TO THE IRON DEFICIENCY FREQUENCY AMONG URBAN POPULATION PUPILS

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ABSTRACT

It was studied the iron deficiency frequency state among schoolchildren of the urban population. A sample of urban schoolchildren (12,000) was compiled using the Bradford table. 1200 children at 7-10 ages were examined. (10%).

The study results on the iron deficiency identification among schoolchildren of the urban population indicate that among them the latent iron deficiency frequency decreased, and iron deficiency states increased. The latter is especially noticeable in schoolchildren at 11-14 ages and mainly in adolescent girls.

Keywords: iron deficiency, iron deficiency anemia, girls-teenagers.

Iron-deficiency anemia (IDA) remains the most important medical and social problem in many countries of the world [1, 8]. This problem urgency is determined not only by its wide distribution, but also in connection with the polysystemic disorders, internal organs dystrophy development, which is highly associated with person's low physical and mental capacity [2, 3, 9].

The variety of anemia, its occurrence ease and the course severity among high-risk groups, which include adolescent children, dictate the need for periodic data updating on the frequency and IDA patterns development study, depending on the geographic, social and living conditions, age-sex nature, the physical and sexual development rate of adolescent children [4, 5].

The aim of the research was to study the iron deficiency frequency states among schoolchildren of the urban population.

MATERIAL AND RESEARCH METHODS.

An urban schoolchildren sample (12000) was compiled using Bradfor table, 1200 children at 7-10 ages were selected (10% sample), from whom 930 schoolchildren were examined (sample coverage 77.5%).

The main criteria for assessing the diagnosis of IDA in schoolchildren were low serum iron levels(< 18 μmol/l), high overall (TICS, ≥60 μmol/l) and latent (LSIC, ≥40 μmol/l) iron-binding capacity of blood serum, low coefficient (<20%) saturation of serum iron with transferrin (TSC), hemoglobin level (<120 g/l), erythrocyte count (<3,75x10 /l), Ht (< 0,36 l/l), average content (AHCE, < 27 ng or < 1,68 fmol) and the hemoglobin concentration in one erythrocyte (ACRE, ≤31% or ≤ 19,2 m. mol / l), low volume of one erythrocyte (VOE, ≤ 75 mmk^3 or fl). When assessing the latent iron deficiency state (LID), we focused on a decrease in the serum iron level (≤18 μmol/l), Hb (≥ 120 g/L), erythrocytes (4.25-3.75x10 /l), a decrease in the ferritin level (Fe) in the blood (≤40 ng/ml), a tendency to an increase in the content (≥3.3 g/l). In determining the iron deficiency (ID) severity in the examined schoolchildren, we followed the standardization principles and laboratory research methods unification. [1, 2, 4]

The material was processed by the nonparametric statistics method - Fischer's exact method (FEM) using an angular transformation (q) for relative values.

RESEARCH RESULTS AND DISCUSSION

Our research results showed that the LID frequency in schoolchildren, depending on their gender, does not statistically differ (23.0% and 24.1%, P>0.05), their frequency also does not differ in the 7-10 age period(19,0% and 24,9%, P>0,05) and 11-14 years old (27,0% and 23,8%, P>0,05).

The LID prevalence among schoolchildren in our studies was 235 per 1000 examined, respectively in boys and girls: 230 and 241. When comparing these data with a similar work carried out in our region more than 15 years ago [3], we found that urban schoolchildren are currently experiencing a decrease in LID prevalence (235 per 1000) than the data of the above authors. (231 per 1000, 4,0 = 4,86, P<0,001).

It follows from the data in the table that the IDA frequency is significantly higher in female schoolchildren (32.5%) versus 17.4% boys, P <0.05), this pattern is also revealed in the 7-10 years age aspect (30.0% against 13.8%, Pφ <0.031) and 11-14 years old (34.9% against 21.0%, Pφ <0.043).

The IDA prevalence in our studies was 249 in 1000 examined, which is two times higher than the data of N.N. Chukanin etc. [6]:124 in 1000 (Up = 8,19, Pφ<0,001). The total LID and IDA frequency in our work was 451 in 1000 examined, which does not differ significantly from those of M.G. Ganieva (3.6): 445 in 1000 (Pφ> 0.05), but their frequency among female schoolchildren increased (56.6% versus 40.4% boys, Pφ <0.001).

We found that among schoolchildren with age (7-10 and 11-14 years old), the total LID and IDA frequency increases (43.9% and 13.1%, Pφ <0.025) and this was due to an increase in manifest forms of ID (IDA) among girls at 11-14 ages (34.9%>) against its latent forms - LID (23.3% o, Pφ <0.01). At the same time, it was found that among schoolchildren, there is predominantly IDA mild severity -115 (17.7%, Pφ <0.012) than its average severity - 67 (7.2%). In girls, the total frequency of I and II IDA severity is increased (32.5%, Pφ <0.005) than in boys (17.4%).

CONCLUSIONS

1. The hemoglobin health of schoolchildren in Andijan urban population has deteriorated in recent years, which was manifested by a decrease in the LID incidence and an increase in manifest forms of iron deficiency.

2. Among school-age children, IDA mild severity is predominantly observed, and in girls, the total frequency of I and II of its severity degrees is 2 times increased than in boys.

Iron deficiency frequency in school-aged children (urban population)

№	Age of the examined	sex	Number of examined	LID		IDA		LID+IDA	
				abs	%	abs	%	абс	%
1	7 - 10 years old	B	232	44	19,0	52	13,8	76	32,8
		G	233	58	24,9	70	30,0	128	54,9
	Up			0,72		1,86		3,1	
	Pφ			>0,05		<0,031		<0,001	
2	11- 14 лет	B	233	63	27,0	49	21,0	112	48,1
		G	232	54	25,3	81	34,9	135	58,2
	Up			0,46		1,72		1,58	

	Pφ			>0,05		<0,043		>0,05	
3	Total	B	465	107	23,0	81	17,4	188	40,4
		G	465	112	24,1	151	32,5	263	56,6
	Up			0,19		2,56		3,41	
	Pφ			>0,05		<0,005		<0,001	

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