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Assisment of Quality of Life Indicators in Hormonal Infertility in Women and Determine the Value of Melatonin in Treatment

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Abstract

The study of melatoninine reproductive age patients with polycystic ovary syndrome and external general endometriosis will allow to more accurately determine the reproductive potential of influence the choice of treatment tactics. The results demonstrate the need to include the definition of melatonine in women of reproductive age with polycystic ovary syndromeas and external general endometriosis an additional diagnostic criterion for the delivery of the diagnosis and determination of further management tactics.

Keywords:

women of reproductive age, polycystic ovarian syndrome, external general endometriosis, melatonine.

I.INTRODUCTION

Recently, barren marriages have been growing rapidly: their frequency has increased from 10-15% to 25-30%, and a downward trend is not yet observed soon. The etiology of the disease is controversial in many ways, and every year new possible mechanisms of pathogenesis are discovered [1,2]. The results of studies in recent decades have been found that melatonin and changes in the biological rhythms of the body affect the development of the disease.

The bulk of research on the mental pathology of female patients is devoted to the study of the prevalence of mood, neurotic and stress-related diseases. Patients with infertility are more likely to experience anxiety disorders and mood disorders than women who have given birth. Among the most commonly used psychometric techniques are patient health questionnaire (PRIME-MD PHQ), Hospital Anxiety and depression scale (HADS), Beck Depression Inventory (BDI), and 12 quality of life questionnaire (SF-12) [5].

In the ovarian-dependent type of hormonal infertility, an imbalance of antioxidants and oxidants is characterized, which in turn leads to high levels of oxidative stress

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activity, which is detected even in women with normal body weight and without metabolic disorders. Oxidative stress is based on all physiological and pathological processes: aging, malignancy, inflammation, cardiovascular pathology. This affects tissue sensitivity to insulin and androgen levels and damages the female reproductive system[3,4]. One of the participants in the antioxidant system is melatonin, the main hormone of the pineal gland (pineal gland) of all vertebrates. The hormone luteinizing hormone (LG) controls mRNA expression, apoptosis regulators BCL2 and Proteinase Casp3 production, insulin-like growth factor (IGF) and TGF-b growth factor activity, as well as LG receptors (Soares J., Masana M., Ersahin C., Dubocovich M. 2003). Most likely, melatonin enters the ovary from the bloodstream during the growth of follicles, and with the formation of follicles, the absorption of the hormone increases.

Melatonin is today one of the most active regulators of oxidative balance. However, the effect of exogenous melatonin has been studied when it is introduced into in vitro or laboratory animals. There are a limited number of studies that have studied the effect of the pineal hormone on the processes of oxidation and reduction in the conditions of the entire human body. On the other hand, data from modern literature indicate an important role of impaired melatonin synthesis in the development of metabolic syndrome, and secondly, oxidative stress develops[6].

Thus, given the high prevalence of hormonal infertility and new data on the role of melatonin in folliculogenesis, it became necessary to assess the role of this hormone in the reproductive function of women. The results obtained increase the effectiveness of the treatment of patients with hormonal infertility and carry out the ability to become pregnant using conservative therapy methods without the use of auxiliary reproductive technologies [1]. With the implementation of these tasks, it is achieved to reduce infertility in women, to strengthen reproductive health, to protect women's health in Uzbekistan.

The purpose of the study.

Development of a method for determining the quality of life and indicators of female quality of life in patients with hormonal infertility in the course of the study of somnological disorders and regimens for the use of melatonin in the treatment of hormonal infertility.

Materials and method.

A total of 136 women of fertile age (ages 18-42) were recruited to complete the planned studies. The average age of these women was 24.6 to 30.2 years of age on average, corresponding to research groups. All of the women included in the research groups were settled residents in the towns and villages of Khorezm region, with 42.6% (n=58) of them living in the city with 57.4% (n=78).

The examined contingent was divided into 2 groups: Group 1-group of women with hormonal infertility observed – 96 women; Group 2 - group of healthy women-40 women. The main group, in turn, was divided into 2 groups for the reason that caused hormonal infertility: group 1 - women with external genital endometriosis, n=46; Group

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2 - women with ovarian polycystosis, N=50.

These groups, depending on the type of treatment, in turn were divided into 2 more subgroups:1-Group a-treatment with dienogest in External genetal endometriosis, n=20; 1-Group b-application of melatonin combination with dienogest in the treatment of external genetal endometriosis, N=26; 2 - Group a-treatment of women with ovarian polycystosis with COC, n=24; 2-Group B - combination of women 26) through which treatment was carried out.

We used a scale developed by ourselves in order to assess the quality of life of the observed women. This scale was constructed from several quality of life, sleep disorders and other scales characterizing pain by separating the parts that are most significant in infertility.

The index for determining the quality of sleep when drawing up a scale is from the Pittsburgh questionnaire (PSQI); Ya.I.A Levin questionnaire for assessing the subjective characteristic of sleep according to in points; women who are being treated for infertility feel pain according to the type of hormonal disorders, and it affects the quality of life. To assess this, we took the basis for assessing the degree of pain from the visual-analog scale (VASH). In order to assess the psychoemotional state, the HADS hospital scale was used. According to him, two types of psychoemotional state are assessed: anxiety and depression. From the above scales, the main indicators significant in infertility were taken and summarized, and the following "scale for assessing the quality of life in women with infertility" was developed.

This scale assesses 19 pointers and consists of the main 3 parts. In this, point 1 - A - describes sleep changes and disorders and consists of Question 7.

Point 2 - B-contains 8 questions, assessing the psychoemotional state of women.

3-v-Point-consists of 4 questions that characterize deviations in the area of the small pelvis in women.

In this, women fill out this questionnaire before and after treatment.

One of the indications that I find important in female infertility is the deadlines for their referral to Gynecologists. The analysis of the time that women face these professionals according to the duration of infertility was feared: 1 year 30.2±2.5% (n=29); 1from 5 years 50±3.2% (n=48); more than 5 years (19.8±2.5%, n=19) women who applied for counseling and/or diagnosis-treatment purposes before became practically close to one another (R0,05).

In accordance with the specified tasks, 136 women-girls underwent medical examinations. The assessment of hirsutism on the Ferriman-Gallway scale gave the following results: mild levels of hirsutism in 30 patients (22%), moderate in 4 (2.9%) patients, and severe in 1 patient (0.73%). The rest of the women did not have signs of hair growth on the body.

According to pelvic ultrasound data, out of 50 patients with ovarian polycystosis in Group 2 (100%), symptoms of bilateral ovarian enlargement were observed in 32 patients (64%), in 13 patients (26%)-unilateral, in 1 patient (2%) - ovarian volume did

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not exceed the norm. In total, several small follicles up to 10 mm in diameter were identified in the structure of the ovaries in the amount of 12-15 pieces. In 27 patients (54%), symptoms of uterine hypoplasia have been recorded, which is likely to be associated with an irregular rhythm of menstruation.

This was found when an ultrasound scan of a group of women with external genital endometriosis in Group 1, while 39 out of 46 patients(84.8%) had an endometrioid cyst in their ovaries. Of these, 14 (30.4%)had 2-sided and 25 (54.3) had 1-sided ovarian cystosis damage. In the remaining 7 patients, foci of endometriosis were suddenly detected in women who entered diognastic laporoscopy, the cause of infertility.

The results of a comprehensive examination made it possible to distribute patients by phenotypes: classic (signs of hyperandrogenism according to ultrasound + polycystosis ovaries + anovulation) - 29 people (58%), ovulation (signs of hyperandrogenism according to ultrasound + polycystosis ovaries) - 6 people (12%) , non - androgenated (ultrasound + polycystosis ovaries by anovulation) - 15 (30%), anovulation (signs of hyperandrogenism + anovulation) - 10 people (2%).

In the process of carrying out this scientific work, women with external genital endometriosis and ovarian polycystosis syndrome were attracted from women with hormonal infertility, and the quality of life indicators of these women were studied and evaluated.

In the process of filling out questionnaires to respondents, they were asked to fill out a questionnaire before and after treatment, which assesses the nature of changes in sleep, psychoemotional state and pain in the small groin area in the last month. The results obtained were evaluated in the scoring system. According to this, from 0ball to 38 points is normal; from 39 points - up to 57 points subclinical and above 58 indicate a pronounced change in both psychoemotional and hormonal status, which is clearly expressed in clinical. The results obtained showed that when patients with ovarian polycystosis were asked to choose the main one among all the causes of sleep disorders, the most common cause was stress (55%), followed by night or day work, night study (29%), life events 10%, and sex life 6% - other reasons.

According to the results of a survey to assess the subjective characteristics of sleep, patients with infertility were statistically significantly different from the control group in terms of the degree of pathological abnormality ($p = 0{,}004$) – women with infertility had more of these disorders.

When distributed according to phenotypes, the following feature of the somnological profile of patients was identified: deviations with the classical phenotype were present in 82.8% of cases, with ovulation - 16.7%, with noandrogenic - 66.7%, and with anovulation - in 70% of cases. Although only the classical and ovulatory phenotypes differ statistically significantly ($p = 0.004$), this may indicate a more pronounced pathology of melatonin secretion in the classical phenotype, which is aggravated by loss of sleep due to life circumstances, while the presence of ovulation

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reduces melatonin changes.

Questioning using the anxiety and depression scale when we observed psychoemotional markers, statistically significant differences between Group 1 and Group 2 have not been identified, which can be explained by changes in metabolic parameters that affect the psychological state in both groups and the high prevalence of infertility. In the study of carbohydrate metabolism, the level of fasting glucose was statistically significantly higher in Group 2 compared to Group 1, and both indicators were in the normal range. In the group of women with ovarian polycystosis syndrome, there was a statistically significant difference in glucose levels compared to the other two groups.

In hormonal examinations, ovarian polycystosis in patients, there was a tendency to an increase in the concentration of the lutenizing hormone (LG), while the values of folliculastimulant garmon (FSG) did not differ significantly by groups, and testosterone levels rose in the group of women with ovarian polycystosis syndrome. AMH levels were statistically significantly higher in the group that has ovarian polycystosis syndrome compared to control. In Group 1, High indicators of estrogen content in women's blood were recorded at the expense of foci of endometriosis, while Garmon was observed to be significantly lower compared to other groups.

Determination of melatonin and its metabolite in biological fluids. Patients with ovarian polycystosis syndrome are characterized by high levels of melatonin in the blood, 6-sulfatoxymelatonin levels in daily urine, and low concentrations of melatonin in the follicular fluid. A decrease in the concentration of melatonin in the follicular fluid indicates a possible compensatory increase in the level of melatonin in the blood with an increase in the concentration of the same parameter in the blood. In women with ovarian polycystosis syndrome, a decrease in the concentration of melatonin in the follicular fluid can lead to anovulation.

The result of melatonin deficiency in the ovary and its increase in blood is also an increase in the amount of 6-sulfatoxymelatonin in the urine according to the principle of approximate negative feedback.

Conclusion

1. In women with ovarian polycystosis syndrome and endometriosis, the concentration of melatonin in the follicular fluid is statistically significantly lower, compared with women in the control group, the level of melatonin in the blood and its metabolite in the urine remained unchanged, and there were no signs of anovulation. The highest levels of melatonin in the blood are found in the classic phenotype of ovarian polycystosis syndrome and endometriosis, and the lowest in ovulation, which confirms the relationship between ovulation dysfunction and melatonin levels in the follicular fluid.

2. Sleep disorders act as an additional factor that disrupts the metabolic profile of patients: the deterioration of the somnological profile is associated with an increase in insulin resistance in patients with ovarian polycystosis syndrome.

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4. The development of anovulation in hormonal infertility is influenced by a violation of the relationship between melatonin and ovarian melatonin detected in the blood, as well as hyperandrogenism and an increase in AMH levels (associated with melatonin levels in the blood). In combination therapy of hormonal infertility, a synthetic analogue of melatonin made it possible to increase the effectiveness of conservative therapy by 2.7 times and reduce resistance to clomiphene during periods of ovulation stimulation.

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