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DATA OF DISPENSARY EXAMINATION OF TEENAGERS IN THE SHALINSKY DISTRICT OF THE REPUBLIC OF CHECHNYA

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Abstract. *Introduction.* Detection of early deviations in health is possible during preventive medical examinations. *Purposes and tasks:* assessment of the health status of schoolchildren in the Republic of Chechnya. *Material and methods.* Within the framework of the clinical examination, 327 secondary school students of the Shali region (138 girls and 189 boys) aged from 14 to 17 were examined. Completed: somatometry; examination by a pediatrician, pediatric endocrinologist, obstetrician-gynecologist, otorhinolaryngologist, pediatric dentist, ophthalmologist, pediatric surgeon, pediatric urologist-andrologist and orthopedic traumatologist. The assessment of physical development is given according to the standards "WHO Growth Reference 2007". *Results.* Average physical development was in 78.3±2.3% of schoolchildren; harmonious — in 60.4±2.7% of students. Disharmonious variants of physical development caused by a deficit in body weight were observed more often (21.7±2.3%) than those caused by excess nutrition (17.9±2.4%). A high prevalence of endemic goiter was revealed (28.3±2.4%); dental caries (65.1±2.6%); posture disorders (32.1±2.5%); chronic tonsillitis (36.8±2.7%); decrease in visual acuity (33.1±2.6%); various options for menstrual irregularities (in 54.3±4.2% of girls). According to the dispensary examination, the II health group was identified in 66.6±3.4% of boys and 65.2±4.1% of girls; Group III in 33.4±3.4% and 34.8±4.1%, respectively. *Conclusion*. Analysis of the data obtained allows planning measures for further examination, treatment, rehabilitation and dispensary observation of students in the Shali district of Chechnya.

Key words*: children; schoolchildren; medical examination; Chechnya*

ДАННЫЕ ДИСПАНСЕРНОГО ОСМОТРА ПОДРОСТКОВ В ШАЛИНСКОМ РАЙОНЕ РЕСПУБЛИКИ ЧЕЧНЯ

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Резюме. *Введение.* Выявление ранних отклонений в состоянии здоровья возможно при проведении профилактических медицинских осмотров. *Цель исследования*: оценка состояния здоровья школьников в Республике Чечня. *Материал и методы*. В рамках диспансеризации было осмотрено 327 учащихся средних школ Шалинского района (138 девочек и 189 мальчиков) в возрасте от 14 до 17 лет. Проведено: соматометрия; осмотр педиатра, детского эндокринолога, акушера-гинеколога, оториноларинголога, детского стоматолога, офтальмолога, детского хирурга, детского уролога-андролога и травматолога-ортопеда. Оценка физического развития дана по нормативам WHO Growth Reference 2007. *Результаты.* Среднее физическое развитие было у 78,3±2,3% школьников; гармоничное — у 60,4±2,7% учащихся. Дисгармоничные варианты физического развития, обусловленные дефицитом массы тела, отмечались чаще (21,7±2,3%), чем обусловленные избыточным питанием (17,9±2,4%). Выявлена высокая распространенность эндемичного зоба (28,3±2,4%), кариеса зубов (65,1±2,6%), нарушения осанки (32,1±2,5%), хронического тонзиллита (36,8±2,7%), снижения остроты зрения (33,1±2,6%), различных вариантов нарушения менструального цикла (у 54,3±4,2% девочек). По данным диспансерного осмотра определена II группа здоровья — у 66,6±3,4% мальчиков и 65,2±4,1% девочек; III группа — у 33,4±3,4% и 34,8±4,1% соответственно. *Заключение.* Анализ полученных данных позволяет спланировать мероприятия по дальнейшему обследованию, лечению, реабилитации и диспансерному наблюдению учащихся Шалинского района Чечни.

Ключевые слова*: дети; школьники; диспансеризация; Чечня*

Preserving the health in children is possible with use of active detection of the initial stages of diseases, timely prescription of optimal treatment and preventive measures. The influence of numerous environmental factors may have a significant impact on growth, development and morbidity in children and adolescents [1–4]. The priority direction of medical care for the children of the country is mass preventive examinations [5, 6]. Preventive measures in children and adolescents in the Russian Federation are currently regulated by the order of the Ministry of Health care of the Russian Federation, 10.09.2017 № 514n "On the order of preventive medical examinations of minors", approved by the Ministry of Justice of the Russian Federation, which came into force on January 1, 2018. Preventive measures involve examination by doctors of different specialties, laboratory and instrumental methods [7, 8]. Effective medical examination is most relevant in the regions densely populated by indigenous peoples of the country [9, 10].

The Republic of Chechnya is located in the south of the European part of the Russian Federation in the eastern part of the North Caucasus. The Shalinskij District is located in the central part of the republic, in the foothill zone. The climate in the district is temperate continental. According to the State Report "On the State of Sanitary and Epidemiological Well-Being of the Population in the Russian Federation in 2012", the Shalinskij District, like the rest of the country, has a moderate continental climate. Shalinskij district, as well as the entire territory of the republic, was classified as a region with a naturally occurring iodine deficiency.

In order to assess the state of health of the population, employees of the St. Petersburg State Pediatric Medical University visited the Republic of Chechnya to conduct preventive examinations of children together with the republic's physicians.

We examined 327 secondary school students of Shalinskij district (138 girls and 189 boys) aged from 14 to 17 years as part of the medical examination. After signing the informed consent, we analyzed medical records (form 026y) and conducted a clinical examination of adolescents. Doctors of different specialties took part in the medical examination: pediatrician, pediatric endocrinologist, obstetrician-gynecologist, otorhinolaryngologist, pediatric dentist, ophthalmologist, pediatric surgeon, pediatric urologist-andrologist, and traumatologist-orthopedist. According to data on somatometry (height and body weight indices), the level and harmony of physical development of schoolchildren were characterized due to WHO Growth Reference 2007 [11]. Physical development was defined as "average" if the adolescents' growth indicators fell within the interval Me±1SD of the scale of age-sex norms (Me — median; SD — standard deviation). Physical development was defined as "below average" if growth was less than –1.1 SD; "low" if it was less than –2.1 SD; «above average» if it was more than +1.1 SD; and "high" if it was more than +2.1 SD of Me±1 SD of the age-sex normative scale. The nutritional status of adolescents was assessed by Kettle's body mass index (BMI), which value was determined by dividing body mass (kg) by the square of body length (m2). Depending on the compliance of BMI values with the norms of the centile scale, schoolchildren were divided into groups:

- with harmonious physical development (15-85th percentile);

- with deficiency of body weight (5th to 15th percentile);
- with protein-energy malnutrition (below the 5th percentile);
- overweight (85th-95th percentile);
- obese (above the 95th percentile).

Statistical processing was performed with the program STATISTICA 7.0 (StatSoft, USA), using the χ^2 criterion modified by Pearson (with Yates correction). Differences in the results were considered statistically significant at $p < 0.05$.

The majority of examined schoolchildren had average physical development — 78.3±2.3% (80.1±2.9% of boys and 76.1±3.6% of girls). Above-average height was frequently observed in boys (11.7±2.3%) than in girls (4.3±1.4%; $p<0.05$); and high stature was observed only in boys (3.3±1.1%). Below-average physical development was observed more frequent in girls (19.6±3.3%) than in boys (8.3±1.9%; $p < 0.01$); short stature was found only in girls (2.2±1.2%). Harmonious body length and weight was observed in the majority of students — 60.4±2.7% (64.7±3.5% of boys and 58.7±4.1%). Disharmonious variants of physical development caused by deficiency of body weight were noted more often (21.7±2.3%) than those caused by excessive nutrition (17.9±2.4%). Body weight deficit was detected in 13.3±2.4% of boys and 17.4±3.2% of girls; a pronounced body weight deficit corresponding to protein-energy deficiency was registered in 6.7±1.8% of boys and 6.5±2.1% of girls. Overweight was determined in 10.0±2.2% of boys and 10.9±2.7% of girls; obesity was registered in 8.3±2.0% of boys and 6.5±2.1% of girls. Morbid obesity was detected in 13 adolescents (5.7±1.3%), who were recommended in-depth examination in specialized clinics.

Nowadays, the medical and social problems are still relevant: high prevalence of pathological conditions of the human body caused by low levels of iodine in the biosphere. Programs developed for iodine supplementation by salt iodization and iodine-containing preparations have not reached their goal in most regions of the country [12]. In examined students, endemic goiter was detected in 15.1±2.6% of boys and 45.6±4.2% of girls ($p < 0.001$). High prevalence of goiter in girls is consistent with menstrual dysfunction; different variants of menstrual disorders were found in 54.3±4.2% of schoolgirls, which required prescription of medical treatment. Girls were more likely than boys to have abundant acne (15.2±2.9% and 9.9±2.2%, respectively), which is consistent with the high prevalence of hirsutism and hypertrichosis caused by iodine deficiency in Chechen schoolgirls [13].

Both defects in oral care, dietary habits and quality of drinking water play a significant role in the development of dental caries. We noted a high prevalence of dental lesions: enamel defects and caries were detected in 65.1±3.5% of boys and 65.2±4.1% of girls. During the examination of oral cavity, the schoolchildren were shown the ways of effective dental care.

Orthopedic pathology was revealed in 43,7±3,5% of boys and 36,9±4,1% of girls. Different variants of posture disorders were noted in 36.7±3.4% of boys and 26.1±3.7% of girls ($p < 0.05$); flat foot — in 10.9±2.7% of girls and 6.7±1.8% of boys. Chest deformities requiring surgical correction (pigeon and funnel) were detected in 6 adolescents. Reduced visual acuity was demonstrated less frequently in boys (21.7±3.0%) than in girls (47.8±4.2%; $p < 0.001$). Most of the schoolchildren were referred for additional examination to an outpatient clinic to verify the diagnosis.

High prevalence of otorhinolaryngological pathology was revealed: in boys, chronic tonsillitis was found in 38.3±3.6%, nasal septum deviation — in 36.7±3.5%; in girls, the results were 34.8±4.1% and 26.1±3.7% ($p < 0.05$), respectively. Vasomotor rhinitis was noted in 9 schoolchildren, and one boy had a significant hearing loss. Changes in the cardiovascular system (autonomic dysfunction syndromes, heart murmurs, increased blood pressure) were noted in 10.0±2.2% of boys and 15.2±2.9% of girls. Diseases of gastrointestinal tract (gastric and duodenal ulcer, gastroesophageal reflux disease, irritable bowel syndrome) were in 6.3±1.3% of schoolchildren. According to the preventive examination data, group II of health was determined in 66.6±3.4% of boys and 65.2±4.1% of girls; group III — in 33.4±3.4% and 34.8±4.1%, respectively.

Thus, objective data on health status of schoolchildren and general morbidity rates can be assessed during mass preventive medical examinations of minors. The analysis of the obtained data makes it possible to plan measures for further examination, treatment, rehabilitation and follow-up monitoring of students in the Shaliskij district of the Republic of Chechnya.

ADDITIONAL INFORMATION

Author contribution. Thereby, all authors made a substantial contribution to the conception of the study, acquisition, analysis, interpretation of data for the work, drafting and revising the article, final approval of the version to be published and agree to be accountable for all aspects of the study.

Competing interests. The authors declare that they have no competing interests.

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Вклад авторов. Все авторы внесли существенный вклад в разработку концепции, проведение исследования и подготовку статьи, прочли и одобрили финальную версию перед публикацией.

Конфликт интересов. Авторы декларируют отсутствие явных и потенциальных конфликтов интересов, связанных с публикацией настоящей статьи.

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