SOMATIC AND HORMONAL PROFILE OF INFERTILE WOMEN WITH CHRONIC ANOVULATION

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ABSTRACT

In recent years, one of the solutions to anovulation therapy is ovarian stimulation, which often leads to the development of ovarian hyperstimulation syndrome. The study aimed to study the somatic and hormonal profile of infertile women with chronic anovulation, using various stimulation protocols. When analyzing the features of the somatic, gynaecological and endocrine status and the ovarian reserve of the patients of the studied groups, no significant inter-group differences were revealed.

Keywords: anovulation, hyperstimulation, infertility

I. INTRODUCTION

According to statistics, every seventh couple faces the problem of infertility [2]. In the structure of infertile marriage, female endocrine infertility occupies about 30-40%. All forms of endocrine infertility lead to anovulation [4, 5, 8, 9]. In this regard, the issue of ovarian stimulation, which increases the probability of giving birth to a healthy live child, is currently relevant [12]. During the induction and stimulation of ovulation, a complication often develops in the form of ovarian hyperstimulation syndrome (OHSS) [1, 3, 7].

II. MATERIALS AND METHODS

We examined 50 women, including 40 women with anovulatory infertility, who were divided into three groups. The first group (the main) is scheduled to receive cabergoline Orville (dopamine receptor agonist). The second (comparison) group - Menopur® (menotropins: Follicle-stimulating hormone (FSH)75 IU and Luteinizing hormone (LH) 75 IU) sparing scheme. The third control group (10 women) consisted of women with a natural ovulatory cycle.

The content of Anti-Müllerian hormone (AMH), FSH, LH, the ratio of FSH/LH, prolactin (PRL), thyroid-stimulating hormone (TSH), thyroid hormones (T3, T4), estradiol and testosterone (T) was studied in 40 infertile women (the main group) with chronic anovulation (Fibrocystic mastopathy) on 5-7 days of the menstrual cycle, progesterone on the 21st day of the menstrual cycle. The assessment of various forms of endocrine infertility was carried out jointly with an endocrinologist. It was based on the data of anamnesis, complaints, clinical manifestations, objective research data, ultrasound with folliculometry in dynamics.
III. RESULTS AND DISCUSSION

All the patients included in the study were comparable in age. The average age in group I was 30.1±3.3 years, in group II – 30.6±3.8 years, in group III-30.5±3.5 years, in group IV (control) – 30.3 years.

Analysis of the structure and frequency of somatic diseases in the patients included in the study showed that most of the patients had childhood infections (group I-in 74.2%, group II-in 68.8% and group III-in 66.7% of cases). The leading place in the prevalence of somatic diseases belongs to anaemia, diseases of the urinary system (chronic pyelonephritis) and the endocrine system (hypothyroidism) in all groups without significant differences.

Analysis of the nature of the menstrual cycle in patients of the main group showed that the average age of menarche in women of group I was 13.1±1.2 years, group II 13.0±1.3 years and group III 12.9±1.5 years. The number of patients with an irregular cycle for the type of oligomenorrhea was also comparable. As for the menstrual cycle duration, in the control group, the normal cycle prevailed in 89.3%. In the main group, the postponing cycle was more often recorded in 58.6% of patients.

The analysis of the anamnesis showed that in patients with infertility, the gynaecological anamnesis is significantly burdened. Sexually transmitted infections are prevalent. Their share was 28.1% in group I, 25.8% in group II and 25.9% in group III. The proportion of patients with diagnosed Polycystic ovary syndrome(PCOS) in group I was 18.7%, in group II-19.4 %, in group III-18.5 %.

All women from the main study group complained of infertility. Primary infertility occurred in 19 (59.4%) women of group I, 17 (54.8%) women of group II and 13(48.1%) women of group III, and secondary infertility occurred in 13 (40.6%), which was 2 (20.0%) and 8 (80.0%), respectively, in the control group. The groups' infertility duration did not differ significantly and was 6.4±2.3 years in group I, 6.8±3.2 in group II, and 7.1±2.6 in group III.

According to the traditional method, the anamnesis showed that most patients underwent stimulation with clostelbegit with the ovulation trigger. However, the current attempt at stimulation in most patients was the first. The anamnesis analysis results showed that OHSS occurred in all three study groups, accounting for 12.5%, 9.7% and 11.1%, respectively. Every tenth woman had a risk of developing OHSS when using the traditional method of ovulation stimulation.

The average number of attempts in group I was 1.48±0.75, in group II – 1.48±0.72, in group III-1.55±0.78. Moreover, after a month of a break between attempts, some patients attempted, especially alarming is that 12.3% of the patients from all the women studied made a second attempt to stimulate ovulation, despite the development of OHSS.

As various authors show, the most informative ovarian reserve indicator and an effective prognostic criterion are AMH [6, 10]. Its concentration depends little on the phase of the cycle. The level of AMH in the blood serum taken at the beginning of the menstrual cycle correlates mainly with the number of preantral follicles, i.e., with the real ovarian reserve.

We evaluated the endocrine status of the compared groups' patients in the early follicular phase (Table 1).

Table 1

Information about the concentration of hormones in the blood plasma of patients before the start of ovulation stimulation
Parameter | Group I | Group II | Group III
--- | --- | --- | ---
LH (IU/l) | 3.4±2.4 | 3.8±1.6 | 3.1±1.4
FSH (IU/l) | 6.13±2.03 | 6.34±1.99 | 6.42±2.2
E2 (pmol/l) | 283.0±38.6 | 235.2±23.6 | 260.4±40.2
AMG (ng/ml) | 5.74±3.5 | 5.14±3.5 | 5.54±2.7
Testosterone,nmol/l | 1.4±0.3 | 1.3±0.4 | 1.5±0.3
Prolactin,mME/l | 268±38.4 | 300±27.8 | 274±40.2
Cortisol, nmol/l | 240±42.5 | 228±40.7 | 236±41.0
DHEA-S, mmol/day | 10.4±2.4 | 10.6±2.7 | 10.8±1.3
Progesterone, nmol/l | 0.63±0.7 | 0.59±0.5 | 0.61±0.6

In addition to determining the basal levels of hormones in the blood plasma on the 2-3 day of the menstrual cycle, all patients included in the study underwent ultrasound determination of the volume of the ovaries and the number of antral follicles in order to assess the state of the ovarian reserve and identify the risk of developing ovarian hyperstimulation syndrome (OHSS).

Thus, the analysis showed that the average ovarian volume, cm³ in women of group I was 11.4±0.3 in group II - 10.9±0.2 and group III - 11.2±0.3, the number of antral follicles was 10.8±2.2, 10.4±3.1, 10.1±2.8 according to the groups. As follows from the presented data, the ovaries' volume and the number of antral follicles did not significantly differ in all groups. At the same time, the ultrasound study revealed characteristic echographic signs including polycystic ovaries in women of group I in 21.9±2.4%, in group II in 16.1±2.7% and group III in 29.6±2.1%, PCOS 34.4±1.4% - in group I, 38.7±1.2% - in group II 48.2±1.4% - in group III, atresia 12.5±2.7% 16.1±2.4% 3.7±3.4% according to the groups. The follicular cyst was detected in all groups without differences (6.2±3.4% 6.5±3.4% 3.7±3.4%), the persistence of follicles in women of group I is 25.0±1.5%, in the second group 22.6±1.8% and 14.8±2.4% in the studied women of group III.

IV. CONCLUSION

Thus, when analyzing the features of the somatic, gynaecological and endocrine status and the ovarian reserve of the patients of the studied groups, no significant inter-group differences were revealed, except for the characteristic pathological echo signs.

CONFLICT OF INTERESTS AND CONTRIBUTION OF AUTHORS

The authors declare the absence of apparent and potential conflicts of interest related to this article's publication and report on each author's contribution.

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