premature births at the first level, which is the main task facing the obstetrician-gynecological service of the Republic of Sakha (Yakutia) in 2017 .

The article was prepared based on the results of the project «Multivariate study of the health status of the indigenous and newcomers of the Republic of Sakha (Yakutia) with the aim of optimizing the regional programs to improve the quality of life of the inhabitants of the republic, taking into account territorial, ethnic characteristics in the conditions of modern socioeconomic development.» Programs of comprehensive scientific research in the Republic of Sakha (Yakutia), aimed at the development of its productive forces and social sphere for 2016-2020.

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THE STATE OF THE HYDROSPHERE AND MALIGNANT NEOPLASMS IN YAKUTIA

ABSTRACT

The analysis of hydrochemical factors of the environment with the purpose of finding out the degree of their influence on the incidence of malignant neoplasms of the population living in extreme conditions of the Far North has been carried out.

Keywords: neoplasms, hydrochemical factors of the environment, morbidity.

INTRODUCTION

Annually around 10 million new cases of malignant neoplasm (MN) and more than 6 million deaths from them are detected in the world [6, 7]. In Russia, the overall incidence rate of all forms of MN in men for 2001-2015 increased by 26.8% (from 313,90 / 0000 in 2001 to 398,10 / 0000 in 2015), and in women - by 32,6% (from 306,5 to 406,40 / 0000), and at the end of 2015, there were more than 3.4 million patients registered with specialized oncological institutions in the country with a diagnosed disease, which is 36.5% (over 1.24 million people) 2001 (2.16 million people) [4].

In the Republic of Sakha (Yakutia) (RS(Ya)) in 2015, 2528 people were registered, or 651 (25.7%) people. more compared to 2001 (1877 people). During this period of time, the number of males with the first diagnosis of MN increased by 22.8%, and in women - by 28.4%. The increase in the number of patients was accompanied by an increase in the proportion of people of older age groups, both in men and women.

In Yakutia, the beginning of the third millennium is characterized by a fairly high average annual rate of growth (2.15%) in the number of patients diagnosed with MN for the first time in their life, which was mainly due to relatively high rates of increase in the incidence of women (2.25%) , than for men (1.75%).

Meanwhile, for the analyzed period, according to the State Committee on Statistics RS(Y), in the population indicators there was a negative balance of the average annual number of the population (for men -0.30, and for women -0.05%). The increase in the number of people with a negative dynamics of the demographic situation testifies to the true nature of the growth of the indicators of cancer morbidity in the republic [3]. According to the WHO Committee on Cancer Prevention, 90% of tumors are associated with external causes and 10% depend on genetic factors (7).

A review of the literature on the microelement composition of soils and plants on the territory of the Republic shows that in general Yakutia is characterized by Mo, Se, B deficiency, with a relatively high content of Fe, Cu. In soils of natural forage lands (76%) and in arable (91%), alkaline and strongly alkaline environments predominate.In the valleys of the rivers Amga, Aldan, Vilyui, Lena, chloride-sulfate are common, and in chloride lands, chloride, sulfate, and hydrocarbonate types of salinity. Consequently, according to the physico-microelement composition of soils and plants, which are extremely important for the successful development of a living organism, the territory of the Republic of Sakha can be classified as anomalous geochemical provinces of the country [5].

The **aim** of the study is to assess the degree of influence of hydrochemical environmental factors on the incidence of disease in people living in extreme conditions of the North in the territory of intensive industrial development.

Materials and methods of research. The materials of reporting of the Yakutsk Republican Oncology Dispensary for the period from 2001 to 2015 were analyzed. Materials on the chemical composition of surface waters, presented by the Yakutsk and Tiksinsky territorial departments for hydrometeorology and environmental control, were used for the period from 1979 to 1985. Mathematical analysis 71,800 samples were sampled for each of 28 ingredients taken from 82 observation points for 1979-1985 located throughout the territory of the republic. The statistical data were processed according to the generally accepted methodology, using the «Statistical» software package (Table 1).

Results and discussion

Analysis of cancer morbidity in the

Table 1

Dynamics and rank of malignant neoplasms incidence rates of the RS (Ya) population for 2001 and 2015 (Distribution by average annual growth rate) *

Localization	Incidence on the 100 000 population		Place on morbidity level		Growth (%)	Average Annual, %	Place on growt
	2001	2015	2001	2015			
MEN							
All malignant neoplasms (C00-97)	253,7	265,9	-	-	104,8	0,30	-
Prostate (C61)	5,2	32,2	13	2	619,2	12,95	1
Skin melanoma (C43)	0,5	1,4	20	18	280,0	7,10	2
Other neoplasms of the skin (C44, 46.0)	6,0	16,2	12	5	270,0	6,85	3
Soft tissues (C46- 49)	1,8	3,1	17	15	172,2	3,70	4
Central nervous system (C71, 72)	3,6	5,5	14	13	152,8	2,85	5
Kidneys (C64)	8,0	12,2	10	9	152,5	2,85	6
Rectum, anus (C19-21)	8,9	13,3	7	7	149,4	2,70	7
Pancreas (C25)	8,4	11,6	9	10	138,1	2,20	8
Bones and cartilage (C40, 41)	2,0	2,4	15	16	120,0	1,25	9
Hemoblastosis (C81-96)	11,1	12,9	6	8	116,2	1,00	10
Bladder (C67)	8,8	9,6	8	11	109,1	0,60	11
Colon (C18)	14,3	14,4	5	6	100,7	0,50	12
Testicle (C62)	2,0	2,0	16	17	100,0	0,05	13
Liver (C22)	22,4	20,8	4	4	92,9	-0,50	14
Thyroid (C73)	1,5	1,3	18	19	86,7	-0,95	15
Lungs (C33, 34)	59,5	49,4	1	1	83,0	-1,25	16
Lip (C00)	1,3	1,0	19	20	76,9	-1,75	17
Larynx (C32)	6,9	4,6	11	14	66,7	-2,65	18
Stomach (C16)	37,5	24,3	2	3	64,8	-2,85	19
Esophagus (C15)	30,1	7,5	3	12	24,9	-8,85	20
WOMEN							
All malignant neoplasms (C00-97)	191,6	203,6	-	-	106,3	0,40	-
Soft tissues (C46.1,- 49)	0,6	2,5	20	18	416,7	10,0	1
Bladder (C67)	0,8	2,6	21	17	325,0	8,20	2
Kidneys (C64)	6,0	9,3	14	8	155,0	2,95	3
Central nervous system (C71, 72)	3,2	4,9	16	15	153,1	2,90	4
Body of the uterus (C54)	5,6	8,5	15	9	151,8	2,80	5
Cervix (C53)	13,7	19,2	4	2	140,1	2,25	6
Mammary gland (C50)	29,4	38,2	1	1	129,9	1,70	7
Colon (C18)	9,9	12,6	6	4	127,3	1,65	8
Ovary (C56)	9,5	11,2	7	7	117,9	1,10	9
Rectum (C19-21)	6,8	7,5	12	11	110,3	0,65	10
Thyroid (C73)	7,3	6,9	11	12	94,5	-0,40	11
Liver (C22)	12,5	11,5	5	6	92,0	-0,70	12
Hemoblastosis (C81-96)	9,2	8,0	8	10	87,0	-0,90	13
Other neoplasms of the skin (C44, 46.0)	6,6	5,7	13	14	86,4	-0,95	14
Stomach (C16)	15,1	11,9	3	5	78,8	-1,60	15
Placenta (C58)	1,4	1,1	19	21	78,6	-1,60	16
Pancreas (C25)	7,9	5,9	9	13	74,7	-1,95	17
Skin melanoma (C43)	1,6	1,1	18	20	68,8	-2,45	18
Lungs (C33, 34)	25,2	14,0	2	3	55,6	-3,85	19
Bones and cartilage (C40, 41)	2,2	1,2	17	19	54,5	-3,95	20
Esophagus (C15)	7,3	3,5	10	16	47,9	-4,80	21

* International standard

population of the RS (Y) for 2001-2015. allows to note that Yakutia is still the territory of oncological risk in the Russian Federation as a region that characterizes the positive trend in the indicators of morbidity in the Russian Federation. Thus, in men, the average annual rate of increase in the total morbidity rate of SA was 0.30%, and in women 0.40%. The maximum growth rates in men were manifested in prostate cancer (12.9%), melanoma skin (7.1), skin (6.8), soft tissue (3.7). Further, a relatively high average annual rate of increase was found in patients with MN: central nervous system (2.85%), hemoblastosis (2.8), kidney (2.8), rectum (2.7) and pancreas (2.2%) (table1).

Women have a high average annual growth rate of MN soft tissue (10.0%), bladder (8.20), kidney (2.95), CNS (2.90), MN body (2.80) and cervix 2.25%). The following ranking places in terms of average annual growth rates are: breast cancer (2.8%), colon (3.6), ovaries (1.10) and rectum (0.65%). Dynamics of the annual morbidity rate for the five-year-old population of the RS (Ya), depending on the involvement of their place of residence in the basins of large rivers for 2001-2015 is presented in Table. 2.

For the identification of medical and geographical areas, administrative-territorial units and the involvement of their territory in the basin of the major rivers of Yakutia have been taken into account [3].

The following zones are distinguished: I - Anabar-Olenek (Anabar, Olenek), II - Prilenskaya (Lena River), III - Yanskaya (Yana River), IV - Indigirskaya (Indigirka River), V - Kolyma-Alazeyskaya (basin the rivers Kolyma, Alazeya), VI - Viluiskaya (Vilyui River) and VII - Aldan-Amginskaya (Aldan and Amga rivers). In the Prilenskaya zone (main stream), sub-zones are identified: Verkhnelenskaya, which includes Lensky, Olekminskyuluses, Sredlenskaya - Kobiaisky, Gorny, Namsky, Yakut, Khangalassky, Megino-Kangalassky, and Nizhnelenskaya - Zhigansky, Bulunskyuluses.In the Aldan-Amga zone, respectively: Amga (agricultural) in the Alekseevsky, Amginsky, Ust-Aldansky, Churapchinskiyuluses (the main occupation of the population is agriculture, 96.3% is indigenous), and the Aldan subzone, which includes Aldan, Neryungri, Ust-May, and Tomponsky ulus (non-indigenous population 92.3%).

In the Vilyuisky zone, two subzones are distinguished: the upper current (industrial), which includes the Myrninsky ulus, in which 97.6% of the inhabitants

Table 2

Dynamics of incidence of malignant neoplasms (C00-97) of the population of territories of RS(Ya) involved in basins of the large rivers for 2001-2015, on 100000 population

Zone (subzone)		District	All population			Men			Women		
				2006-2010	2011-2015	2001-2005	2006-2010	2011-2015	2001-2005	2006-2010	2011-2015
I.		I. Anabar-Olenekskaya	Anabar-sky	117,5	158,6	150,4	118,3	189,4	159,4	117,5	128,3
			Oleneksky	156,3	204,6	209,6	214,0	182,6	182,7	98,1	204,6	235,8
II Prilenskaya	IIA-Nizhne-lenskaya		Bulunsky	168,5	160,6	135,4	136,0	140,1	100,7	203,7	160,6	173,5
			Zhiganskiy	201,8	206,2	248,4	163,3	210,3	286,8	238,6	206,2	211,4
	IIБ Среднелен-ская		Kobiaisky	198,1	189,8	177,4	208,2	206,1	168,0	188,2	189,8	186,3
			Namsky	145,7	139,3	176,0	158,5	158,1	179,4	133,8	139,3	172,9
			Yakutsky	214,5	184,8	243,5	215,9	175,7	234,4	213,3	184,8	251,8
			Gorny	147,2	139,8	146,7	150,3	113,0	158,9	144,3	139,8	135,1
			M-Kangalassky	175,6	144,9	278,1	168,2	204,4	273,3	183,6	144,9	283,1
			Khangalassky	189,1	221,8	227,7	215,3	237,7	253,7	164,1	221,8	202,6
	IIB IIV Verkhne-lenskaya		Olekminsky	243,6	289,8	265,0	276,0	287,7	279,5	211,8	289,8	250,7
			Lensky	252,9	191,3	207,6	260,6	182,6	187,2	245,1	191,3	228,0
III Janskaya			Ust-Yanskiy	156,1	190,3	227,8	160,4	182,4	236,0	151,6	190,3	219,7
			Verkhoyansky	168,8	168,7	209,2	192,7	195,8	226,7	144,9	168,7	192,3
			Eveno-Bytantaisky	144,7	143,0	157,3	143,7	146,3	160,9	145,7	143,0	153,9
IVIndigirskaya			Allaahovsky	286,7	277,4	320,1	315,5	325,0	354,6	258,7	277,4	288,1
			Momsky	191,4	265,7	247,1	164,8	261,8	261,8	217,1	265,7	233,5
			Abyisky	229,7	202,3	258,8	190,4	243,4	272,6	267,8	202,3	245,8
			Oymyakonsky	146,6	218,5	251,3	141,7	216,6	269,7	152,2	218,5	230,1
VKolyma-Alazeyskaya			Nizhne-kolymskiy	223,0	252,5	315,7	267,1	284,2	350,6	179,6	252,5	284,0
			Sredne-kolymsky	168,6	204,9	231,2	172,1	224,0	278,7	165,2	204,9	187,2
			Verkhne-kolymskiy	260,3	452,5	365,6	273,7	441,6	303,6	246,7	452,5	426,9
VI Vilyuyskaya	A- Verkhne-vilyuyskaya		Myrninsky	191,4	221,5	238,8	187,9	213,9	213,9	194,9	221,5	263,4
	VI-Б. Nizhne-vilyuyskaya		Suntar	170,8	176,7	182,5	176,5	178,7	189,0	165,4	176,7	176,5
			Nyurbinsky	171,5	180,5	205,7	188,1	200,6	222,3	155,6	180,5	189,9
			Verkhne-vilyuysky	145,5	180,0	183,8	173,3	160,9	176,5	118,5	180,0	190,8
			Viluysky	192,0	166,8	168,4	189,3	189,7	161,1	194,6	166,8	175,2
VIIAldan-Amginskaya	VII-A Leno-Amginskaya		Amginsky	155,1	157,5	179,0	177,0	214,5	179,6	134,3	157,5	178,4
			Tattinsky	192,1	156,6	232,4	189,0	166,9	269,1	195,1	156,6	197,0
			Ust-Aldansky	168,5	187,7	229,5	171,4	201,5	221,0	165,9	187,7	237,4
			Churapchi-nsky	190,1	249,7	174,9	204,9	208,5	176,7	175,6	249,7	173,1
	VII-Б Aldanskya		Aldansky	256,8	353,5	395,0	269,6	345,5	461,9	243,9	353,5	328,2
			Neryungrinsky	212,0	281,7	287,2	211,7	264,1	274,1	212,2	281,7	299,2
			Tomponsky	187,2	267,7	247,3	206,4	285,4	238,3	168,4	267,7	256,1
			Ust-Maysky	197,3	279,2	353,5	198,2	288,2	389,4	196,3	279,2	316,8
The Republic of Sakha (Yakutia)				200,5	210,9	241,3	205,7	212,8	241,1	195,5	210,9	241,6

are visitors, the main occupation is work in the diamond mining industry and the lower current (agricultural) in the Suntar, Nyurba, Verkhnevilyui, Vilyuisky ulus, 95% of the population are people of indigenous nationality, the main occupation is agriculture.

It is likely that an increase in the incidence of heart failure may be due to the presence of close conjugation with negative for homeostasis environmental factors (EF), the nature of nutrition, the provision of the body with important vitamins, harmful household habits, economic conditions of life and, finally, with a change in the number and age structure of the population.

In addition, it is impossible to exclude the possibility of the existence on the vast territory of the republic of provinces, anomalous with respect to the most important for human microelements (Ca, Mg, Zn, Cu, Mo, Se, etc.), which, according to the published data, can have a significant impact on indicators of cancer. In particular, it was found that alkaline (53%) active reaction of the environment prevails in the soils of natural fodder lands of Central and Southern Yakutia [1]. Chloride-sulfate, sulfate types of salinity are common in the valleys of the Lena, Vilyui, Aldan, and Amga rivers, and chloride-sulphate-hydrocarbonate salinity predominates in alas lowlands.

According to A.D. Egorova et al. [2], in the soil of Central Yakutia, despite the sufficient content of total reserves of N, P, K, mobile forms N and P is small, K, Ca and Mn are sufficient. Frequent droughts cause the formation of highly mineralized lakes. In the Lena-Vilyui interfluve (Gornyi Ulus) in meadow pastures, the Mo, Cu, B content is low, and Fe, Mn is high. In the Nyurba region of Co, Fe, Cu - within normal limits, Mn - a reduced amount, and B - insufficient. In the northeastern taiga intermountain river basins and the Kolyma lowland, the B content is low, Mo is low, Cu, Zn is normal, Co is elevated, Fe, Mn, I is high.

It is established that the formation of the chemical composition of the waters of the Lena and Amga rivers plays an important role in their feeding by highly mineralized groundwater. The waters of the rivers Lena, Vilyui, Amga are characterized by a very high average annual content of organic substances and biogenic components. It should be noted that the hydrochemical composition of surface waters varied significantly with the season (winter-summer) and had a fairly wide mosaic in their content over individual rivers (Table 3).

Table 3

The hydrochemical characteristics of surface waters (rivers, lakes), depending on the season in the RS (Ya) [5]

Hydrochemical characteristic	number of samples	during a year	Including by seasons	
			summer	winter
Physical properties				
Suspended substances (mg / l)	653	21,4±1,36	29,0±2,23*	13,4±1,39*
Transparency (cm)	636	64,1±1,66	55,8±2,21*	76,3± 2,30*
The reaction of the medium (PH)	756	7,00±0,54	6,90±0,03	7,07±0,02
Gas composition				
Carbon dioxide (CO2 mg / l) Oxygen (O2 mg / L)	624	9,9±0,27	7,88±0,26*	12,9±0,47*
Carbon dioxide (CO2 mg / l) Oxygen (O2 mg / L)	734	10,1±0,07	9,90±0,09	10,4±0,12
Organic matter, incl. polluting				
Biochromate oxidability (mg / l)	721	29,2± 0,85	28,0±1,06	30, 5± 1,36
BOD5 (mg / L)	671	1,89±0,04	1,63±0,06*	2,17±0,06*
The chromaticity (in degrees P-CO of the scale)	625	41,9±1,27	43,1±1,38	40, 2± 2,41
Petroleum products (mg / l)	4203	0,208±0,004	0,250±0,005*	0,138±0,0064*
Phenols are volatile (mg / l)	3070	0,006±0,0005	0,005±0,0001	0,008±0,0017
Surfactant (mg / l)	3798	0,039±0,001	0,036±0,01*	0,045±0,0016
Biogenic components and polluting inorganic substances (mg / l)				
Ammonia nitrogen	4028	0,12±0,004	0,10±0,003*	0,173±0,0085*
Nitrogen nitrogen (mg / l)	3904	0,043±0,002	0, 024±0,0016*	0,082±0,0039*
Nitrate nitrogen (mg / l)	4019	0,01±0,001	0,009±0,0008	0,021±0,0019
Nitrogen general	2235	0,23±0,005	0,195+0,0064*	0,280±0,0095*
Phosphorus mineral	4373	0,015±0,0027	0,037±0,0030*	0,021±0,0070
Phosphorus total	4368	0,036±0,0033	0,228±0,0060*	0,032±0,0060
Iron (Fe) (mg / l)	3910	0,20±0,004	0,23±0,035*	0,14±0,01*
Silicon (Si)	4364	2,4±0,03	2,3±0,03	2,7±0,07*
Copper (Cu) (mg / l)	3564	2,5±0,04	2,7±0,05*	2,3±0,07*
Zinc (Zn) (mg / L)	3585	10,3±0,19	9,6±0,22*	11,7±0,35*
The main ions (mg / l)				
Carbonate (HCO3)	619	50, 6± 1,67	39,6± 1,63*	65, 5± 3,03*
Sulfate (SO4 +) (mg / L)	571	17,2±0,86	12,7±0,53*	24, 5± 1,98*
Chlorine (Cl	3744	21,82±0,77	11,01±0,52*	44,44±1,96*
Calcium (Ca2 +)	4328	19,81±0,73	15,79±0,71*	31,06± 1,78*
Magnesium (Mg2 +)	3635	5,38±0,11	3,89±0,10*	8,65±0,24*
Mineralization (mg / l)	3459	137,7±3,00	94,71±2,31*	233,94± 7,49*
Total hardness (mmol / l)	572	1,16±0,04	0,90±0,04*	1,54±0,09*

* The difference is statistically significant compared to the average annual values.

Due to the fact that the main part of the republic's population still uses sources of open water as a source of drinking water, it is of some interest to ascertain the strength of the connection between the total incidence rates of organ systems and systems with the components of the chemical composition of natural water bodies, depending on the season of the year.

According to the correlation results, the deserving ingredients from 28 counted substances of surface waters can be in the summer time of year 10, in winter - 15. The exposure time is 20 years.

In the summer, the correlation between the indicators of the total oncological morbidity and the chemical composition of the surface waters of the areas identified by us was revealed: the correlation of the direct average force with the content of nitride nitrogen (0.65), oil products (0.50) and direct low - with mineral content phosphorus (0.36), chlorine (0.26) nitrate nitrogen (0.14), surfactant (0.13) and zinc (0.02). The presence of low feedback of the general morbidity of MN with Fe (-0.39), Mg (-0.17) and total mineralization (-0.15) was revealed.

In Yakutia, malignant tumors of the digestive system, according to the magnitude of the total incidence rates, still remain the leading localizations among other forms of MN organs and systems. The presence of the coefficients of direct correlation with the polluting hydrosphere has been found to differ in degree: nitride nitrogen (r = 0.59), mineral phosphorus (0.33), petroleum products (0.21), nitrate nitrogen (0.13), synthetic surfactants (0.10), chlorine (0.09), and an inverse medium-strength bond was found with the iron content (-0.59).

In the North, the duration of exposure to negative effects on the human body, especially in winter (8 months), significantly increases, both quantitatively and qualitatively, than in the summer (4 months). According to the results of the correlation analysis, the indices of the disease of the digestive system were directly related to nitrate nitrogen (r = 0.61), zinc (0.23), nitride nitrogen (0.19), sulfates (0.19), mineral phosphorus (0,17), synthetic surfactant (0.15), total phosphorus (0.11), chlorine (0.08), and total nitrogen (0.02). Essential was the relationship of the reverse direction with water soluble oxygen (r = -0.56) and iron content (-0.55).

Among organs and systems, respiratory organs in terms of incidence of malignant neoplasms in both groups of population occupy the second place after digestive organs. In this, a certain role is played by the identified ingredients considered to be surface water pollutants and having a direct correlation with the incidence rates.

Among organs and systems, respiratory organs in terms of incidence of malignant neoplasms in both groups of population occupy the second place after digestive organs. In this, a certain role is played by the identified ingredients considered to be surface water pollutants and having a direct correlation with the incidence rates.

In Yakutia, breast cancer (BC) in the frequency of morbidity in the female population has for many years invariably ranked first. According to the analysis, incidence rates regardless of the time of year have a direct strong correlation with nitrogen nitride (r = 0.75 in summer and 0.68 in winter) and a line of medium strength with oil products (r = 0.45 and 0.48, respectively).

In addition, in the summertime there is a direct but weak degree of connection with mineral phosphorus (0.23), nitrate nitrogen (0.14), chlorine (0.12), in winter

with zinc (0.23), nitrate nitrogen (0.20), chlorine (0.19), phenol (0.09), sulfates (0.05), and synthetic surfactants (0.03). In summer, with a content of magnesium (-0.55), mineralization (-0.54), Fe (-0.35) and in winter with water-soluble oxygen (-0.67) magnesium (-0.50), a significant reverse direction correlation relationship.

Of interest are the results of a correlation analysis of the incidence of reproductive organs in women with hydrosphere factors, depending on the season. The presence in the summer of the year of a direct average bond strength with the content of petroleum products (r = 0.55), nitrous oxide (0.41) and chlorine (0.30), direct weak - with mineral phosphorus (r = 0.14), zinc (0.13), nitrate nitrogen (0.09) and the opposite direction with magnesium (-0.37), salinity (-0.34) and iron (-0.03).

It should be noted that in winter, the degree of influence of oil (0.82), nitrate nitrogen (0.77), chlorine (0.41), phenol volatile (0.40), iron (0.34) is greatly enhanced. There is a direct, weak correlation between the incidence rates of malignant neoplasms of the genital organs and the level of contamination of surface waters: surfactants (r = 0.23), total nitrogen (0.16), mineral phosphorus (0.16), sulfates (0.15), zinc (0.14), ammonium phosphorus (0.12). In winter, in women, oxygen deficiency (-0.35) and magnesium (-0.20) contribute to an increase in the incidence of disease of the reproductive organs.

The beginning of the third millennium (2001-2015) in the Republic of Sakha (Yakutia) is characterized by an increase in the incidence of hematological malignancies with an average annual growth rate of 1.0%, which makes it possible to consider work aimed at clarifying the role of pollutants in the environment (primarily the hydrosphere) etiological aspects of this phenomenon.

According to the correlation analysis, the presence (with seasonal fluctuations) of a direct average bond strength with oil content (r = 0.61 in summer and 0.67 in winter), chlorine (0.49 and 0.57, respectively), surfactants (0,40 and 0.57), nitride nitrogen (0.32 and 0.55), mineral phosphorus (0.26 and 0.49), and nitrate nitrogen (0.16 and 0.51). According to the analysis, in order to increase the incidence of malignant neoplasms of the hematopoietic organs and lymphatic tissues, inadequate iron content in water (r = -0.4) in summer and -0.21 in winter) was essential.

In winter, a stronger direct relationship was found between the incidence of hemoblastosis with phenol (0.53), sulfate (0.46), total (0.45) and ammonium (0.42) nitrogen and total phosphorus (0.38) and more a weak direct relationship with the content of zinc (0.03) and oxygen deficiency (-0.19).

In **conclusion**, we note that oncogenic hygiene, being one of the most important areas of primary cancer prevention, is designed to solve the problem of identifying and eliminating the possibility of human exposure to carcinogenic environmental factors. In order to achieve positive results in the work aimed at improving the oncological epidemiological situation in the Republic of Sakha (Yakutia), special attention should be given to the timely detection of risk factors associated with environmental pollution, including the hydrosphere, which contribute to the increase in the incidence of malignant diseases.

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