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HORMONAL HOMEOSTASIS IN REPRODUCTIVE AGE WOMEN WITH ADENOMYOSIS AND ENDOMETRIAL HYPERPLASIA

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Adenomyosis (A) and Endometrial Hyperplasia (EH) are at the forefront of the gynecological morbidity system and are marked by a growing trend. Considering the Patients under reproductive age, these pathological conditions play a significant role as they lead to violation of normal menstrual & generative function [2, 4]. According to the literature available upon diseases in patients of reproductive age, adenomyosis is encountered as the prevailing pathological conditions with the higher incidence of 80%, Genital endometriosis from 12% to 50%, and hyperplastic processes of the endometrium ranging from 10% to 30%. Adenomyosis occupies 53-80% in endometyosis structure [1, 5].

A and EH are not secluded diseases and rarely occur in isolation. The common denominator between A and EH is the Hormonal homoeostasis violation, existing in both of the mentioned pathological condition. The development of this pathology is due to the imbalance in the endocrine system of the women. The features of the hormonal state in A, EH and Combined Endo & Myometrial pathology as per the literature are quiet contradictory [6].

The advance principles of management of A along with hyperplastic processes of the endometrium foremost comprises the hormone balance treatment. In such patients, Hormonal therapy acquires the leading place in case of conservative treatment & also requires a detailed thorough examination of the Hypothalamic-Pituitaty-Ovarian system. In addition, the choice of therapeutic tactics counts upon the patients individuals need and differentiated approach depending upon patients age, clinical manifestation, prevalence of pathological process, duration of the disease, women's interest in the performance of reproductive function & as well as in the presence of extra-genital pathology [3].

The aim of research was to study the condition of Hypothalamic-Pituitary-Ovarian System of women under the reproductive age undergoing adenomyosis coexisting with endometrial hyperplastic processes.

Materials and methods of research. To conduct the study & achieve the goal, 2 groups were formed. The main Group, comprising of 120 women of reproductive age with benign endo & myometrial pathology (adenomyosis, endometrial hyperplasia and combined pathology) & the Control Group comprising of 40 gynecologically healthy

women. The functional state of the Hypothalamic-Pituitary-Ovarian System was assessed according to the parameters of Follicle Stimulating Hormome (FSH), Lutenizing Hormone (LH), Prolactin (PRL), Estradiol (E2) and Progesterone (P) during follicular phase, periovulatory period & Leutal Phase of the menstrual cycle. Evaluation of thyroid activity was determined by the level of thyroid-stimulating hormone (TSH) and free fraction of thyroxine (T4). The alteration in the level of hormones depending on the clinical form were evaluated, analysed & compared with the indicators of the Control Group.

Research results and their discussion. The acquired result of the hormonal evaluation of women of the main group (under benign uterine pathology) demonstrated significant alteration in gonadotropic function of the pituitary gland & Steroidogenesis of the gonads. The level of FSH was cyclically changed during menstrual cycle in patients with benign pathology of the endo & myometrial hyperplasia as in healthy women, but seen substantially exceeding the indicators of the Control Group. The average level of FSH in women with A was 1,4 times higher than the average level of hormone in healthy women, with EH – 2,0 (The main group - 10,37±1,57 mcg/l, control group – 5,32±1,12 mcg/l; $p<0,05$). With combined pathology A+EH – 2,2 times (The main group - 13,99±3,5 mcg/l, control group – 5,32±1,12 mcg/l; $p<0,05$) and was at A - (8,26±1,05 mcg/l), with EH - (12,97 ± 1,48 mcg/l), with A+EH - (13,14±1,05 mcg/l) ($p<0,05$).

LH indicators were represented by a marked violation of rhythm and the level of cyclic and basal secretion. The average level of basal secretion of LH in women with benign uterine pathology exceeded the indicators of healthy women by 2,2 times. In patients with adenomyosis-1,7 times higher than the control indicators, with EH and A with endometrial hyperplasia by 2,5 times and 2.3 times, respectively. The increase in LH content was seen in both phases of the menstrual cycle, but most prominently was noted in phase I, the level of lutropin exceeded the level of LH in healthy women by 5 times and amounted to 12,30 ± 0,48 μg/l. In addition to the ovulatory peak in the secretion of LH in patients with benign uterine pathology, additional peaks were observed-lutropin emissions in both I and II phases of the menstrual cycle, exceeding the ovulatory indicators of the hormone content. The concentration of LH increased in all clinical groups of women with benign uterine pathology in the 1st and 2nd phase of the menstrual cycle and was most prominent in women with endometrial hyperplasia and adenomyosis with endometrial hyperplasia.

In patients under the main group, hyperprolactinemia was found with an elevation in the average level of PRL (560,22±30,46 microns/ml) by 1,9 times from the control group ($p<0,05$). In the dynamics of the menstrual cycle, the level of PRL was at peak in the phase and 2,8 times higher than the control group. Prominent disorders of prolactin-secreted pituitary function in patients with benign uterine pathology causes shifts in the regulation of ovarian function, which explains the high percentage of infertility in this category of women. There were no statistically significant differences in the secretion of PRL depending on the clinical group of patients. Violation of the production of PRL in the case of A, EH and A+EH associated with a violation of hormonal receptor relationships in the affected uterus.

The functional state of the ovaries of women of reproductive age with endometrial and myometrial pathology was also examined, with results signifying marked elevation in the level of estradiol (E2) in both 1st and 2nd phase of the menstrual cycle as compared with the Control group ($p<0,05$). The average E2 content in patients of the main group was 1,9 times higher than in health women and amounted to 1,10±0,02 nmol/l ($p<0,05$). During the menstrual cycle, not just the significant elevation in the average concentration of E2 was found, but also violation of the dynamics of the hormone level was seen. In the 1st phase of the menstrual cycle in the case of adenomyosis, the level of E2 was 3 times higher than the control group and amounted to 0,88±0,05 nmol/L. In the peak of ovulation in patients with A, as in healthy women, the content of E2 increased, but the hormonal peak in comparison with the content of E2 in the 1st phase of the menstrual cycle was less pronounced and increased only 1,3 times than in the control group – 3,2 times. The average level of E2 during ovulation in patients with A was 1,14±0,08 nmol/l, which is 1,2 times higher than the level of this hormone in healthy women. In the luteal phase of the menstrual cycle, the content of E2 decreased, but hyperestrogenemia persisted: the level of estrodiol was 1,7 times higher than the level of the hormone of the control group and amounted to 0,76±0,07 nmol/l.

In EH and A coexisting with endometrial hyperplasia, hyperestrogenemia was found to be more prominent in comparision to adenomyosis. The most elevated average level of E2 in both phases of the menstrual cycle was seen in women with coexisting uterine pathology and were in phase 0,99±0,06 nmol/l, in the ovulatory period – 1,58±0,02, in phase 2. The average concentration of E2 in adenomyosis with coexisting endometrial hyperplasia was 2,2 times higher as compared to the women of the control group.

Also was detected that the average content of progesterone in women with benign endo and myometrial pathology (7,5±0,57nmol/l which tends to be 1,6 times lower than that of women under the control group. Though in the dynamics of menstrual cycle, P secretion had the following characterstic: In phase, progesterone level in patients with A did not show significant variation as compared to the control group, thus expected hypoprogesteroneemia wasn't seen. On the other hand, the average concentration of the hormones (2,15±0.16 nmol/l) which was 1,2 times higher than the average benchmark. Through out the menstrual cycle, the P level in the main study group sustained the regularities of the rhythm of hormones secretion characteristic of a health women - The level of P elevated in the ovulatory peak and remarkably higher in the leutal phase. Though the degree of elevation in P in benign uterine pathology did not correspond to the increase of P in healthy women and was found much lower. The average content of P while ovulation among patients of the main group was lower than the indicators of the control group by 2,7 times, where as in the leutal phase by 1,5 times which was 3,42±0,16nmol/l and 17,17±0,41 nmol/l, respectively.

The thyroid gland function was also accessed among women of the main group as well as the Control Group. Indicators of thyroid stimulating hormone & thyroxine in patients undergoing adenomyosis, endometrial hyperplasia & combined uterine

pathology was found to be within normal limit & not as such remarkable differences in the clinical form of the main & control group were observed.

Conclusions. Therefore, according to the results of the study evaluating the hormonal levels of the women suffering with benign endo and myometrial pathology, remarkable hyperproduction of the Gonadotrophin is seen in women as compared to the healthy women of the Control Group. Regardless of the phase of the menstrual cycle, the FSH concentration is seen to be increased by 1,9 times; average LH level elevated by 2,2 times; hyperprocaltinemia was noticed where the average content of PRL increased by 2 times. Relative or absolute hypoprogesteronemia was detected. Also in all clinical forms of the examined women, hyperestrogenemia was observed throughout the menstrual cycle. The severity of the hormonal variation depended absolutely on functional status & clinical group of the patients. Indicators of Gonadotropic & Prolactin Stimulating activity of the pituitary gland in women of reproductive age under benign uterine pathology therefore confirms the active participation & role of FSH, LH and Prolactin in complex process of regulation of the reproductive system.

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