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IJEMR Transactions, online available on 28th Nov 2020. Link

[:http://www.ijiemr.org/downloads.php?vol=Volume-09&issue=ISSUE-11](http://www.ijiemr.org/downloads.php?vol=Volume-09&issue=ISSUE-11)

**DOI: 10.48047/IJEMR/V09/I11/35**

Title: **THE PROBLEMS OF THE FORMATION OF THE MENSTRUAL CYCLE IN TEENAGE GIRLS**

Volume 09, Issue 11, Pages: 176-184

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## THE PROBLEMS OF THE FORMATION OF THE MENSTRUAL CYCLE IN TEENAGE GIRLS

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**Abstract.** This article presents data from a study of the results of scientific studies of domestic and foreign scientists in recent years, devoted to the problem of pediatric gynecology, in particular the problems of various disorders of the menstrual-ovarian cycle in the teenage period. The authors argue that there are many unresolved issues regarding etiopathogenesis and treatment of these problems.

**Key words:** menstrual-ovarian cycle, dysmenorrhea, girls, hypermenorrhea, oligomenorrhea, hormonal disorders.

**Relevance.** In practical health care, menstrual irregularities in the pubertal period are established only with pronounced clinical manifestations, and therefore there is no prevention or early treatment. Unit studies are devoted to the role of perinatal and postnatal risk factors in the development of pathology of the formation of menstrual function (Kudinova E.G., 2007; Irgasheva S.U., 2008, Bashmakova N.V. et al., 2009; Ushakova G.A., Elgina S.I., 2010). Currently, there is no doubt that the reproductive function of an adult woman largely depends on the timely and harmonious development of all its links in childhood and during puberty [1]. All stages of the formation of the girl's reproductive system functions during the first 18 years of her life are preparation for future motherhood and in many respects determine the health of not only women, but also her offspring. In this regard, the protection of the health of girls and adolescents is one of the primary tasks of the state's national policy. [2.22] Around the world, one of the factors that worsen the quality of life of girls and adolescent girls is considered to be a pain syndrome accompanying the physiological process - menstruation. According to the WHO, the prevalence of menstrual pain in the

structure of adolescent gynecological pathology is extremely high, while about 15% of them characterize menstrual pain as painful. Juvenile dysmenorrhea - painful menstruation in girls under 18 in the absence of pelvic pathology is a common and often depleting gynecological suffering, regardless of age or nationality. Despite the high prevalence, primary dysmenorrhea in girls is often poorly diagnosed and even ignored by medical professionals and the girls themselves and their mothers, who can accept painful menstruation as a normal part of the menstrual cycle [3,24,25]. According to numerous studies, the reproductive potential of modern adolescent girls is low due to the high overall incidence. The rates of occurrence of somatic diseases among teenage girls are 10-15% higher than in young men. Against the background of an increase in the frequency of somatic pathology, there is a tendency to an increase in gynecological morbidity. [4,5] Menstrual irregularities have recently been considered one of the most common diseases in the gynecology of children and adolescents; according to statistics, they occur in almost every third girl. Usually two large groups of disorders are distinguished: according to the type of hypo- and

hypermenstrual syndromes. [6]

In the structure of menstrual irregularities in adolescent girls, primary dysmenorrhea was 78.3%; secondary - 6.6%; oligomenorrhea - 8.5%. Menorrhagia was found in 4.4%, primary and secondary amenorrhea in 1% and 1.6%, respectively. Dysmenorrhea is one of the most common gynecological diseases among juvenile girls. The frequency of dysmenorrhea in girls ranges from 43 to 90%. [7]

The relevance of this problem is that, on the one hand, it is caused by a significant increase in the frequency of gynecological pathology among adolescent children in recent years, and on the other hand, by their severe socio-demographic consequences, which are expressed in a decrease in the reproductive function of young people, the occurrence of anxiety and depressive disorders in This category of girls, which creates difficulties in the family and in the process of schooling, leads to social maladaptation of adolescents. [8].

In the group of examined adolescent girls with various violations of menstrual function, iron deficiency conditions, the presence of varying degrees of anemia in the mother, prematurity and late pregnancy toxicosis, a

history of which are much more common, are found to be a causative factor. It is noteworthy that iron deficiency during pregnancy in mothers of adolescent girls was most often detected in the group examined with iron deficiency anemia. In the same group, a history of artificial feeding was more common, which was found in 23%. Of the additional factors that obviously have an impact, it should be noted the increased incidence of unbalanced and irregular meals, the abuse of reduced diets in the form of deliberate starvation and adherence to various diets, and insufficient consumption of meat products. [9,26,27]

The cause of the pathology can be vitamin deficiencies, hormonal disorders, mental injuries, infectious diseases, gynecological interventions, liver diseases, and obesity. An important role in the development of menstrual irregularities is played by a genetic predisposition. [10] The leading role of hyperandrogenic states in the structure of endocrine disorders in Armenian girls of puberty emphasizes the authenticity of this pathology for this ethnic group and suggests that the problem of endocrine infertility in the Armenian population dates back to puberty. Based on literature data, as well as on our own experience, we

believe that the early elimination of endocrine disorders, already in the puberty, will avoid problems with childbirth in the future [11].

According to O.V. Bulganina, E.E. Grigorieva (2014), the results of determining the main risk factors for the development of menstrual dysfunction in the adolescent period made it possible to determine the significance of each factor individually and their total effect on the menstrual cycle. The most significant were damaging factors, such as pregnancy with complications, complications in childbirth, acute respiratory infections, up to one-year-old, childhood infections, frequent colds, chronic somatic pathology, increased physical and mental stress - integrated indicator = 1.6-2.3). [12] Girls born prematurely were more likely to have menstrual irregularities during puberty. [13]

Based on the theory of the occurrence of dysmenorrhea, the basis of which is a violation of the synthesis and metabolism of arachidonic acid and its metabolic products (prostaglandins, leukotrienes, thromboxanes, etc.), many researchers [7,9,14,16] consider the use of non-steroidal anti-inflammatory drugs (NSAIDs) sufficient in combination

with antioxidants. A number of pathogenetic mechanisms for the development of dysmenorrhea are based on the hypothesis of a decrease in progesterone in the luteal phase of the menstrual cycle, and therefore the use of progestogens and combined oral contraceptives in the treatment of dysmenorrhea has been shown to be highly effective. Change in the ratio of sex steroids in the premenstrual period (estradiol and progesterone) is accompanied by a change in the rate of oxidation of free fatty acids; increased release of oxytocin, vasopressin, bradykinin, relaxin and biogenic amines in the myometrium; activation of the synthesis of cyclooxygenase and prostaglandin synthetase. These processes potentiate the formation and release of prostaglandins. Hyperprostaglandinemia contributes to hypoxia and myometrial ischemia, which leads to spastic contractions of the uterus, causing pain. Uvarova E.V., Gainova I.G. (year) suggest that in the genesis of dysmenorrhea, an increase in the concentration of E2 PG against the background of decreased progesterone secretion is of primary importance. For the occurrence of pain, it is necessary to irritate the nerve endings with biologically active substances from the group of kinins, prostaglan-

dins, as well as K and Ca ions, normally inside the cells. During menstruation, the integrity of the endometrial cell membranes is disrupted and biologically active substances enter the intercellular space, irritating the nerve endings. [14,15,16]

In girls with an irregular menstrual cycle, hormonal changes in the form of a decrease in thyroid function (thyroid gland) were detected in 16.9% of cases. In addition, the majority of them (63.6%) had a maximum prevalence of antibody carriage, which was the direct cause of thyroid deficiency. A high prevalence of carriage of antibodies to the thyroid gland (31.3%) was also found in girls with normal levels of thyroid-stimulating hormone, which requires further dynamic observation of this category of patients with the aim of early detection of hypothyroidism. [2.17]

Based on the research E.A. Galushchenko, E.A. Lobanov, it was revealed that with all variants of prolactin dysregulation, multifocal ovaries, various types of menstrual irregularities, and deviations in sexual development are characteristic. Patients with prolactin dysregulation are a risk group and should be subject to follow-up at a juvenile gynecologist under 18 years of age, followed by follow-up in a

antenatal clinic. [18]

Hypothalamic syndrome of puberty (GSPP), which is based on reversible functional disorders of the hypothalamus as the central structure that regulates all parts of homeostasis, is characterized by a polymorphism of clinical manifestations in the form of metabolic disorders, neurovegetative and psychoemotional disorders, and endocrine gland dysfunction.

In somatically healthy girls, the frequency of gynecological disorders is 1.5 times lower than in girls with extragenital pathology. Connective tissue dysplasia (DST) refers to systemic disorders and is considered as one of the integral indicators of the health of children and adolescents. There is a clear connection between violations of the formation of the reproductive system and connective tissue dysplasia, trophological insufficiency due to nutritional defects during pregnancy and during childhood. [20]

In girls with an irregular menstrual cycle and changes in autonomic regulation, the tension of the sympathetic autonomic nervous system and borderline changes, according to daily monitoring of blood pressure, are already observed in the early stages of the de-

velopment of the disease, when changes in hormonal and biochemical status are still minimal and do not go beyond the reference values. These changes can serve as criteria for assigning this cohort of patients to a high-risk group for the development of arterial hypertension and reproductive disorders. [21]

According to V. Kokolina (2007), an important aspect in solving the problem of early correction of endocrine disorders is educational work aimed at informing parents about the need to go to medical facilities in the event of an irregular menstrual cycle after a year from the menarche, as well as if there are indirect signs in the form weight gain and / or increased body hair. Given the hereditary nature of most endocrinopathies, accompanied by hyperandrogenism, it is relevant to examine girls whose mothers had endocrine infertility in history. [11]

Research E.A. Stepanova, S.I. Kolesnikova showed the role of an unfavorable course of pregnancy and childbirth in the formation of pathology of the reproductive system of girls in combination with connective tissue dysplasia. The most significant risk factors in their opinion are: the threat of termination of pregnancy, premature birth,

preeclampsia, asphyxia of the newborn. Connective tissue dysplasia in childhood and adolescence is combined with menstrual irregularities, in particular with hypomenstrual syndrome. The authors suggest that metabolic and hormonal changes in adolescents cause disorders of menstrual function and aggravate the course of systemic dysplasia of the connective tissue. [22,23,28]

The results of the study Sh.M. Saduakasova, G.Zh. Zhatkanbaeva et al. (2014) showed that the use of the drug nimesulide was effective in the treatment of dysmenorrhea. Due to its analgesic, anti-inflammatory effects of the drug, relief of pain was observed in all girls in this group with a minimal number of side effects (3.3%). The use of the drug dydrogesterone in the studied groups was also accompanied by a stable therapeutic effect with the relief of pain in 93.3% of girls by the 6th month of therapy and the restoration of ovulatory menstrual cycles in most patients 87.0%.

**Conclusion:** Thus, by analyzing the results of studies in recent years, the most significant medical and social risk factors can be identified, contributing to the formation of menstrual irregularities in girls of puberty,

among which the most common are: complication of pregnancy and childbirth in the mother, prematurity, childhood infections, the presence of chronic somatic pathology, increased physical and / or mental stress, as well as the total effects of damaging factors, such as in the antenatal period, and in the period before puberty.

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