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P15. The role of GABA neurotransmitter in the regulation of the endocervical mucus secretion

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Introduction: Infertility is an omnipresent problem of today's society. A significant, but in the research and treatment of infertility often overlooked factor of the women fertility is the uterine cervix. Cervical mucus plays an important role in fertility because it nourishes and keeps the sperms and guides them through the cervix and into the uterus. The mechanism of the regulation of the mucus production and release in the endocervical glands and the consequential change of the mucus properties during menstrual cycle is only partially explored. It is assumed that, besides estrogen and progesterone, neurotransmitter GABA also has a role in this regulation.
Materials and methods: The research was performed on the samples of the healthy human uterine cervix obtained after therapeutic operative procedures (hysterectomy). The cervical tissues were analysed by immunohistochemistry and histology. The groups of samples were defined according to the phase of the cycle. Percentage of the samples immunopositive to GABA R was calculated for each group of samples and compared graphically.
Results: Histological structure and secretory activity of the endocervical glands was analyzed and immunohistochemical detection and localization of the molecules supposed to be involved in the GABA pathway of mucus secretion regulation was performed. All 38 tissue samples were immunohistochemically analyzed for the presence of GABA R (GABAa receptor). 9 out of the 38 cervices showed to be GABA R immunopositive. The percentage of GABA R immunopositive samples did not notably vary among different groups of samples, but indicated a trend that the GABA R is highly expressed in proliferative phase than in secretion phase. The GABA R positive samples were then immunohistochemically analyzed for the presence of other molecules involved in the GABA pathway , GAD and VGAT. All of them showed to be immunonegative GABA, GAD and VGAT.
Discussion:The results prove existence of GABA receptor in the endocervical secretory epithelium. So far we cannot put the GABA R expression in relation to the phase of menstrual cycle. The preliminary results of the immunohistichemical analysis showing absence of other components of the GABA secretion pathway in the cervical tissue should be confirmed.

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