



EVALUATION OF OTOLARYNGOLOGY AT THE TEENAGE POPULATION LIVING IN THE AREAS WHERE THE OIL REFINERY

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ABSTRACT

A comprehensive medical examination survey of adolescents. Materials comprehensive medical examinations and morbidity level in out-patient clinics for 5 years is possible to determine the true prevalence of ENT-pathology among the teenage population of residential areas in the vicinity of the dislocation refinery.

Key words: Teenage population, Oil refinery, Otolaryngology, Comprehensive medical examination.

INTRODUCTION

Human Health; the natural state of the body, is characterized by its balance with the environment and the lack of any pathological changes¹⁻⁷.

Such an approach to the characterization of health is especially important for children and adolescents, as the body of children and adolescents in the process of growth and development, so in most susceptible to the influence of external factors of low intensity, and the impact of external factors on the adolescence of the body is not limited to the moment of impact, and affects the future of its development and formation^{8,9}.

The health of children and adolescents quite naturally considered as one of the most important medical and social criteria for evaluating the environmental situation and living conditions in general^{10,11}.

The air pollution is in a high proportion of emissions from industrial facilities located near residential areas^{6,12-14}.

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The share of oil refining accounted 45.6% of total emissions of sulfur dioxide, carbon monoxide 69.3%, 97.1% hydrogen sulfide¹⁵⁻¹⁸.

To assess the impact of atmospheric emissions, identify the nature and direction of their impact on the human in many studies used the analysis of the health of child and adolescent population, as the most suitable band for social homogeneity, constantly occurring processes of morpho-functional development, lack of occupational hazards and bad habits^{7,9}.

Most other children and teenagers from regions with unfavorable sanitary situations are suffered from upper respiratory tract, skin, allergic diseases. They were detected in 1.2-1.3 times more often than in children and adolescents control area¹⁹.

At the same time there is a slight predominance of ENT diseases in adolescents living in areas where the air contains phenol, styrene, benzene, gasoline and sulfur compounds^{10,19}.

Numerous authors have studied the effects of industrial emissions particularly oil refining and petrochemical production in the upper airways of the population living in the contaminated residential areas noted that the effects of dust cause a variety of changes in the mucosa, usually wearing nonspecific²⁰.

However, there are some common features of the impact of emissions oil refining and petrochemical production, which manifest themselves in the form of diseases combined with a top-down in nature.

In order to study the features of the structure of morbidity diseases of the upper respiratory tract, determine the prevalence and patterns of chronic diseases of the nasal cavity, pharynx, larynx, the relationship of overlooking industrial dust, its concentration, with the duration of exposure conducted clinical and functional studies of the state of the upper respiratory tract in adolescents living in various residential areas of the industrial city. The results of clinical examination of patients were compared with a control group not exposed to emissions from industrial plants, and the equivalent of sex, age, and length of stay of the main group of patients.

EXPERIMENTAL

To compare the incidence of diseases of ENT level-studied the incidence of teenagers living in the north-western residential area of Shymkent (control).

A comprehensive medical examination survey of adolescents. Materials comprehensive medical examinations and morbidity level in out-patient clinics was studied 5 years make it possible to determine the true prevalence of ENT-pathology among the teenage population of residential areas in the vicinity of the dislocation refinery.

RESULTS AND DISCUSSION

Adolescents controls dry front rhinitis (Table 1), atrophic rhinitis, pharyngitis, laryngitis is not marked. In adolescents, the basis for the group in contact with chemical pollutants refinery, they were found in 1.04; 0.28; 2.20; and 0.14% respectively.

Table 1: The level, structure and dynamics of the upper respiratory tract disease in adolescents and control group (100 infants) according to the uptake in outpatient clinics

Diseases of ENT organs	The main group	The control group
	On average over 5 years	On average over 5 years
Front dry rhinitis	1.04 ± 0.04	-
Catarrhal rhinitis	16.14 ± 0.69	4.78 ± 0.19
Atrophic rhinitis	0.28 ± 0.01	-
Vasomotor rhinitis	28.8 ± 1.20	1.34 ± 0.05
Ear infections	9.34 ± 0.38	6.30 ± 0.27
Sinusitis	1.08 ± 0.04	0.80 ± 0.03
Catarrhal pharyngitis	8.24 ± 0.34	4.26 ± 0.18
Atrophic pharyngitis	2.20 ± 0.09	-
Hypertrophic pharyngitis	3.24 ± 0.13	0.26 ± 0.005
Chronic tonsillitis	4.74 ± 0.19	2.84 ± 0.12
Catarrhal laryngitis	7.38 ± 0.31	1.58 ± 0.06
Atrophic laryngitis	0.14 ± 0.005	-
Hypertrophic laryngitis	2.80 ± 0.4	1.22 ± 0.05

In addition, the observed increase in the number of chronic catarrhal rhinitis (16.14 ± 0.69), pharyngitis (8.24 ± 0.34) and laryngitis (7.38 ± 0.31), which was attributed to irritation by chemicals contained in the air southeastern residential areas of the city. Among those core group has sharply increased the number suffering from vasomotor

rhinitis. The average level of incidence vasomotor rhinitis amounted to 28.8 ± 1.20 and $3.26 \pm 0.14\%$. It should be noted that the increased number of adolescents with atrophic forms ($0.28 \pm 0.01\%$) rhinitis.

There has been an increase in the number of hypertrophic processes of the upper respiratory tract, mainly due to hypertrophic pharyngitis ($3.24 \pm 0.13\%$) and laryngitis ($2.80 \pm 0.11\%$). We attribute this due to the adverse effects of environmental and hygienic factors associated with environmental pollution south eastern residential area soil refinery plant emissions. By comparing the detected abnormal mucosa of the upper respiratory tract segment adolescents under chronic inhalation oil refinery emissions and control, it should be noted that chemical pollutants contained in the emissions caused more profound changes, both in quantitative and qualitative terms. Considering the data obtained as a function of gender, found (Table 2) the prevalence of pathological changes in ENT organs at the teenage male population that is probably due to bad habits (smoking), failure to comply with hygiene and prevention.

Table 2: Distribution of the main group of teenagers with different nosological forms of chronic rhinitis sexual characteristics (100 adolescents appropriate sex $x \pm m$)

Nosology	Girls n = 142	Youths n = 149	Both sexes n = 291
	100 Girls	100 Youths	100 are examined
Front dry rhinitis	0.8 ± 0.03	1.39 ± 0.05	1.04 ± 0.04
Catarrhal rhinitis	14.9 ± 0.64	17.2 ± 0.72	16.14 ± 0.69
Atrophic rhinitis	0.20 ± 0.008	0.39 ± 0.01	0.30 ± 0.01
Vasomotor rhinitis	22.12 ± 0.90	35.58 ± 1.42	28.8 ± 1.20

Our findings on the state ENT organs in adolescents living in adverse ecological and hygienic southeastern residential area revealed a number of features. Of the identified abnormalities in the nose prevailed catarrhal and hypertrophic processes of the atrophic.

A clear relationship between the duration of residence in environmentally unfriendly southeastern residential area and the level of prevalence of the different clinical entities chronic rhinitis (Table 3).

Prolonged and continuous exposure to industrial dust containing chemical pollutants in the upper respiratory tract by 7 to 10 years or more primary causes changes in the mucous membrane of the respiratory tract. The simultaneous effect of dust and chemical factors

leads to the development of toxic-dust rhinitis, pharyngitis and bronchitis. The main pathogenetic mechanisms include hyperactivity long gland mucosa of the upper respiratory tract.

Table 3: The prevalence of the different clinical entities of chronic rhinitis in adolescents living in environmentally disadvantaged areas, depending on the residence (100 adolescents)

The main nosological forms of chronic rhinitis	Length of Stay					In the middle of each nosology
	From 1 to 3 years	From 4 to 6 years	From 7 to 10 years	From 11 to 14 years	From 15 to 18 years	
Catarrhal rhinitis	13.73 ± 0.53	14.92 ± 0.58	15.94 ± 0.62	17.52 ± 0.68	19.19 ± 1.22	16.14 ± 0.69
Atrophic rhinitis	0.18 ± 0.007	0.29 ± 0.01	0.33 ± 0.015	0.37 ± 0.01	0.54 ± 0.01	0.28 ± 0.01
Vasomotor rhinitis	12.42 ± 0.48	19.11 ± 0.78	26.42 ± 0.72	37.84 ± 1.49	48.33 ± 1.61	0.28 ± 1.20
Total	28.62 ± 0.78	37.14 ± 1.24	46.33 ± 1.85	59.94 ± 2.51	71.38 ± 2.80	48.32 ± 2.03

Changes in the mucous membrane of the upper respiratory tract in the absence of inflammatory reactions characterize the initial phase of chronic rhinitis of dust, differentiating it from over the course of infectious-inflammatory rhinitis. Chronic exposure to low concentrations of dust and chemical pollutants causes a change in the systems of neurohumoral regulation of respiratory processes that predispose to the development of hyper reactivity of the mucous membrane of the nasal passages. This contributes to the sensitization to infectious agents. Serious complication of chronic exposure to occupational dust and chemical pollutants is wasting and atrophy of the mucosa of the upper respiratory tract with the addition of an allergic component.

The table shows that the duration of stay of adolescents in a residential area is environmentally unfriendly catarrhal rhinitis prevalence was 13.73 ± 0.13 cases of vasomotor rhinitis 12, 42 per 100 adolescents. There is clearly dominated by catarrhal form over the other nosological forms. High levels of vasomotor rhinitis.

However, the dynamics of growth due to the increased length of stay in a residential area is environmentally unfriendly highest in incidence vasomotor rhinitis. So, while

maximizing the length of residence in a residential area is environmentally unfriendly catarrhal rhinitis prevalence increased by 1.4 times, atrophic rhinitis by 3 times, vasomotor rhinitis in 3.9 times.

Significant difference of the results in atrophic and vasomotor rhinitis is very high. A study of trends in the incidence of major disease forms of rhinitis showed that the growth rate of morbidity gipopotetichesky atrophic rhinitis in adolescents environmentally unfriendly residential area on one interval length of stay was 0.09 cases catarrhal rhinitis and 1.37 cases of vasomotor rhinitis 8.91 cases per 100 people.

Based on these results the following conclusions were made. Unfavorable conditions in adolescents, associated with air pollution southeastern residential area refinery emissions, contribute to the growth in the incidence of diseases of the upper respiratory tract; long-term exposure to chemical pollutants in the ENT organs adolescents leads to the preferential formation of vasomotor rhinitis.

Thus, a significant difference in the incidence of adolescent level is highest in the vasomotor and atrophic rhinitis, suggesting that the specificity of the pathological effects of refinery emissions.

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