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REPRODUCTIVE HEALTH OF ADOLESCENT GIRLS LIVING IN TURKESTAN REGION

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Abstract

As far as Turkestan is an ecologically uncomfortable region, the results of the analysis of somatic and reproductive health features of adolescent girls living in this region were presented. A comprehensive health assessment was conducted to assess the reproductive function of adolescent girls. Was identified the fact of the affecting the somatic girls' health during puberty prevalence of adverse ecological and extragenital diseases.

Keywords: adolescent girls, reproductive health, extragenital pathology, ecology.

Introduction: Reproductive health remains one of the most pressing issues in modern obstetrics. Puberty plays an important role in the human body. This is a period of change that goes through successive stages for the development of the child's reproductive system [1]. At this stage, the body of adolescents is sensitive to the effects of various adverse environmental factors [2,3]. Reproductive health indicators in Kazakhstan over the past decade have shown a steady increase in gynecological diseases [T. D. Aliyeva, 2013; J. A. Arzykulov, 2010].

Another important factor influencing the development and health of adolescents is the environmental situation in the country. Impairment of environmental control has led to the deterioration of children's health, characterized by the growth of chronic diseases, disorders of physical and mental development and social adaptation [4, 5].

It has been found that pollution of soil and air with heavy metals has a negative impact on children's health. As a result of previous research, high levels of lead were found among the heavy metals in the soil and water of Turkestan. Lead has been shown to cause certain changes in the nervous system, circulatory system, liver, gastrointestinal tract [6].

Purpose: To study the reproductive health of adolescent girls living in the ecologically unfavorable region of Turkestan.

Research material and research methods: 11-19 year aged girls of secondary and special schools in Turkestan region. 5215 girls were surveyed and analyzed. 530 adolescent girls underwent clinical and laboratory studies, and the study of lead in hair was performed by spectrometric method. We used statistical program SPSS17 during material statistical processing.

Research results and analysis: According to the age indicators of the surveyed adolescents, 33.6% of girls aged 11-13 years ($n = 1756$), 25.1% of girls aged 14-15 years ($n = 1308$), the highest rate was among girls aged 16-19 years. 41.3% ($n = 2151$).

Menstrual function is an indicator of girls' reproductive health. Therefore, the proper physical development of adolescent girls affects the formation of future reproductive function. The studied girls were of their age, height and weight, and the average of menarche (Table 1).

Table 1. Clinical and reproductive characteristics of the studied girls

| | Average age, year / month | Average weight, kg | Height, cm | Average menarche age | Duration of menstruation | Interval of menstruation |
|-----|------------------------------|-----------------------|------------|-------------------------|-----------------------------|-----------------------------|
| M±m | 14,6±5,1 | 48,4±9,8 | 153,1±26,1 | 13,2±1,2 | 4,8±1,4 | 27,9±6, |

None of the girls with arrhythmias of menstruation had abnormal levels of sex hormones (FSH, LH, prolactin, estradiol, testosterone). Ultrasound search of the genitals of girls in this group did not reveal any abnormalities too.

We used the Tanner scale to estimate the sexual development of little and adolescent girls. The degree of sexual development is given by the following formula: Ma, Ah, R, Me. Thus, the majority of all assessed indicators (development of the mammary glands, underarm and pubic hair, the formation of menstrual function) correspond to 14 years. A significant part of the highest level of sexual development (assessed in points) is observed at the 17 years. At this age, it can be assumed that the development of secondary sexual characteristics of girls is closer to adult women.

Among the girls who participated in the study, the percentage of certain age and menstrual activity was determined, which showed in a figure below (Diagram 1).

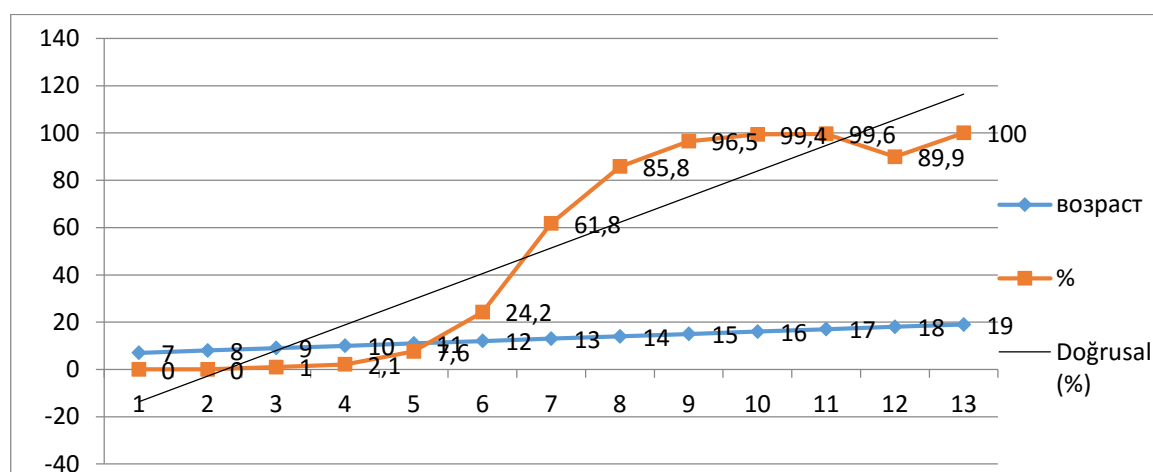


Diagram 1. Percentage of girls with menstrual function depending on age

In results of the study, the number of healthy adolescent girls was 12% (n = 612), other remaining 88% of adolescents were diagnosed with extragenital pathology (n = 4603), which indicates a low level of girls' health (about 20%).

Extragenital pathology occurred among adolescents at the age of 11-13 years 68.8%, 14-15 years 73.5%, 16-19 years 78.9% ($\chi^2 = 79.9$; $p = 0,000$). Therefore, according to many literatures, the frequency of EGP increases with age [7,8].

Adolescent girls had multiple extragenital pathologies in 42.1% of cases. As a result of the study, the highest incidence of blood diseases was 43.70%, followed by respiratory diseases with a frequency of 18.10% and urinary tract diseases with a frequency of 14.80% (Table 2).

Table 2. Structural features of extragenital pathology

| Extragenital pathology | Amount | Percentage (%) |
|--------------------------|--------|----------------|
| Respiratory diseases | 833 | 18,1 |
| Vascular system diseases | 471 | 10,2 |
| Digestive tract diseases | 473 | 10,2 |
| Blood diseases | 2013 | 43,7 |
| Endocrinology diseases | 137 | 3,0 |
| Urinary tract diseases | 676 | 14,8 |
| Overall | 4603 | 100 |

To check the severity of anemia, 530 girls were examined for STDs. Among these analyzes, 232 girls (43.7%) were diagnosed with anemia, including 156 (67.2%) mild anemia, 62 (26.7%) moderate anemia, and 14 (6.03) severe anemia. %). Interesting fact, in 10.3% of cases of anemia, microcytic anemia was detected on the average volume of erythrocytes, regardless of the level of hemoglobin.

Among the studied girls were menstrual disorders: dysmenorrhea 68%, hypomenstrual syndrome 19%, juvenile hemorrhage 15%, amenorrhea 4.5%. A strong correlation was found between the most common dysmenorrhea and extragenital pathology ($r = 0.998$; $p = 0.0001$) (Diagram 2).

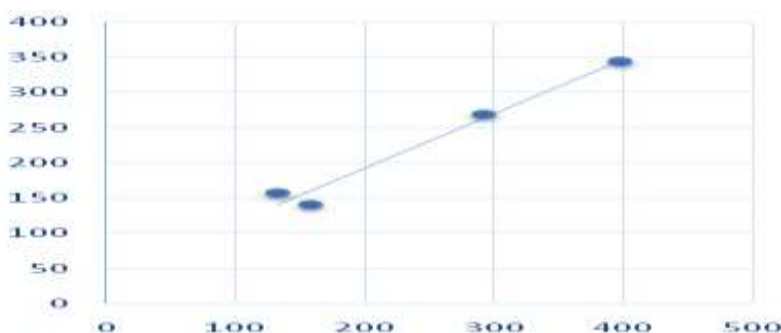


Diagram 2. Linear correlation between EPG and dysmenorrhea

In our study, the study of lead in hair was performed by spectrophotometric method on hair at the back of the head with a length of at least 15-18 cm. Totally 232 adolescent girls were tested for hair. When studying the lead content in girls' hair, the following data were obtained depending on the length of stay in the area (Table 3).

Table 3. The amount of lead in the hair of girls

| Life expectancy in the region (years) | The amount of lead in the hair | Objectivity |
|---------------------------------------|--------------------------------|-------------|
| 1-4 | 0,6693 | $p < 0,05$ |
| 5-9 | 0,6857 | $p < 0,05$ |
| 10-14 | 0,875 | $p < 0,05$ |
| 15-19 | 0,938 | $p < 0,05$ |

Comparing the lead concentration in the hair with the total blood test of girls showed a weak correlation between the average concentration of hemoglobin in erythrocytes and lead +0.23158 ($r = 0.2$), which confirms the literature on the development of hypochromic anemia with increased lead concentrations. WHO claims that there is no concentration of lead in the human body, especially in children.



Conclusion: Extragenital pathology was detected in 88% of adolescent girls living in environmentally unfavorable areas. Extragenital pathology occurred at different frequencies at different ages. The most common is between the ages of 16 and 19 with a frequency of 78.9% ($\chi^2 = 79.9$; $p = 0.000$). The incidence of anemia in the structural features of EGP among the studied adolescents was 43.7% and 10.3% of microcytic anemia. Among the disorders of the menstrual cycle, a strong correlation between dysmenorrhea and EGP was found ($r = 0.998$; $p = 0.0001$). The amount of lead in the hair of adolescent girls was studied in relation to the length of stay in the area and found association with hypochromic anemia.

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