

## "HYPOMENSTRUAL SYNDROME IN ADOLESCENT GIRLS IN THE CONTEXT OF THE COVID-19 PANDEMIC"

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**"Features of menstrual function in adolescent girls in the context of the COVID-19 pandemic" by Khodjaeva A.S., Center for The Development of Medical Excellence, Department of Obstetrics and Gynecology**

### ANNOTATION

The article provides an analysis of clinical-laboratory information on the peculiarities of menstrual dysfunction in adolescent girls in the conditions of the COVID-19 pandemic. The tendency to form hypomenstrual syndrome has been revealed. An effective method of correcting detected menstrual cycle disorders in adolescent girls has been proposed.

**Keywords:** menstrual dysfunction in adolescent girls, coronavirus infection, COVID-19 pandemic, hypomenstrual syndrome, vitamin-mineral complex, folliculogenesis, steroidogenesis.

### INTRODUCTION

The problem of the COVID-19 pandemic continues to be relevant for global health. The pathogenesis has not been studied enough, so new outbreaks of infection appear and the number of infected is growing, there is no pathogenetic therapy [2]. The above dictates the need to coordinate the efforts of all specialists in the fight against COVID-19.

The reproductive health of a teenage girl as a future mother is the link that can influence the health of future generations of citizens of Uzbekistan. But, being in conditions of prolonged stress caused by a viral infection, the girl's emerging reproductive system, in particular menstrual function, is subjected to external aggression. Being the most vulnerable link, changes in the menstrual function of a teenage girl turned out to be very diverse - from amenorrhea to uterine bleeding [1, 3, 4]. In the available sources of information, we have not found studies on the peculiarities of menstrual cycle disorders in adolescent girls in the conditions of the COVID-19 pandemic.

In this connection, the purpose of our study was to study the features of menstrual disorders in adolescent girls in the conditions of the COVID-19 pandemic.

**Material and methods.** We observed 60 teenage girls aged 14-18 years living in Tashkent (Uzbekistan) (from April 2020 to July 2022) suffering from oligopsomenorrhea that developed after a coronavirus infection for 1-2 months (the main group). The control group consisted of 20

patients with normal menstrual cycle parameters. Age, anthropometric, and sexual development data are representative comparable in all patients under our supervision.

In addition to general clinical studies, hormonal profile and AMH were determined for all patients on the 3-5 day of the menstrual cycle. In patients of the control group – once, in patients of the main group – twice during treatment. Also, all patients underwent ultrasound of the pelvic organs in dynamics (the size of the uterus and ovaries, median M-echo, the number and quality of follicles). The exclusion criteria were hypothyroidism, uterine bleeding, organic causes.

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### MATERIAL AND METHODS

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The justification was the following. To compensate for the disorders caused by the aggressive impact of the coronavirus on the emerging MS of a teenage girl, as well as to increase the adaptive capabilities of the body, universal adaptive complexes are being developed that occupy their therapeutic niche along with other methods of treatment. Taking into account the sensitivity of age and the long-term impact of pandemic stress, the correction of MC disorders is associated with the choice of a safe, individual, compliant method of treatment with a high degree of consumer availability (pharmacoeconomical effect).

We assumed that the reproductive system (menstrual cycle) is closely related to the microecology of nutrition. In addition to the 3 main nutritional classes (proteins, fats, carbohydrates), with each meal we receive microscopic doses of regulatory substances that have not nutritional, but informational value (vitamins, macro-microelements, plant extracts) that make up the essence of the microecology of nutrition. The components of this IUD have a hepatoprotective property, allowing to avoid medicinal hepatitis, since their active components have a proven safety profile.

### RESEARCH RESULTS AND DISCUSSION

The initial level of adenohipophysis tropic hormones in the control and main groups corresponded to the normative values with the exception of FSH: in all patients of the main group, FSH was reduced 1A group -  $2.17 \pm 0.5$  IU/l, 1B -  $2.16 \pm 0.6$  IU/l ( $p < 0.001$ ). Also, in these groups, the concentration of estradiol was reduced to  $179.4 \pm 6.2$  pmol/l,  $173.2 \pm 5.2$  pmol/l,

respectively, compared with the control of  $189.2 \pm 73.1$  pmol/l. The AMH value in the control group was  $2.4 \pm 0.5$  ng/ml, in the main groups/subgroups  $1.86 \pm 0.3$  ng/ml,  $1.85 \pm 0.1$  ng/ml ( $p < 0.001$ ). The testosterone concentration in group 1B was higher than  $1.94 \pm 0.06$  nmol/L than in group 1A –  $1.89 \pm 0.09$  nmol/L, control  $1.84 \pm 0.04$  nmol/L. The obtained laboratory data indicated ovarian insufficiency in the patients of the main group who underwent COVID-19 in mild form.

Ultrasound results in the control group corresponded to the age norm. In the subgroups of the main group (1A, 1B), before treatment, in all patients against the background of normal uterine sizes, M-echo was visualized as a thin line  $0.21 \pm 0.02$  mm, several single follicles (1-2) with a diameter of 2-3 mm (groups 1A, 1B) and small point follicles in the amount of 8-8 with a diameter of 1-2 mm. These data confirm ovarian and uterine failure in patients of the main group.

In accordance with the intended purpose, in order to correct the existing disorders, group 1B patients received, in addition to standard treatment, a complex of biologically active trace elements that are part of the Inotir preparation (1p 10 days for 3 months).

Hormonal profile indicators at the end of treatment showed a decrease in the concentration of androgens in patients of the main group/subgroups from  $1.94 \pm 0.06$  –  $1.89 \pm 0.07$  nmol/l to  $1.86/1.87 \pm 0.03$  nmol/L, an increase in the level of estradiol from  $179.4 \pm 6.2$  -  $169.2 \pm 4.2$  pmol/l to  $186.34/184 \pm 72.16$  pmol/l ( $p < 0.001$ ). There was an equalization of the FSH concentration from  $2.17 \pm 0.5$  –  $2.15 \pm 0.6$  IU/l to  $2.6 \pm 0.93$  IU/l, an increase in the AMH value from  $1.86 \pm 0.3$  -  $1.76 \pm 0.11$  ng/ml to  $2.21 \pm 0.22$  ng/ml ( $p < 0.001$ ).

Ultrasound results after treatment in all patients of the main group / subgroups revealed increased echogenicity of the uterine endometrium, which indicated the appearance of full-fledged secretion; healthy early antral follicles appeared in the ovaries in an amount of 4-5, fine-grained disappeared. Visually, there is an appearance of ovarian viability in patients of group 1B. This IUD allowed to normalize folliculogenesis, correct steroidogenesis. Consequently, these bioactive components equally have a pathogenetic effect on the main component of the menstrual cycle – ovulation.

In parallel with the positive dynamics in laboratory and instrumental research methods, the same patients showed an improvement in clinical symptoms - the rhythm of menstruation was restored, the two-phase menstrual cycle appeared (65%). There were no side effects during the use of IUD to correct the menstrual cycle in patients who underwent COVID-19 in mild form.

## CONCLUSIONS

1. In the conditions of the coronavirus pandemic, the reproductive system of a teenage girl was subjected to stress, which led to a violation of the central and peripheral mechanisms of regulation of menstrual function.
2. To restore folliculogenesis, the use of IUD, whose components have cofactor properties, is effective.
3. Adequately restored folliculogenesis leads to normalization of the relationship between the central and peripheral parts of the reproductive system, the balance of the hormonal profile, which is clinically manifested by the restoration of the menstrual cycle.

**LITERATURE**

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