

Concentration of Pituitary Hormones in the Blood Women with Endometriosis Which Associated With Infertility

Bakun Oksana*, Balashova Sofiia, Berezii Alina, Komissarova Tetyana, Oleksiuk Kateryna

Bukovinian State Medical University Chernivets'ka Oblast, Ukraine

*Corresponding author: Bakun Oksana

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Abstract

Original Research Article

The work has been dedicated the study of pituitary hormone concentration in the blood of women with endometriosis-associated infertility on 2-3 days of the menstrual cycle and the day of the puncture of ovarian stimulation superovulation in the cycle. In patients with endometriosis associated with infertility found significant violation of rhythm and secretion of blood gonadotropin hormones that are proportionate to the degree of severity of the disease.

Keywords: pituitary hormones lutropin, folitropin, infertility, endometriosis.

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INTRODUCTION

Most authors consider that the products lutropina (LH) and folitropinu (FSH) is different types of cell functional activity which is controlled by a common releasing hormone [2].

Despite the existence of a general stimulator of the hypothalamic gonadotropin products, the degree of response of the pituitary to effect uniform for LH and FSH [4, 6]. These differences are found in the analysis of the dynamics of gonadotropin secretion during the menstrual cycle. The secretion of FSH are known to actively growing at the beginning of the menstrual cycle, so that the value of the basal secretion of the hormone in the early folliculin phase of the cycle several times higher than that in the luteal phase [5]. In preovulation period under the influence of higher concentrations of estradiol concentration of FSH falls, then there ovulatory hormone release. In contrast, FSH, LH secretion increases slightly at the beginning of the cycle and is virtually identical to the luteal phase [3]. One of the reasons disorders inducing folliculogenesis in vitro fertilization programs are spontaneous LH secretion peak, accompanied by accelerated maturation of oocytes and consequently the start of luteinization before the estimated time of ovulation [2, 4]. This may be accompanied by the abolition treatment cycle due to the inability of oocyte insemination or embryo transfer rejection of due to their possible morphological defects [1, 3, 7]. The aim of our study was to examine the concentration of pituitary hormones in the blood of women with endometriosis associated with infertility.

MATERIALS AND METHODS

For the purpose of the research we have conducted a special study of protein (lutropin - LH, folitropin-FSH) hormones level in the blood plasma of women with endometriosis associated with infertility, which formed the main group of 20 people. Similar studies of protein hormones level were performed in the control group, which made somatically healthy women of reproductive function preserved, whose age corresponded to the age of patients of the main group.

In the study (women with infertility) and control groups conducted a special study of protein (lutropin – LH, folitropin -FSH) hormones level in the blood plasma of 2-3-day menstrual cycle - basic and on the day of the puncture of ovarian stimulation cycle in superovulation. The level of hormones measured by ELISA using a set of reagents for quantitative ELISA determination of hormones in blood serum:

- "IFA gonadotropin-FSH";
- "Gonadotropin-LH ELISA"

The value of P (authenticity difference) was determined by Student's table-Fischer. Differences between contrasting averages were considered significant at $P < 0.05$.

RESULTS AND DISCUSSION

The results that we obtained in the study of basic hormones are presented in table 1. Analyzed the results of our research are presented in Table 1 stated that women with endometriosis associated with infertility 2-3 days of the menstrual cycle endocrine

function of gonadotropocytes anterior pituitary did not differ from that of the control group. This fact appeared

to have additional criteria for the formation of a main group.

Table-1: The concentration of pituitary hormones level in the blood of women on 2-3 days of the menstrual cycle (M ± m)

Index	Main group (n=20)	Control group (n=20)	p
LH pg / ml	5,8±1,70	6,22±1,21	>0,05
FSH pg / ml	10,0±1,10	9,92±1,03	>0,05
LH / FSH	0,58	0,63	

LH level at 2-3 second day of the menstrual cycle in women with infertility different from indicators in the control group slightly. LH to FSH ratio in the study and control groups was within 0,58-0,63.

According to the literature [1, 7] ratio LH / FSH ranges in healthy women within 1.5-2.0. In our patients as the control group and the main factor are now slightly below that can explain the features of the methodology for determining the level of hormones in blood plasma. We used method of determining the amount of hormone (pg / ml), while in a number of

laboratories measured activity in international units (IU / L).

Changes in hormonal profile in women with endometriosis associated with infertility and the control group in the study day puncture of ovarian stimulation superovulation in the cycle shown in Table 2. Attention is drawn to the fact that our patients at an altitude of superovulation stimulation stated statistically significant reduction in the level of luteinizing hormone $16, 2 \pm 5,27$ to $1,08 \pm 0,06$ pg / ml. This reduction in blood lutropin is explained reciprocal dependence between synthesis and activity of estradiol vertical luterin-lutropin-progesterone.

Table-2: The concentration of pituitary hormones in the blood of women on the day of the puncture of ovarian stimulation superovulation in the cycle (M ± m)

Index	The main group in stimulated cycle (n = 20)	Control group (n=20)	p
LH pg / ml	$1,08 \pm 0,06$	$16,2 \pm 5,27$	<0,001
FSH pg / ml	$10,7 \pm 1,16$	$7,05 \pm 0,8$	<0,05
LH / FSH	0,1	2,2	

Along the surveyed women was found a slight increase of folitropin of $7, 05 \pm 0,8$ to $10,7 \pm 1,16$ likely due to circulating levels of outside administered hormone. Value LH/FSH was respectively: 0.1 stimulated cycle; 2.2 in the control group. This is quite important because the normal functioning of the ovaries is possible only at a ratio of LH / FSH 1-1.5.

Reduced secretion of LH in patients with infertility weakens the predecessor synthesis of steroid hormones. Consequently, reduced production of androgens in the ovary.

It is known [5] that ovulatory peak corresponded almost 6-fold increase in the concentration of estradiol. Increased concentrations of estrogen and could be seen as an incentive to the sharp increase in the secretion of LH and FSH, which appears on the before of ovulation.

But in our studies LH level, on the contrary, decreased FSH and elevated, suggesting the lack of response to ovarian stimulation, and the possibility of damage to the follicular unit by chronic inflammation and autoimmune process.

Reducing the concentration of LH in patients with infertility of tubal origin in folikulin phase of the menstrual cycle and lack of concentration of FSH lead to a breach of folliculogenesis, ovulation and subsequent rearrangements of secretory endometrium. This, in turn, may still be one of the causes of infertility. Reducing LH can be explained by the fact that necessary for secretion of FSH and LH should pulsing emissions gonadotropin-releasing hormones by hypothalamus is not all gonadotrophic adenohypophysis receptors connected to one pulse of gonadotropin-releasing hormone and adenohypophysis cells are able to respond to further release of gonadotropin-releasing hormone. Due to reduction of LH levels there is blockage of the functional activity of the ovaries, which may be accompanied by a further decline in estradiol concentrations in the blood.

CONCLUSIONS

Thus, in patients with endometriosis associated with infertility found significant disorders of rhythm and secretion of blood gonadotropin hormones that are proportionate to the degree of severity of the disease. Thus, basal levels of LH and FSH hardly different from the targets, and the folikulin phase of the menstrual cycle decreased concentrations of LH to normal levels

of FSH background. However, despite the presence of abnormalities in the secretion of gonadotropin hormones compensation body's response in this disease provide a state of homeostasis because ovulation in 2/3 patients retained, while the reproductive function is much impaired.

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