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## Methods of correcting hormonal imbalance and emotional status in women with post-hysterectomy syndrome

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### Abstract

Hysterectomy is one of the most common surgeries on the uterus with increasing number post-hysterectomy pathological manifestations. A comprehensive examination and surgical treatment of 60 women of reproductive age with uterine myoma who had hysterectomy with uterine annexes preservation have been carried out. The control group consisted of 20 somatically healthy women. To assess metabolic homeostasis disorders we have studied certain parameters of hormonal homeostasis and the range of certain blood lipoproteins. The results of the analysis of hormonal profile indicators in women with post-hysterectomy syndrome symptoms in 12 and 36 months after surgery revealed in 36.6% the statistically significant increase of prolactin level, 46.6% had hypotestrogenism and 41.6% of patients had the signs of hypoandrogenaemia, confirmed by laboratory criteria. Patients with a low estrogens saturation of the organism suffered from hyperlipidemia, which was noticed in 55.6% of women. These changes make preconditions for the progression of metabolic dysfunction in women and initiate the development of metabolic syndrome.

**Keywords:** Post-hysterectomy syndrome, metabolic disturbances, hormonal dysfunction, lipid profile

### 1. Introduction

Hysterectomy is one of the most common surgeries in the uterus, annually more than 600 000 of these surgical operations are performed in the USA, in the UK one in five patients had hysterectomy [2-4]. Besides, the frequency of post-hysterectomy pathological manifestations in such patients is 40-60%, and the prevalence of mental disorders and psychological problems after surgery on the uterus is 50-80% [3]. Instability of hormonal homeostasis is characteristic for this category of patients; changes of steroid and genic activity of ovaries are manifested by various symptoms (from psycho-vegetative to systemic metabolic disorders).

According to the literature, nowadays there is no consensus on the mechanism of vegetative-neurotic disorders and metabolic disturbances after removing the uterus. Thus, some authors believe that hysterectomy has "damaging effects" on the hypothalamic-pituitary system, leading to reduction in compensatory processes in the body after surgery, while others believe that the cause of psycho-vegetative disorders after hysterectomy is a psychological factor – a sense of inferiority and defeminization. Some researchers note that hysterectomy without uterine annexes results in reducing the production of ovarian hormones associated with hemodynamic disorders resulting from injury of vessels which are responsible for blood supply to gonads. In these works the authors demonstrate earlier manifestations of menopausal symptoms in women who had hysterectomy, compared with non-operated women, and 27% of women with preserved ovaries in premenopausal period have premature deterioration of hormonal function [2-5].

Considering the large prevalence of remote postoperative complications and significant health and social consequences in gynaecological patients, we can assume that in-depth study of this disease and the development of more effective and safe ways of prevention and treatment of complications after surgery on the uterus and uterine annexes have priority today [1-5].

Hormone therapy is the most common approach in the conservative treatment of post-hysterectomy syndrome symptoms, and its applying is based on the concept providing normalizing estrogen deficient state [1-5]. However, hormone therapy is often accompanied by complications concerning many organs and systems and severe adverse symptoms that significantly reduce women's quality of life, as well as a large number of contraindications limiting its use; its prolonged applying requires careful monitoring of haemostasis and lipid profile [3-5].

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Considering the severity of the stress and dismetabolic changes of homeostasis in women with post-hysterectomy syndrome, it is reasonable to optimize the conventional therapy with remedies which mitigate vegetative-vascular and psycho-emotional symptoms, normalize psychological stress, and have antioxidant and lipotropic properties and mild correction of hormonal balance.

## 2. The aim of the study

Was to assess certain indicators of hormonal homeostasis in patients with uterine myoma after surgical rehabilitation using its optimized complex of symptoms correction of post-hysterectomy syndrome.

## 3. Material and Methods

A comprehensive examination and surgical treatment of 60 women of reproductive age with uterine myoma who had hysterectomy with uterine annexes preservation have been carried out. To assess the hormonal homeostasis disorders we used the ELISA test of follicle stimulating hormone, prolactin, luteinizing hormone, estradiol and inhibin in patients' serum, and changes in metabolic homeostasis were studied on the basis of the specific blood lipoproteins spectrum: total cholesterol, low-density lipoproteins, and high-density lipoproteins applying special standard methods.

The first group (comparison group) consisted of 30 women with symptoms of post-hysterectomy syndrome. Patients in this group were treated with conventional drugs provided by national standards. To eliminate and reduce some clinical manifestations of post-hysterectomy syndrome, 30 women of the second (basic group) in combination with standard therapy received additional drug tribestan – dry extract of herb *Tribulus terrestris*, the active component of which is a steroid glycosides (saponins) of furostanol type extracted from the plant *Tribulus terrestris* L possessing a mild stimulating effect on the synthesis of gonadotropin and ovarian hormones, including FSH and estradiol without a significant impact on the level of androgens [6-7]. The mechanism of tribestan action is multilevel and multi-layered; it affects the hormonal balance of the body and provides indirect estrogenic effects without breaking the mechanisms of its regulation. Besides, this drug has positive effects on psycho-emotional status, state of the autonomic nervous system, overall health improvement; it also reduces fatigue, irritability, increases physical and mental performance and improves memory [6-7]. The control group included 20 somatically healthy women. The duration of follow-up observation was 12 months. Patients of this group had ultrasound of the pelvis, liver, kidneys, thyroid gland and breasts using linear and sectoral sensors of the apparatus Siemens -250 (Austria). Indicators of emotional state were evaluated using questionnaires and subsequent experimental and psychological methods: Spielberg test with the assessment of personal and reactive anxiety in scores and Beck test which allows assessing the level of depression in scores. Statistical analysis was performed with the help of nonparametric test  $\chi^2$  using the software Statistica 7.0.

## 4. Result and Discussion

Analyzing the age of women it was found that patients aged 35-43 years or more (38.3%) had surgical treatment of uterine myoma with hysterectomy without annexes more often. The research allowed identifying significant percentage of diseases of hepato-biliary system – in (23.3%) cases; excess body weight – in (31.6%); fibro-cystic mastitis – in (43.3%) and

thyroid dysfunction – in (28.3%) cases. Many women suffered from veins varicose of the lower extremities (21.6%) and the cardiovascular system diseases (23.3%), that leads to haemostasis disorders in this category of patients. The results of endocrine profile examination in 12 months after the surgery did not reveal significant disturbances of the synthesis, while monitoring the hormonal profile in 3 years after the surgery revealed that more than two-thirds of women had problems requiring hormonal correction due to high levels of cortisol, insufficient production of estrogens and hypoprogesteronemia. In this category of patients the luteinizing hormone concentration was significantly increased in 2.5 times, follicle stimulating – in 1.9 times, increasing 1.8 times the value of the ratio of LH/FSH versus rate control ( $p<0.05$ ). Besides, there was a decrease of estradiol concentration against the backdrop of hypoprogesteronemia (2.9 times lower against data control,  $p<0.05$ ) and hypoandrogenemia. The analysis of indicators of hormonal profile in women with manifestations of post-hysterectomy syndrome in 3 years after the operation revealed a statistically significant increase of prolactin (36.6%), hypoestrogenism (46.6%) and hypoandrogenism (41.6%).

Popular hypothesis concerning circulatory disorders of saved gonads does not fully explain the increased levels of LH and FSH. Some authors explain such changes after hysterectomy by the absence of afferent input from the endometrium into the CNS. Indirect confirmation of this point of view are the data, according to which the initial manifestations of post-hysterectomy syndrome, i.e. increased FSH and LH occur in operated patients 3-4 years earlier than in the population [2-4]. Our investigation results prove that 3 years after the surgery in women of the same age, along with neurovegetative and psycho-emotional disorders begin to dominate and eventually prevail such metabolic and endocrine disorders as pathological gain of weight, high blood pressure, and lipid metabolism changes. Having low estrogen saturation of the body, patients of this category had a firm hyperlipidemia (55.6%). These changes predetermine the progression of metabolic dysfunction in women and initiate the development of metabolic syndrome. Obviously, the result of these changes is a high percentage of such metabolic disorders as fibrocystic mastopathy, thyroid dysfunction, excessive body weight and changes in hemostasis parameters. By the third year after the surgery most women had the following symptoms of the metabolic syndrome: a tendency to developing hypertension, obesity, dyslipidemia, changes in glucose tolerance. Nowadays, we know for sure that the changes in blood lipid spectrum lead to estrogen deficiency [1,3].

It was noticed that many women suffered from depression feeling personal and reactive anxiety (three times more often than in the control group), a third of women had increased frequency of vegetative-emotional complaints (irritability, increased palpitations, general weakness, sweating, etc.) with a growing reactive anxiety on the background of low self-esteem. This suggests anxious, tense and restless psychological condition with expressed elements of somatic fixation, often with sanitation. That is, after hysterectomy, during the first three years of rapid recovery in this category of patients – pathological psychological state with dominating somatic fixations and severe emotional lability gradually developed.

Applying of the proposed treatment greatly improved the health of women of the main group: after 2 months patients noted the disappearance of headaches in 43.33% of cases,

sweating – in 36.66%, the elimination of depressive manifestations – in 43.33%, decreased frequency of hyperhidrosis manifestations (up to 20.00% against 46.66% of baseline data); besides, such symptoms as coldness, dry skin, drowsiness, cephalalgia, brittle nails significantly decreased in women of the main group. Approximately in 13.33% of patients such symptoms as hot flushes, palpitations and sleep disturbances remained, but due to overall improvement they did not stop their treatment. These patients were additionally consulted by a physician, finding an individual treatment.

## 5. Conclusion

Thus, after the surgical recovery on uterine myoma women of this category suffer from a long lasting depression. It is proved that surgery is an important factor of emotional stress, negative experiences and hidden anxiety that are enhanced by somatic fixations. In general, these women show signs of depressive and aesthetic features more often than women in the control group.

In our opinion, these psychological disorders are caused by infringement of mechanisms to overcome chronic stress (social failure, inability to solve life problems, sense of feminization loss, loneliness and lack of husband's and family members' support), and the predominance of immature styles of protection (passive aggression, ban from the situation, high somatisation, etc.). In this category of women dominate signs of depression that is unfavourable psycho-emotional factor requiring correction.

The comparison of treatment results in different clinical subgroups proved that differentiated selection of hormone therapy in 73.3% of patients led to regress of adverse symptoms, improving quality of life, normalising psychosomatic status and role functioning, thus enhancing the safety of therapy, reducing side effects of hypoestrogenism and the degree of depressive disorders; it also refrains from replacement hormone therapy. This approach contributes significantly to improving the treatment of post-hysterectomy syndrome, because therapeutic measures are aim not only at correcting dishormonal disturbances, but also at normalizing metabolic disorders.

The perspective is to study the dynamics of metabolic disorders in post-hysterectomy syndrome considering the reserved capacity of ovulatory apparatus.

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