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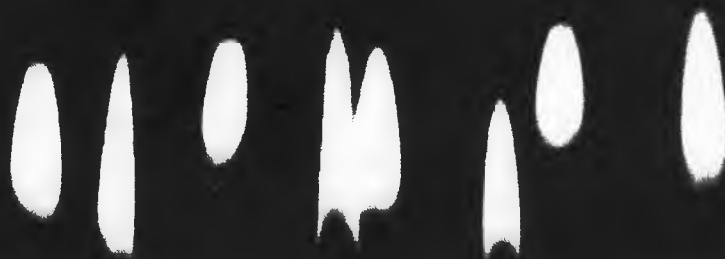
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Remember all the victims in Ukraine...

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ANALYSIS OF FEMALE ENDOCRINE INFERTILITY IN THE TRANS-CARPATIAN REGION

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Summary. The comprehensive clinical and laboratory survey of 648 women allowed to determine the structure of endocrine infertility in the region with the lack of iodine in the environment. Hormonal research revealed different deviations in the levels of hormones in 46% of cases, including in one-third of patients subclinical hypothyroidism was diagnosed.

Keywords: infertility, endocrine disorders, iodine deficiency.

Introduction. Restoration and preservation of women's reproductive health is an important medical and social problem. The study of endocrine infertility in women of reproductive age is important because of the prevalence of this pathology [1,4].

It is known that thyroid disease is one of the most common forms of endocrine pathology. The most important factor that predetermines thyroid dysfunction is iodine deficiency, which is widespread in many parts of the world [5-7]. The problem of iodine deficiency is relevant also for Ukraine, and in particular for the Transcarpathian region [2-3].

The purpose of the study. Identify the major endocrine factors that lead to infertility in natural iodine deficiency.

Materials and methods. We examined 648 infertile women Transcarpathian region in accordance with the Protocol Ministry of Health of Ukraine № 582.

In order to study the women's hormonal status of women we determined the levels of progesterone (PG), estradiol (E2), prolactin (PRL), follicle-stimulating (FSH) and luteinizing hormone (LH) hormones.

The estimation of the androgen status was held by the degree hirsutism and the result of the hormonal studies (free testosterone (Te) , cortisol (C) levels and 17- OCS in the urine).

To estimate the functional state of the thyroid gland we determined the levels of triiodothyronine (T3), free thyroxine (fT4) and thyroid stimulating hormone (TSH).

To identify the contingency between variables that were studied, we used a method of correlation analysis to determine the strength and closeness of the connection between these indicators and their orientation.

Results and discussion. Analysis of the structure of female infertility shows that secondary infertility is 375 (57,9%), and an initial - 42,1% of patients. The age of infertile patients ranged from 18 to 42 years.

According to the history, duration of infertility in the examined patients varied from 1 to 15 years. In 72 women (11.1%), duration of infertility was 1 year, 280 patients (43,2%) - 2-3 years, in 109 (16.8%) - 4 - 5 years, in 96 (14.8%) - 6-7 years, in 34 (5.2%) - 8-9 years, and in 57 women (8.8 %) - over 10 years.

Evaluation of the functional state of the reproductive system according to the basal body temperature showed that 348 patients (53.7%) had biphasic menstrual cycles with a second phase lasting 11-14 days and the rise of basal temperature by more than 0,5°C. 211 females (32.6%) had biphasic cycles with a LPD and lasting less than 10 days. 89 patients (13.7%) were diagnosed with anovulation with monophasic basal body temperature.

We determined progesterone levels in blood during the second phase of the menstrual cycle (18-22 days of the cycle) in all women with infertility. In 406 (62.7 %) of the patients with a biphasic ovulatory menstrual cycle and 63 (29.9%) women with LPD progesterone levels averaged 13,9±1,2 nmol/l which confirmed the presence of ovulation in this group of patients, but 179 patients (27.6%) the level of progesterone was on the lower limit of normal (10,6±1,1 nmol/l).

Progesterone levels research in the blood of women with anovulatory menstrual cycles showed significantly lower values (6,2±0,5 nmol/l, p<0,01) compared with women with ovulatory cycles. In this group of patients the level of estradiol averaged 13,1±1,2 nmol/l, which was also below optimal level (p<0,001).

Prolactin level was within the normal range in 544 patients (84.0%) and averaged 320,3± 28,2 mIU/ml. In 104 patients (16.0%) increasing levels of the hormone in the blood plasma to 1450,5±126,8 mIU/ml was observed. Increased prolactin levels, possibly caused by decreased levels of thyroid hormones – by subclinical hypothyroidism, because we diagnosed the reduction of the thyroid hormones among the same women.

The determination of gonadotropic hormones levels in patients with anovulatory menstrual cycles showed that 18 women (28.6%) had an increased level of luteotrophic hormone with the average of 32,39±3,8 mIU/ml , in 9 patients (14.3%) basal LH level was below normal - 0.60 mIU/ml the others (57.1%), LH level was within the normal range 5.1±0,5 mIU/ml.

The level of follicle-stimulating hormone did not differ from the standard indicators in 637 patients (98.3%) and an average of 6,1±0,7 mIU/ml in 11 patients (1.7%) it was higher than normal, average 17,3±0,4 mIU/ml.

Analysis of androgen status according to the number of hirsutism and androgenic fractions revealed hirsutism in 52 patients (8.0%) half of the cases was accompanied by increased level of free testosterone to $4,9 \pm 0,5$ nmol/l.

To estimate the functional state of the thyroid gland we determined the levels of T3, free T4 and TSH in all infertile patients.

In 169 (26.1%) of all surveyed women with infertility enlargement of the thyroid to 1-2 degree was diagnosed. An increase of TSH or decrease of T3 and T4 was observed in 221 (34.1%) women, increased levels of T3 and T4 - in 52 (8.0%), a normal level of thyroid hormones (euthyroidism) was diagnosed in 375 (57.9%) women.

Analyzing laboratory data of thyroid status, we concluded, that women with infertility in one third of cases were diagnosed to have subclinical hypothyroidism, in 16.0% of cases accompanied by hyperprolactinemia, which may also contribute to the development of secondary ovarian insufficiency.

In order to assess the role of iodine deficiency in the development of our infertility we have conducted correlation analysis, which revealed the presence of correlation between the level of progesterone (rxy - 0,56), endocrine disorders of the ovaries (rxy - 0.81) and between TSH level and the level of prolactin (rxy - 0.84).

Conclusions. Past conducted study indicate that not corrected iodine deficiency is one of the risk factors of both primary and secondary infertility.

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