



Identification of Risk Factors in Schoolchildren of the Sakha (Yakutia) Republic: the Results of a Comprehensive Survey in the Health Centre for Children

Egorova T.V., Savvina N.V., Savvina A.D., Lazareva A.A., Govorova M.D., Pavlova O.N.

ABSTRACT

In the article the possibilities, value and a role of screening researches in the Health Centre for formation of a healthy way of life for children and teenagers are considered. The state of health of children is studied on the basis of results of the testing on a hardware-software complex and inspections on the installed equipment. In structure of morpho-functional pathologies on the 1 place are functional infringements of cardiovascular system; on the 2 place is oral cavity pathology, further – disharmonious physical development.

Keywords: children, teenagers, Health Centre, complex inspection, formation of a healthy way of life.

Urgency. The problem of high level of death and depopulation in the Russian Federation requires the safety of children's and teenager's health. This problem has the special medical and social importance. The increasing number of diseases, death, social conditioned diseases of teenager's - a labor potential of society, bring up the problem of their health in rank of national safety.

The World organization of the public health has defined the health as condition of physical, emotional and social welfare, but not only absences of diseases or physical defects. The definition of "full health" includes physical, mental and spiritual health. Physical health is a normal work of all systems, absence of the diseases. Mental health is a general emotional comfort of the person, who lives in harmony with himself and surrounding world. Moral or spiritual health is a system of values and life's aims, motives, respect of human values, morals and laws [1].

Many forms of the pathological conditions develop in childhood under the influence of unfavorable surroundings factors. For instance, atherosclerosis, diabetes and particularly hypertension disease begin at childhood. Functional and morphological deviations of children quite often pass to chronic diseases. So prevention of the chronic diseases must include increasing of the resistant power of the organism and liquidation of the health state's pathologies [3].

Permanent residence in the Far North promotes at children and teenagers forming of the row resistant risk factors of diseases of cardiovascular system. Being long indoors creates the

condition for hypoxia and hypodynamia. The shortage of the motion with not well-balanced diet brings lipid metabolism disturbance and overweight at the expense lipopexia in hypodermic cellulose. Direct cardio – angiotrophic effect, rendered by complex polar circle factors, promotes increasing of the arterial pressure and the following development of arterial hypertension, being as the most important predictor and complication of diseases cardiovascularsystem, so and independent nosologic form. The spread of arterial hypertension among adult population of the Sakha Republic is 30,3% [4].

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Objective: revealing of risk factors of non- infectious diseases development of schoolchildren by the comparative analysis of results examinations of children in countryside by the mobile Health Centre for children on organizing healthy lifestyle for 2012.

Research papers and methods. The Health Centre for children was opened on the functional base of children's hospital in December 2010. In December 2011 due to Program of the Modernization was purchased the Mobile Health Centre, which has allowed to widely practicing the exit inspections in regions of the republic.

The Object of the research is the healthstate of children and teenagers aged 6-17 (the school children) from Yakutsk and 8 regions of the republic (Amginsky, Ust-Aldansky, Momsky, Eveno-Bytantaysky, Olekminsky, Gorny, Hangalassky, Kobyaysky). By these inspections was organized the analysis of 4095 medical cards of patients of the Health Centre (the registration form 025). From them: the number of school children from Yakutsk was 3135 (76,5%), number of rural schoolchildren was 960 (23,5%). 76,4% of the examined children belong to age group from 6 to 14 years, a quarter - to age group from 15 to 17 years. All children of the general schools from Yakutsk were directed on complex inspection by medical workers of the educational institutions, rural children – by medical organizations on the permanent residence.

THE MATERIAL OF THE RESEARCH: report form number 68 "Information about activity of the Health Centre" for 2012 (adopted by order Russian Ministry of Health and Social development from 19.08.2009 number 597); report form number 50 "Information about activity medical organizations of the Sakha Republic, directed to organizing healthy lifestyle and implementation preventive medical activities" for 2012 (adopted by order Ministry of Health of the Sakha Republic) from 01.12.2011 number 01 - 8/4 - 1950); facts of the 4095 medical cards of the patients of the Health Centre(the report form 025).



The Physician defines on the grounds of results of the testing on hardware-software complex and inspections on installed equipment the most probable risk factors, functional and adaptive reserves of the organism with provision for age particularities, forecast the health state, makes clear about a healthy lifestyle, forms the individual program on healthy lifestyle and correcting program of the health deviation.

Educational activity of the Health Centre is obligatory. In the Health Centre are organized studies at health school, consultations, seminars and lectures for children, conferences for parents on forming healthy lifestyle. The physicians of the Health Centre, who pass special training, carry on studies. The Specialists of the Centre closely cooperate with educational institutions of the town.

Statistical processing of results was conducted with the using of the program SPSS.13 and computer program of the processing Microsoft Excel. Probability of the error $r < 0,05$ was estimated as signified.

RESULTS OF THE RESEARCH AND DISCUSSION

Distribution of children on groups of health has revealed the low factor health children among rural schoolboy 8,7 % against 17,3% town schoolboy ($r < 0,05$). Functional deviations are revealed at 82,6% of town schoolchildren and 92,3 % rural schoolchildren ($r < 0,05$) (table 1). For all schoolchildren with risk factors of the diseases development were recommended individual plans on correcting of the health deviation and on healthy lifestyle.

Table 1

Distribution of schoolchildren from Yakutsk and regions of the Sakha Republic on group of health (absolute number, %)

Group of health	Yakutsk n=3135		Regions n=960	
	Absolute number	%	Absolute number	%
1 group	544	17,3	84	8,7
2 group	2567	79,9	721	75,0
3 group	79	2,5	111	11,5
4 group	8	0,25	24	2,5
total	3135	76,5	960	23,5

The comparative analysis of results complex examination has shown that practically each second rural pupil (47,6%) needs in oral hygiene (tabl.2). 30% of rural children have only tooth decay. If procedures on oral hygiene were conducted regularly, they were ascribed to group of healthy children. In some regions (Eveno - Bytantaysky, Ust - Aldansky, Momsky) is extremely low organization of stomatology services; also exists low responsibility of the parents for health of their children and low medical activity of the parents. As to schoolchildren who lives in Yakutsk, conditions of oral hygiene are much better, but percent of children, who needs for oral hygiene is remain high 36,7% ($r < 0,05$).

Table 2

Comparative results of the complex examination schoolchildren of Yakutsk and regions of the Sakha Republic (abs. number, %)

Indicators(risk factors)	Yakutsk n=3135		Regions n=960	
	abs.number	%	abs.number	%
Short height	331	10,5	135	14,0
High height	526	16,7	166	17,0
Overweight	351	11,1	117	12,1
Lack of weight	111	3,5	82	8,2
Increasing of the arterial pressure	159	5,07	18	1,8
Low arterial pressure	32	1,02	8	0,8
Pathologies of the warm-vascular system	676	21,5	144	15,0
Increasing of glucose levels in blood	258	8,2	28	2,9
Increasing of cholesterol in blood	234	7,4	24	2,5
Increasing of carbon dioxide	561	17,8	60	6,2
Number of children who needs oral hygiene	1152	36,7	457	47,6
Anxiety	554	17,6	137	14,2
Pathologies of body composition	668	21,3	287	29,8
Declining of the lung capacity	756	24,1	117	12,1
Declining of oxygen saturation	10	0,31	7	0,7
The number of absolute healthy children	544	17,3	84	8,7

Each fourth pupil from Yakutsk and each third rural child have a declining in physical development ($r > 0,05$). Motor development and puberty are closely connected with physical development. The expressed deviation from standard of the physical development, as a rule,

means the pathologies of the processes of the growing and maturation of the organism. At the same time significant rapid physical development can be sometimes even more dangerous than essential retarding of the physical development, which nearly is indicative of presence hormone disturbance. The pathology of the body composition is high among rural schoolchildren, as effect of the deviation in physical development.

The truly difference is revealed in pathology of the functioning the cardiovascular system that reveals itself basically in the violation of the heart rhythm more among the town schoolchildren on 6,5%, also on 3,27% above children with arterial hypertension.

The express analysis glucose and cholesterol level on the blood periphery has shown that among the town children in 2,5 - 3 times above than among rural schoolchildren. This is explained with the features of nutrition, the low consumption of the natural products, as fish, meat, dairy products, and cereals. Yakut national dishes are used very seldom; moreover town children much often use sugar, sweets, carbonated water and pastries. Also in town conditions it is difficult to keep the regime of diet.

The daily routine of modern town schoolchildren is characterized by declining motor activity, that confirmed by results of the complex examination. The High level of the carbon dioxide 17,8% against 6,2% among rural schoolchildren, declining the lung capacity 24,1% against 12,1% ($r < 0,05$). In fundamental study of the professor A.G. Sucharev is revealed closely correlation dependency between level of the motor activity and development of the muscular, cardiovascular and respiratory systems by children, as well as the degree of their power to resist the disease (1999). The deficit of the motor activity is accompanied with the disturbance of the physical development, the reduction of the functional possibilities of the organism (general physical abilities to work) and adaptive status, development inadequate reaction a cardiovascular system on load and vegetative dysfunctions, weakness supporting-motor device [2].

In the each sixth town schoolboy and each seventh rural schoolboy high level of anxiety ($r > 0,05$) is revealed. The stress reasons of schoolchildren can be a big volume of the educational program at schools and lack of time to do it.

The Complex examination on hardware-software complex has allowed reveal multilateral notion about psycho-emotional and functional conditions town and rural schoolchildren.

CONCLUSION

Thus, complex examination at the Health center revealed a high level of risk, foreground were functional disorders of the cardiovascular system, chronic foci of infection (caries), abnormalities in physical development (overweight, underweight, short stature), functional disorders of breathing.



In the context of increased physical and psychological stress in modern schoolchildren screening allows early detection and correction of various deviations of health and disease states, it is extremely important from the standpoint of the prevention of chronic diseases and early compensation of somatic pathology.



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The authors

"CHILDREN'S HOSPITAL", Yakutsk, the Russian Federation:

Tatyana V. Egorova - pediatrician, Head of Health Centre for Children, postgraduate NEFU named after M.K Ammosov, Arkady1990@mail.ru. 677000, Yakutsk Republic Sakha (Yakutia) Mkr" Sterh", str. Ermolaeva, 1; Nadezda V. Savvina - Ph.D., Professor, Head of Department NEFU named after MK Ammosov; Anastasia D. Savvina - MD, associate professor NEFU named after MK Ammosov, Head of consultation-polyclinic Dep; Aytalina A. Lazareva - pediatrician; Maria D. Govorova – deputy head physician, Olga N.Pavlova – physician.