

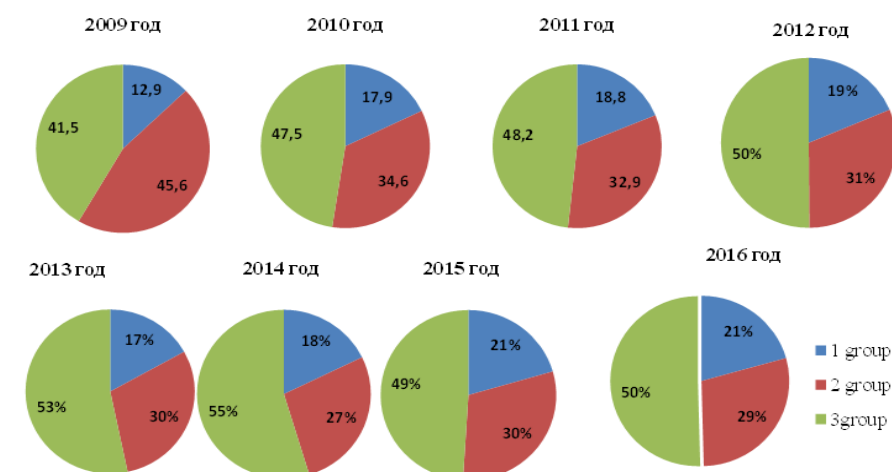


Fig. 4. The proportion of newly recognized disabled people taking into account the disability groups for the RS (Y)

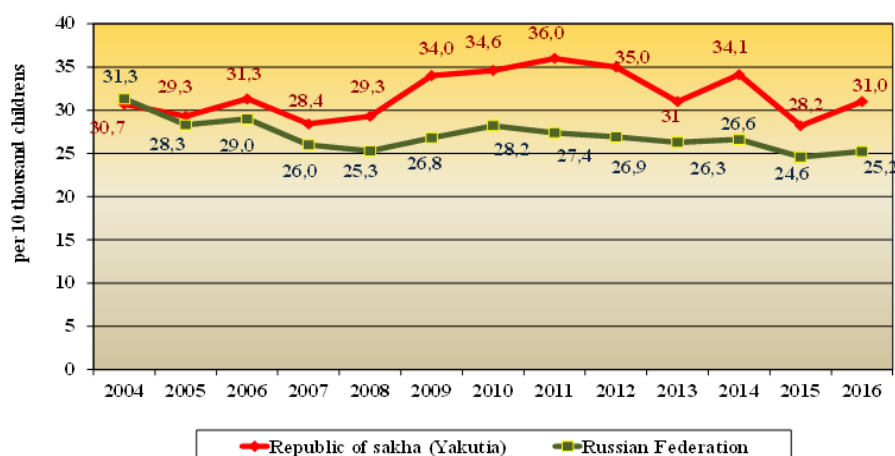


Fig. 5. The level of primary disability of the child population in the Republic of Sakha (Yakutia) and Russian Federation

account territorial, ethnic characteristics in the context of modern socioeconomic development» under the Program for Comprehensive Scientific Research in the Republic Sakha (Yakutia) for 2016-2020.

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ANALYSIS OF DETECTABILITY OF COPD RISK FACTORS AMONG THE POPULATION OF YAKUTSK

ABSTRACT

The most common reason for the development of chronic obstructive pulmonary disease (COPD) is the damage to airways and lungs caused by tobacco smoking. About 15% of all long-time smokers develop a clinically significant obstructive pulmonary disease. In 80-90% of all cases the development of COPD is connected with smoking. Total incidence of COPD (per 1000 people) in 2008-2014 in Russia, Far Eastern Federal District and the Sakha Republic (Yakutia) in comparison is 5-5,3-6,3-6,8-8-8,6-8,2 in the Sakha Republic, 3,7-4,2-4,7-4 in the Far Eastern District and 3,7-3,9-4,1-3,7 in Russia. The number of COPD cases in the Sakha Republic over time remains high compared to the Far Eastern District and Russia, despite the low density of population. The total number of respiratory system diseases (RSD) in 2014 (preliminary data) was 74,115; pneumonia – 2,308; chronic bronchitis – 19,438; COPD – 5,740; bronchial asthma – 8,773. 2014 saw a decrease in cases of pneumonia by 334 patients as compared to 2010. The number of COPD cases increased by 1,354 patients, and the greatest increase was in the number of bronchial asthma cases – by 2,542 people. (Absolute numbers per Yakutsk Republican Medical Information and Analysis Centre data, 2014). The aim of our research was to study COPD risk factors among the citizens of Yakutsk working in dusty and polluted environments and chemical companies, as well as the people who have a bad habit of smoking. We conducted surveys and examined respiratory functions (spirometry). We examined 70 people living in the City of Yakutsk who had respiratory complaints, were subject to occupational hazards, or were long-time smokers. In order to study the COPD risk factors, we used 'A Patient's Questionnaire' developed by the Pulmonology Research Institute of Russia's Federal Medical-Biological Agency, Moscow. The questionnaire contains 22 questions to identify risk factors and respiratory symptoms. We also used a self-actualisation test to evaluate the impact of COPD on the health status of a responder. This test on chronic obstructive pulmonary disease (COPD) can be used for a simple and reliable evaluation of the health status of patients who have the disease. It is used in conjunction with other diagnostic methods and allows for a relatively simple evaluation of COPD's level of impact on health status. This test is used to evaluate the impact of COPD on the

well-being and everyday life of a patient. The most common symptoms among the COPD patients included: a cough of over 3 months – 71.4%, productive cough – 52.8%, a feeling of compressing chest pain – 32.8%, exertional dyspnoea – 75.7%, weakness – 52.8%. Common causative risk factors include smoking, i.e. those who have a history of smoking of over 10-20 years, and occupational hazards, i.e. work in chemical companies and in dusty, polluted environments. Examination of respiratory functions using spirometry showed that 40 patients (57%) had light respiratory dysfunction, 25 (36%) had moderate respiratory dysfunction, and 5 (7%) had severe respiratory dysfunction. The results of self-actualisation test show that COPD has an insignificant effect on the quality of life of 51 surveyed people (73%), has a moderate effect on the quality of life of 16 people (23%), and has a serious effect on the quality of life of 3 people (4%). All 100% of examined people have clinical aspects of COPD and respiratory dysfunction that corresponds to spirographic classification of COPD.

Keywords: COPD, risk factors, smoking, occupational hazards, bronchitis, spirometry, quality of life, shortness of breath, cough, sputum.

Introduction

The most common reason for the development of chronic obstructive pulmonary disease (COPD) is the damage to airways and lungs caused by tobacco smoking. About 15% of all long-time smokers develop a clinically significant obstructive pulmonary disease. In 80-90% of all cases the development of COPD is connected with smoking. Total incidence of COPD (per 1000 people) in 2008-2014 in Russia, Far Eastern Federal District and the Sakha Republic (Yakutia) in comparison is 5-5,3-6,3-6,8-8-8,6-8,2 in the Sakha Republic, 3,7-4,2-4,7-4 in the Far Eastern District and 3,7-3,9-4,1-3,7 in Russia. The number of COPD cases in the Sakha Republic over time remains high compared to the Far Eastern District and Russia, despite the low density of population.

The total number of respiratory system diseases (RSD) in 2014 (preliminary data) was 74,115; pneumonia – 2,308; chronic bronchitis – 19,438; COPD – 5,740; bronchial asthma – 8,773. 2014 saw a decrease in cases of pneumonia by 334 patients as compared to 2010. The number of COPD cases increased by 1,354 patients, and the greatest increase was in the number of bronchial asthma cases – by 2,542 people. (Absolute numbers per Yakutsk Republican Medical Information and Analysis Centre data, 2014).

Existing data on the prevalence of COPD has significant discrepancies owing to differences in research methods, diagnostic criteria and approaches to data analysis [1]. The lowest estimations of COPD prevalence are usually obtained from patient surveys on them being diagnosed by a doctor to have COPD or equivalent disease. For example, in most countries, less than 6% of the population heard from a doctor that they have COPD [1]. This is probably due to widespread lack of understanding and under-diagnosis of COPD [2]. Despite these issues, new data allows for drawing some **Conclusions** on the prevalence of COPD, not least because of improved quality control of results.

The aim of our research was to study

COPD risk factors among the citizens of Yakutsk working in dusty and polluted environments and chemical companies, as well as the people who have a bad habit of smoking.

Materials and methods of research. We conducted surveys and examined respiratory functions (spirometry). We examined 70 people living in the City of Yakutsk who had respiratory complaints, were subject to occupational hazards, or were long-time smokers.

In order to study the COPD risk factors, we used 'A Patient's Questionnaire' developed by the Pulmonology Research Institute of Russia's Federal Medical-Biological Agency, Moscow. The questionnaire contains 22 questions to identify risk factors and respiratory symptoms. We also used a self-actualisation test to evaluate the impact of COPD on the health status of a responder. This test on chronic obstructive pulmonary disease (COPD) can be used for a simple and reliable evaluation of the health status of patients who have the disease. It is used in conjunction with other diagnostic methods and allows for a relatively simple evaluation of COPD's level of impact on health status. This test is used to evaluate the impact of COPD on the well-being and everyday life of a patient.

Results and discussion

70 people over the age of 40 (a criterion for inclusion in research) took part in the survey who had respiratory complaints, were subject to occupational hazards, or were long-time smokers. 43 of them were men (61.5%), and 27 – women (38.5%).

Most of the surveyed patients were between 40 and 50 years old. Average age of men was 47 ± 1.2 years. Average age of women was 44 ± 2 years (table 1).

The height of most of the surveyed patients was between 160-170 cm, representing 27 (38.5%) people. The average weight of all surveyed patients was 80-90 kg (table 2).

Most of the surveyed patients have a history of 10 to 30 and more years of smoking (table 3).

A packet/years index is calculated using the following formula: number of

cigarettes smoked daily $\times$ years smoked / 20. According to our data most of the surveyed people smoke between 15 and 20 cigarettes a day. At present, of all the surveyed people, 47 are smoking (67.1%), 17 have given up smoking (24.3%), and 6 have never smoked (8.5%). Social status of the surveyed people according to questionnaire results was: employed – 56 (80%), retired pensioners – 8 (11.4%), working pensioners – 6 (8.6%) (table 4).

Analysis of occupations shows that most of the surveyed people work in an industrial company, including drivers, mechanics, chemists, operators of steam turbines, compressor units,

Table 1

Analysis by gender profile

Age	Absolute number	%
40-50	38	54,3
50-60	16	22,9
60-70	13	18,6
70-80	3	4,3

Table 2

Analysis of surveyed people's height and weight

		Absolute number	%
Height	150-160	20	28,6
	160-170	27	38,5
	170-180	22	31,4
	<180	4	5,7
Weight	50-60	10	14,3
	60-70	15	21,4
	70-80	18	25,7
	80-90	20	28,6
	90-100	7	10%
	<100	2	2,8

Table 3

Analysis of the number of years the patient smoked

Years smoking	Absolute number	%
5-10	8	11,4
10-20	21	30
20-30	19	27,1
30-40	8	11,4
40-50	8	11,4
Более 50	1	1,4

Table 4**Analysis of packet/years ratio among the surveyed people**

Points	Absolute number	%
0-10	22	31,4
10-20	9	12,8
20-30	8	11,4
30-40	9	12,8
40-50	6	8,5
50-60	4	5,71
60 and over	4	5,71

Table 5**Analysis of professional occupations**

Professional occupation	Абс. число	%
Working in industrial company	50	71,4
Engineering-technology	2	2,8
Scientific research work	2	2,8
Economics and law	10	14,2
Culture and arts	1	1,4
Medicine	5	7,1

Table 6**Analysis of visits to outpatient clinic**

Once a year	Absolute number	%
0-1	50	71,4
2-3	11	15,7
4-5	2	2,8
<5	2	2,8

Table 7**Analysis of concomitant diseases**

Concomitant diseases	Absolute number	%
Arterial hypertension	47	67,1
Diabetes mellitus type 2	8	11,4
Coronary artery disease and angina	23	32,8
Other diseases	7	10

boilers, turbines, main control boards for pipelines, and Yakutskenergo Company boiler house coal-heaver, representing 50 people (71.4%). Among them 47 people (68.5%) work in dusty and polluted conditions or in chemical companies (table 5). To the question "How many times a year do you visit an outpatient clinic" 50 people (71.4%) answered "Once a year for any reason" (table 6).

The highest number of surveyed

patients have arterial hypertension – 47 (67.1%), 23 people (32.8%) have coronary artery disease and angina, 8 people (11.4%) have diabetes mellitus type 2, 7 people (10%) have other diseases (pyelonephritis, chronic gastritis, cholelithiasis, osteoporosis, arthrosis, atopic dermatitis, hepatitis) (table 7).

The results of self-actualisation test show scores of 0-10 points among 51 surveyed people (73%), 11-20 points – 16 (23%), 21-30 points – 3 (4%).

Examination of respiratory symptoms showed that 50 people (71.4%) had cough, 37 (52.8%) – productive cough, 23 (32.8%) – a feeling of compressing chest pain, 53 (75.7%) – exertional dyspnoea, 37 (52.8%) – weakness.

Examination of respiratory functions using spirometry showed that 40 patients (57%) had light respiratory dysfunction, 25 (36%) had moderate respiratory dysfunction, and 5 (7%) had severe respiratory dysfunction. FEV1/FVC ratio of less than 70% of normal value was found in 15 (21%) of examined patients.

Conclusions

1. The most common symptoms among the COPD patients included: a cough of over 3 months – 71.4%, productive cough – 52.8%, a feeling of compressing chest pain – 32.8%, exertional dyspnoea – 75.7%, weakness – 52.8%.

2. Common causative risk factors include smoking, i.e. those who have a history of smoking of over 10-20 years, and occupational hazards, i.e. work in chemical companies and in dusty, polluted environments.

3. Examination of respiratory functions using spirometry showed that 40 patients (57%) had light respiratory dysfunction, 25 (36%) had moderate respiratory dysfunction, and 5 (7%) had severe respiratory dysfunction.

4. The results of self-actualisation test show that COPD has an insignificant effect on the quality of life of 51 surveyed people (73%), has a moderate effect on the quality of life of 16 people (23%), and has a serious effect on the quality of life of 3 people (4%).

5. All 100% of examined people have clinical aspects of COPD and respiratory dysfunction that corresponds to spirometric classification of COPD.

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SCIENTIFIC REVIEWS AND LECTURES

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GENETIC FACTORS OF PREDISPOSITION TO AUTOIMMUNE THYROID DISORDERS

ABSTRACT

The article presents a review of the literature about the genetic factors of predisposition to autoimmune thyroid disorders, the main of which are diffuse toxic goiter and autoimmune thyroiditis. Studies of recent years have made it possible to establish that genetic factors make a significant contribution to the development of the autoimmune process in autoimmune thyroid disorders.

Keywords: endocrine system diseases, autoimmune thyroiditis, diffuse toxic goiter, genetic factors, predisposition.

Significant changes in the function of the endocrine system in the human body occur in the North, first of all, under the influence of cold. Thus, the production of thyrotropin-stimulating hormones and glucocorticoids increases, the high level of which contributes to the increase of nonspecific resistance of the organism to the cold.

Thyroid hormones increase metabolism, separate oxidation and phosphorylation processes, and also activate the biogenesis of mitochondria. It is known that the level of thyroid hormones in the blood under physiological conditions is regulated mainly by internal (thermal) and external (cold) thermoreceptors [18].

Among the various effects of thyroid hormones, the greatest attention of researchers is drawn to the effect of these compounds on energy processes and basic metabolism, the so-called «caloric effect».

The introduction of thyroid hormones to animals significantly increases the thermogenesis and oxygen consumption of the body. The stimulating effect of thyroxine on the formation of brown fat in rats is shown, which is one of the manifestations of adaptation of small animals to cold.

Thus, the thyroid gland plays an important role in the regulation of heat exchange, and, consequently, the degree

of adaptation of the organism to the effect of low temperatures on the human body. Because of how correctly the thyroid gland functions, the person's working capacity, his activity and vital activity depends.

The Republic of Sakha (Yakutia) refers to territories with extreme temperature and light conditions, a pronounced seasonality of the climate, which contributes to the high prevalence of thyroid pathology both among children and adults [15].

In the structure of diseases of the thyroid gland the leading place is occupied by autoimmune diseases [3, 9, 43], the main of which are such diseases, accompanied by pathological conditions as hyperthyroidism (diffuse toxic goiter) and hypothyroidism - autoimmune thyroiditis (Hashimoto's thyroiditis).

Autoimmune thyroiditis is an activation of the immune system in the thyroid gland with the phenomena of lymphocytic infiltration (the penetration of lymphocytes into the tissue), in which specific thyroid antibodies are detected in the blood, which is evaluated as a sign of inflammation. According to different authors, the prevalence of thyroiditis in the world is from 1% to 12%, more often this pathology occurs in older persons [14].

The autoimmune thyroiditis is characterized by the appearance of

antibodies to thyroperoxidase (AT - TPO), thyroglobulin (TG). When antibodies (AT) are combined with T-killers, the latter acquire cytotoxicity and destroy the thyroid follicles. In their place, connective tissue proliferates.

Variants of the course of the hypothalamus thyroiditis:

1. Depending on the size:
- hypertrophic, can be combined with nodes;
- atrophic.

2. Depending on the function of the thyroid gland, distinguish:

- normal;
- hyperthyroidism (phase of thyrotoxicosis or Hashimoto-toxicosis);
- lowed-hypothyroidism (it is a natural outcome of the disease).

Autoimmune thyroiditis develops slowly. There is no characteristic clinical picture, as well as with iodine deficiency goiter. There are clinical manifestations associated with an increase in the thyroid gland and a violation of its function:

1. Syndrome of a lesion of a thyroid gland. Complaints in patients are associated with an increase in the organ and are not specific for the disease. With palpation more often than with endemic goiter, it is possible to find a compaction of the thyroid gland; the consistency of the gland is uneven, it is mobile, there may be a sensation of the node (s). These signs target the doctor to exclude