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## TREATMENT OF ADOLESCENT GIRLS WITH ABNORMAL UTERINE BLEEDING TAKING INTO ACCOUNT PSYCHOEMOTIONAL AND VEGETATIVE STATUS

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### Abstract

The study, which was conducted at the clinical bases of the Department of Obstetrics, Gynecology and Pediatric Gynecology of the Kharkov National Medical University for 2 years, included 98 adolescent girls with abnormal uterine bleeding during puberty (AUBDP) 11-18 years old.

A comprehensive clinical and laboratory examination included an analysis of complaints and the clinical course of the disease, a study of early history with an assessment of the infectious index, the course of pregnancy and labor in mothers, the degree of physical and sexual development, the characteristic of menstrual function, gynecological status, ovarian function. Also were studied urine and bacteriological seeding from the vagina, coagulogram, hormonal profile and ultrasound. The psychoemotional state of adolescents was studied using techniques adapted to their age.

When treating 30 adolescent girls with AUBDP (I group), we used conservative therapy. Hormonal treatment was carried out according to strict indications of 18 adolescent girls with AUBDP (group II), with the ineffectiveness of symptomatic therapy. 50 patients

with AUBDP (group III) received therapy, including medicines that contains indole-3-carbinol tranexamic acid and received physiotherapy.

The established causes of bleeding, identified during the history taking, were stressful situations - 36.7%, increased physical and mental stress - 15.3%, acute and chronic respiratory and viral diseases - 12.2%.

Differential use of the developed complexes of adequate therapy, taking into account the level of anxiety of patients with AUBDP, according to the indications was effective in most patients. The inclusion of physiotherapeutic treatment in therapeutic regimens helped to reduce the medicine load on the developing organism of adolescent girls. In most patients, there was an improvement in the characteristics of psychoemotional status; positive dynamics of the progress of the puberty period, normalization of menstrual function were observed.

From this point of view, the active use of modern clinical diagnostic and new medical complexes using effective treatment schemes for correcting pathological conditions in adolescence is promising.

**Key words: abnormal uterine bleeding, adolescent girls, stress, physiotherapy.**

In modern society, one of the most important tasks is to protect the reproductive health of women, which largely depends on the formation and development from childhood. The course of puberty in girls serves as a prognostic indicator of the body's readiness for implementation of reproductive function in future. Menstrual dysfunction is the main clinical manifestation of pubertal abnormalities [1, 2, 3].

An increase in the number of adolescents with impaired menstrual function may be associated with environmental degradation, unfavorable social and material living conditions of some groups of the population, with an increase in the number of children with congenital and chronic somatic diseases [1, 3].

Stress, emotional and physical overload, somatic disorders, violation of work and rest regimes are considered to be the provoking factors for menstrual dysfunction, and especially uterine bleeding, is [3, 6]. This is due to the fact that psychological stressors belong to a number of the most powerful and common natural stimuli that affect all body functions. The neuroendocrine system first responds to exogenous and endogenous influences, it also provides for the regulation of reproductive function. This explains the high degree of dependence of the reproductive system on stress factors. The most significant clinical consequences of the effects of chronic psychoemotional stress are anovulation and insufficiency of the luteal phase, which are the basis of infertility and miscarriage. Abnormal

uterine bleeding during puberty (AUBDP) is the most severe form of menstrual disorder in adolescents, regardless of ethnic or geographical boundaries [2, 3, 5].

Issues of treatment and rehabilitation of patients with AUBDP are very relevant, a significant part of such patients have reproductive disorders, obstetric and perinatal complications in the future [1, 3, 4, 5]. Identifying the causes of AUBDP makes it possible to prevent relapses, to solve the problems of reproductive health in marriage.

When choosing a treatment method, it is necessary to take into account the intensity of bleeding, the degree of patient's anemization, particular physical and sexual development, laboratory findings, heredity, the alleged cause of bleeding, the age of the patient. Treatment of AUBDP can be carried out conservatively or surgically. Conservative therapy includes both symptomatic (non-hormonal) and hormonal agents, which are used according to strict indications at a young age, which is often accompanied by adverse reactions and complications. The expansion of the arsenal of effective methods of non-hormonal therapy with the use of herbal preparations and physiotherapy is very promising for use in the practical pediatric and adolescents gynecology [1, 2, 4].

**The purpose of the study:** to improve the treatment of abnormal uterine bleeding during puberty.

**Materials and methods.** The study was conducted at clinical centers of the Department of Obstetrics, Gynecology and Pediatric Gynecology of Kharkiv National Medical University (headed by Professor I.A. Tuchkina). The study involved 98 adolescent girls with AUBDP aged from 11 to 18 years undergoing follow-up examination of 2 years.

A comprehensive clinical and laboratory examination included assessment of history and presentation, taking into account the recurrence of the process, the study of early history with an assessment of the infection index, the course of pregnancy and childbirth in mothers, the degree of physical and sexual development, the nature of the menstrual function, gynecological status, ovarian functional state, ultrasound (US) findings.

Laboratory examination included a study of indicators of clinical blood tests, urine, vaginal swab, coagulogram, hormonal profile. The content of hemoglobin, erythrocytes, serum iron (SI), some indicators of blood coagulation and anticoagulation systems, D-dimers was determined. The hormonal profile was characterized by the levels of luteinizing hormone (LH), follicle-stimulating hormone (FSH), prolactin (PRL), estradiol (E2), testosterone (T), progesterone (P).

The state of somatic health of the patients was assessed. All of them were consulted by allied specialists to identify extragenital pathology (EP). The study excluded adolescents with

bleeding from the genitals during pregnancy, injury, malformations, cancer and inflammatory diseases, which made it possible to confirm AUBDP. The study of psycho-emotional state of adolescents was carried out using methods adapted to their age: a study using the social adaptation scale (Holmes T.H., Rache R.H, 1967) and the Spielberg-Khanin questionnaire, which reflects the level of personal anxiety [6]. All patients were examined by a neurologist with an assessment of psycho-emotional, neurological status, and a study of the state of the autonomic nervous system.

The treatment of 30 adolescents with AUBDP (Group I) included conservative therapy. Traditional symptomatic treatment comprised medicines contracting the uterus, tranexamic acid, antianemic, fortifying agents, agents normalizing the state of coagulation and anticoagulation systems of the blood, vitamins, physiotherapy.

Hormonal treatment was carried out according to strict indications for 18 adolescents with AUBDP (Group II) in ineffectiveness of symptomatic therapy, with monophasic combined estrogen-gestagenic oral contraceptives containing at least 30 µg of estrogen component in one tablet.

Fifty adolescents with AUBDP (Group III) received therapy including medicines containing indole-3-carbinol, tranexamic acid and received physiotherapy. The criteria for the effectiveness of therapy were: normalization of menstrual function and psycho-emotional state, absence of endometrial hyperplasia and recurrence of AUBDP.

The control group included 25 age-mates without menstrual disorders.

Physiotherapy was used according to indications of pediatric gynecologist, neurologist and physiotherapist.

Statistical processing of the obtained results of the clinical studies was performed using standard “Microsoft Excel” and “Statistica 6.0” software [7].

**Results and their discussion.** A detailed examination of histories showed that AUBDP was more commonly observed in adolescents aged 14-16 years (60 girls - 61.2%), with a menstrual age of 2-3 years. In the majority of the examined patients bleeding occurred for the first time, 27 girls (27.5%) repeatedly consulted a gynecologist. Most of the patients with relapses did not receive a rehabilitation course after the first bleeding occurred and did not seek gynecological help to restore menstrual function.

The study showed that 29 (29.6%) adolescents with AUBDP had compromised heredity due to disorders of the reproductive system (dysmenorrhea, AUBDP, amenorrhea in mothers and maternal relatives), 23 (23.5%) had complicated perinatal period (hypoxia during childbirth, injury, intrauterine pneumonia, etc.). 68 (69.4%) patients had chronic extragenital

pathology. Most mothers of adolescent girls had a complicated gestation period: threatened miscarriage in 37 (37.8%), inflammatory diseases of the urinary system in 18 (18.4%), gestosis in 11 (11.2%).

Predominant EP in adolescents with AUBDP included chronic diseases of the gastrointestinal tract (gastritis, cholecystitis, gastroduodenitis) in 24 girls (24.5%), and chronic diseases of the respiratory system (chronic bronchitis, pneumonia) in 9 (9.2%), diseases of the thyroid gland in 7 (7.1%) and diseases of the urinary system (chronic pyelonephritis) in 5 (5.1%) ( $p < 0.05$  compared with the control group).

The established causes of bleeding, identified during history taking, were stressful situations in 36.7%, increased physical and mental stress in 15.3%, acute and chronic respiratory and viral diseases in 12.2%. The possible factors for the development of AUBDP in the examined adolescent girls most commonly included chronic stress, violation of the day and diet regimens, increased physical and mental stress.

The fact that the bleeding was triggered by acute or chronic stress was identified when assessing the psycho-emotional state of adolescents, using the adapted methods taking into account age.

A study using the social adaptation scale (Holmes T.H., Rache R.H., 1967) showed that girls with AUBDP had an average score of 182, of which 78 (79.6%) adolescents had an index of more than 150 points, which indicates an increase in the risk of any pathological condition by 50%.

The study of the level of anxiety in girls with AUBDP using Spielberg-Khanin questionnaire found a high level of anxiety (46 points or more) in 64 (65.3%) patients as the main response to stress ( $p < 0.05$  compared with the control group).

The study of psycho-emotional state of adolescents with AUBDP found that more than a third of patients were brought up in incomplete or dysfunctional families, which significantly exceeds this figure among their age-mates without menstrual disorders (from control group).

The study of clinical parameters of blood showed iron deficiency anemia in 55.1% of adolescents with AUBDP. 30 (30.6%) girls were found to have mild anemia, 17 (17.3%) moderate anemia and 7 (7.1%) severe anemia. Decreased platelet levels were observed in 10.2% of adolescent girls.

Evaluation of coagulation indicators showed changes in 57 (58.2%) adolescent girls. 21 (36.8%) of them were found to have a tendency to hypocoagulation disorders in hemostasis system and a prolongation of blood coagulation time. An increase in

recalcification time was observed in the majority of the examined, which testified to the slowing down of blood coagulation processes. A slower re-calcification time, a procoagulant effect, was detected in 10.5% of patients. 9 (15.8%) patients had changes in the balance of coagulation and anticoagulation systems of the blood.

The majority of the examined patients were shown to have a change in the production of gonadotropic and steroid hormones. Most often, violations of LH/FSH ratio, hyperestrogenism, hypoestrogenism, and a decrease in the level of P were detected.

Researching of a hormonal profile of adolescent girls with AUBDP showed a hyperestrogenic form at 53 patients (54%), hypoestrogenic - at 24 (24,5%) and normoestrogenic at 21 (21,4%).

Microscopic examination of 21.4% of adolescents with AUBDP showed an increase in the number of leukocytes in vaginal secretion, which indicates a change in the vaginal biotope in patients with prolonged bleeding from the genital tract.

Ultrasound monitoring of the pelvic organs in patients with AUBDP revealed endometrial hyperplasia in 63.3% of cases (M-echo =  $16.9 \pm 0.4$  mm). 44 (44.8%) had changes in the ovaries, namely persistent follicles or retention formations, a multifollicular structure of the ovaries.

Non-hormonal therapy with the inclusion of agents containing indole-3-carbinol and tranexamic acid resulted in hemostasis, as well as the absence of recurrences of AUBDP within 3 months in all patients.

Comprehensive conservative treatment using combined oral contraceptives and indole-3-carbinol agents allowed to avoid long-term hormonal therapy due to clinical efficacy and objective ultrasound data indicating a significant decrease in the endometrial thickness to physiological parameters ( $16.9 \pm 0.4$  mm before treatment;  $8 \pm 2.1$  mm after treatment -  $p < 0,05$ ). The treatment was not accompanied by adverse reactions and complications.

A medical and protective regime was created for patients with AUBDP and a high level of anxiety revealed during testing, conversations aimed at removing negative emotions, fear for their lives and health were held with them and their parents. With a sedative purpose, herbs were prescribed: motherwort, hawthorn, peony; small doses of daytime tranquilizers.

Combined therapy included general tonic measures in the form of regulation of the day regimen, diet, aimed at normalizing body weight, increasing the duration of sleep and daytime rest, performing breathing exercises. Physiotherapy was carried out once in 4 months, the duration of treatment was 4-6 courses. During remission the patients were

prescribed oxygenotherapy (hyperbaric oxygenation, oxygen cocktail) vortex bathtubs for hands and legs and an electrodream.

Assessment of menstrual function of patients for 2 years after AUBDP showed that girls who received the proposed complex of treatment and rehabilitation that includes physiotherapy did not have recurrent uterine bleeding. The regular menstrual cycles recovered at most patients.

**Conclusions:** The study of the level of anxiety and stress tolerance of patients with AUBDP, clinical features, taking into account echographic findings visually reflecting the structural state of the ovaries secondary to retention formations, sonographic assessment of the endometrium, degree of anemization and hormonal profile is important for choosing and prescribing adequate therapy, phasing of follow-up observation, treatment and preventive measures.

Differential use of the developed complexes of adequate therapy, taking into account the level of anxiety of patients with AUBDP, according to the indications was effective in most patients. Inclusion in medical schemes of physiotherapeutic treatment promoted to reduce the medicinal load on the developing adolescent girls organism. At most of patients occurred improvement of characteristics of the psychoemotional status, positive dynamics of a current of the period of puberty, normalization of menstrual function was observed. Clinical efficacy was accompanied by positive changes in a number of hormonal parameters (normalization of LH and FSH levels, their ratio [LH/FSH]), positive progress of ultrasound findings secondary to improved neurological, general somatic and gynecological health, i.e. quality of life of patients.

From this point of view, the active use of modern clinical diagnostic and new medical complexes using of effective medical schemes for correction of pathological states at adolescence is perspective.

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