of matrix metalloproteinases and their tissue inhibitors, is the key system providing invasion of heterotopia and spread of endometriosis.

Keywords : of expression of matrix metalloproteinases-2 and 9 (MMP-2, MMP-9) and tissue inhibitors 1 and 2 (TIMP-1, TIMP-2),endometriosis
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