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Malignant tumors morbidity of the Republic Sakha (Yakutia) population in the beginning of the third millennium (2001-2010)

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Retrospective analysis of 16.6 thousand cases of malignant tumor morbidity of Yakutian population during the period of 2001-2010 has been conducted. First decade is characterized by existence of positive tendency in general oncologic disease dynamics, clearly marked by sex-age and territorial conditionality. By 2015 predicted level will be 1.2 times higher than initial rates in 2001.
Keywords: tumors, prevalence, prognosis.

Introduction: About 10 millions of new cases of malignant tumor and more than 6 million deaths from them are detected every year. (IARC, 2007)

According to official statistics in Russia, about 2.79 million patients with detected diagnosis were on the books in the end of 2010 that is 22.5% higher than rates of 2001. (Chissov V.I., Starinsky V.V., Petrova G.V., 2012).

Research Objective. Clarifying population, territorial and time regularity of oncologic disease of Yakutian population and make prognosis.

Materials and methods. Retrospective analysis of report materials of YaROD, that include 19.6 thousand cases of malignant tumor in Republic Sakha (Yakutia) during the period 2001-2010. Statistical processing of materials is carried out according to generally accepted method using application program package "Statistika".

Results and discussion. Beginning of third millennium (2001-2010) in Yakutia is characterized by quite high growth rate (7.5%) of absolute number of patients with firstly detected diagnosis of malignant neoplasm which was basically developed due to relatively higher rates of growth in women (8.2%) than in men (6.8%). Meanwhile during this period according to State Committee for Statistics of Republic Sakha (Yakutia) in rates, characterizing population of Yakutia, negative growth of average annual population (men – 5.9%, women – 1.2%) has been observed, that shows the true growth of oncologic diseases rates.

Analysis of oncologic diseases in Republic in 2010 allows noting, that men like in previous years have high specific weight of malignant tumors of digestive (35.3%) and respiratory (26.0%) apparatus. Urogenital system carcinoma has quite high aggregate indices, which are more than 7.2% of all neoplasms in men. Lung cancer (23.1%), stomach cancer (9.9%), oesophageal cancer (6.8%), hepatic cancer (6.4%) as before hold leading positions in structure of oncologic diseases in men. Next places in order of priority are divided as follows: hemoblastosis cancer (6.6%), prostate cancer (4.6%), central nervous system cancer (4.5%), straight (4.4%) and segmented intestine (4.0%) cancer, skin cancer (3.4%), pancreatic gland cancer (3.3%), laryngeal cancer (2.8%), clear-cell carcinoma (2.5%) (fig.1)

Breast cancer is leading form of oncologic pathology in women (14.7%). Second and third places are lung cancer (8.1%) and cervical cancer (7.8%). Specific weight of pancreas cancer

(3.8%), thyroid cancer (3.2%) and clear-cell carcinoma (2.5%) is quite high. In total women population of Republic has very high occurrence of diagnosed cases of cancer pathology of reproductive system, which reaches 32.7%. In structure of oncologic disease this population has high specific weight of malignant neoplasms of digestive apparatus (29.5%).

Comparative analysis of disease structure allows to state, that men had more nosological entity of malignant tumor than women. Exceptions were malignant tumor of segmented intestine, breast and thyroid. In particular specific weight of digestive apparatus cancer in women is 1.2 times lower than in men. As noted above, almost every fourth carcinoma detected in men is in respiratory apparatus, while lung cancer in women is diagnosed more than 3 times rarer (8.2%).

In 2010 standardized index (SI) of men malignant tumor disease in Yakutia totally was 250.1% that is 0.12% higher than in 2001 (249.8%), but women – 0.39% (179.6 and 178.9%respectively). In analyzed period SI of men testicular cancer increases 3.4 times, but central nervous system 2.3 times. Active growth of straight intestine cancer (53.8%), prostate cancer (34.0%), hemoblastosis (12.5%), lung cancer (8.8%) and segmented intestine cancer (7.2%) is registered. Negative dynamics of disease indices in men is observed during stomach cancer (-40.9%), labium cancer (-23.4%), malignant tumors of bones and articular cartilages (-22.9%), liver cancer (-22.1%), pancreatic gland cancer (-16.3%), laryngeal cancer (-9.6%), bladder cancer (-9.5%), oesophageal cancer (-4.5%) and skin cancer (-4.5%) (fig.1) It's important to note, that in spite of quite high average annual rates of decrease men oesophageal cancer indices in Yakutia are still higher among 79 regions of Russia and significantly exceed similar average federative rates (6.6%).

Considerable positive dynamic of women disease is observed during cancer of: bladder (1.7 times), uterine body (83.2%), central nervous system (74.1%), skin (25.4%), straight intestine (16.2%), uterine neck (14.8%). Less intensive average annual rate of growth is detected during clear-cell carcinoma (11.9%), segmented intestine cancer (2.7%) and hemoblastosis (2.2%). The highest average annual rate of decrease in this population is observed during lung cancer (-38.3%), oesophageal cancer (-26.1%), liver cancer (-15.8%), thyroid cancer (-15.6%), bones cancer (-14.9%) and stomach cancer (-11.8%). Quite high rate of decrease of disease indices is registered during pancreatic cancer (9.0%) and breast cancer (4.6%).

Sex and age morbidity rates of malignant tumor in population of Republic Sakha (Yakutia) in 2001 and 2010 by 5 years age groups are shown in figure 2. Middle age of diseased in 2010 was 59.0 years old (in Russia – 63.4) for men, for women – 59.7 (in Russia – 63.2) years old. Median value of age distribution is 55.3 (in Russia – 63.4) and 56.2 (in Russia – 63.3) years old respectively for men and women.

Analyzing dynamic of oncologic sick rate of men and women of Republic Sakha (Yakutia) in 2001-2010, one can state that both population groups in future will have growth of morbidity intensive and standardized indices (fig.3), having been observed during decades.

According to prognosis by 2015 growth rate of crude marker of all malignant cancers in men will be 24.6%, in women 18.0%, but predicted levels are 236.4% in men and 226.6% in women. Calculations show that growth rates of morbidity SI over specified period of time will be 1.9 and 3.5% respectively in both populations.

Morbidity trend extrapolation in 2001-2010 allows to note, that significant influence to formation of predicted level of oncologic morbidity in both population were exercised by tendency for rate decrease of digestive (food pipe, stomach, liver, pancreas) and respiratory apparatus.

According to results of SI in dynamic, there's prediction of 69.1% decrease of digestive apparatus cancer in men by 2015 at average annual decrease rate of -3.65%.

Expected level of digestive apparatus cancer in woman will be 90.3%, respiratory apparatus will be 74.8% from initial rates, and average annual rate of morbidity growth meanwhile will be up to -1.0 and -2.85%.

According to prognosis more active average annual growth rate of morbidity in men apparently will be during testicular cancer (11.6%), melanoma cancer (11.7%), straight intestine

cancer (6.3%), hemoblastosis (3.35%), segmented intestine cancer (2.7%), clear-cell carcinoma (2.05%), skin cancer (1.75%) etc.

Maximum predicted average annual growth rates in women apparently will be observed during soft tissues cancer (8.2%), straight intestine cancer (6.3%), uterine body cancer (4.05%), segmented intestine cancer (2.7%). Such dynamic trend of morbidity rates in this population will be also common during clear-cell carcinoma, brain cancer, other and unspecified parts of nervous system and breast cancer. Thus continuing decrease of digestive and respiratory cancer morbidity apparently will determine negative dynamic of oncologic sick rate till 2010 in both men and women population.

Ratios of crude marker and standardized rate of men and women population in Yakutia vary quite widely depending on nosological entity of tumor, age structure and residence of patients. The highest sick rates of oesophageal and stomach cancers are found in Transpolar Yakutia, confirming hypothesis about significant gradient of morbidity growth from south to north. It is important to state, that high sick rates in Transpolar, Central and Western Yakutia are formed due to increased rates of digestive (oesophagus, liver) and respiratory cancers. In big cities of republican subordination which are centers of mining industry, morbidity of under lip cancer, tongue cancer, mouth cavity cancer, segmented and straight intestine cancer, pancreatic cancer, laryngeal cancer, skin cancer and reproductive organs cancer is very high.

Results of component analysis show that beginning of third millennium is characterized by the fact, that growth of total number of patients with firstly detected diagnosis in men (6.67%) happened mostly due to “changes in number and age structure of population” (4.74%) than “disease risk” (1,93). In addition “disease risk” played significant role in positive dynamic of men morbidity of lung cancer (2,36), bladder cancer (1.95%), brain cancer (0.49%), straight intestine (1.57%), prostate cancer (1.28%), hemoblastosis (1.18%) and pancreatic cancer (0.9%). There is such tendency of gross growth components in tumor localization of: oesophagus (0.49%) and bladder (0.49%). Decrease of risk factor was the main reason of morbidity slowdown of thyroid cancer (-0.10%), clear-cell carcinoma (-1.08%), liver cancer (-1.37%), skin cancer (-0.10%) and stomach cancer (-4.71%) in this population (fig.4).

Gross growth of women sicken of malignant neoplasms (9.65%) is connected with changes in number and age structure (9.71%). In addition high coefficient of growth of people with firstly detected diagnosis of bladder cancer (3.82%), hysterocarcinoma (2.55%), skin cancer (1.51%), cervical cancer (1.51%), central nervous system cancer (1.04%) to a great extent depended on action force of “disease risk” factors than “changes in number and age structure of population”. Meanwhile different changes in population structure exerted material influence to the growth of number of women sicken of segmented (1.27%) and straight (1.16%) intestine cancer, breast cancer (0.70%) and hemoblastosis cancer (0.35%).

It is found that decrease of “disease risk” factor influence became the main reason for decrease of number of newly detected people with diagnosis of: thyroid cancer (-0.36%), oesophageal cancer (-0.58%), stomach cancer (-0.58%), clear-cell carcinoma (-3.01%) and lung cancer (-4.76%).

In summary for the purpose of ensure positive results in improvement work in oncoemidemiological situation in Republic Sakha (Yakutia), it’s necessary to make a point of present demographic process negative for Yakutia and step up the work of detection and removal of risks factors fostering the growth of malignant neoplasms diseases.

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Table1. Dynamics of malignant neoplasms morbidity patterns of Republic Sakha (Yakutia) population in 2001, 2010, %

		Pattern	
		Men	Women
1	2	4	5
All neoplasms	2001	100,0	100,0
	2010	100,0	100,0
Including:			
Tongue, mouth cavity (C01-09, 46.2)	2001	2,27	1,37
	2010	1,81	1,35
Oral pharynx, nasal pharynx, hypopharynx (C10-13)	2001	1,08	0,21
	2010	1,31	0,39
Oesophagus (C15)	2001	6,80	3,79
	2010	6,84	2,99
Stomach (C16)	2001	15,87	7,89
	2010	9,96	6,76
Segmented intestine (C18)	2001	3,78	5,15
	2010	4,02	5,79
Straight intestine (C19-21)	2001	3,02	3,58
	2010	4,43	4,25
Liver (C22)	2001	8,75	6,52
	2010	6,74	5,98
Pancreas (C25)	2001	3,46	4,10
	2010	3,32	3,76
Throat (C32)	2001	3,02	0,21
	2010	2,82	0,10
Trachea, bronchi, lung (C33, 34)	2001	22,25	13,14
	2010	23,14	8,11
Skin neoplasms (C44, 46.0)	2001	3,78	3,47
	2010	3,42	4,44
Lacteal gland (C50)	2001	-	15,35
	2010	-	14,67
Uterine neck (C53)	2001	-	7,17
	2010	-	7,82
Uterine body (C54)	2001	-	2,94
	2010	-	4,83
Ovary (C56)	2001	-	4,94
	2010	-	5,51
Prostate gland (C61)	2001	3,56	-
	2010	4,63	-
Clear-cell carcinoma (C64)	2001	2,70	0,42
	2010	2,52	1,06

Central nervous system (C71,72)	2001	3,89	3,15
	2010	4,53	3,57
Thyroid (C73)	2001	0,86	3,79
	2010	0,70	3,19
Hemoblastosis	2001	5,83	4,94
	2010	6,64	4,83

Table 2. DYNAMICS AND RANK OF STANDARDIZED INDICES OF MALIGNANT NEOPLASMS MORBIDITY OF REPUBLIC SAKHA (YAKUTIA) POPULATION IN 2001-2010 (DISTRIBUTION ACCORDING TO AVERAGE ANNUAL RATE OF GROWTH RATING)

Localization	Morbidity in 100000 people		Place of morbidity rate		Growth (%)	Average annual rate of growth (%)	Place of growth value
	2001	2010	2001	2010			
Men							
All neoplasms	249,8	250	-	-	0,12	0,05	-
Testis	0,56	1,90	17	17	239,29	13,00	1
CNS	3,55	8,11	14	11	128,45	8,60	2
Straight intestine	7,16	11,01	13	8	53,77	4,40	3
Prostate gland	11	14,84	6	6	34,91	3,40	4
Hemoblastosis	13,56	15,26	5	5	12,54	1,30	5
Lung	53,9	58,67	1	1	8,85	0,95	6
Segmented intestine	10,37	11,12	7	7	7,23	0,80	7
Clear-cell carcinoma	9,89	9,66	8	9	-2,33	-0,25	8
Skin	8,9	8,50	9	10	-4,49	-0,45	9
Oesophagus	20,32	19,40	4	4	-4,53	-0,45	10
Bladder	8,14	7,37	11	13	-9,46	-1,00	11
Throat	7,61	6,88	12	14	-9,9	-1,00	12
Pancreas	8,5	7,11	10	12	-16,35	-1,75	13
Liver	22,94	18,11	3	3	-21,05	-2,35	14
Bones and gristles	2,23	1,72	15	15	-22,87	-2,55	15
Lip (00)	0,94	0,72	16	16	-23,40	-2,65	16
Stomach	39,02	23,07	2	2	-40,88	-5,10	17
Women							
All neoplasms	178,9	179,6	-	-	0,39	0,05	-
Bladder	0,73	2,02	18	17	176,71	10,70	1
Uterine body	4,93	9,03	15	7	83,16	6,25	2
CNS	2,89	5,03	16	16	74,05	5,75	3
Skin	6,3	7,9	13	10	25,40	2,30	4
Straight intestine	6,49	7,54	11	11	16,18	1,50	5
Uterine neck	11,64	13,36	5	3	14,78	1,40	6
Ovary	8,02	9,02	8	9	12,47	1,20	7
Clear-cell carcinoma	5,62	6,29	14	13	11,92	1,15	8
Segmented intestine	9,65	9,91	6	6	2,69	0,30	9
Hemoblastosis	9,14	9,34	7	8	2,19	0,25	10
Breast	26,44	25,21	1	1	-4,65	-0,45	11
Pancreas	7,67	6,98	9	12	-9,00	-0,95	12
Stomach	14,25	12,57	3	4	-11,79	-1,25	13
Bones and gristles	2,15	1,83	17	18	-14,88	-1,45	14
Thyroid	6,41	5,41	12	14	-15,60	-1,65	15
Liver	12,45	10,48	4	5	-15,82	-1,70	16
Oesophagus	7,16	5,29	10	15	-26,12	-3,00	17
Lung	24,94	15,39	2	2	-38,29	-4,70	18

Table 3. Malignant neoplasms morbidity indices of Republic Sakha (Yakutia) population by sex and age in 2001 and 2010

Localization	Year	Age																	Indices		
		0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-75	75-79	80-85	85 л. ст.	ГП	СП
Men																					
All MN	2001	35,9	20,7	4,1	10,3	2,5	17,8	33,1	70,1	80,1	246,6	452,3	736,3	965,2	1543,6	1868,2	1880,5	2559,4	1742,6	189,7	249,8
	2010	32,3	23,4	17,7	15,4	8,6	12,7	19,5	59,9	97,4	187,0	433,6	719,9	1092,1	1481,9	1918,1	2130,3	1785,7	2030,5	216,5	250,1
Oesaphageal	2001	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	9,9	19,8	61,4	37,6	179,0	207,6	208,9	365,6	268,1	12,9	20,3
	2010	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	20,6	62,6	70,0	92,6	173,1	370,5	115,2	507,6	14,8	19,4
Stomach	2001	0,0	0,0	0,0	0,0	0,0	0,0	6,0	5,0	15,2	46,9	82,5	69,0	162,9	279,6	276,8	459,7	274,2	268,1	30,1	39,0
	2010	0,0	0,0	0,0	0,0	2,2	0,0	2,8	6,0	9,7	24,7	50,1	70,4	98,0	92,6	201,9	308,7	230,4	0,0	21,6	23,1
Segmented intestine	2001	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	2,2	7,4	13,2	30,7	37,6	67,1	86,5	83,6	365,6	0,0	7,2	10,4
	2010	0,0	0,0	0,0	0,0	0,0	0,0	0,0	6,0	3,2	11,0	11,8	19,6	42,0	92,6	101,0	92,6	57,6	169,2	8,7	11,1
Rectal	2001	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	4,3	4,9	13,2	15,3	62,7	22,4	86,5	41,8	0,0	0,0	6,7	7,2
	2010	0,0	0,0	0,0	0,0	0,0	0,0	2,8	3,0	3,2	5,5	14,7	31,3	77,0	61,7	115,4	61,7	57,6	0,0	9,6	11,0
Liver	2001	0,0	0,0	0,0	2,1	0,0	0,0	0,0	7,5	4,3	22,2	29,7	46,0	75,2	156,6	242,2	208,9	548,4	0,0	16,6	22,9
	2010	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	3,2	19,2	35,4	31,3	77,0	169,8	101,0	154,4	230,4	169,2	14,6	18,1
Lung	2001	0,0	0,0	0,0	0,0	0,0	0,0	0,0	5,0	8,7	61,7	118,9	145,7	313,4	335,6	449,7	417,9	365,6	0,0	42,2	53,9
	2010	0,0	0,0	0,0	0,0	0,0	0,0	0,0	9,0	26,0	41,2	115,0	164,3	329,0	478,5	475,9	247,0	115,2	338,4	50,1	58,7
Prostate	2001	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	2,5	16,5	46,0	25,1	78,3	34,6	167,2	91,4	402,1	6,8	11,0
	2010	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	17,7	15,7	56,0	108,1	158,6	185,2	57,6	507,6	10,0	14,8
Clear-cell carcinoma	2001	0,0	0,0	0,0	0,0	0,0	0,0	3,0	5,0	2,2	4,9	13,2	53,7	37,6	89,5	34,6	83,6	91,4	0,0	7,4	9,9
	2010	5,4	0,0	0,0	0,0	2,2	0,0	0,0	6,0	9,7	19,2	11,8	50,9	14,0	30,9	72,1	61,7	115,2	0,0	9,8	9,7
Hemoblastosis	2001	17,9	13,0	2,0	6,2	2,5	5,1	12,0	5,0	6,5	17,3	23,1	23,0	12,5	44,7	86,5	0,0	0,0	134,0	11,1	13,6
	2010	8,1	8,8	11,8	7,7	0,0	7,6	0,0	12,0	16,2	11,0	32,4	39,1	28,0	30,9	101,0	30,9	57,6	169,2	14,4	15,3
Women																					
All MN	2001	6,3	10,7	21,2	8,5	15,5	41,9	60,1	91,3	179,7	236,9	368,4	485,2	616,3	899,2	1263,0	1266,1	1110,0	564,7	191,6	178,9
	2010	19,6	12,2	6,1	8,0	15,9	29,8	47,5	117,6	144,7	190,4	322,2	463,8	805,1	866,6	1214,8	1272,0	1238,9	998,9	211,3	179,6
Stomach	2001	0,0	0,0	0,0	0,0	0,0	0,0	9,5	5,2	8,8	16,6	15,9	40,4	40,4	68,0	144,6	167,6	242,8	0,0	15,1	14,3
	2010	0,0	0,0	0,0	0,0	0,0	0,0	0,0	2,9	9,2	15,0	12,9	25,1	52,6	109,6	89,7	101,2	163,6	55,5	14,3	12,6
Segmented intestine	2001	0,0	0,0	0,0	0,0	0,0	5,6	0,0	5,2	6,6	4,7	15,9	33,7	20,2	68,0	77,1	130,3	34,7	40,3	9,9	9,6
	2010	0,0	0,0	0,0	0,0	0,0	0,0	0,0	5,9	9,2	2,5	12,9	37,6	52,6	49,8	65,2	86,7	187,0	0,0	12,2	9,9
Liver	2001	3,1	0,0	0,0	0,0	0,0	0,0	0,0	2,6	4,4	4,7	19,1	33,7	25,3	90,7	192,8	93,1	69,4	40,3	12,5	12,4
	2010	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	2,5	2,6	31,3	42,1	49,8	163,1	187,9	70,1	55,5	12,6	10,5
Lung	2001	0,0	0,0	0,0	0,0	0,0	0,0	0,0	5,2	6,6	16,6	22,2	60,7	106,1	219,1	241,0	242,0	208,1	121,0	25,2	24,9
	2010	0,0	0,0	0,0	0,0	0,0	0,0	2,8	2,9	9,2	2,5	12,9	21,9	89,5	119,5	114,1	187,9	187,0	111,0	17,1	15,4
Breast	2001	0,0	0,0	0,0	0,0	0,0	2,8	6,3	10,4	57,0	52,1	69,9	114,6	101,0	105,8	57,8	111,7	138,7	80,7	29,4	26,4
	2010	0,0	0,0	0,0	0,0	2,3	0,0	11,2	23,5	37,0	37,6	69,6	90,9	100,0	99,6	114,1	130,1	46,8	111,0	31,0	25,2
Cervical	2001	0,0	0,0	0,0	0,0	2,6	8,4	15,8	18,3	21,9	35,5	25,4	20,2	25,3	22,7	38,6	55,9	34,7	0,0	13,7	11,6
	2010	0,0	0,0	0,0	0,0	0,0	12,4	8,4	32,3	33,9	27,6	36,1	34,5	42,1	19,9	24,5	28,9	0,0	0,0	16,5	13,4
Hysterocarcinoma	2001	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	8,8	11,8	22,2	13,5	30,3	15,1	9,6	18,6	0,0	0,0	5,6	4,9
	2010	0,0	0,0	0,0	0,0	0,0	0,0	0,0	2,9	6,2	10,0	10,3	37,6	89,5	39,8	40,8	0,0	0,0	55,5	10,2	9,0
Ovarian	2001	0,0	0,0	2,1	0,0	0,0	2,8	3,2	5,2	17,5	23,7	28,6	6,7	35,4	37,8	19,3	0,0	0,0	0,0	9,5	8,0
	2010	0,0	0,0	0,0	2,7	0,0	2,5	8,4	5,9	6,2	12,5	36,1	31,3	36,8	39,8	24,5	0,0	23,4	55,5	11,0	9,0
Hemoblastosis	2001	3,1	8,0	10,6	4,2	5,2	8,4	3,2	5,2	6,6	7,1	15,9	6,7	30,3	7,6	57,8	55,9	0,0	0,0	9,5	9,4
	2010	5,6	9,2	3,1	0,0	4,5	0,0	8,4	8,8	0,0	5,0	15,5	18,8	36,8	39,8	32,6	57,8	70,1	0,0	10,2	9,3

Table 3. Dynamics of standartized indices of RS (Ya) population morbidity from malignant neoplasms in 2001-2010 and prognosis by 2015 (world standard in 100000 people)

Localization (ICD-X)	Years										prognosis by 2015
	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	
Men											
All MN (C00-97)	249,8	244,2	267,2	259,1	270,8	248,1	262,0	243,0	256,4	250,1	254,5
Oesaphageal (C15)	20,3	16,8	29,2	19,4	19,6	20,1	16,2	13,9	11,9	19,4	10,1
Stomach (C16)	39	38,2	35,5	36,4	34,9	28,0	31,5	29,9	30,6	23,1	18,3
Segmented intestine (C18)	10,4	11,6	11,1	9,9	12,8	9,3	13,9	13,1	12,7	11,1	13,3
Rectal (C19-21)	7,2	9,2	9,9	6,7	13,5	10,5	12,4	11,5	10,6	11	13,3
Liver (C22)	22,9	24,7	26,6	23,1	22,1	19,3	20,1	17,4	22,9	18,1	14,0
Pancreatic (C25)	8,5	10,9	9,4	9,2	10,4	6,0	8,9	8,9	8,6	7,1	5,9
Laryngeal (C32)	7,6	4,3	7,3	8,0	5,7	5,9	5,6	6,6	4,7	6,9	6,1
Lung (C33,34)	53,9	57,6	58,6	62,3	61,9	60,6	64,7	55,9	65,5	58,7	62,9
Bones and articular cartilage (C40-41)	2,2	3,9	4,9	3,1	2,6	3,0	7,3	2,0	1,6	1,7	0,9
Soft tissues (C46-49)	0,5	1,1	3,7	1,6	3,4	2,1	3,4	4,0	3,1	1,4	3,3
Skin melanoma (C43)	0,4	1,6	0,4	0,2	1,4	1,0	1,5	1,0	1,1	1,1	1,3
Other skin neoplasms (C44-46)	8,9	8,1	8,0	11,8	13,0	11,0	12,9	9,3	9,8	8,5	10,6
Prostate (C61)	11,0	3,8	5,6	9,6	7,3	8,0	11,0	5,7	8,7	14,8	16,5
Testicular (C62)	0,6	2,6	2,0	1,6	3,6	1,9	1,5	2,8	1,9	1,9	1,8
Clear-cell carcinoma (C64)	9,9	10,3	7,8	10,4	12,7	12,8	12,2	13,0	9,6	9,7	12,1
Bladder (C67)	8,1	7,0	5,8	5,9	6,4	8,1	7,5	5,1	5,5	7,4	6,6
CNS (C70-72)	3,6	4,0	4,9	4,4	5,2	3,1	5,5	4,0	3,9	8,1	6,7
Thyroid (C73)	1,6	0,3	1,3	2,1	0,6	2,0	1,5	1,5	0,9	1,2	1,6
Hemoblastosis (C81-96)	11,1	7,2	14	9,3	13,0	9,1	12,1	12,2	14,1	14,4	15,9
Women											
All MN (C00-97)	178,9	164,6	195,7	179,6	176,2	183,2	186,8	177,3	185,8	179,6	185,6
Oesaphageal (C15)	7,2	4,4	7,5	3,5	4,4	4,2	4,0	3,9	3,9	5,3	2,7
Stomach (C16)	14,3	12,9	13,3	11,9	11,9	16,6	14,2	9,9	12,6	12,6	11,1
Segmented intestine (C18)	9,7	9,5	9,7	10,2	11,1	13,8	12,2	8,2	13,4	9,9	12,1
Rectal (C19-21)	6,5	7,1	10,5	6,0	9,1	10,6	8,0	7,3	7,3	7,5	7,7
Liver (C22)	12,5	9,6	14,0	10,5	10,2	13,1	10,6	13,2	11,2	10,5	10,8
Pancreatic (C25)	7,7	4,4	6,2	7,1	5,9	5,3	5,5	6,8	1,0	7,0	3,9
Lung (C33,34)	24,9	18,7	18,0	20,3	17,2	16,7	20,3	14,8	17,5	15,4	17,2
Bones and articular cartilage (C40-41)	2,2	2,3	1,8	1,2	2,3	1,2	0,9	0,8	1,0	1,8	1,5
Soft tissues (C46-49)	0,5	0,6	0,7	1,3	0,7	1,0	1,7	1,5	1,6	1,0	1,1
Skin melanoma (C43)	1,3	1,3	3,1	1,8	0,5	1,6	2,8	2,3	1,2	0,8	1,7
Other skin neoplasms (C44-46)	6,3	4,2	5,8	5,0	6,5	5,6	8,8	5,4	4,0	7,9	6,0
Breast (C50)	26,4	25,4	38,1	34,0	32,5	27,4	31,5	26,7	32,4	25,2	30,0
Cervical (53)	11,6	17,9	11,8	12,9	13,5	11,2	14,1	17,2	17,7	13,4	14,1
Hysterocarcinoma (54)	4,9	6,1	6,7	7,4	8,2	8,1	5,0	10,0	7,6	9,0	7,3
Ovarian (56)	8,0	7,7	8,0	7,7	8,0	11,1	8,7	8,5	6,1	9,0	8,3
Clear-cell carcinoma (C64)	5,6	5,0	6,5	8,0	4,9	5,7	8,6	7,0	8,3	6,3	6,6
Bladder (C67)	0,7	1,6	2,0	0,5	0,7	1,6	1,2	1,1	0,4	2,0	1,2
CNS (C70-72)	2,9	1,8	4,2	2,1	3,4	2,3	2,7	3,5	3,5	5,0	3,1
Thyroid (C73)	6,4	5,8	5,5	10,0	7,1	6,2	5,4	6,3	5,3	5,4	6,3
Hemoblastosis (C81-96)	9,1	6,6	13,1	6,0	10,9	6,0	10,2	8,3	10,0	9,3	8,9

Table 4. Growth components of new detected patients for malignant neoplasms in RS(Ya) in 2001-2010 (% of initial level)

Tumor localization	Gross growth	incl.due to changes of	
		population number and age structure	disease risk
Men			
All MN (C00-97)	6,67	4,74	1,93
Lung (C33,34)	2,36	1,03	1,33
Bladder (C67)	1,96	0,28	1,68
CNS (C71,72)	1,86	-0,11	1,97
Rectal (C19-21)	1,57	0,08	1,49
Prostate (C61)	1,28	0,44	0,83
Hemoblostosis (81-96)	1,18	0,04	1,14
Pancreatic (C25)	0,79	0,29	0,49
Oesophageal (C15)	0,49	0,63	-0,13
Segmented intestine (C18)	0,49	0,28	0,21
Bones and soft tissues (C40, 41, 46-49)	0,29	-0,03	0,32
Laryngeal (C32)	0,00	0,22	-0,22
Thyroid (C73)	-0,10	-0,01	-0,09
Clear-cell carcinoma (C64)	-1,08	0,21	-1,29
Liver (C22)	-1,37	0,47	-1,84
Other skin neoplasms (C44)	-0,10	0,17	-2,27
Stomach (C16)	-4,71	0,59	-5,31
Women			
All MN (C00-97)	9,62	9,71	-0,09
Bladder (C67)	3,82	0,11	3,72
Hysterocarcinoma (C54)	2,55	0,30	2,25
Skin (C44)	1,51	0,59	0,92
Cervical (C53)	1,51	0,20	1,31
CNS (C71,72)	1,04	0,14	0,90
Segmented intestine (C18)	1,27	0,70	0,58
Rectal (C19-21)	1,16	0,67	0,49
Ovarian (C56)	0,81	0,11	0,71
Breast (C50)	0,70	1,33	-0,63
Bones and soft tissues (C40, 41, 46-49)	0,46	0,21	0,25
Hemoblostosis (81-96)	0,35	0,23	0,11
Liver (C22)	0,00	0,98	-0,98
Pancreatic (C25)	0,00	0,73	-0,73
Thyroid (C73)	-0,36	0,24	-0,59
Oesophageal (C15)	-0,58	0,47	-1,05
Stomach (C16)	-0,58	0,92	-1,49
Clear-cell carcinoma (C64)	-3,01	-0,13	-2,88
Lung (C33,34)	-4,76	0,87	-5,62

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The life's quality of the Republic Sakha (Yakutia) adolescents

M.I. Samsonova, T.E. Burtseva

Quality of life in present-day conditions is one of the indicators of the adolescents' health. In order to assess the quality of the RS (Y) adolescents' life 883 adolescents, living in Yakutsk and in 6 northern areas of the republic, were under questionnaire.

Keywords: quality of life, adolescents, Yakutia.

Introduction. The evaluation of the life's quality by the man himself is a valuable and reliable indicator of his general state. The term «life's quality» is a property of the XX century, though it always interests the doctors. There are a lot of definitions of the term. A. Novikov and T. Ivanova present the following definition: «life's quality is an integral characteristic of physical, psychological, emotional and social functions of the patient based on the subjective perception». J. Bruil's definition is that «child's life's quality is a perception and evaluation by child different spheres of the life, important for him, and the perception, connected with functional problems» [7]. The life's quality indicators may be used in the examination of the health condition and be the quality criteria of the health care system. In the international practice life's quality study appeared to be common, informational, economical methods of the examination of the health condition of the population and some social groups [3-10]. Therefore, life's quality – social category, expressing the degree of the people's material and cultural satisfaction.

Life's quality in the modern condition is a one of the health condition indicators of the teenagers. In this article we present scientific work about life's quality of the teenagers from Republic Sakha (Yakutia).

Methods and materials.

We provide reviews of the 883 teenagers, living in Republic Sakha Yakutia. 461 teenagers are from Yakutsk (capital of the Republic Sakha (Yakutia) and 422 – from northern regions (tabl. 1).

The questionnaire is anonymous and consists of the 30 question.

Results.

62% of the respondent lives in family with mother and father (full family). 4,5% teenagers from

north region – not have a mother. 1,4% teenagers from Yakutsk live with father. Orphan teenagers from Yakutsk- 1,2%, from northern regions – 3,5%.

The bed financial situation in the family: 3,7% in towns, 5,7% in rural teenagers. 0,9% rural teenagers says that money have not to bay eating.

37% fathers, 20% mothers are smoking in town, in rural villages- 49,3% fathers and 38,9% mothers are smoking too. 26% fathers, 11.6% mothers like drinking's in town. In rural- 28,4% fathers and 13,7% mothers like drinking.

16% towns, 36,5% rural teenagers have a non regulars nutrition's. 23% towns, 43% rural teenagers eat meet all days. 71% towns and 76% rural teenagers not take a fruits and vegetables every day. All of day teenagers are eat bread, pasta, mush, sugar, sweet.

Regularly smoke 5,6% in towns, 9% in rural teenagers.

6,7% towns, 8,5% rural teenagers like to drinking in company.

81,1% town, 78,4% rural teenagers are not have a sexual experience.

62,2% town, 70,8% rural have healthy life.

77,5% town, 72,5% rural teenagers are consider good health status.

Conclusion. Therefore, this correspondent to teenagers detected more social factors to life's quality in city and rural territory of Yakutia. Rural teenagers live in not full family; have a low budget and not good foods and condition to the life. The teenagers have problems to smoke and drink.

This information necessary to organized common programmer to health care and ministry to education of Yakutia for the prophylaxis.

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Tabl. 1

Distribution of adolescents - respondents by age, sex and place of residence

	Yakutsk (n=461)	Northern regions (n=422)
Teenagers boys (10-14)	64	123
Teenagers boys (15-18)	148	104
Teenagers girls (10-14)	79	100
Teenagers girls (15-18)	170	95

Tabl. 2

The prevalence of bad habits (smoking, alcohol use) among urban adolescents according to age and gender according to the survey (%)

status	Urban teenagers (n= 461)			
	Girl 10-14 л. (n= 79)	Girl 15-18 л. (n= 170)	Boy 10-14 л. (n= 64)	Boy 15-18л. (n= 148)
Never smoke	73,4	49,4	59,3	41,9
Early smoke	-	0,6	1,5	0,6
1 case of smoke	-	33,5	37,5	40,5
I smoke in company	6,3	7	1,5	-
Regularly smoke	-	8,2	-	8,1
Never drinking	74,6	50,5	75	46,6
Early case of drinking	-	0,6	-	1,3
Drinking in company	2,5	7	1,5	6

Tabl. 3

The prevalence of bad habits (smoking, alcohol use) among rural adolescents according to age and gender according to the survey (%)

status	Rural teenagers (n= 422)			
	Girls 10-14 л. (n= 100)	Girls 15-18 л. (n= 95)	Boy 10-14 л. (n= 123)	Boy 15-18л. (n= 104)
Never smoke	69	29,4	91,8	34,6
Early smoke	4	-	2,4	9,6
1 case of smoke	23	23,05	27,6	30,7
I smoke in company	4	16,8	4	14,4
Regularly smoke	2	15,7	3,2	16,3
Never drinking	80	44,2	73,9	47,1
Early case of drinking	-	-	1,6	-
Drinking in company	2	15,8	2,4	13,4

Tabl. 4

Sexual experience of the adolescents according to the survey, (%)

status	Urban teenagers (n= 461)			
	Girl 10-14 л. (n= 79)	Girl 15-18 л. (n= 170)	Boy 10-14 л. (n= 64)	Boy 15-18л. (n= 148)
Never have a sexual practice	98,7	81,1	90,6	81,08
Not regular sex	-	3,5	-	8,8
Regular sex	-	2,3	-	2,7
I knowabout contraception	2,53	11,1	6,25	22,9
I need to listen to specialist	17,7	20,5	9,3	14,1

Tabl. 5

Sexual experience of the adolescents according to the survey, (%)

Question	Rural teenagers (n= 422)			
	Girl 10-14 л. (n= 100)	Girl 15-18 л. (n= 95)	Boy 10-14 л. (n= 123)	Boy 15-18л. (n= 104)
Never have a sexual practice	86	78,9	80,4	77,8
Not regular sex	-	8,4	-	3,8
Regular sex	-	4,2	-	6,7
I know about contraception	4	12,6	4,06	12,5
I need to listen to specialist	6	12,6	1,6	5,7

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The detection rate of Chlamydia infection in schoolchildren

Abstract. Article represents the results of the test for 708 children in early and senior school ages for presence of Chlamydia contamination of mucosa of upper respiratory tract. Chlamydia verification was carried out by direct immune fluorescence technique. We show identified Chlamydia types structure in terms of age and gender. We show comparative evaluation of ENT-morbidity in children with and without recognized Chlamydia infection.

Keywords: Chlamydia infection, respiratory tract, schoolchildren.

Introduction

Respiratory diseases in children are serious pediatric concern and due to their wide prevalence they also are the concern of public health system as a whole. Despite every pediatrician has good respiratory awareness, at present there are plenty of unresolved problems related to comprehension of etiology and pathogenesis of separate forms of the diseases and their diagnosis. During the last two decades etiological spectrum of agents of the diseases in respiratory tract grew rapidly. Owing to the discovery of pathogenic microorganisms not known before and also to the implementation into medical practices several new efficient laboratory techniques aimed at diagnostics, such intracellular agents as Mycoplasms and Chlamydia are diagnosed in inflammation pathology in nose and pharynx more often than previously. Target researches for morphologic, biochemical and antigen characteristics allowed define the association of these infections with the occurrence of inflammation pathology of respiratory tract, which significantly enlarged the concept of epidemiology and etiopathogenesis of these diseases. The results were shown in Science and Practice Program, worked out by The Union of Pediatricians of Russia and International Foundation for Mother & Child Health (Year 2002), which states, that Chlamydia is critical respiratory agent.

Social economic and medical meaning of Chlamydia infection is caused by its significant influence on population reproduction. A number of urogenital Chlamydiosis researchers diagnosed the agent in 11-40% of pregnancies [10]. Risk of infection transmission to a fetus is 40-92% [3, 4]. As a result over 7% of newborns are Chlamydia contaminated at birth [2, 7]. At the same time 40% have conjunctivitis, 15–20% - nasopharyngitis, 10-20% - bronchitis and pneumonia, 5% -

gastroenteritis and proctitis, 15% - vulvitis and urethritis, in 6% septic character of the process was found [5].

In children Chlamydia are recognized as acute respiratory disease agent in 18% cases, obstructive laryngotracheitis in 15% cases [9]. Other research, which included DNA- diagnostics and immunoenzyme analysis, show Chlamydia etiology in acute bronchitis children in 13-25% cases and in pneumonia in 10-32% [1, 6, 11]. Provided that 80% pneumonia children associated with Chlamydia infection were in their pre-school and early school ages [6].

Until now, the Russian Federation, there is no information on to the frequency detection of chlamydia in the mucosa of the upper respiratory tract in children, with the exception of research conducted by the staff of state of the Federal State Institution "Scientific-Research Institute of medical problems of the North", SB RAMS which related to preschoolers. According to these studies in children attending day care, chlamydia were reported in 24.8% of individuals [12].

Results of wide scale seroepidemiological survey, held in the USA, Sweden, Finland and Congo marked anti Chlamydia antibodies in 30-69% children [13, 14, 15]. But positive results of serologic tests do not reflect actual level of Chlamydia contamination in children. They only point to the present or past contact with this infection.

Up to the present time in Russian Federation there is no information on frequency of revealing Chlamydia in the upper respiratory tract mucous membrane in children, except the research carried out by scientific workers of SFBI SRI MPN SD RAMS, which involved pre-school children. The research showed Chlamydia in children, attending kindergartens in 24.8%.

So, at present Chlamydia infection plays an important role in initiating the upper respiratory tract diseases in children population. Children, who attend educational institutions belong to risk group in terms of possible contamination because they closely contact Chlamydia infected children and adults. That is why taking into account high frequency of Chlamydia infection verification in pre-school children, the aim of the present research is to reveal the frequency of Chlamydia diagnosed in the upper respiratory tract in children of school ages, attending schools.

Materials and Methods of the Research.

Aimed at studying the frequency of Chlamydia infection we examined 708 schoolchildren by cross-sectional method. Among them there were 491 early school (in ages from 7 to 11 years) and 217 senior school (in ages from 12 to 15) children. By the presence/ absence of Chlamydia the children were divided into groups, comparable by gender and age.

For achieving the aim of the research we used overall data of examining children in different ages. The formation of separate selections picked up by random was based on the lists of school forms with the response of 84.1% to 89.5%. Total number of examined children was determined by

V.I. Paniotto [8].

Chlamydia infection was diagnosed by direct immunofluorescence (DIF). We had identified two types of Chlamydia: *Chlamydia trachomatis* and *Chlamydophila pneumoniae*. DIF was carried out with test-systems "ChlamySlide" (OOO "Galart" – Diagnostikum) with fluorochrome marked by monoclonal Chlamydia antibodies against main protein of outer membrane of *Chlamydia trachomatis* and *Chlamydophila pneumoniae*. Materials for Chlamydia antigen verification were mucous membrane smears scraped from upper sector of posterial pharyngeal and nose walls.

It should be marked that one of the most important points in Chlamydia infection diagnosis is material sampling and preparation of specimen for further tests. Taking into account that Chlamydia, *Chlamydia trachomatis* in particular provides high affinity to cylinder epithelium, we performed smear scraping of mucous membrane, covered by cylinder ciliate multinucleated epithelium, located in the floor of nasal cavity and side wall of nose up to lower border of middle nasal concha and also in pharynx upper sector (in naso-pharynx).

Sampling of clinical materials was carried out in the morning in the fasted state by sterile disposable probe with cotton ball. The probe was pressed to the surface and moved with slight scraping. In cases of mucous membrane excess or purulent discharge the surface was cleaned with another cotton ball. Obligatory conditions, which determined quality of samples was the presence of whole epithelial cells and absence of blood in smear. The material was applied to the surface of cavity of degreased slide, dried in the air and delivered to laboratory.

For describing binaural signs we calculated their relative frequencies and 95% confidence interval (95% CI). Evaluation of distinction significance of relative indices was carried out by Student's t-criterion and Fisher's exact criterion. We regarded the value of statistical meaning level equal or over 0.05 as maximum acceptable error rate of 1 kind (p).

Results and discussions

We had found Chlamydia structures in smears, scraped from pharynx mucous membrane in children, attending school in 87 cases out of 708, which made 12.3%. The highest percentage of contamination with Chlamydia agent was registered in junior schoolchildren in 14.7% (in 72 out of 491 children). The frequency of Chlamydia in junior schoolchildren exceeded the same index in senior schoolchildren more than two times ($p<0.001$). Verified Chlamydia were marked in senior children in 6.9% cases (in 15 out of 217 children), provided that we identified in 22 cases (in 3.1%) both Chlamydia types: *Chlamydophila pneumoniae* and *Chlamydia trachomatis* in both age groups (Table 1).

Chlamydophila pneumoniae was revealed more frequently, in 73 children (in 10.3%). *Chlamydia trachomatis* was verified two times less often than *Chlamydophila pneumoniae*

($p<0.001$) and it was identified in 36 children (in 5.0%). In junior schoolchildren *Chlamydophila pneumoniae* ($p<0.001$) was revealed more often, in 12.8% cases. The frequency of *Chlamydia trachomatis* in this group was 6.1%. Whereas in senior schoolchildren *Chlamydophila pneumoniae* and *Chlamydia trachomatis* were revealed with equal frequency ($p=0.3$) in 4.6% and in 2.8% correspondingly. Chlamydia mixed contamination in junior schoolchildren was marked more often ($p<0.001$) in 4.3% cases and in senior schoolchildren in 0.5% cases being revealed in one child.

We did not mark statistically significant gender distinctions in Chlamydia contamination of the upper respiratory tract ($p>0.05$). Gender/ age frequency of Chlamydia in children, attending school is shown in Table 2.

So, among all the examined children Chlamydia agent was revealed with equal frequency in boys (in 12.9%), and in girls (in 11.6 %). We also did not find the proof of gender distinctions between different types of Chlamydia: *Chlamydophila pneumoniae* in 10.2% in girls and in 10.4% in boys, *Chlamydia trachomatis* in 3.8% and 6.3% correspondingly ($p=0.1$).

Our research does not find significant differences in frequency of revealing Chlamydia agent in boys and girls in terms of age. In boys and girls of junior school ages Chlamydia was verified in 15.0% and in 14.3% correspondingly ($p=0.8$). In children of senior school ages Chlamydia infection was identified in 8.5% in boys and in 5.1% in girls ($p=0.3$).

The analysis of frequency of revealing othorhinolaryngological pathology in children, contaminated and non-contaminated with Chlamydia showed that acute diseases were determined more frequently in Chlamydia contaminated junior schoolchildren (43.1% against 15.3% correspondingly, $p<0.001$). They also showed significantly higher overall index of frequency of revealed ENT-organs diseases ($p<0.001$). Besides, we revealed considerably less number of healthy children among contaminated subjects as compared to group without verified Chlamydia (in 23.6% against 59.2%, $p<0.001$). Chronic pathology was marked with the same frequency in both presence/ absence of Chlamydia infection (in 33.3% against 25.5% correspondingly, $p=0.2$).

Higher total frequency of acute diseases in confirmed Chlamydia infection referred to the presence of large number of acute rhinopharyngitis, which was diagnosed in 36% against 12% children without Chlamydia ($p<0.001$).

We did not mark statistically meaningful distinctions in regard to acute rhinitis occurrence between groups of junior schoolchildren ($p=0.2$). Acute rhinitis was diagnosed in 7 % in subjects with verified Chlamydia and in 3.3% in children without Chlamydia.

Over half of junior schoolchildren in 59% (in 248 cases) without confirmed Chlamydia infection did not show any obvious ENT –pathology. At the same time in group with marked

Chlamydia only in 23.6% ear, throat and nose diseases were not revealed (17 children). Differences between these indices turned out to be statistically meaningful ($p<0.001$).

We also marked the differences when analyzing the frequency of ENT-pathology occurrence in senior schoolchildren. So, we diagnosed less often ($p<0.001$) different ENT-organ diseases in subjects without verified Chlamydia antigen in mucous membrane of the upper respiratory tract. We had found them in 27.7% cases in comparison with 86.7% cases among children with verified Chlamydia.

High ENT-morbidity in senior schoolchildren with identified Chlamydia as compared with subjects without Chlamydia contamination was determined by higher frequency of acute diseases in common (in 53.3% against 6.9% correspondingly, $p<0.001$). Chronic diseases of the upper respiratory tract were practically equally diagnosed in senior schoolchildren without association with Chlamydia presence or absence, in 33.3% and 20.8% correspondingly ($p=0.3$).

Higher total frequency of acute diseases in children with confirmed Chlamydia infection was caused by the presence of both acute rhinopharyngitis ($p<0.001$), and acute rhinitis ($p=0.04$) in majority of children. Acute rhinopharyngitis in groups in children with and without Chlamydia was found in 40% (in 6 subjects) and in 6 % (in 12 subjects) cases. Acute rhinitis was revealed less often and was diagnosed only in 2 children of each group, in 3.3% and in 1% correspondingly.

In senior schoolchildren without Chlamydia contamination there were significantly more subjects ($p<0.001$), without any ENT-disease, 146 children (72.3%). In group of Chlamydia infected children the absence of ENT pathology was marked only in 2 children (13%).

There were no differences in separate nosologic forms of chronic ENT-pathology frequency in all the age groups.

Conclusions

1 We found Chlamydia contamination of mucous membrane of the upper respiratory tract in 12.3% schoolchildren. The frequency of revealing Chlamydia is decreased with the age and approaches 15% in junior schoolchildren and 7% in senior. In type structure of identified Chlamydia Chlamydophila pneumoniae dominated in schoolchildren.

2 Our research did not confirm differences in terms of gender in the frequency of Chlamydia revealing and contamination with definite types of agent.

3 The presence of Chlamydia in pharynx mucous membrane in junior and senior schoolchildren determines the tendency to incidence of ENT acute inflammatory diseases (in 43.1% and 53.3% cases correspondingly in children with Chlamydia against 15.3% and 6.9% children without Chlamydia).

4 In children with verified Chlamydia agent of both junior and senior groups the total level of ENT-pathology was higher than in children without diagnosed Chlamydia infection. So, in junior schoolchildren this index was 76.4% against 40.8%, and in senior 86.7% against 27.7%.

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Table 1

Prevalence of Chlamydia different types in schoolchildren

Age group and its volume	*Chlamydophila pneumoniae* (cases)		*Chlamydia trachomatis* (cases)		Chlamydia mixed-infection (cases)		Totally revealed Chlamydia children	
	n	% 95% CI	*n*	% 95% CI	*n*	% 95% CI	n	% 95% CI
Group 1: 7-11 years of age n=491	63	12.8 10.0-15.9 $p_{2-3}<0.001$	30	6.1 4.2-8.4 $p_{2-3}=0.04$	21	4.3 2.7-6.2 $p_{2-3}<0.001$	72	14.7 11.7-17.9 $p_{2-3}<0.001$
Group 2: 12-15 years of age n=217	10	4.6 2.2-7.8	6	2.8 1.0-5.4	1	0.5 0.0-1.8	15	6.9 3.9-10.7
TOTALLY (n=708)	73	10.3 8.2-12.7	36	5.0 3.6-6.8	22	3.1 2.0-4.5	87	12.3 10.0-14.8

Note: *p* – statistical significance of distinctions between groups of children of different age

Table 2

Frequency of Chlamydia in accordance with gender and age in children, attending school (n=708)

Gender	*Chlamydophila pneumoniae* (cases)		*Chlamydia trachomatis* (cases)		Chlamydia mixed-infection (cases)		Totally revealed Chlamydia children	
	n	%	n	%	n	%	n	%
7-11 years of age (n=491. out of them: m – 246; f - 245)								
male	31	12.6	19	7.7	13	5.3	37	15.0
female	32	13.1	11	4.5	8	3.3	35	14.3

12-15 years of age (n=217. out of them: m – 118; f - 99)								
male	7	5.9	4	3.4	1	0.9	10	8.5
female	3	3.0	2	2.0	0	0	5	5.1
Common group of children (n=708. out of them: m – 364; f - 344)								
male	38	10.4	23	6.3	14	3.8	47	12.9
female	35	10.2	13	3.8	8	2.3	40	11.6

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Characteristics of the clinical manifestation of rheumatism in children in the present conditions of Yakutia

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The problem of rheumatism is still relevant. Rheumatic carditis is one of the main causes for the formation of acquired heart diseases. As a result, the analysis of the clinical finding of rheumatic fever among children and adolescents found that the patients with sub-acute and latent onset are predominating. In total, erased clinical course of the rheumatism led to late diagnosis and inadequate therapy and was the reason for the formation of valvular defects. **Keywords:** rheumatism, clinical course, acquired heart diseases, children.

Introduction: acute rheumatic fever (ARF) and chronic rheumatic heart disease (CRHD) registered in all countries of the world in various climatic zones. Throughout the XX century there were regular decrease in the average incidence and prevalence of rheumatic fever. However, according to WHO, valvular defects, associated with rheumatism, remain one of the most common causes of deaths after cardio - vascular disease among patients under 35 years old in the developing countries, surpassing even the deaths of diseases such as hypertension and coronary heart disease [1, 5, 6, 11].

The Russian Federation has a five-year (1999-2003) analysis of the incidence of acute rheumatic fever, chronic rheumatic heart diseases and rheumatic heart diseases which found that the total number of patients with acute rheumatic fever and relapse was reduced by 28-30%, and the number of newly diagnosed rheumatic heart disease was increased by 28% [9].

In recent decades, the intensity of clinical presentations of acute rheumatic fever has significantly decreased; severe course of rheumatic endomiocarditis is uncommon nowadays, and there is a tendency of the transformation of the disease into mono - and oligosymptomatic forms, frequency of latent forms of the disease. In the literature there is a discussion of the possibility of "smoldering" rheumatic activity typical for latency of the disease, which often leads to the formation of heart disease [1, 5, 6, 9, 11]. Therefore, existing now clinical diagnostic criteria do not always help to clarify the disease in time.

Many authors have noted that the harsh climate of the North creates the conditions for chronic course of the diseases, including angina, leading to serious complications like rheumatic fever, hemorrhagic vasculitis, nephritis [7]. The problem of rheumatism in Yakutia closely associated with chronic tonsillitis. In the 70-80-ies authors MV Khandy, KF Golberg, A. Solovieva examined the prevalence and clinical features of rheumatic fever among children in Yakutia. According to M. Handa in childhood subacute course of acute rheumatic fever is the most often. In adolescence, prevailed the latent form with a high percentage of heart disease [4, 8, 10].

According to the data of the committee of 2009, the adult primary incidence of acute rheumatic fever in the Republic of Sakha (Yakutia) exceeded Russian 5.4 times, chronic rheumatic heart disease - 3.5 times, rheumatic heart disease - 2.6 times. According to the researches of IP Govorova (2008) rheumatic heart disease among children forms 40.3% of the total number of acquired heart diseases [2, 3].

Thus, rheumatism in Yakutia is still an urgent problem requiring further researches.

Purpose: analyze the clinical presentations of rheumatic fever among children, at the

present conditions of the Republic of Sakha (Yakutia).

Materials and Methods: was made a retrospective analysis of medical records of 72 children diagnosed "acute rheumatic fever", "chronic rheumatic heart disease" at the age of 4 to 17 years, passed the examination and treatment in cardiorheumatological department of Republic Hospital № 1 – National Medical Centre and Yakutsk Children's Hospital, Pediatric Department of city clinic #1 from 2001 to 2011. The diagnosis of "acute rheumatic fever", "chronic rheumatic fever" verified according to the criteria of Jones (American Cardiological Association, the revision of 1992) and the classification of acute rheumatic fever (Association of Rheumatologists of Russia, 2003). Statistical significance of differences was determined by non-parametric statistical criteria (Pearson χ^2, Fisher). As a significant level of significance was considered $p < 0.05$.

Results and discussion: was analyzed data of 42 patients firstly enrolled in cardiorheumatological department, and also 30 children enrolled iteratively. By sex as follows: 44 (61%) girls and 28 (39%) boys. Children from the countryside made up 46 (64%) and 26 (36%) made up children out of the city.

Among the firstly enrolled 42 children, only 14 (33%) were with the primary attack of rheumatic fever, 15 (36%) enrolled with the repeated attacks, and 13 (31%) were out of aggravation for further diagnosis. Directional diagnosis "rheumatism" was settled only in half of the patients 24 (57%) of 42, in most cases was diagnosed reactive arthritis or chronic bacterial endocarditis.

Analysis of the anamnesis of the patients showed that 17 (23.6%) patients out of 72 children were from problem families. 9 (12.5%) patients had rheumatism among first-order relatives, 6 had rheumatic diseases in their genera, and 9 patients indicated relatives suffering from cardiovascular diseases. The vast majority of patients (64, 89%) had links with an angina.

The debut of the disease analyzed retrospectively of 51 (70%) patients. Left 21 (30%) of patients has unknown onset of the disease.

Age at onset varied from 4 to 16 years, and the average - 9,34 ± 3,6 years. Most children had the first attack of acute rheumatic fever between the ages of 7 and 14 in 64% of cases. Acute onset of the disease with activity of II-III degree with fever, arthritis, rheumatic heart disease, high laboratory parameters were observed in 16 (31.4%) of 51 patients, the disease is mainly diagnosed at the first month of the disease. 13 (25.5%) children had sub-acute onset with less bright symptoms – sub-febrile temperature, monoarthritis, oligoarthritis with mild laboratory changes. Most diseases were diagnosed late, after an average of 2,42,4 ± 3,1 months. Half of the children with sub-acute disease diagnose was not updated promptly. Appeals to cardiologists mainly were due to heart failure on a background formed heart disease. The onset of disease of 12 (23.5%) patients was considered primary chronic, latent, as a disease was diagnosed only after the presentation of heart failure on a background formed heart disease. In anamnesis there were no symptoms indicating an episode of acute rheumatic fever. Diagnosis refined in a 12 ± 10,6 months in average. 10 (19.6%) children have during recurring course of disease.

Articular syndrome of the majority of patients with known debut was in the form of arthralgia, severe clinic of arthritis was in anamnesis was of 18 (35.2%) children out of 51. Erythema annulare discovered against acute disease of 6 (12%) patients. It should be noted that with rheumatic chorea was only 5 (10%) children, two of them had an isolated rheumatic chorea.

57 (79%) out of 72 patients have had formed rheumatic heart disease. One fourth of the patients (18, 25%) had compound valvular defects combined with insufficiency of mitral valve to 3-4 degrees. Moreover, the overwhelming majority of the children 35 (83.3%) of 42 for the first time admitted to a specialist department already had rheumatic heart disease, including 4 children, who had compound severe heart disease. It should be noted that the vast majority of the children 26 (74.2%) out of the 35 who with a formed heart disease were from the countryside area. The most compound defects were formed among children with recurrent and latent course of disease (Table 1).

Conclusion: The analysis of clinical presentations of rheumatic fever of children at the present conditions showed that with the acute onset of the disease was only one third of patients, the rest were observed sub-acute and latent course. Majority of children at the first admission to a specialized medical department have already certified formed rheumatic heart disease, which is associated with late diagnosis and delayed treatment of the disease. The most compound defects diagnosed among children with latent and relapsing course of the disease.

Thus, at the present conditions there is a tendency to alter the course of rheumatic fever in the direction of a lighter and worn out, which is the main reason for the formation of valvular defects.

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Table 1

Outcome of rheumatism in children depending on the course of rheumatic fever

	Acute course n=16		Subacute course n=13		Latent course n=12		Recurrent course n=10	
	number	%	number	%	number	%	number	%
Mitral valve prolapse	2	12,5	3	15	2	13,3		
Isolated heart defects	10	62,5	9	45	6	40	2	20
Combined heart defects	4	25	1	5	4	26,6	8	80*

*- statistically significant differences between comparison groups

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CONTENT OF ANTIOXIDANT VITAMINS IN THE BLOOD OF PATIENTS WITH CHRONIC GASTRITIS

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Summary

The study examined the content of antioxidant vitamins A, E and C in the blood of patients and availability of vitamins in daily diet of these patients, depending on the degree of contamination H. pylori in the gastric mucosa. The study included only indigenous persons suffering from chronic gastritis, aged 30 to 50 years.

Keywords: chronic gastritis, H. pylori, antioxidant vitamins

Conclusion: Increasing the degree of contamination of the gastric mucosa H. pylori in patients with chronic gastritis leading to the development polyhypovitaminosis.

Introduction

The antioxidant defenses of the body indigenous population of Yakutia is low in vitamins and low molecular weight antioxidants perhaps because of the effects on the body of Aboriginal extreme climatic conditions of the North [2, 3, 4, 10, 12, 14]. Inadequate supply of human organism with vitamins, which are among the essential nutrients can cause failure of various organs and systems with the subsequent development of pre-disease state, and then the disease.

Materials and methods

The study involved 160 patients with chronic gastritis (CG), aged 30 to 50 years (mean age 44,56 ± 2,46 years). Based on the morphological and ELISA were divided into two groups. The first group 115 patients with chronic gastritis associated with H.pylori, the second group - 46 patients with chronic gastritis, unassociated with H.pylori.

Patients with chronic gastritis associated with H.pylori, were divided into three groups. The first group comprised 26 patients with chronic hepatitis, in which the morphological biopsy specimens

were found up to 20 microbial cells in the field of view [1]. The second group included 18 individuals with moderate severity of H. pylori (20 to 50 microbial cells in morphology biopsy). The third group consisted of 43 patients with advanced degree (more than 50 microbes). The control group consists of 71 people, apparently healthy respect pathology of the gastrointestinal tract. The criterion for the absence of H. pylori was the coincidence of the negative results of serological and morphological studies.

Supply of vitamins was analyzed on the basis of concentrations of α-tocopherol (vitamin E), retinol (vitamin A), which were evaluated using the analyzer bioliquids "Fluorat-02-ABLF-T" (Lumex, St. Petersburg). The content in the blood of ascorbic acid (vitamin C) was determined by titrimetry [7]. The intensity of free radical oxidation of lipids was evaluated spectrophotometrically by accumulation in the blood serum of products which react with thiobarbituric acid (TBA-RP) [11].

The actual nutrition surveyed was analyzed by daily food recall [9] to obtain information on measures taken in the previous day's food by interviewing with album meals and dishes [8]. Based on the data from the tables, "The chemical composition of Russian food" was determined the chemical composition of the daily diet [13]. The balance of the diet was estimated by the consumption of essential nutrients, energy, and comparing them with those in Guidelines «Nutrition. Norms of physiological needs for nutrients and energy for different groups of the population of the Russian Federation" (MI 2.3.1. 2432-08) [15].

When performing statistical analysis tested for normal distribution of the studied quantitative test was performed by the Kolmogorov - Smirnov. The significance of differences between mean values was assessed using Student's t test for independent samples, the probability of the null hypothesis is accepted at $p < 0,05$. Correlation analysis was performed by the method of Pearson. Data in the tables are presented as $M \pm m$, where M - mean, m - error of the mean.

Results and discussion

According to our studies the level of vitamin C in the blood of patients with chronic gastritis associated with H. pylori, was 1.3 times the blood uninfected patients - 1.2 times less than in the control group. Reducing the concentration of ascorbic acid in the blood of patients with chronic gastritis associated with H. pylori, indicating they have hypovitaminosis C, possibly caused by infection with H. pylori.

The data show that the higher the degree of contamination H. pylori in the coolant, the more pronounced deficiency of vitamin C in the blood serum of patients with chronic hepatitis. Thus, patients with a low degree of contamination H. pylori levels of vitamin C in blood serum was reduced by 22% ($p < 0.05$), with a moderate degree of contamination H. pylori - by 17%, with a pronounced degree of contamination H. pylori - by 30% compared to controls ($p < 0.05$) (Fig. 1). It

should be noted that even in apparently healthy individuals in the control group, the availability of ascorbic acid does not meet generally accepted standards. Our data are consistent with the references [5, 6, 16].

In this paper Khomeriki S.G. (2001) researchers showed that the level of vitamin C in the body of patients dramatically reduced as the development of gastritis associated with H. pylori. The study Green I.I. (2006) revealed the dependence of ascorbic acid in gastric juice of patients with chronic gastritis of the degree of contamination of H. pylori. Thus, the concentration of vitamin C in gastric juice was significantly lower in the severe degree of contamination H. pylori in the gastric mucosa than mild to moderate.

Mean concentration of vitamin A in patients with chronic gastritis, unassociated with H. pylori (0,04 ± 0,001 mg/100 ml) did not differ from the average persons with HP-associated gastritis in which the level of vitamin A (0,038 ± 0,001 mg/100 ml) was reduced by 1.3 times ($p < 0,05$) relative to the value of the control group (Fig. 2).

Analysis of vitamin A in patients with chronic gastritis, depending on the degree of contamination H. pylori showed that the first and the second group of patients (with slight to moderate contamination H.pylori respectively) levels of vitamin A was 1.2 times, and the third (from severe degree of contamination H. pylori) - 1.6 times ($p < 0.05$) lower than the control group (Table 1).

The concentration of fat-soluble vitamin E in the blood serum of the control group was 0,12 ± 0,002 mg/100 ml (Fig. 3). In patients with chronic gastritis, is not associated with H. pylori, it was lower by 1.1 times and amounted to 0,11 ± 0,003 mg/100 ml. The content of vitamin E in the blood of infected patients was equal to 0,10 ± 0,002 mg/100 ml, which is below the value of the control factor of 1.2.

In the blood of patients in the first group and a second concentration of the fat-soluble vitamin E did not differ from the control group. The third group also showed a significant decrease ($p < 0.05$) levels of vitamin E is 1.4 times as compared with control, indicating that the formation of excessive ROS leading to consumption of antioxidants including lipophilic α-tocopherol (Table 1).

A significant reduction of fat-soluble antioxidant vitamin in patients with severe contamination, possibly due to the long-term persistence of H. pylori in the gastric mucosa of patients.

The results obtained are consistent with the literature. The study P.S. Phull et al (1996) found that the vitamin E content in the stomach is significantly lower than in the antrum, which indirectly reflects the mobilization of antioxidant protection of the patient in the most inflamed stomach sections [17]. In Y.Q. Sun et al (2005) conducted by the Mongolian gerbil, it was found that the protective effect of vitamins C and E was observed only in the early stages of infection with H. pylori, and with long-term persistence H. pylori effect decreases [18].

The analysis of our results on the content in the blood of a water-soluble vitamin C and fat-soluble A and E showed that the greatest deficiency of antioxidant vitamins experienced patients with severe degree of contamination of H.pylori. Probably, this fact is due to increased utilization of exogenous low molecular weight antioxidants. As with the increase in the degree of contamination H. pylori in the gastric mucosa of patients revealed a significant increase in the content of lipid peroxidation products. Thus, the level of TBA-RP in the blood of patients with a low degree of contamination H. pylori was 1.6-fold ($p < 0.05$) in patients with moderate contamination - to 2.0-fold ($p < 0.05$) and in the blood of patients with severe degree of contamination - 2.4 times ($p < 0.05$) higher than the average in the control group. Another possible reason for the decrease in blood of patients with chronic gastritis with a pronounced degree of contamination H. pylori in the gastric mucosa of exogenous antioxidants vitamin A, E and C is reduced acidity in the stomach mucosa. Continuously flowing H. pylori-infection leading to atrophy of the gastric glands and the processes of intestinal metaplasia, accompanied by an increase in intragastric pH. Under these conditions endogenous antioxidants unable to exercise their protective effects, this leads to an increase in gastric mucosa fixed concentration of active oxygen species. Deficiency of antioxidant vitamins increases the risk of inflammation and immune deficiency, the molecular mechanisms at the basis of which is increased synthesis of reactive oxygen and nitrogen.

It is well known that vitamins are important enzymes in the structure providing the metabolic processes of the body. Much of the vitamins are not synthesized in the human body and its supply is determined by their content in food. Therefore, we studied the essential vitamins intake in the daily diet (Table 2).

Analysis of the vitamin content of the daily diet of patients with chronic hepatitis showed that the failure is combined. Revealed an extremely limited intake of carotenoids from food - 61% below the recommended values in both groups. Marked by an acute shortage of vitamin C intake, as in the group of men and women in the group. Thus, dietary intake of vitamin C among men was 60% lower than the recommended rate, and women - by 69%.

It should be noted that low levels of vitamins in the daily diet of the surveyed rural population due to the extremely limited consumption of fresh vegetables, fruits and berries. It is known that patients with diseases of the gastrointestinal tract of low supply of vitamins can be caused by malabsorption of vitamins and sharing, poor appetite, the purpose of the reduced light diet. We have identified a profound deficiency of vitamins C and A in the blood serum of patients with chronic gastritis with a pronounced degree of contamination H. pylori is due not only to lack of content in the diet, but also due to increased free radical processes in the body of patients infected with H. pylori.

Conclusion

Increasing the degree of contamination of the gastric mucosa H. pylori in patients with chronic gastritis leading to the development polyhypovitaminosis: patients with mild and severe contamination H. pylori antioxidant content of vitamin C in blood serum decreased by 22 and 30%, respectively, when the concentration of fat-soluble antioxidant vitamins A and E in patients with a low degree of contamination H. pylori does not differ from the values of indicators of healthy persons, patients with severe degree of contamination H. pylori significantly reduced by 40 and 58%, respectively.

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Metabolism features in the liver cells in children depending on the stage of chronic hepatitis B

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The study included 24 children between the ages of 12 and 16 years of age, patients with chronic hepatitis B (14 men from the 2 stage of the chronic process, and 10 - with the third stage), in which a liver biopsy determined for the activity of NAD/F/-dependent enzymes and parameters of lipid profile. We found that the increase in chronic stage of infection was accompanied by a decrease in liver cells of cholesterol and phospholipids, lipid shift toward the formation of triacylglycerides, decreased activity of NADPH-dependent enzyme and decrease the synthetic potential of cell metabolism and their proliferative capacity, a reduction in the protection of cells from peroxidation processes lipid reduction in their ATP production by inhibiting the reactions of the Krebs cycle and glycolysis.

Keywords: children, chronic viral hepatitis B, chronic stage, the liver, lipids, enzymes, metabolism.

Introduction

Analysis of morbidity and economic costs of chronic viral hepatitis B [9] allows us to consider the disease as one of the priority issues of infectious diseases in Russia [10]. Particularly acute issue for pediatric practice, as it is one of the most important cause of childhood disability [3].

Despite numerous studies conducted in chronic hepatitis B, and the success achieved in the study of the pathogenesis of this disease [1, 7, 8], many issues have not been resolved definitively. Of great interest is to obtain information directly to the metabolic changes in the liver cells of patients with different stages of chronicity of the disease.

Manifestation of features of any cell of a living organism is largely determined by its intracellular metabolism, depending on the specific disease process. Parameters that reflect the direction and intensity of the reactions in the cells, which are defined in the lipid profile and enzyme activity [2]. In the available literature is not enough information about the research in chronic

hepatitis B in children, evaluating the metabolism in the liver of these parameters, however, such information is very important to better understand the features of the pathogenesis of this disease.

The aim of our research - definition of lipid composition and activity of enzymes in the liver in children with chronic hepatitis B and chronic study metabolic mechanisms of this disease.

Materials and methods

24 children at the age of 12-16 years with diagnosis "Chronic virus hepatitis B" which was established in the conditions of a specialized hospital by means of a set standard clinic-biochemical, and also immunofermental methods of research are surveyed and was confirmed morphologically at a puncture biopsy of a liver (under ultrasonography control) taking into account the histological index of degree of activity (HIDA) and the histological index of a stage of synchronization (GISS) – according to V.V. Serov [6]. From all surveyed children at 14 people the 2 stage of synchronization of process (weak or moderate degree of activity decided on moderately expressed fibrous changes in a liver) and at the 10 – the 3 stage of synchronization (weak or moderate degree of activity with heavy fibrosis in a liver).

The bulk of the liver tissue obtained by biopsy was used for histological conclusion, and 3-5 mg of it - for the determination of lipid composition and activity of intracellular enzymes.

Parameters of lipid profile of liver cells - phospholipids (PL), cholesterol (CHOL), free fatty acids (FFA), triacylglycerides (TAG) and cholesterol esters (EH) - determined by thin layer chromatography on silufole with extraction of lipids by J. Folch et al. [11] followed by densitometry to determine the ratio (%) of each of the lipid fractions.

Bioluminescent method [5] determined the activity of metabolic enzymes: glucose-6-phosphatdehydrogenase (G6PDG), glycerol-3-fosfatdegidrogenase (G3PDG), lactatdehydrogenase (LDH), NAD- and NADP-dependent isocitratdehydrogenase (NADIDG and NADFIDG), NAD- and NADP-dependent glutamatdehydrogenase (NADGDG and NADFGDG), NAD- and NADP-dependent malatdehydrogenase (NADMDG and NADFMDG) and glutathionreductase (GR). The enzyme activity was expressed in micrograms per 1 microunits liver tissue (mkE/mg).

These data are processed by methods of statistical analysis using the software package Statistica 6,0 and recommendations for their use in biological and medicine [4]. The table shows the mean group values (M) and the error of the mean (m). The significance of differences was assessed non-parametric Mann-Whitney (U).

Results

The study revealed significant differences between the lipid composition of the liver cells of the patients in groups of children differing in stages of chronic hepatitis B (table 1).

Thus, in the liver in children with stage 3 chronic infection is determined on a lower level than in the 2 stage, the percentage of the main structural components of cells - PL (11,65 ± 1,58 and 16,67 ± 1, 35, p <0.05) and CHOL (12,50 ± 1,30 and 19,24 ± 1,67; p <0.01). At the same time, in the third stage of a higher proportion of TAG: 36,54 ± 3,06 and 27,46 ± 2,55; p <0.05.

Lower concentration in the liver of the main structural lipids (CHOL and PL), the bulk of which is synthesized in this body, in children with the third stage of chronicity is probably a reflection of the rise, compared with the 2 stage, a functional deficiency in the body worsening severity of the process. Given the crucial role of CHOL in limiting lipid peroxidation reactions, reduction of this fraction in the cells, of course, reduces the possibility of their antioxidant defense and creates conditions for even more damage to the liver cells multifactorial pathological process.

However, the most important of the established us in this part of the study metabolic changes can be considered that the study of indicators confirm the shift towards lipid TAG intensive education by limiting the exchange of CHOL and reducing the share of the FFA. This indicates that at the third stage of chronic hepatitis B more active mechanism of lipid damage to the cells of the liver due to accumulation of TAG in them.

When comparing the activity of the enzymes in the liver cells at different stages of chronic hepatitis B revealed differences between the majorities of indicators (table 2). It was found that the third stage of chronic metabolic intensity of intracellular events in the liver is lower than in stage 2: G6PDG (7,99 ± 2,36 and 23,63 ± 6,09, p<0, 05), NADFIDG (19,06 ± 5,30 and 51,88 ± 10,63; p <0.05), NADFGDG (9,48 ± 4,26 and 31,53 ± 8,20; p <0, 05), NADFMDG (7,90 ± 1,84 and 22,23 ± 3,83; p <0.01), GR (3,01 ± 0,81 and 7,29 ± 1,58; p <0, 05), NADMDG (77,75 ± 17,94 and 199,91 ± 42,73; p <0.05) and LDH (7,18 ± 2,26 and 20,73 ± 4,43; p <0, 05).

General fact attracts attention is the fact that in patients with stage 3 chronic all investigated NADPH-dependent enzymes are determined less active. Inhibition of these enzymes in the cells limits the formation of reduced NADP, and therefore less able to form intracellular metabolism to the reductive synthesis, including the synthesis of fatty acids and steroids (which is combined with the characteristics stated above lipid metabolism). Less high than at stage 2 chronic, activity of G6PDG - pentose phosphate pathway enzyme - limits not only the quantity produced in the liver cells of reduced NADPH, but also reduces the possibility of the way to ensure an adequate synthesis of nucleotides and nucleic acids, and in the end - cell proliferation .

In addition, when the third stage below the level of protection of liver cells from lipid

peroxidation: reduced activity of GR - the antioxidant enzyme glutathione system. Given the role of the GR in the transport of amino acids into the cell, it can be assumed that their entry into the cells of the liver in children with stage 3 is much smaller than the 2.

At the third stage of chronic hepatitis B in liver cells is lower than in stage 2, and the level of production of energy substrates. This is evidenced by less high activity of enzymes of the Krebs cycle, which produces the bulk of the cells in the ATP needed to power their life. These include both primary dehydrogenase and the end of the cycle (NADFIDG, NADMDG, NADFMDG) and enzyme NADFGDG serving the loop substrates with amino acid metabolism. Thus, the efficiency of the Krebs cycle to ensure the functional needs of the liver cells in the third stage is reduced.

At the same time in the cells of the liver in patients of this group is not determined and the possible compensatory reaction in the form of increasing the intensity of glycolysis, which is "emergency mechanism», can occur in conditions of increased functional load on the cells for their needs in the ATP. This is supported by lower activity of LDH in the third stage of chronicity, which not only reduces the production of ATP, but also contributes to the accumulation of lactate in the cells and the formation of intracellular acidosis.

Conclusion

As a result, our research found that in children 12 to 16 years of age, patients with chronic viral hepatitis B, metabolic changes in the liver caused by rise of chronic stage of the disease, manifested by reduced major structural lipids - CHOL and PL shift towards lipid lipogenesis and TAG accumulation in cells, decreased activity of NADPH-dependent enzymes and reduced synthetic capacity of intracellular metabolism and proliferative capacity of the liver cells, decrease in their ATP production by inhibiting the reactions of the Krebs cycle and glycolysis, as well as a reduction in the protection of liver cells from peroxidation lipids.

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Table 1.

The lipid content (%) in the liver of children at different stages of chronic hepatitis B, (M ± m)

Indicators	Stage 2 chronic, n=14	Stage 3 chronic, n=10
PL	16,67±1,35	11,65±1,58 p<0,05
CHOL	19,24±1,67	12,50±1,30 p<0,01
FFA	9,34±1,37	6,72±0,80
TAG	27,46±2,55	36,54±3,06 p<0,05
EH	28,33±1,89	32,59±0,74 p<0,1
CHOL/PL	1,24±0,05	1,12±0,09
FFA/TAG	0,42±0,09	0,21±0,04 p<0,1

Table 2.

The enzyme activity (mkE/mkg) in the liver of children at different stages of chronic hepatitis B, (M ± m)

Indicators	Stage 2 chronic, n=14	Stage 3 chronic, n=10
G6PDG	26,63±6,09	7,99±2,36 p<0,05
G3FDG	132,78±16,07	121,09±13,60
LDH	20,73±4,43	7,18±2,26 p<0,05
NADIDG	5,25±1,40	2,30±0,78
NADFIDG	51,88±10,63	19,06±5,30 p<0,05
NADGDG	300,30±66,25	153,29±31,39 p<0,1
NADFGDG	31,53±8,20	9,48±4,26 p<0,05
NADMDG	199,91±42,73	77,75±17,94 p<0,05
NADFMDG	22,23±3,83	7,90±1,84 p<0,01
GR	7,29±1,58	3,01±0,81 p<0,05

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Analysis of the prevalence and intensity of dental caries in the disable children with various degrees of retardation

Summary

This article analyzes the prevalence and intensity of dental caries in children and adolescents with varying degrees of mental retardation, the justification of the need for personalized prevention and treatment of dental disease in these patients. In the study, the prevalence of dental caries in the surveyed contingent defined as high and amounted to 84.34%. With increasing severity of mental retardation increased the number of children with dental caries by 76.68% with mild to 93.87% with a deep degree of intellectual impairment. The average intensity of dental caries in children diagnosed with "mild mental retardation" was 4.82, an increase in the index of the intensity of dental caries was not only with age, but with the increasing severity of CNS pathology, by the increase in components of the "K" and "Y". Children with a diagnosis of "profound mental retardation" component "Y" was 2.33, which is 1.46 higher than that of children with mild mental deficiency.

Keywords: mentally retarded children, children with disabilities, the prevalence, intensity of dental caries.

The priority of the state policy of the Russian Federation is to preserve and promote the health of the population. Improving the provision of dental care to children in the country and keeping it up to date is an important and urgent problem, which is highly relevant for practical health care services Ó10Ô. The study of dental disease of the population is an important step in solving this problem. Dental caries, according to WHO, is a widespread pathology of hard tissues of teeth Ó9Ô. A situational analysis of the prevalence and intensity of dental caries showed that even at the age of one year, 15% of children are found deciduous teeth affected by caries, for the 3rd year prevalence of pathology reaches 46%, and by 6 years of primary teeth caries diagnosed in 96% of the surveyed children Ó2, 6Ô.

In 1998, under the guidance of Professor E.M.Kuzmina was held a dental epidemiological survey of the population in 46 regions of Russia, using uniform criteria for WHO methodology. The results of the study showed that the prevalence of dental caries in the temporary occlusion of the national average was 73%, for the Krasnoyarsk Krai it was 90.5%, and in Krasnoyarsk City - 92.0%. The prevalence of dental caries in permanent teeth in children under the age of 12 years in Russia was 78%, in the Krasnoyarsk Krai - 76.5%, in Krasnoyarsk - 78%. In adolescents 15 years of carious disease was observed in 88% of cases, on average, over the edge was 86.5%, and in the regional center - 92,7% Ó7Ô. A similar re-examination of the Russian population was conducted in 2008, during which it was revealed that the incidence of dental caries in children and adolescents in the Krasnoyarsk Krai declined in preschool children by 10.5% and the prevalence of disease was 80% in the age groups 12 and 15 years respectively by 4.5% in each Ó8Ô.

The analysis of the dynamics of child morbidity in the population according to the Russian epidemic surveys (1998, 2008) demonstrated the stability of the average intensity of caries of teeth

in 6-year-old children over a 10-year period, which amounted to an average of -4.78. In this case, there was redistribution of components in the “KP” index structure: a 15% reduction in the number of carious teeth, a 22% increase in the number of dental fillings, was 2.5 times higher than the number of remote temporary teeth, compared with 1998. The average KPU index in the 12 and 15-year-olds decreased by 13.7% and 12.8%, while the level of intensity of dental caries in 12-year-olds in 2008 was assessed as low, in accordance with the grade of WHO. In both age groups decreased by 28% the value of the component "K" (carious teeth), the number of dental fillings, and the number of extracted teeth was 2-3 times less than in 1998Ó8, 10Ô.

The problem of studying the prevalence and intensity of dental caries to date has not lost its relevance and requires further study. In today's national and international literature, there are a large number of works devoted to the epidemiology of dental caries in children and adolescents [2, 6, 7, 8, 9 and etc.], in the same time these studies were conducted for children with normal development of intelligence and there are only a few scientific publications on the state of personalized dental hard tissues in children and adolescents with developmental disabilities in intellectual sphere[1, 3, 4, 5]. In the study of these indicators while examining children with an intellectual deficiency the degree of mental retardation was not taken into account. In the Krasnoyarsk Krai today the analysis of dental disease of children with disabilities with varying degrees of mental retardation has not been conducted yet.

Objective - to study the prevalence and intensity of dental caries in mentally retarded children and adolescents in the Krasnoyarsk Krai with the gravity of the infringement of intellectual development.

Tasks:

- Determine the prevalence of dental caries in children and adolescents according to the degree of mental retardation.
- Determine the intensity of the caries process, toconduct an analysis of individual structural components of the index and identify the dependence of the values of the degree of intellectual deficiency of the surveyed population.

Materials and Methods

Dental examination of children with disabilities with varying degrees of mental retardation was carried out in a correctional school of VIII type № 6 and in specialized boarding schools № 3, № 4 of Krasnoyarsk. The surveyed population totaled 398 people, the degree of mental retardation was defined by a psychiatrist according to ICD-10, Tenth Revision, Class V. “Mental and behavioral disorders” these psychiatric diagnosis data were taken from disorder histories (development) of children and all the children, depending on the psychiatric diagnosis were divided into four groups (Table 1).

Table 1

The Structure of the Surveyed Population according to Mental Health Status

Diagnosis	Group	The number of surveyed	
		The absolute number	Share, %
Mild mental retardation (F-70)	1	94	23,62
Moderate mental retardation (F-71)	2	105	26,38
Severe mental retardation (F-72)	3	98	24,62
Profound mental retardation (F-73)	4	101	25,38
Total:		398	100

According to the WHO (1963) in order to study the dental status of the surveyed contingent itis to be divided into the following age groups of 6, 12 and 15 years (Table 2).

Table 2

The Age Structure of the Surveyed Population

Diagnosis	6 years (n=138)		12 years (n=132)		15 years (n=128)	
	The absolute number	Share,%	The absolute number	Share,%	The absolute number	Share,%
(F-70)	30	31,91	33	35,11	31	32,98
(F-71)	37	35,24	35	33,33	33	31,43
(F-72)	36	36,73	32	32,65	30	30,61
(F-73)	35	34,65	32	31,68	34	33,66

The survey was conducted in dental offices of childcare facilities using a standard set of dental tools in the presence of a social worker (teacher, nurse).

The prevalence of dental caries was determined by the formula:

$$W=[N/n]\times 100\%, \text{ where}$$

W – value, characterizing the prevalence of dental caries (%);

N – The number of persons with at least one of the signs of the dental caries (caries, fillings or teeth removed);

n – the total number of examined persons in the group.

The results were evaluated on a scale of prevalence of dental caries, proposed by WHO: low - 0-30%, average - 31-80%, high - 81-100%.

To calculate the intensity of dental caries weapplied: theKPindexfor temporary occlusion, the KPY+KP for removable occlusion and the KPYfor permanent occlusion for each of the surveyed and its average value in the groups studied. Missing primary teeth during their physiological changes did not account for the lack of reliability of caries. The intensity of caries in all groups was determined by the formula:

$$M=\sum KPY+KP/n, \text{ where}$$

M – value, characterizing the intensity of dental caries in the group studied; ∑KPY+KP– the sum of all KPY/KP indexes in the group; n – the total number of persons in the group with dental caries.

The obtained data were recorded in a computer database, and then made their statistics. Based on the absolute values calculated relative (intensive and extensive coefficients) and the average value.

In determining the reliability of the results of the study relative to the average values were calculated and the corresponding mean errors. Calculations were performed using Excel, and statistical software package SPSS 9,0 for Windows.

Results of the Research

These dental examination data showed a high prevalence of dental caries in mentally retarded children and adolescents, which amounted to 84,34 ± 0,07%. We surveyed the contingent diagnosed with “mild mental retardation” the prevalence of caries was the average level of the scale of the WHO - 76,68 ± 0,08%, the maximum rate observed in the group of children 15 years old (80.65%).The average intensity of caries in this group - 4.82, while the component of the “K” was 2.05, “P” - 2.2 “Y” - 0,87 (Table 3). The data presented in Table 3 indicate that 6-years old in the index «KP + KPY» prevailed carious teeth to be 12 and 15-years old had a maximum value component «P», i.e. teeth treatment for dental caries and its complications

Table 3

Indicators of Dental Caries of the Teeth in Children and Adolescents Diagnosed with “Mild Mental Retardation”

Age Groups (years)	The Prevalence of Caries (%)	KPY/KP		The Index Structure	
			K/k	P/p	Y
6	76,67	5,23	2,68	1,45	1,1
12	72,73	3,83	1,24	2,49	0,8
15	80,65	5,41	2,06	2,65	0,7

In children and adolescents diagnosed with “moderate mental retardation” the prevalence of dental caries was 79,06 ± 0,07%. The indicator of this group of children above compared with the results of previous 2.38%. The average intensity of caries was 5.52, while the component of the "K" was 2.83, "P" - 1.67 "Y" - 1.03 (Table 4). In accordance with the tabulated data that 6-t, 12-t and 15-years old has a maximum value component of "K", i.e. teeth with caries or its complications.

Table 4

Indicators of Dental Caries of the Teeth in Children and Adolescents Diagnosed with “ModerateMental Retardation”

Age Groups (years)	The Prevalence of Caries (%)	KPY/KP		The Index Structure	
			K/k	P/p	Y
6	81,08	5,58	3,02	1,16	1,4
12	74,29	4,99	2,44	1,75	0,8
15	81,82	5,98	2,97	2,11	0,9

In children and adolescents with severe pathology of mental retardation the prevalence of dental caries was 87,75 ± 0,06%, which is 11.07% higher than in the first and of 8.69% compared with the second group. The average intensity of caries was 7.42, while the component of the "K" had a maximum value of - 4.33, "P" - 1.66 "Y" - 1.47. The structure of the index of this group intensity decay as well as to the second group dominated untreated teeth (caries), but increased the number of extracted teeth, both temporary and permanent (Table 5).

Table 5

Indicators of Dental Caries of the Teeth in Children and Adolescents Diagnosed with “SevereMental Retardation”

Age Groups (years)	The Prevalence of Caries (%)	KPY/KP		The Index Structure	
			K/k	P/p	Y
6	88,89	6,63	3,89	1,04	1,7
12	84,37	7,18	4,14	1,93	1,2
15	90,00	8,46	4,96	2,0	1,5

In children and adolescents with a diagnosis of "profound mental retardation" the prevalence of dental caries in comparison with the data of the first group increased by 17.19%, with the second group - by 14.81%, from the third - by 6.12% and amounted to 93, 87 ± 0,1%, the average intensity of dental caries in children of this group was maximal - 8.72, compared with the figures of the first, second and third groups. The “K”component was 5.92, “P” - 0.47 “Y” - 2.33, i.e. there was an increase of carious and extracted teeth by reducing fillings (Table 6).

Table 6

Indicators of Dental Caries of the Teeth in Children and Adolescents Diagnosed with “Profound Mental Retardation”

Age Groups (years)	The Prevalence of Caries (%)	KPY/KP		The Index Structure	
			K/k	P/p	Y
6	100	9,12	7,22	0	1,9
12	87,50	8,10	5,0	0,8	2,3
15	94,12	8,94	5,54	0,6	2,8

Conclusions:

16. The prevalence of dental caries in mentally retarded children in Krasnoyarsk at the age of 6, 12, and 15-year-old was identified as high and amounted to 84,34 ± 0,07%.
17. As long as the severity of mental retardation grows the number of children with dental caries increases, from 76,68 ± 0,08% in mild to 93,87 ± 0,1% for profound intellectual retardation.
18. The increase in caries intensity index occurs not only in relation to age, but in relation to the increasing severity of CNS pathology, due to the increase of components "K" and "Y". Because for the children with a diagnosis of “profound mental retardation” component "Y" was 2.33, which was 1.46 higher compared to the children of the first group.
19. The high prevalence and intensity of dental caries in mentally retarded children and adolescents requires more attention to this category of patients, optimization of treatment, prevention and development of a personalized program of prevention and treatment of dental diseases.

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Clinical-genetic characteristic of Charcot-Marie-Tooth disease 1A type in the Republic Sakha (Yakutia)

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Summary. Charcot-Marie-Tooth disease (CMT) - a heterogeneous group of hereditary diseases of the nervous system, characterized by symptoms of progressive polyneuropathy, mainly affecting the muscles of the distal extremities. Frequency in the world is 1 in 2,500. The most common is form of CMT 1A with autosomal dominant inheritance (OMIM118220). In the Republic of Sakha (Yakutia) of CMT type 1A is one of the most common of the hereditary neuromuscular diseases.

Purpose: To provide clinical and genetic characteristics of the Charcot-Marie-Tooth disease type 1A in the Republic of Sakha (Yakutia).

Materials and Methods: Cases of own and retrospective clinical supervision of patients registered in data of «Republican genetic register of hereditary and congenital pathology in RS (Y)» of the Medical-genetic consultation of Republican hospital №1 - the National Centre of Medicine, annual reports of neurologists from all the republic, materials of the Neurologic department Republican hospital №2 –Medical Emergency Centre, mobile medical inspections over the republic have been analyzed.

Results and discussion: The general prevalence of Charcot-Marie-Tooth in Republic Sakha (Yakutia) for January, 1st, 2013 has counted 11,8 per 100 thousand population. The diagnosis of Charcot-Marie-Tooth disease 1A type has been detected on the basis of the molecular-genetic analysis of 43 patients from 113, which is 38 % of all CMT forms. The prevalence of CMT 1A type in the republic has amounted 4,5 per 100 000 population. As regards sexual sign the patients were distributed as follows: men - 25, women – 18; ethnicity: Russian - 15 (35 %), Yakuts - 28 (65 %).

Middle age of patients has been 32,2±15,7 years. The manifestation middle age has amounted 13,0±9,7 years. The average disease duration has amounted 18,6±13,3 years. As first symptoms patients have noted feet deformation, toe defect, gait worsening, weakness and pain in feet, frequent falling. In the clinical picture hypo- or areflexia of lower extremities (84 %) and feet deformation of Fridreich's or hollow type (Tabl.2) have been revealed practically at all patients undergone the survey (in 40 cases (93 %)). Also the patients had muscular atrophy of lower and upper extremities (70 and 49%), sensory defect of polyneuritic type (70%), distal muscular weakness of extremities (93 %). The gait worsening in 35 cases was of steppage type (93 %). Scoliosis has been revealed in 19 % of cases.

Fragment analysis method using markers *D17S2218, D17S2223, D17S2229* was investigated sample of healthy individuals of Yakut ethnic group (n = 100) to establish heterozygosity for these markers. By markers *D17S2218* and *D17S2229* revealed a high heterozygosity (to 76%), i.e. these markers are informative in the Yakut ethnic group. Marker *D17S2223* was less informative because heterozygosity was 49%.

Conclusions: The general prevalence of Charcot-Marie-Tooth in Republic Sakha (Yakutia) for January, 1st, 2013 has counted 11. 8 per 100 thousand population. The prevalence of CMT 1A type in the republic has amounted 4. 5 per 100 000 population. The clinical picture of the disease was detected varying severity of polyneuropathy syndrome and feet deformity, with a middle age of manifestation 13,0 ± 9,7 years. For the diagnosis of type CMT 1A in the Yakut population recommended markers *D17S2218* and *D17S2229*.

Keywords: Charcot-Marie-Tooth disease type 1A, the gene *PMP22*, prevalence, DNA fragment analysis.

INTRODUCTION

Charcot-Marie-Tooth (CMT, hereditary motoric-sensorneuropathy, HMSN) is a widely spread group of hereditary diseases of the nervous system characterized by chronically progressing weakness and distal muscular atrophy of extremities, decrease of tendon reflexes, foot and handed formation, gait worsening and sensory defect [5]. The prevalence of CMT in the world amounts 1 per 2500 persons [8]. In Russia this indicator makes 5,64 per 100 thousand population on the average with fluctuations from 1,07 to 15,95 [4]. Now about 50 loci and 30 various genes responsible for formation of CMT phenotype are identified [13].CMT 1A with autosome -dominant type of inheritance (OMIM 118220) is considered the most widespread form [2]. The reason is the mutation in gene *PMP22* (peripheral myelinprotein). Duplication of 1,5 Mb in the field of a chromosome 17p11.2-12 refers to the basic type of this gene mutation [2,8,9,12]. The leading place in structure of genetic pathology in the Republic of Sakha (Yakutia) is occupied by hereditary diseases of the nervous system [3]. Thus among all monogenic neurologic diseases nervous -muscular illnesses are the leading ones, CMT being one of the most widespread in this group [3,6,7].

In this work results of clinical-genealogical and molecular-genetic research of CMT 1A type in RS (Y) are presented.

MATERIAL AND RESEARCH METHODS

Cases of own and retrospective clinical supervision of patients registered in data of «Republican genetic register of hereditary and congenital pathology in RS (Y) » of the Medical-genetic consultation of Republican hospital №1 - the National Centre of Medicine (RH№1 –NCM), annual reports of neurologists from all the republic, materials of the Neurologic department of Republican hospital №2 –Medical Emergency Centre, mobile medical inspections over the republic have been analyzed. In the research 113 sick people (54 women and 59 men) with clinical diagnosis CMT from 85 unrelated families have been included. The research has been approved by the local ethical committee FSBE «Yakutsk scientific centre of complex medical problems SD the Russian Academy of Medical Science».

By method of quantitative definition of gene marker*PMP22* (OMIM 601097)intra locus microsatellite alleles a sample of healthy horses of the Yakut population (n=100)has been investigated at the first stage, then 98 accessible DNA samples of CMT patients (36 ones with CMT 1A type and 62 with unknown type) have been studied at the second stage. For the molecular-genetic analysis the genome DNAof CMT patients, having been taken with written informed consent has been used. A population sample of 100 healthy unrelated Yakuts has been given from the «DNA Bank of hereditary and congenital pathology and populations of people RS (Y) ». The

molecular-genetic analysis has been carried out on the basis of the Molecular-genetic laboratory RH№1 - NCM and «Genomic medicine» laboratory of Medical School, North-Eastern Federal University of Ammosov M.K. The genome DNA was extracted from blood leukocytes by the phenol-chloroform method.

The duplication in gene *PMP22* has been searched by means of fragmental analysis on the genetic analyzer ABI Prism 3130 («Applied Biosystems») with the use of the firm-manufacturer's report. The markers *D17S2218*, *D17S2223* and *D17S2229*used in the research (Tab. 1 see) concern a number high polymorphic $(CA)_n$ repetitions closely linked to the gene *PMP22*, applied for searching duplications and carrying out the analysis of coupling of locus 17p11.2 [1,10,11].

The statistical analysis has been conducted with use of SPSS 16.0. The descriptive statistics for quantitative signs is presented in the form of average value and standard deviation, and for qualitative signs is in the form of absolute values, percentage shares. The heterozygosity was counted in %.

RESULTS AND DISCUSSION

The general prevalence of Charcot-Marie-Tooth in Republic Sakha (Yakutia) for January, 1st, 2013 has counted 11,8 per 100 thousand population. CMT in our republic is revealed among Yakuts (86 patients), Russians (23 patients), and 1 patient from each ethnic group (Evenk, Moldovian, Nogay, Ukrainian). The share of Yakuts among CMT patients prevailed and has amounted 76 % with prevalence among the Yakut population 18,4 per 100 thousand population.

The diagnosis of Charcot-Marie-Tooth disease 1A type has been detected on the basis of the molecular-genetic analysis of 43 patients from 113, which is 38 % of all CMT forms. The prevalence of CMT 1A type in the republic has amounted 4,5 per 100 thousand population. The genealogical analysis of 43 patients with CMT 1A from 27 unrelated families showed the appearance of autosomal-dominant type of inheritance in 24 families, in 3 families the hereditary load could not to be found out. As regards sexual sign the patients were distributed as follows: men - 25, women – 18; ethnicity: Russian - 15 (35 %), Yakuts - 28 (65 %). Middle age of patients has been 32,2±15,7 years. Middle age at women has been 30,7±15,7 years, at men - 33,4±15,9 years. Statistically significant distinctions between age and sex were not revealed (p=0,530). The manifestation middle age has amounted 13,0±9,7 years. The average disease duration has amounted 18,6±13,3 years. As first symptoms patients have noted feet deformation, toe defect, gait worsening, weakness and pain in feet, frequent falling.

In the clinical picture hypo- or areflexia of lower extremities (84 %) and feet deformation of Fridreich's or hollow type (Tab. 2) have been revealed practically at all patients undergone the survey (in 40 cases (93 %)). Also the patients had muscular atrophy of lower and upper extremities

(70 and 49%), sensory defect of polyneuritic type (70%), distal muscular weakness of lower extremities (93 %). The gait worsening in 40 cases was of steppage type (93 %). Scoliosis has been revealed in 19 % of cases.

The clinical manifestation of CMT 1A type can be observed below as an example in the case record of one Yakut family studied by us, the fragment of their family tree is presented on Fig. 1.

During consultation the patient B, 8 years (III-1) was taken into account. In the family of the proband there are 2 sick sibs. The disease had been inherited from the father who had 2 sick sisters and a nephew. The proband felt sick at 7 years, thus the first symptoms were weakness in feet and hands, fatigue; as for the father the disease manifested itself at his 12 years, accompanied by weakness in hands, feet. In the neurologic status of the proband the restriction of back ankle extension, distal muscular weakness of extremities to 3,5 points, feet deformation on Fridreich's type, gait worsening on «steppage» type, decrease of hand and feet sinew reflexes were detected. ENMG revealed the conduction disorder on n. peroneus, tibialis, medianus, ulnaris of both sides at expressed degree of demyelinizing type.

As for her sister the symptoms were noted at 9 years. While examining the gait worsening on «steppage» type, decrease of sinew reflexes, high foot arch, hypesthesia on polyneuritic type, distal hypotrophy of extremities, restriction of back ankle extension were detected. According to electroneuromyography (ENMG) the conduction disorder of hand and feet peripheral nerves, at strongly expressed degree of demyelinizing type.

In brother's (III-3) case the disease debuted at the age of 9 years, in the neurologic status the mild restriction of ankle extension, decrease of achill reflexes, sinewhypesthesia, absence of feet deformation, shin muscular peroneal hypotrophy mainly on the right were found out. ENMG revealed the conduction disorder of hand and feet peripheral nerves at expressed degree on demyelinizing type.

The father's (II-2) inspection has revealed: expressed muscular hypotrophy of lower extremities from the level of low third of hips on type "stork's feet», «steppage» gait, absence of knee and achill reflexes, peroneal muscular weakness to 3 points, feet deformation on Fridreich's type, hypesthesia as so called "socks". In ENMG the conduction disorder on type of demyelinizing neuropathy at expressed degree has been revealed as well.

In the given family the method of fragmental analysis has revealed the duplication of 1,5 Mb in the field of the chromosome 17p11.2-12 in gene *PMP22* at 4 members of the family and 2 relatives. The result of proband's fragmental analysis (Fig. 2) is presented below.

Thus, all patients according to ENMGhad demyelinizing type of sensorial defect that corresponds to CMT 1Atype. In their clinical picture the polyneuropathy syndrome at various

degrees of expressiveness was observed. In the given family the prenatal diagnostics has been conducted, as it revealing fetus mutation, the pregnancy interruption was recommended. The family has been sent to the Republican genetic register of hereditary and congenital pathology, the subsequent long-term supervision will be continued.

The molecular -genetic analysis

Till 2011 in the medical-genetic laboratory RH №1-NCM a set «CMT-dup» (Open Company «Center of Molecular genetics», Moscow) was applied for searching duplications in gene *PMP22,* it was followed by electrophoresis in 8 % of polyacrylamide gel (PAG) which in 11 % cases has shown not informative results of the analysis.

In the present research dinucleotide STR-markers *(D17S2218, D17S2223, D17S2229*) have been used with subsequent visualization on the automatic genetic analyzer. At the beginning the fragmental analysis in the sample of healthy Yakut people (n=100) has been conducted and heterozygosity for studied STR-markers (Tab. 3) considered.

The markers*D17S2218* and *D17S2229*had high heterozygosity (on 76 %), i.e. the given markers are considered to be informative in the Yakut population and can be used for revealing duplications. The marker *D17S2223* has appeared less informative (heterozygosity of 49 %) though in other ethnic groups (Caucasian, Afro-American, Asian, Spanish) heterozygosity on the given marker was higher (more than 70 %) [11].

Further by the method of quantitative definition of gene marker *PMP22* intralocus microsatellite alleles 98 accessible samples of DNA with CMT (36 patients with CMT 1A type and 62 with unknown type) had been investigated. 38 patients of 98 patients had the duplication of 1,5 Mb in the field of a chromosome 17p11.2-12 in gene *PMP22* (39 %), in addition revealing two patients with CMT 1A type whose earlier analyses had appeared negative with the use of reagents of the firm set «CMT-dup». The patients who had had not informative results earlier have comprised negative ones.

Also we have considered the quantity of duplications detected for each STR-marker among the patients with CMT 1A type by the method applied (Tab. 4 see). High frequency of detecting the duplication was noted on marker *D17S2229* - 35 of 37, low frequency was on marker *D17S2223* - 14 of 37.

Among the patients with CMT 1A type of the Yakut ethnic group the high frequency (26 of 27) of detecting the duplication on marker *D17S2229*was observed, while the low frequency (9 of 27) on marker *D17S2223* was noted as well.

Conclusions

The prevalence of Charcot-Marie-Tooth all types has amounted 11,8 per 100 thousand population, it being the average index all over Russia. Among Yakuts the frequency 18,4 per 100 thousand population is a little higher than the average parameter all over the Russian Federation, but in the ratio with the world data it is the average index. The prevalence CMT 1A type in our republic has amounted 4,5 per 100 thousand population. In the clinical picture the syndrome of polyneuropathy and feet deformation at different degrees of expressiveness was found out.

For detecting the duplication of 1,5 Mb in the field of the chromosome 17p11.2-12 in gene *PMP22* in the Yakut population two informative markers *D17S2218* and *D17S2229*can be offered.

The introduction of molecular-genetic methods in practice of the medical-genetic consultation in the Republic Sakha (Yakutia) has allowed not only to diagnose Charcot-Marie-Tooth disease in families, but also to carry out differential diagnostics of the diseases with similar phenotype.

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Table 1

Brief Characteristic of Applied Microsatellite Gene Markers *PMP22*[11]

Marker	Primeries (direct and reverse) 5'→3'	Size of Alleles (couple of nucleotides)	Number of Alleles
D17S2218	F - (FAM)-AAATGCTTGTGGATTAGTTG R-GTGTCTTGGGTACCTTTATGTTTTCTT	196-230	12
D17S2223	F - (FAM)-TACAAGAAAGGGAACAAAGC R-GTGTCTTTGAAGAAGCAAGAGACGAGT	151-179	15
D17S2229	F - (FAM) -CCCATTCCATAGTCATCAGA R-GTGTCTTTGCCATTTTACCACAAGAGG	243-269	13

Table 2

Clinical Symptoms of Patients with CMT 1AType

Symptoms	Amount of Patients (%) (n=43)
Muscular weakness Lower extremities Upper extremities	 40 (93) 14 (33)
Muscular hypotrophy Lower extremities Upper extremities	 30 (70) 21 (49)
Surface sensorial defect of polyneuritic type	30 (70)
Hypo- or areflexia Lower extremities Upper extremities	 41 (95) 36 (84)
Foot deformation	40 (93)
Scoliosis	8 (19)
Steppage	40 (93)

Table 3

Heterozygosity of CMT 1A Disease STR-Markersin Various Ethnic Groups

Heterozygosity, %					
Marker	**Populations**				
	Caucasus [11]	**Afro-American [11]**	**Asian [11]**	**Spanish [11]**	**Yakut***
D17S2218	87	78	77	69	76
D17S2223	71	75	81	71	49
D17S2229	93	86	81	71	76

Note: * - own data

Table 4

Frequency of Duplication Detection for Each Marker among AllPatients with CMT 1AType (n=37) and Separately among Yakuts (n=27)

Marker	**Duplication Detection**	
	All patients	**Yakuts**
D17S2218	24/37	16/27
D17S2223	14/37	9/27
D17S2229	35/37	26/27

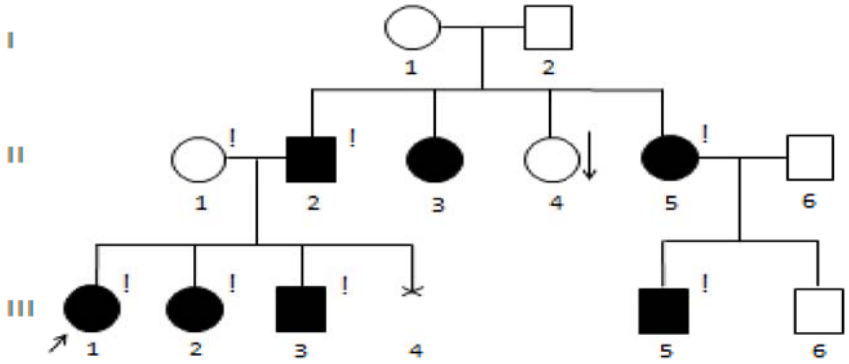
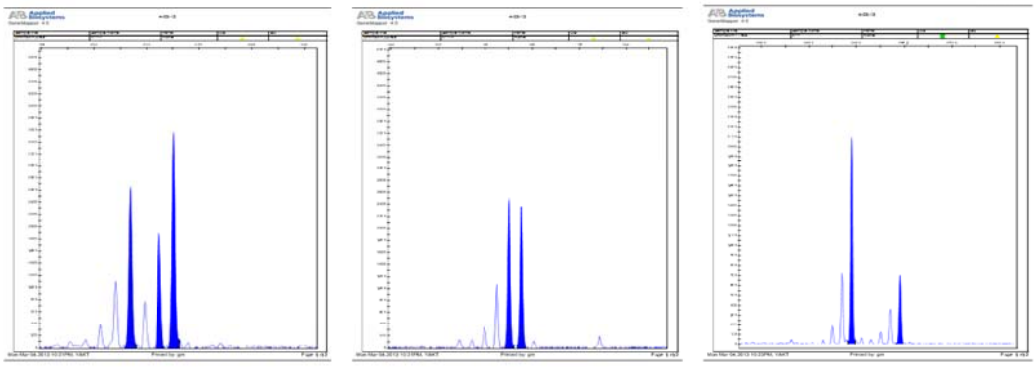


Fig. 1. Fragment of a Yakut family tree (the Ks as the example) with CMTT1A type.

□ – man, ○ – woman; ■, ● – patients with CMT; □, ○ – healthy individuals; x – prenatal diagnostics, ! – personally inspected, ↓ - died. I, II generation – parents, III generation – patients and sibs.



абв

Fig 2.The result of fragmental analysis of a patient with CMT 1A type: a–duplication on markers *D17S2218* (two normal alleles and one pathologic); b – marker*D17S2223* is normal; b–duplication detection on marker *D17S2229* (double doze effect).

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Tumor and cystic neoplasms in the newborns

Abstract

Freguency of malignant neoplasms in the newborn is 1,88 – 3,65 on 100 thousand live births, that is in 10 times less than that of older children [5]. 40% of neoplasms are detected at birth. The majority of tumors diagnosed prenatally, are not malignant. 39 newborns with tumoral and cystous formations of various localization were observed in surgical department of the Pediatric center from 1999 for 2012. 14 newborns were with ovarian cyst, 6 children had teratomas of sacrum and coccyx area, 6 babies had lymphangiomas of various localization, other babies were with new growths in an abdominal cavity and peritoneal space. New growths of malignant character were revealed among 7 newborns (18%). 36 children were operated (92%), the lethality in group of newborns with new growths made 7.6% (3 patients).

Keywords: newborns, tumors, cysts of abdominal cavity, neonatal oncology.

Materials and methods:

The analysis of the newborns addressed to surgical department of the Pediatric center with various new growths and cystous pathology from 1999 for 2012 was carried out. 25 babies were with new growths, 14 were with ovarian cyst. Very often the diagnosis of a new growth is made on screening ultrasonography of the newborn and postnatal clinical picture. Over the last 5 years ovarian cyst is diagnosed antenatally on 3rd fetus ultrasonography in the period of 32-33 weeks of a gestation. In these cases the differential diagnosis is constructed between enterocysts which can cause in the neonatal period an obturation of a gleam of an intestinal tube and clinic of partial intestinal impassability, and ovarian cysts which lead to twist emergence with violation of blood circulation in a cyst [7]. Therefore the newborns with cystous formations in an abdominal cavity in the absence of clinic of intestinal obstruction after the early neonatal period arrived on expeditious treatment in surgery. In group of newborns with tumors the most frequent pathology are sacrum and coccyx teratomas (6), lymphangiomas of various localization (6 – mesentery of a thick gut, of a neck, of a trunk and a hip of the big sizes), formations of a liver (hepatoblastomas in 3 cases,

hamartoma a liver, lymphangioma and hemangioendothelioma – in the whole 6 formations), 5 newborns were with new growths of peritoneal space and had 4 neuroblastomas and 1 child had the kidney tumor, all formations were of malignant character.

Table 1

Neoplasm	Quantity of patients	Nosology
sacrum and coccyx teratoma	6	
lymphangiomas	6	in the area of mesentery – 1, large neck – 2, inguinal region – 1, torso – 1, hip – 1
neoplasm of liver	6	hepatoblastomas – 3, hamartoma – 1, hemangioendothelioma – 1, lymphangioma - 1
new growths of peritoneal space	5	neuroblastomas of adrenal area – 2, neuroblastomas of peritoneal space – 2, mesonephroma of kidney- 1
dermoid tumor of mesentery	1	
pancreatic cyst	1	
Total:	25	

The majority of newborns were full-term children, prematurely born 5 babies (13%), one of them was born from triplets with antenatally established diagnosis of sacrum and coccyx teratoma.

92% of newborns were operated, including 3 hemihepatectomies. 3 newborns weren't operated: two of them were with malignant tumors – a neuroblastoma of peritoneal space with metastasises in a liver and hepatoblastoma striking both shares of a liver; in the first operation a biopsy of a liver tumor was carried out, hamartoma of liver was histologically verified, but owing to bilateral hydrothorax in the postoperative period the patient died.

Results of discussion

According to medical data the main part of newborns' pathology are cases of sacrum and coccyx teratomas. In most cases teratomas come to light antenatally from 22 weeks of a gestation because they are laid at early stages of embryogenesis [8]. The ultrasonography of a fetus is to specify localization, structure, the amount of formation, the existence of other pathology of internals. Teratomas are more often localized in sacrum and coccyx area, but their localization in mediastinum and in abdominal cavity can seldom be noted [9]. Sacrum and coccyx teratomas can get into peritoneal space, in this case teratomas are divided into 4 types: the type I is with the external tumoral component; the type II is with a small presacrum component, the most part of

formatiom being outside; the type III is a small external component, the most part is situated in posterior aspect of peritoneal space; and the type IV is without an external component. Teratoma can be solid in structure (in this case the forecast for the patient is unfavorable), mixed and cystous. The teratomas of large dimensions have the "burglarizing" phenomenon in consequence of plentiful teratoma blood supply can be observed, the thinning of a fetus myocardium is observed, the expansion of heart cavities, a hydropericardium, the prenatal death of a fetus being as a result. [1]. Sometimes the delivery involving surgery can be proposed depending on the tumor dimensions.

Malignant marker of teratoma is Abelev-Tatarinov's reaction to level of embryonic protein – alpha fetoprotein. In the first week of life the AFP level at the newborn is raised, then it sharply decreases, and at some malignant teratomas this protein is produced by a tumor and its level remains raised. The test also can be applied as an onkomarker at hepatoblastomas and teratoblastomas of ovary [10]. To diagnose sacrum and coccyx teratoma it is necessary to provide MRT or RCT of formation for measuring of peritoneal component (fig. No. 1), in certain cases teratoma can cause urination difficulty and constipation. In the first case the wrong tactics of newborn's teratoma sacrum and coccyx area treatment was chosen in remote district hospital – the formation was taken for post-injection abscess which was opened and drained. The girl was delivered to the Pediatric center and operated there. Teratomas are operated on the first week of life of the child because later risk of malignancy increases.

Surgical removal of formation requires the compulsory resection of a tailbone and plasticity of muscles of a pelvic bottom for prevention of "sagging" of a perineum. All six newborns were operated under our supervision – five on the first week of life, one on the 3rd week (operation was delayed for the girl from triplets because of the small weight and the symptoms of a prenatal hypotrophy). All cases were verified as mature teratomas histologically. In the remote period one child had a recurrence of a tumor at the age of three years result of histological research after repeated removal of formation of a small basin – the malignant tumor proceeding from cages of a yolk sac is noted, the child is on chemotherapy.

Peritoneal neuroblastomas proceed from sympathetic peritoneal ganglion or adrenal glands, are prognostically unfavorable (malignant) new growths if come to light in the neonatal period [2]. In the first case the adrenal gland neuroblastoma with metastasises in a liver was diagnosed, this patient hadn't been operated. In other cases the tumors were removed radically, children were transferred to constant supervision of children's oncologist.

Kidney formations in the neonatal period have more often happened good prognosis of disease because there is mesonephroma at this age verified histologically – the variant of innocent

Villiams tumor, the patient being on constant supervision of children's oncologist after nephrectomy.

Newborns formations of a liver aren't infrequent. Among 6 patients in half of cases the hepatoblastoma was revealed – one patient was inoperable owing to large size of defeat. One patient had histologically confirmed liver hamartoma, the others had lymphangioma (according to the results of histology) and infantile hemangioendothelioma. The diagnosis is confirmed by RKT (fig. 2), high rates of AFP prognostically indicate the existence of hepatoblastoma. Three newborns were subjected to hemihepatectomy (fig. 3): 2 cases were hepatoblastomas and 1 hemangioendothelioma. The hemihepatectomy resulted in one case a lethal outcome, one promised the good remote outcome, and one had a clinic of portal hypertensia in a later period.

Existence of lymphangiomas of large volumes, often intensive one, is the indication for operative intervention in the neonatal period. Especially it concerns localization of lymphangioma in a neck because the tension of formation can lead to sharp respiratory insufficiency through a compression of soft rings of a newborn's trachea. Except increase and tension lymphangioma can be complicated by infection and development of a sepsis. Lately the surgeries can apply more conservative methods of newborn's extensive lymphangioma treatment – the sklerotization angioma cavity made by etosisclerol foam as the safest and rather effective method of treatment.

Ovary cysts are not rare pathology in the neonatal period, recently cysts are more often diagnosed antenatally, the ultrasonography estimates the sizes of cysts and the existence of complications postnatally. The presence of suspension in a cavity of formation may be an ultrasonography sign of ovary cyst torsion (fig. 4), though pain syndrome can be not observed. For investigation period 14 girls with an ovary cyst were operated in the neonatal period (fig. 5). The cyst can sometimes overwind in the uterus and amputate itself from appendages, in these cases there are liquid structure freely lying in an abdominal cavity with contents of "chocolate" or dirty and green color (fig. 6). As the newborns' cavities of a small basin are not developed, ovary cyst may be defined rather highly with fingers, imitating enterokists and being rather mobile. According to the histologic WHO classification (Geneva, 1977) ovary cyst belongs to tumor formation. According to A.A.Gumerov [3], newborns' ovary growths appear in 1,2% of cases. The swelling formations (false tumors) which grow at the expense of accumulation (retention) of liquid are more often found in a follicle cavity. The high content of a chorionical gonadotrophin in the organism of mother plays a great role in formation of newborn's and fetus' cysts [4]. Spontaneous regression of ovary cysts appears among 25 – 50% of newborns [4,6]. Tactics of treatment of ovary swelling formations depends not only on the sizes and structure of cysts, but also on the existence of complications (hemorrhage in a cyst cavity, a necrosis, self-amputation, torsion). The indication for expeditious

treatment of newborn's ovary cysts are: formation existence of 30 mm in the diameter and more, ultrasonography identification of a dispersed suspension in a formation cavity, detection of a soft or solid component that points to dermoid genesis of formation. Emergence of a suspension or soft component is regarded as a number of complications – hemorrhages, an apoplexy or a necrosis that is confirmed with operational finds. Our investigation confirmed that 30% cases of newborn's cysts were with overwinds (torsions). Histologically verified follicular and serous cysts are more often stated.

3 patients weren't operated: 2 patients because of seriousness and extensiveness of defeat by malignant process (an adrenal gland neuroblastoma with metastasises in a liver, hepatoblastoma, occupying both shares of a liver) and the newborn with liver hamartoma after an formation biopsy with the hydrothorax.

The lethality among newborns with tumor pathology of internals made 7,6%: the patient from a hamartoma liver, the newborn in the early postoperative period after a hemigepatectomy for hepatoblastoma and the prematurely born child with sacrum and coccyx teratoma of big sizes which has become complicated by second degree intra ventricular haemorrhage after operation

Conclusions

1. According to our data the newborns' tumors and swelling formations are revealed in 10% of cases among surgical pathology of the neonatal period.
2. Ovary formations (36%), sacrum and coccyx area teratomas (15%), lymphangiomas of various localization (15%), formations of a liver (15%), peritoneal tumors (13%) are more often diagnosed.
3. In 18% of cases the pathology carries malignant character, is more often at new growths of peritoneal space (57%) and a liver (43%).
4. Early antenatal diagnosis of newborns' tumor formations of ovary, ultrasonography detection of complication signs allows to choose the right tactics of treatment, to carry out the surgery in time and to preserve ovary tissue at most giving the girls a chance of future reproductive function.
5. The lethality among newborns with tumor pathology made 7,6% according to our data.

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Vliuysky encephalomyelitis: clinical polymorphism, focusing on slowly progredient fatal disease course. Variations of the epidemic process

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Summary

The introduction of clinical and epidemiological monitoring of different degree of reliability of the diagnosis of the Vilyuisk encephalomyelitis (VEM) risk groups of patients in the foci of disease, because of the still not confirmed data on suspected viral etiology of the disease, lead to polar points of view on the nature and pathogenesis of VEM. It is shown that the identification of long-term stable and remittent types of the clinical course of sub-acute and chronic VEM with exacerbations, leading to rapid fatalities, indirectly brings VEM with slow infections. It is suggested that the epidemic process of VEM varies dramatically by the prevalence of the mild polymorphous clinical forms above those authentic typical in some its periods.

***Keywords*:** Viliuysk encephalomyelitis, epidemic process, clinical and epidemic monitoring, sub-acute VEM, slow VEM, slow infection, clinical polymorphism.

Abbreviations: DPF – dementic-paretical form; SPF - spastic-pareticcal form; PSF - psychotic form; TVE - Torpid Viliuysk encephalomyelitis; ONMS - Organic neurological micro symptoms; MFP - slowly and fatally (malignant) progressive type of VEM; GLP - gradually, the long-term upward (benign) progredient type of current, TE - Torpid encephalopathy, VH - virus herpes, TBE – Tick borne encephalitis, PFTBE - progressive forms of TBE; PFVEM - progressive forms of VEM; ALS -amyotrophic lateral sclerosis.

Introduction

In connection with failures to isolate the causative agent of the Vilyuisk encephalomyelitis (VEM) most credible cases of disease by a special Commission of scientists of the Institute of poliomyelitis and virus encephalitis of AMS of the USSR in 1971, were adopted so-called nuclear clinical forms VEM in the form of dementia, dysarthria and spastic tetraparesis with the rigidity [5]. These irreversible manifestations of the disease were more often developed in patients surviving acute

prolonged febrile meningo encephalitic stage of the disease. However, from the 1950s - 60s, under VEM dispensary supervision sometimes were included people who get the lighter acute neuroinfections unclear etiology. Moreover, already in the 1950s, in the foci of VEM were registered practically healthy people with organic neurological microsymptoms (ONMS) that were initially taken for the residual effects migrated acute outpatient (or easily expressed mild) forms of the encephalitis. In the subsequent history of the disease in many patients VEM not excluded the presence of such encephalopathy states long before the disease, which in some cases was confirmed by clinical observations. It was ascertained, that the part of such people is gradually developing clinical picture spastic encephalopathy, border clinical manifestations with moderately severe clinical forms of chronic VEM [1].

Clinical and epidemiological studies L.G. Goldfarb and co-authors [5,11] with high probability demonstrated the possibility of horizontal transmission VEM from person to person. On prolonged incubation period of VEM (in average 17 years) is close to the slow infections. Negative results of various virological studies at VEM do not stop the attempts of some researchers to continue the study of such candidates to the etiology of VEM, as viruses Saffold and Taylor [9,10,12]. The discovery of the virus Saffold and its pathogenicity for humans increases the likelihood that Viliuysky virus could still be isolated from VEM patients and perhaps recombined in a collision with a population of Taylor murine encephalomyelitis virus. G.G. Karganova [8] currently continuing her work to the agent, dedicated E.S. Sarmanova [9,10].

Pathological findings in VEM [13], indirectly characterize lesions in brain dead from VEM people as being typical of the consequences of the defeat persistent, though not established to the virus. Detection of different time of occurrence of such foci of inflammation in the same case is evidence of at least two exacerbations persistent process. On this same point, and clinical observations cases with repeated, often mild emerging tensions in stages ensuing intermission after acute VEM or chronic stable flow. And in some cases, prolonged exacerbation took slowly progressive type of fatal within the next six years or more. This indicated remittent course during the sub-acute VEM, pathogenetic mechanisms which probably was the peculiarities of persistent «virus VEM», with passages from the dormant latent chronic to slow infection. Noted the great similarity of morphological patterns VEM and tick-borne encephalitis (TBE), progressive clinical forms (PFTBE) belong to a slow infection. Distinctive was the lack of micro thrombosis vasculature of the brain in VEM, although both encephalitis were characterized by multiple small, so-called encephaloclastic foci of brain lesions [13].

According to immunogenetic conceptions of the VEM nature [6], the primary factor encephalopathy with organic neurological micro symptoms (ONMS) is considered a genetic dysfunction of the immune system (the limitation of the production of the gene IFNγ and increase intrathecal synthesis IL18), an extreme expression of which are acute inflammation in stressful situations (up to 30% of patients), or the development of degenerative forms of diseases. When the inflammation characteristic are the breakdown intrathecal immune tolerance and development of local immune response due to the proliferation immune reactive brain cells on infectious allergic

type. According to the author of the hypothesis V.L. Osakovsky (2011) factor that triggers the VEM disease process, is a viral infection of the nature of which does not matter, because VEM is an autoimmune disease [6,7].

Analysis of the course and outcomes of encephalopathy clinical forms VEM in condition, close to chronic stable VEM, gives rise to the hypothesis primary chronicity of latent, clinically unborn or even asymptomatic, which faces the problems of mixed pathologies, differential diagnosis and pathogenesis of fatal of progression of VEM (1,2,3).

Retrospective analysis of long-term observations in the foci of VEM in the process of clinical and epidemiological monitoring of the disease showed that the similarity authentic, possible and probable cases can be found in the trends for change of stable type of clinical course VEM in progressive [2,3]. In this process occur progressive forms of sub-acute and chronic VEM (PFVEM) like PFTBE, with the same characteristics slow infection. However, in the period of formation of chronic VEM after acute, current sub-acute or primary chronic clinical picture of VEM often takes the stable, «frozen» status typical VEM complex syndrome, therefore it is more convenient for clinical monitoring and comparative analysis of VEM morbidity allocate two basic types of chronic VEM:

Gradually, the long-term upward (relatively benign) progredient course (GLU type), which is characteristic also for torpid encephalopathies and smoldering encephalitis.

slowly and fatally (malignant) progressive (MFP type), continuing for not more than 6 years, in fact, characterizing the blurred chronic course on a background of chronic stable that has similarities with over slow infections;

Our task was to establish how often these two types of currents in the epidemic process of VEM for a certain period of time.

Material and methods

Clinical and epidemiological study we involved a retrospective analysis of the archive of the medical histories of the patients with a diagnosis of VEM, charts of ambulatory monitoring in expeditions VEM patients and high-risk patients, manifested with VEM from the 1940s to the present time. For analysis of the incidence, morbidity, mortality VEM in dynamics, we chose 456 patients from 1453 patients VEM database, most fully meet the criteria for probable, possible and authentic VEM. The reliability of a diagnosis of VEM confirmed by documented clinical, pathological, laboratory and epidemiological materials.

Have studied the outcomes of the disease - the duration of acute, sub-acute and chronic stages, stage of intermission and, where possible, of the earlier stage of torpid encephalopathy long before to the onset of the encephalomyelitis. An attempt is made to start tracking stage slowly and fatally progredient (MFP) type of course, to estimate its duration and the illness in General. Identification of the dynamics of the observation of a patient with a diagnosis of VEM accession of a neurological syndrome in long-term stable course chronic VEM contributed to the forecasting of change of type of the course on slowly progressing.

Statistical processing of materials of research conducted using the program «Statistics», the

selection of the group is confirmed when the P-value was less than the threshold level of error of 0.05.

Results and discussion

We have 456 selected patients on the following groups: group 1A - 56 now living with the diagnosis close to an authentic VEM (20 - DFT, 14 - PCF, 19 - PSF, 3 - TVEM with the transition in SPF), with onset of illness from 1950 to 2005, and group 2A - 10 dead from VEM from 1994 to 2012, with the onset of the disease from 1991 to 2010 (i.e. a total of 66 patients with authentic VEM), distributing these groups of patients course on long-term stable (group 1A) and a slowly progressive fatal (group 2A).

Acute and sub-acute VEM with rapidly progressive, fatal from 4 - 8 months up to 27 months duration of the disease was observed in 4 women group 2A (17,46,48 and 49 years) in 1991, 2003, 2008, 2010, and 37-year-old man in 1992. The seven patients out of 10 patients of the second A group with slowly progressive course developed dementia. The disease lasted from 4 months for 8 years, and only in one case - 32 years (terminal stage MFP from him - 8 months).

All 20 patients from the first-A group with the DPF and 19 patients PSF marked the long-term stabilization stage, only two of them with DPF are in a nursing home v. Sosnovka, and in one patient in 2012 notes state, threatening the transition to the terminal stage of VEM. Patients with PSF predominantly located in constant treatment in a psychiatric hospital in Vilyuisk, rise of neurological symptoms was observed.

For a retrospective analysis of the two main types of current archive VEM database we considered two other groups of patients died from VEM: in group 1B (table 1) included 54 patients, characterized by a marked clinical VEM complex syndrome authentic VEM: Parkinson syndrome on the background of different severity pyramid or (rarely) cerebellar-pyramid disorders, cognitive disorders, moderate to extent expressed dementia, pseudo-bulbar, at least - bulbar syndrome, sometimes amyotrophic syndrome to the degree of manifestation of the syndrome ALS. Group 2B amounted to 252 patients died from VEM with moderately expressed authentic VEM complex syndrome (table 2).

Table 1

The average age at onset, and the life expectancy of 54 patients died from Viliuiski encephalomyelitis (VEM) with the expressed complex syndrome of authentic VEM and mainly slowly and fatally progressive form of type duration
(from the VEM database from the1940s until 2012)

Distribution by gender	Age of onset of disease (years)	life Expectancy at the onset of the disease
Men	31±7,9	19,79±3,52
Women	34,4±9,51	14,92±9.48

Table 2……

A third group comprised 94 living patients registered with possible VEM: 58 patients with SPF and 36 patients with TVEM. Mainly they have the disease onset until 1990, for stable VEM, with the severity of VEM complex syndrome much smaller, in comparison with the patients in groups 1A,2A, 1B, 2B. As can be seen from table 1, a slightly lower life expectancy was observed in women (14,92±9.48) with the expressed VEM complex syndrome. And for men, despite earlier VEM initiation, but later accession to low spastic parapareses other syndromes, as extrapyramidal, dysarthria, pseudobulbar, cerebellar, amyotrophias, bulbar, cognitive disorders average length of life was more (19,79±3,52). The average life expectancy of men and women in patients with moderately expressed VEM complex syndrome (table 2), little different from that of women with pronounced VEM syndrome, we explained by the development of slowly progressive VEM most of these patients on the background of previous stable VEM course.

Of 456 VEM patients long-term stable VEM current was found in 237 patients and slowly progressing at 219, which lasted from a few months to 6 years.

It is noted that in a number of patients of 219 (165) slowly progressing VEM developed after several years of stable chronic VEM course (from 1 to 16 years to less than 21 years). Often such a malignant change of course occurred at the background of cold, hard current influenza or pneumonia, rarely trigger factors served pregnancy and heavy labor in women, cranial trauma. Manifested slowly progressive course lasted an average of six years.

Figure 1 shows data of a retrospective analysis of the VEM database of clinical and epidemiological monitoring VEM - comparative graph of morbidity by year as 150 living patients (with VEM onset from 1953 till 2012)and 306 (54 больных1Б group and 252 patients group 2B) died from VEM (after various duration periods of the disease).

Figure 1….

Living VEM patients, as indicated above, are distributed on the possible (94 patients of group 3) and authentic VEM (56 patients of group 1A). Died from VEM patients were included for

corresponding to the criteria's of an authentic VEM. This chart shows how from 1950 to 1990 the incidence of different clinical forms of VEM prevailed tend to develop slowly and fatally progressive type of course, with peaks of this type MFP in the mid-1950s and the 1970s Marked decline in the VEM incidence with the GLU and the MFP types of course similar to its rise from the 1940s.

Below are the data on cases of slow progredient VEM, 1991-2010 (table 3). All these cases are differed by a shorter duration of illness prior to death (2 months, up to 8 years), but one is 32 years. However, in the latter case, as mentioned above, stage of fatal slow VEM manifested later 17-18 years of steady course of SPF and 13 years preceding the stage torpid encephalopathy with ONMS-3-4 degrees of severity, and continued in a more clinically severe form about 8 months. Development MFP final stage was noted at the background of previous stable chronic VEM and in cases with a total duration of VEM six and eight years.

Table 3……

In the cases № 8 and № 9 includes data of the patients with acute and subacute VEM women, 17 and 47 years, and died for over 4 months and 8 months further development of VEM. But in both cases was observed fatal disease exacerbation after a phase of stabilization occurred on a background of intensive treatment in the neurological clinic of the Republican Hospital №2, Yakutsk. In one case, the enhancement of the MFP was the aspiration pneumonia due to traumatic iatrogenia, in the second traumatic long trip from Yakutsk to Vilyuisk in the not comfortable car. Both cases have been confirmed by the data of pathomorphology, where registered inflammatory necrotic encephaloclasytic foci mainly in the brain stem and hypothalamus including that was probably a reflection of the development of the pathological condition incompatible with the survival, despite resuscitation. These are conditions that are characteristic of slow infections, causing the proximity of death.

Also in the cases № 1, № 6 and № 10 acute and sub-acute onset of the disease with mild inflammatory changes in liquor (protein from 33 up to 99 mg/l, lymphocytic from 1 to 49 cells in 3 mm3, positive oligobands IgG to VG), marked atrophy of the cerebral cortex to MRI, psychotic episodes and increasing the degree of intensity of the VEM complex syndrome were progressed to severe disorders, and in subsequent 8-20 months were characterized by symptoms of the typical VEM MFP forms.

In half of the other cases VEM MFP (№ 2, № 3, № 4, № 5, № 7) the beginning of VEM was gradual, and torpid encephalopathy status previously to severe disorder was registered in the cases № 2, № 3 & № 7 within 8 months, 13 and 26 months, respectively.

It is very likely that torpid encephalopathy stage with ONMS preceded the development of VEM with acute and gradual beginning in other cases too, because almost all (except one - № 8) of the patients were descended from sustainable foci of VEM, some of them had long inner families contact with affected by authentic VEM relatives or co-workers (such as in cases№ 1, № 2, № 3, №

4, № 5, № 6, № 9). They were, however, just historical data, and these patients were not examined by a neurologist before detection of VEM.

In these cases of the progressive forms of VEM MFP type (table 3) 8 people have manifested VEM in place of residence in the old strongholds VEM foci of Vilyuisky, Verkhne-Vilyui and Njurbinsky uluses, and in two cases they were taken ill in other villages of the same or a neighboring district. But in the last three cases all patients were sick in Yakutsk, one of them, a 17 year old girl, was from the Njurbinsky district village free of VEM. Manifestations of an authentic VEM cases in Yakutsk were very rare, and such increased against this background looks quite vividly. The probable explanation of this fact - increased migration of population from rural to urban areas in recent years, and the change of factors of risk of the disease in healthy carriers of the alleged VEM pathogen.

Observations on the possibility of transition benign, a steady course of VEM (GLU type) in fatal progredient course (MFP type), are the most powerful factor that compels us to continue medical examinations of people at risk of VEM, the number of which can fluctuate greatly depending on the possibilities of the group of clinicians and researchers.

Conclusion

Infectious-allergic concept of the VEM nature [6] recognizes a variety of infectious agents in the possibility to start of the pathological process in VEM, appealing to the development of VEM from torpid, genetically caused immunodeficiency encephalopathic states. However, this encephalopathy may be a manifestation of latent, with a transition to primary chronic infection, as it is established, for example, with herpes.

Detection of intrathecal synthesis anti herpetic IgG antibodies in the cerebrospinal fluid of VEM patients over the GLU and the MFP types by isoelectric focusing oligobands method (6,7) probably indicates the current, unfinished process of inflammation in the brain, at the same time no one found antigen HV nor by polymerase chain reaction (PCR), nor in immunocytochemical morphological studies of the brain tissue of VEM patients.

Data our analysis in this work may indicate the variability of the properties of the pathogen VEM in its epidemic process, giving certain features for the epidemic VEM process. The appearance of these «features» could affect the spread of the pathogen with the new hosts in the other geographical and ecological niches, and the likelihood of comorbidities and immuno-genetic rearrangements virus carriers and likely other unexplored factors.

In the 1950s - 1960s, increased migration has led to the meeting of the virus unprotected from it new people and, as a consequence, the epidemic spread migrants-vector management (essentially by healthy carriers of infection) to other areas of the Vilusk and then the Central group regions of Yakutia. In the period from 1954 to 2012, was distributed, parallel to each other VEM cases with malignant, slowly and fatally progressive (MFP) and benign, gradually progressing (GLU) types of flow VEM in exposed populations in new regions. The emergence of the MFP by type of slow infection continues to occur in a few cases since the beginning of the 1990s and, although rarely, up to the present time. The most illustrative VEM MFP type cases were registered in 2003, 2008, 2010.

Wide clinical continuum and clinical polymorphism of VEM finds confirmation in identifying torpid encephalopathic VEM forms, progressing in their dynamic clinical observation [3]. Risk factors for the progression of stable VEM course are: 1) repeated VEM exacerbation; 2) the progression of the symptoms of involving in pathological process of the lower spinal motoneuron; 3) the development and progression of dementia mixed type; 4) the depletion of neuroimmunoendocrine protective mechanisms; 5) joining of intercurrent diseases, that reduce the resistance of the organism.

Currently necessary to continue the clinical and epidemiological VEM and risk groups monitoring with the introduction of latest technologies in examination of each VEM case and comprehensive scientific study, for the validity test. Only such a relentless approach to the VEM will allow to approach to the solution of the etiology and pathogenesis of this insidious disease of Central nervous system of the person of Yakutia region, to develop modern prevention and treatment, with more precision diagnose and predict inter vivos the VEM MFP type of course and make reliable predictions prospects the development of the epidemic process of the disease. Preventive measures in VEM should be directed to the VEM risk group, further comprehensive study of which it is necessary to pay attention to.

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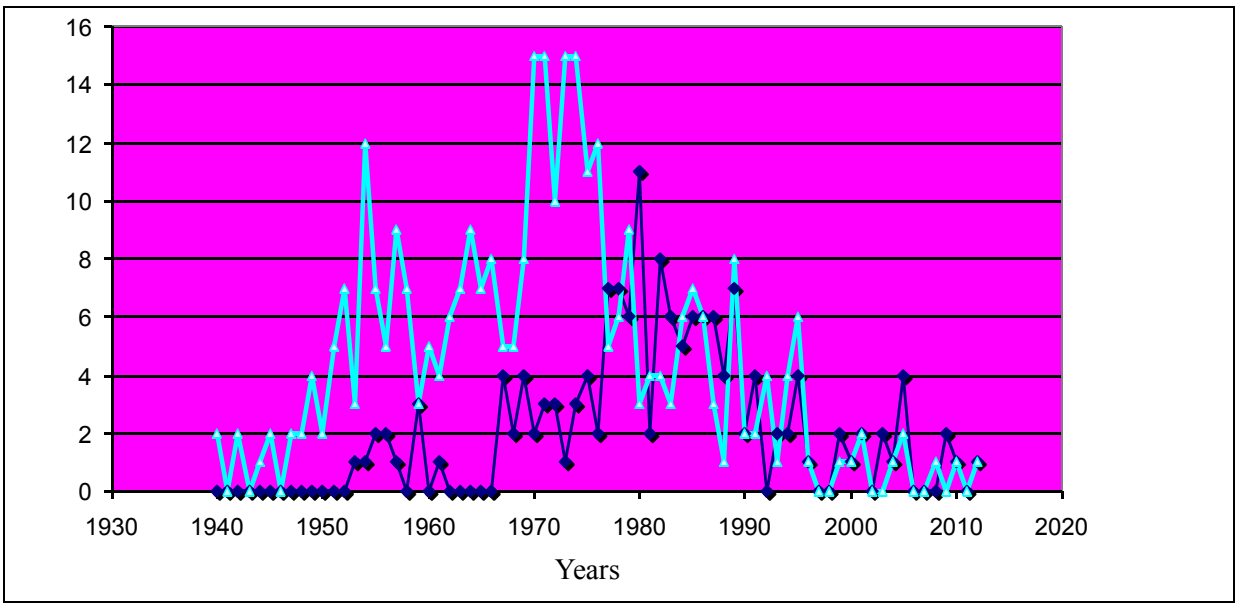
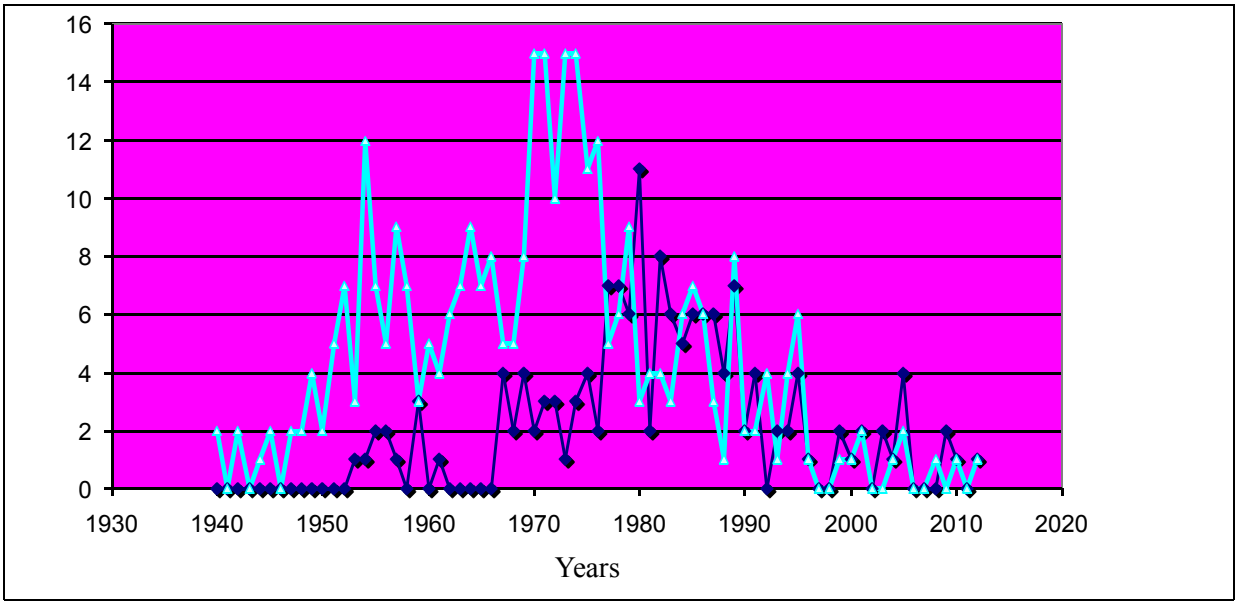


Fig.1. Schedule of morbidity by year of the150 living patients of the possible and authentic VEM (dark blue line) and 306 of the dead cases with a diagnosis of authentic VEM affected in the period from 1940 till 2012. The abscissa years, on the axis of ordinates abs number of VEM patients in a year.



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THE RELATIONSHIP BETWEEN INFLAMMATORY MARKERS AND METABOLIC SYNDROME AND CORONARY ATHEROSCLEROSIS AMONG INHABITANTS OF YAKUTIA: ETHNICITY AND GENDER FEATURES

A.N. Romanova, M.I. Voevoda, A.S. Golderova

The relationship of inflammatory markers (interleukin-6 (IL-6), interleukin-8 (IL-8), tumor necrosis factor-α (TNF-α), interferon-γ (INF-γ) and C–reactive protein (C-RP)) with metabolic syndrome (MS) and coronary atherosclerosis among inhabitants of Yakutia depending on ethnicity and gender was studied. The results of the survey of men and women at the age of 45-64 years with verified coronary atherosclerosis and without clinical signs of coronary heart disease (CHD) are analyzed. The results of the research showed that in patients with metabolic syndrome complicated by coronary atherosclerosis in comparison with persons without clinical signs of CHD the levels of the all studied inflammatory markers were higher. The significant ethnicity and gender differences are revealed. Ethnicity differences were characterized by elevated IL-6 levels among non-native people of Yakutia unlike native population. Gender differences were characterized by the increase of IL-6 levels in women, than in men. In native men with coronary atherosclerosis the INF-γ level in comparison with non-native was higher.

Keywords: inflammatory markers, metabolic syndrome, coronary atherosclerosis, native and non-native inhabitants of Yakutia.

INTRODUCTION

Atherosclerosis – chronic disease, the pathogenesis of which is associated with inflammatory processes at the level of the vascular wall [23]. In formation of atherosclerotic plaque the smooth muscle cells, monocytes (macrophages) and lymphocytes which collect in the vascular wall in response to the release of inflammatory mediators, are involved. The inflammation contributes to the deposition of lipids in the vascular wall, has essential value in the destabilization of atherosclerotic plaque and development of atherothrombotic complications [1, 8].

Scientific researches in the recent years showed that the adipose tissue is biologically active and plays the important role in the development of mechanisms of inflammation. The greatest contribution to the development of MS and atherosclerosis brings super secretion of visceral

adipocytokines such as IL-6, IT-8, INF-γ and TNF-α, which are directly involved in the formation of chronic latent subclinical inflammation at the MS and play the important role in the development of atherosclerosis and their complications [1, 3, 14, 19, 29]. System activation of cytokines is predictive marker of the severity of progressing of MS and atherosclerosis [18, 20, 21, 26]. The IL-6 promotes the growth and differentiation of T- and B-lymphocytes, stimulates the production of acute phase proteins. The IL-6 production by adipose tissue is increased in persons with overweight. The IL-6 has direct effect on the formation of insulin resistance at the level of hepatocytes, inhibits the metabolic effects of insulin by blocking of insulin-dependently activation of signal transducer, insulin - induced of glycogen synthesis. The high IL-6 levels are associated with suppression of hepatic glikogensyntetase, activation of glycogen-phosphorylase and lipolysis, increased production of triacylglycerols [18, 21, 28]. Standing out a bit later, than IL-1β and TNF-α, the IL-6 inhibits their formation (they on the contrary stimulate its release) and therefore belongs to cytokines, development of inflammatory reaction [3, 10]. The IL-8 acts as inductor of acute inflammatory reaction, stimulating adhesive properties of neutrophils and hemotaxis of T-lymphocytes. Suppressing the expression of tissue inhibitor of metalloproteinases-1 in macrophages with subsequent amplification of metalloproteinase activity, IL-8 causes destabilization of atherosclerotic plaque. The increased IL-8 level is associated with risk to the development of unstable angina and myocardial infarction [8, 30]. The INF-γ is produced by T-lymphocytes and NK-cells and promotes the formation of cellular immunity, keeping of inflammatory process in the lesion, increasing the cytotoxic activity of cells, infiltrating the diseased tissue, increased the phagocytic, adhesive ability of macrophages. Interacting with proapoptogenic factors, the INF-γ increased death of cells by apoptosis. Metabolic effects of INF-γ aren't fully understood. The INF-γ activates cytokine production by macrophages, stimulates the immune cytotoxicity, involved in lipid metabolism, reduces the activity of lipoproteinlypase and synthesis of its matrix ribonucleic acid by adipose tissue and enhances of lipolysis in adipocytes [8]. The TNF-α is one of key mediators to the development of insulin resistance, mainly produced by monocytes / macrophages, endothelial cells and mast cells. In patients with obesity reveal increase of TNF-α level in blood serum. The main cause of reduced secretion of adiponectin at the obesity, possessing anti-atherogenic and anti-diabetic properties associated with ability to suppress of gene of TNF-α expression of adiponectin. The TNF-α has the multiple effect on different types of cells by modulation of genes expression of growth factors, cytokines, factors of transcription, cellular receptors, acute phase proteins [8, 12, 25]. The C-RP – protein of acute phase of inflammation, is generally synthesized in hepatocytes under influenced by cytokines (mainly IL-6, TNF-α and IL-1β), is nonspecific marker of inflammation. The C-RP level in healthy people has the risk factor in the development of CHD and

acute myocardial infarction, in patients with cardiovascular disease – adverse prognostic sign [6, 8]. The majority of researchers considered C-RP as indicator of instability of atherosclerotic plaque. It is assumed that the mechanisms leading to destabilization of atherosclerotic plaque are induction of C-RP of the endothelial dysfunction, increased level of the production of adhesion molecules, stimulating of the formation of foam cells, activation of the complement system in the atherosclerotic plaque [9, 31].

Thus, existing data of the role of inflammatory markers in the development of MS and atherosclerosis give the opportunity to consider them as predictors of cardiovascular disease and their complications. Increase of morbidity and mortality from cardiovascular disease and their complications dictate the need for new approaches to atherosclerosis treatment. One of perspective approaches of treatment is creation of anti-atherogenous vaccines [4].

The **purpose of research** was studying of relationship of inflammatory markers, such as, IL-6, IL-8, FNO-α, INF-γ and C-RP, with metabolic syndrome and coronary atherosclerosis among inhabitants of Yakutia depending on ethnicity and gender.

MATERIAL AND METHODS

The study was conducted within the framework of a joint program of the Yakut Scientific Centre of Complex Medical Problems SB RAMS and Institute for Internal Medicine SB RAMS "Atherosclerosis: epidemiology, etiopathogenesis and development of measures of prevention, diagnosis and treatment among inhabitants of Far North by example of the population of Yakutia". The research is approved by local committee on biomedical ethics of Yakut Scientific Centre of Complex Medical Problems SB RAMS (the protocol №13 of November 27, 2008). Results of survey of 396 men and 60 women are included in research at the age of 45-64 years with the verified coronary atherosclerosis according to selective coronaroangiography, being on stationary inspection in Cardiological branch of Republican hospital №1-Natsional center of medicine of Yakutsk which made the main groups. In forwarding conditions to areas of the Sakha Republic (Yakutia) by results of complex medical examination comparison groups of 212 men and 271 women without clinical signs of CHD at the age of 45-64 years are created. Research period: 2007-2010. For the comparative analysis the surveyed persons were subdivided into 4 groups: 1 – patients with the verified coronary atherosclerosis, representatives of native people of Yakutia (n=217), from them men – 189, middle age 54,34 ± 0,44 years, women – 28, middle age 53,39 ± 1,28 years; 2 – patients with the verified coronary atherosclerosis, representatives of non-native people of Yakutia (n=239), from them men – 207, middle age 54,76 ± 0,43 years, women – 32, middle age 55,81 ± 1,01 years; 3 – persons without clinical signs of CHD, representatives of native people (n=253), from them men – 108, middle age 51,28 ± 0,57 years, women – 145, middle age 51,19 ± 0,43 years;

4 – persons without clinical signs of CHD, representatives of non-native people (n=230), from them men – 104, middle age 51,09 ± 0,52 years, women – 126, middle age 51,37 ± 0,47 years. Yakuts are considered to be representatives of native nationality, non-native nationality – Russians, Ukrainians and the Belarusians living in Yakutia constantly.

Criteria of exception: anomalies of development of coronary arteries, intact coronary arteries, existence of unstable stenocardia, acute myocardial infarction in the anamnesis till 6 months for groups of patients; diagnosed of CHD for comparison groups; the acquired and congenital heart diseases, cardiomyopathy, worsening of any chronic diseases, age are more younger than 45 years and of 65 years and are more senior for all groups.

The survey was spent by standard techniques and included the following obligatory sections: standard poll under Rosers questionnaire (for comparison groups) and the questionnaire developed for estimation of objective condition; triple measurement of arterial pressure; anthropometrical survey with measurement of waist (WC) and hips (HC) circumferences and calculation of index WC/HC; electrocardiogram registration in rest; selective coronaroangiography (for patient groups); blood sampling from elbow vein in the morning on empty stomach with 12-one-hour break after meal for revealing of lipid (definition of total cholesterol (TC), triglycerides (TG), high-density lipoprotein (HDL) levels) and carbohydrate (blood glucose level) metabolisms, and also of immunological indicators (of interleukin-6 (IL-6), interleukin-8 (IL-8), tumor necrosis factor-α (TNF-α), interferon-γ (INF-γ) and C–reactive protein (C-RP) levels). Biochemical parameters were decided by enzymatic method for the automatic analyzer “Cobas mira plus” of La Roshe firm, Switzerland using of commercial sets of “Biocon”, Germany. For methods of immunofermental analysis used sets of firm ZAO “Vektor-Best”, Novosibirsk (definition of IL-6, IL-8, FNO-α and C-RP levels). The low-density lipoprotein (LDL) levels was calculation by the formula LDL = TC - (HDL + TG / 2,18) mmol/l (Friedewald W.T. et al. 1972). The selective coronaroangiography was spent on angiographic installation "Axiom. Artis BA" (Siemens, Germany) by standard technique of Judkins. Degree of stenosis of coronary arteries was determined automatically by classification of American college of cardiology (ACC) and American cardiological association (ACA). For diagnosis of MS used the criteria of VNOK (2009). The MS was diagnosed in the presence of central obesity and two additional criteria. All researches are executed from the informed consent of examinees according to ethical standards of the Helsinki declaration (2000). Estimation of results spent on the standard classifications.

The statistical processing of data been conducted with the program SPSS (version 13). Tested for normal distribution of studied quantitative indices was performed by Kolmagorov-Smirnov's test. We’ve made correlation and multiple-factors analyses. Results are presented in the form of M ±

to m, where M – average value, m – standard error of average value. Standard criteria for evaluating of statistical hypotheses: t-Student criterion, Mann-Whitney, $\chi 2$-Pearson were used. Distinctions were considered statistically significant at $p < 0.05$.

RESULTS AND DISCUSSION

The frequency of MS was significantly higher in both ethnicity and gender groups of patients with coronary atherosclerosis in comparison with persons without CHD (native: men – 52,9 vs 16,7%; women – 67,9 vs 20%; non-native: men – 67,1 vs 19,2%; women – 96,9 vs 25,4% accordingly, p=0.000). The frequency of MS was higher in non-native people of Yakutia, than in an indigenous people (patients: p_m=0.004; p_w=0.003, in comparison groups the distinction were traced at the level of tendency). The gender differences in group of patients with coronary atherosclerosis among non-native nationality were characterized by the higher frequency of MS in women in comparison with men (p=0.001).

The C-RP, FNO-α, IL-6 and IL-8 levels (p=0.000) (the INF-γ level in comparison groups wasn't defined) were significantly higher in patients with coronary atherosclerosis in both ethnicity and gender groups in comparison with persons without CHD, which coordinated with inflammatory cytokine's role in the development of MS, therefore, and atherosclerosis (tab. 1). According to the prospective research it was shown that the cardiovascular mortality linearly increased with increase in the IL-6 levels and C-RP [11]. The IL-6 level was the significant predictor of cardiovascular mortality in the model including the inflammatory markers and MS. The IL-6 and C-RP levels explained about 1/3 the MS associations with cardiovascular mortality. Strict linear dependence of cardiovascular mortality on the content of IL-6 independently of MS and the C-RP level was shown. On the contrary, the relationship of C-RP with cardiovascular mortality was not significant after the correlation of the IL-6 level. The C-RP level has high correlation with the IL-6 level, as IL-6 is the main stimulator of hepatic production of SRB [26]. In the research (R.M. Shakhnovich et al.) was shown that in patients with myocardial infarction the C-RP level was significantly higher than in persons without cardiovascular disease. In patients with myocardial infarction with wave Q increased the C-RP level (more than 2 mg/l) in month from the beginning of myocardial infarction was marker of the adverse prognosis. The association of C-RP level with volume of lesion was not revealed [6].

In the study (E.V. Panyugova et al.) it was revealed that the combination of clinical picture of coronary atherosclerosis and peripheral arteries disease was accompanied by increase the C-RP level [1]. It was shown that the C-RP level correlated with risk to the development of adverse events (death, myocardial infarction, stroke), with existence of the complicated stenosis in patients with

acute coronary syndrome more than with prevalence of coronary atherosclerosis [15, 16]. In the Dallas Heart Study (DHS) was shown that in patients with aortic atherosclerosis and high level of calcium index the concentration of C-RP was higher, than in patients without aortic atherosclerosis and with low level of calcium index. However when spent the multiple-factor analysis taking into account risk factors, such as body mass index, treatment with statins, the relationship between the C-RP levels and existence of aortic atherosclerosis wasn't significant and, therefore, the C-RP level wasn't significant predictor of the severity of atherosclerotic lesion [27]. According to the prospective research Mexico City Diabetes Study the C-RP level wasn't predictor to the development of MS within 6 years in men. At the same time in women the increased level of C-RP correlated with high risk to the development of diabetes and MS, regardless of abdominal obesity and insulin resistance [22]. In the Insulin Resistance Atherosclerosis Study (IRAS) the significant communication of C-RP with sensitivity indicators to insulin, fasting insulin and pro-insulin was revealed. Also was demonstrated the linear dependence of the C-RP level on number of the metabolic disorders included in the MS (dislipidemia, abdominal obesity, insulin resistance, arterial hypertension) [13]. In the several researches was showed that in patients with CHD the IL-6 level was either independent or stronger factor, than C-RP [17, 24]. In the research spent in Novosibirsk was shown that in men with coronary atherosclerosis the IL-6 and IL-8 levels were increased [7].

In native men with coronary atherosclerosis the INF-γ level (p=0.035) was higher than in non-native men. In non-native men (p=0.002) and women (p=0.026) the IL-6 levels was higher with comparison indigenous population of Yakutia that will be coordinated with data of other researchers [2, 5]. The comparative analysis of studied indicators in comparison groups also revealed ethnicity differences. So, among non-native people of Yakutia in men the C-RP (p=0.000), TNF-α (0.052), IL-6 (p=0.037) and IL-8 (p=0.000) levels and in women – the TNF-α (0,059) and IL-6 (p=0.001) levels were higher in comparison with indigenous people. The following significant gender differences are received. Among all men with coronary atherosclerosis (p=0.003; p=0.008), and without CHD (p=0.000) in both ethnicity groups the TNF-α levels were higher in comparison with women. In women from both ethnicity comparison groups the IL-6 levels (p=0.000) were higher than in men. The INF-γ level was higher among urban men of native nationality in comparison with rural men (p=0.044). In other patient groups the significant differences in levels of inflammatory markers depending on the place of residence aren't revealed. In comparison groups among native rural women the TNF-α level (p=0.000) was higher than among urban residents. In urban women the IL-8 level (p=0.000) was higher. Among non-native people, living in city, in men the TNF-α (p=0.004) and IL-6 (p=0.000) levels and in women the TNF-α (p=0.001) and IL-8 (p=0.000) levels were higher in comparison with rural residents. The coronary atherosclerosis has positive

correlation with C-RP (r=0.830, p < 0.01), IL-6 (r=0.805, p < 0.01), IL-8 (r=0.574, p < 0.01) and TNF-α (r=0.486, p < 0.01) levels.

Table 1

The comparative analysis the inflammatory markers levels in the investigated groups of men and women, M ± m

Group			C-RP	TNF-α	IL-6	IL-8	INF-γ
1 Group with CHD, native	men (n=189)	urban	6.70±0.59	5.37±0.41	7.34±0.93	10.40±2.07	34.49±5.32
		rural	5.64±0.50	4.95±0.33	6.06±0.44	10.77±2.06	22.13±2.74
		total	6.13±0.38	5.15±0.26	6.64±0.49	10.60±1.45	27.99±2.96
		p	*p_{1-3}=0.000*	*p_{1-3}=0.000 p_{m-w}=0.003*	*p_{1-3}=0.000*	*p_{1-3}=0.000*	*p_{1-2}=0.035 p_{c-v}=0.044*
	women (n=28)	urban	6.70±0.88	3.84±1.28	4.54±0.66	11.29±2.62	18.39±5.42
		rural	5.37±0.57	3.43±0.44	4.83±0.56	7.62±1.33	18.48±2.26
		total	5.81±0.48	3.57±0.52	4.73±0.43	8.93±1.28	18.45±2.39
		p	*p_{1-3}=0.000*	*p_{1-3}=0.000*	*p_{1-3}=0.000*	*p_{1-3}=0.000*	
2 Group with CHD, non-native	men (n=207)	urban	7.34±0.49	5.52±0.41	8.60±0.75	9.75±2.29	25.37±4.02
		rural	6.07±0.33	5.56±0.39	8.56±0.66	10.73±3.29	18.38±2.15
		total	6.63±0.29	5.54±0.28	8.58±0.49	10.24±1.99	21.77±2.26
		p	*p_{2-4}=0.000*	*p_{2-4}=0.000 p_{m-w}=0.008*	*p_{2-4}=0.000 p_{1-2}=0.002 p_{m-w}=0.071*	*p_{2-4}=0.000*	
	women (n=32)	urban	5.29±0.45	3.51±0.50	5.31±0.50	6.46±2.59	21.25±4.38
		rural	7.34±0.74	4.30±0.69	6.71±0.49	10.63±4.30	15.09±2.68
		total	6,12±0.43	3.83±0.41	5.88±0.37	8.40±2.41	18.75±2.83
		p	*p_{2-4}=0.000 p_{c-v}=0.020*	*p_{2-4}=0.000*	*p_{2-4}=0.000 p_{1-2}=0.026 p_{c-v}=0.044*	*p_{2-4}=0.000*	
3 Group without CHD, native	men (n=108)	urban	0.51±0.05	2.88±0.34	0.37±0.12	0.12±0.04	-
		rural	0.59±0.05	2.24±0.25	0.19±0.07	1.16±0.26	-
		total	0.55±0.04	2.56±0.21	0.28±0.07	0.64±0.14	-
		p		*p_{m-w}=0.000*			
	women (n=145)	city	0.60±0.06	0.11±0.07	1.28±0.26	5.06±0.46	-
		village	0.86±0.14	3.08±0.27	0.80±0.19	1.93±0.56	-
		total	0.72±0.07	1.53±0.22	1.04±0.16	3.56±0.40	-
		p	*p_{m-w}=0,027*	*p_{c-v}=0,000*	*p_{m-w}=0,000*	*p_{3-4}=0.022 p_{m-w}=0.000 p_{c-v}=0.000*	
4 Group without CHD, non-native	men (n=104)	urban	0.75±0.10	4.12±0.45	1.07±0.34	2.12±0.34	-
		rural	0.98±0.09	2.38±0.24	0.33±0.16	1.59±0.24	-
		total	0.87±0.07	3.24±0.27	0.69±0.19	1.86±0.21	-
		p	*p_{3-4}=0.000 p_{c-v}=0.060*	*p_{3-4}=0.052 p_{m-w}=0.000 p_{c-v}=0.004*	*p_{3-4}=0.037 p_{c-v}=0.000*	*p_{3-4}=0.000*	
	women (n=126)	urban	0.71±0.08	2.61±0.40	1.41±0.17	2.44±1.85	-
		rural	0.93±0.14	0.98±0.16	1.37±0.21	1.57±0.35	-
		total	0.82±0.08	1.80±0.24	1.39±0.13	2.00±0.24	-
		p		*p_{3-4}=0.059 p_{c-v}=0.001*	*p_{3-4}=0.001 p_{m-w}=0.000*	*p_{c-v}=0.000*	

CONCLUSION

Results of the our research showed that the levels of the all studied inflammatory markers were higher in patients with metabolic syndrome complicated by coronary atherosclerosis in comparison with persons without clinical signs of CHD. Significant ethnicity and gender differences are received. In non-native people of Yakutia the IL-6 level in comparison with aboriginals was higher. Also the IL-6 level was higher in women, than in men. In native men with coronary atherosclerosis the INF-γ level in comparison with non-native men was higher, that is possible, connected with intensity of immune system in aboriginals.

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Proteinuria and cardiovascular risk at chronic glomerulonephritis

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named after academician Mirsaid Mirrakhimov (Bishkek, Kyrgyzstan)

Abstract

Abstract Objective: To study the role of nephrotic proteinuria in the light of reno-cardiac interactions upon chronic glomerulonephritis (CGN) at an early stage of the disease.**Material and methods:** 143 patients with CGN were examined: 70 patients with a daily proteinuria of <3.5 g and 73 patients with a daily proteinuria of > 3.5 g. All patients were subjected to general clinical examination. **Results**: Lower values of erythrocytes and platelets counts, lower concentrations of Hb and total protein were detected in the plasma of patients with nephrotic proteinuria. In addition, they had higher contents of total cholesterol, LDL cholesterol, triglycerides and fibrinogen concentration. It was found that linear heart sizes were increased upon heavy proteinuria (LA 3.1 ± 0.3 cm against 3.0 ± 0.3 cm, p <0.05), LV ESS (3.1 ± 0.3 cm against 3.0 ± 0.2 cm, p<0.05), LV EDS (4.9 ± 0.3 cm vs 4.7 ± 0.3 cm, p<0.05) and indexed left ventricular mass (138.5 ± 24.6 g/mI against 130.5 ± 18.8.5 g/mI, p<0.05) as compared to patients with proteinuria of < 3.5 g per day.. Correlation analysis showed that there is close negative relationship between indexed left ventricular mass and Hb concentration and platelet counts, as well as the positive correlation relationship between indexed left ventricular mass and the value of daily proteinuria in the 2nd group. **Conclusion**: Availability of nephrotic proteinuria in patients with CGN is associated with the increase in indexed left ventricular mass and left ventricular cavities.

Keywords: chronic glomerulonephritis, proteinuria, left ventricle, cardio-vascular diseases

Introduction

Today chronic kidney disease (CKD) is one of the most important medical and social problems of modern nephrology.It is related to extremely high prevalence of this disease, predominance

thereof among the persons of working age as well as tosteady progression of CKD, which causes early population disability [1,6,8]. Chronic glomerulonephritis (CGN) holds a leading position in the CKD structure.In 2002 in Kyrgyzstan, prevalence of CGN and nephrotic syndrome amounted to 34.2 per 100 000 population. It should be also noted that the index has increased to 61.9 cases per 100 000 population by 2011. It is generally recognized that majority of patients suffering from CGN do not live till terminal renal insufficiency and die from cardiovascular complications(CVC) [16.7]. Cardiac events are often accompanied by the course of CGN. In many medical cases, these processes develop in parallel. In this case, recent researches give an important role to timely elimination of "renal factors" of risk of cardiac pathologies origination, the leading position among which is given to the proteinuria [13, 23].It should be noted that the majority of clinical researches are known to study the influence of proteinuria on CVD in patients with secondary nephropathy, that is, on the population of people suffering from pancreatic diabetes (PD)and arterial hypertension (AH) [21]. At the same time, contribution of nephrotic proteinuria into development of CVC in patients of youthful stage with CGN at early stages of disease is studied incompletely.

Study objective: To study the role of nephrotic proteinuria in the light of reno-cardiac interactions upon chronic glomerulonephritis (CGN) at an early stage of the disease

Materials and methods:the work is performed on the base of specialized nephrology department of the Mirsaid Mirralhimov National Center for Cardiology and Therapy. The study covered 143 patients with nephrotic form of CGN at the early stage of disease, 70 patients out of which (42 men, 32 women, average age 29.2±10.7 years old) with proteinuria value of less than 3.5 grams per day and 73 patients (51 men, 22women, average age 32.8±12.0 years old) with more than 3.5 gram of daily protein excretion upon the absence of edema syndrome. Average duration of disease amounted to 4 (2-9) years, both groups could be compared under age, haemodynamics parameters and kidneys functions. The study did not coverthe persons having hypertonic and mixed form of CGN, coronary heart disease, cardiac conduction and rhythm disturbance, heart failure, systemic diseases of connective tissues, pancreatic diabetes, liver and blood pathology.All the patients were subjected to a set of clinical and laboratory and instrumental examinations. Anthropometric measurement included measurement of height, weight through identification of body mass index. Heart rate, level of systolic, diastolic, average andpulse arterial pressure were measured using generally accepted method. Laboratory analyses included identification of hemoglobin concentration (Hb), erythrocytes and platelets counts in blood and biomedical measurements {concentration of lipids, fibrinogen, total protein, creatinine, glomerular filtration rate (GFR) and daily proteinuria}. All patients were also subjected to electro and echocardiographic examination where linear heart sizes {left atrium, end-systolic and end-diastolic size of left

ventricular (LV), thickness of interventricular septum, LV rear wall}, left ventricular mass were evaluated under the formulae of R. Devereuxet. al.[10]. Data was subjected to statistical processing on the personal computer Windows 2007 in the medium of Excel spreadsheets using the application programs package “Statistica 6.0”. Significance of differences between groups was assessed with the help of Student's t-test (for variables with normal distribution) andMann-Whitney test (for variables with non-parametric distribution). Data has been represented as an average ± standard deviation for variables with normal distribution, median (25% - 75%) for variables with non-parametric distribution. Non-parametric correlation analysis was used under the Spirman’s method to identify relation between measurements studied. The value of $p<0.05$ was considered to be the level of statistical significance.

Results and discussion

As it was already noted, examined groups could be compared under age, duration of a disease, weight and BMI, arterial pressure level (table 1). However, according to dividing criteria,measurements of daily proteinuria showed appreciable difference. It is necessary to point out that there wasa trend of increase both in systolic and diastolic level of AP in patients having nephrotic proteinuria.

Analysis of kidneys’ functional statusbetween examined groups has not revealed significant differences, as all patientscovered by the study were ill for relatively short period.

Table 1

It is considered that the presence of proteinuria even in default of AH and PD in patients with CKD is always characterized by big degree of CVC development as compared to general population [13,18].

The proteinuria independently causes changing of canaliculi and interstitial tissues of kidneys along with the risk factors such as hyperlipidaemia and anemia [7]. Eventually, appearance and progression of interstitial fibrosis causes activation of angiotoninII gratuitous synthesis in kidneys, which probably induces AH development [9] in addition. The study conducted by LIFE showed that increased protein excretion together with urine was clearly associated with LV hypertrophy regardless of AP level, presence of pancreatic diabetes, content of creatinine in blood serum, age, sex, race and addiction to smoking [22].

As it is known, nephrotic proteinuria make a decisive contribution into CGN progression. Anemiadevelopment is also related to it at the early stages of disease. Thus, persistent proteinuria is not only an activity index of renal process but also is a factor causing gland deficiency development due to loosing of transferring with urine, inefficiency of folic acid, B_{12}vitamin as well as due to

abnormality of suction processes indigestive tract [14]. According to the data of M.C. Thomas [20], patients having 2nd type PD with proteinuria andrenal failure were noted to have Hb level depression to 1-2 g/dlper year, which was not noted in patients suffered from 2nd type PD with no proteinuria and renal failure. Hb value of those patients remained stable within subsequent five years of observation. Thomas showed that fall in blood Hb to more than 2 g/dl per year was observed in half of patients sick with proteinuria and only in 10% of patients with secured nitrogen releasing functions of kidneys. The table 2demonstrates the results of erythrocytes analysis. One can see from the table that Hb concentration, counts of erythrocytes and platelets were significantly lower in 2nd group's patient, that is with more than 3.5 grams proteinuria value. Clinical studies have proved that Hb content is more likely to fall in the presence nephrotic proteinuria than in patients having no proteinuria [14]. It is also established that there is often high risk of anemia development even under secured values of GFR upon big values of proteinuria [18].

Table 2

It can be confirmed by the correlation analysis results, where negative interrelation between proteinuria and Hb concentration ($R= -0.17$, $p<0.03$), red blood count ($R= -0.20$, $p<0.01$) was noticed in the 2nd groups of persons with nephrotic proteinuria, whereas such interrelation was not noticed in the 1st group.We have earlier showed presence of negative correlation between proteinuria degree and red blood count in patients with nephrotic glomerulonephritis [5]. Accelerated development of anemia under nephrotic proteinuria is due to that the filtered and re-absorbed protein causes tubular andinterstitial cells proliferation, emission of chemokines and cytokines by the same, which intensify formation of intracellular matrix [6.15]. If there is excess amount of proinflammatory cytokines, it makes favor not only for the erythropoetin secretion suppression in kidneys, but also for reduction of its erythropoietic activity in bone marrow [8].Early detection and correction of these factors under CGN remains as important and integral task of modern nephrology.

Table 3

While considering biochemistry indices (table 3) in the groups of patients with CGN and nephrotic proteinuria examined by us, we have detected lower content of blood total protein and higher levels total cholesterol, LDL cholesterol, triglycerides and fibrinogen. Development of hypoproteinemia, hyper and dislipidemy, hyperfibrinogenemia at nephrotic glomerulonephritis is generally known. Another important factor for CGN progression is dislipidemy [3]due to both atherosclerotic affection of renal vessel and direct nephrotoxic effect of lipids.It is established that if nephrotic syndrome lasts for a year, hypercholesteremia is accompanied by reduction of five-year

«kidney» survival from 90% to 62% [2].Cells that have receptors to cholesterol LDLbind and acidify them by launching further generation of cytokines, which stimulate proliferation in mesangium andnephrosclerosis development. Generation of proteoglycans and collagenolytic ferments that regulate mesangial matrix formation is decreased in parallel, phagocytic properties of deep cells are weakened, mesangium is «overloaded» with macromolecules. Lipoproteins,deposited on the cells' basic membrane, bind negatively charged glycosaminoglycans and neutralize its negative chargeby raising penetrability of the membrane for protections, which results in proteinuria progression.

Table 4

In order to study structural changes in cardiac muscle in patients with CGN, we have also analyzed echocardiography parameters (table 4), where LA and LV sizes turned out to be larger in patients with nephrotic proteinuria except for LV wall thickness. Besides it, we have also noted gain in ILVM in patients with proteinuria. During the correlation analysis we have detected interrelation between ILVM, Hb concentration ($r=-0.45$, $p=0.005$), platelets count ($r=0.34$, $p=0.05$), triglycerides ($r=0.26$, $p=0.05$) andvalue of protein excretion with urine ($r=0.25$, $p=0.05$). Gain inLVM in patients with PD at the state of proteinuria was also shown in researches of S.I. Popov and others [4], where they distinguished coronary blood flow decrease, confirmed by the myocardium perfusion scintigraphy.

Results of the great number of researches demonstrated that microalbuminuria was precursory symptom of renal irritation under AH, diabetic nephropathy and reflected initial stages of vessels pathology (endothelial disfunction, atherosclerosis) and constantly correlated with increase in CVD and mortality rate [17]. Even small levels of proteinuria are clearly related to increase of risk of cardiovascular events[19].

Thus the research performed by us testifies that indexed left ventricular mass increases in patients suffering from chronic glomerulonephritis if there is nephrotic proteinuria.

Table 1

Clinical profile of examined patients

Indices	Proteinuria <3.5g/s (n=70)	Proteinuria >3.5 g/s (n=73)	p<
Age, years	29.2±10.7	32.8±12.0	0.06
Duration of disease*, years	3 (2-9)	6 (2-9)	n/a
Sex, male/female	42/38	51/22	n/a
Body mass, kg	62.1±10.0	65.1±11.2	n/a
BMI, kg/m²	21.8±2.3	22.4±1.8	n/a
Heart rate, beats per minute	74.5±11.0	79.8±10.3	n/a
AD (S), mm hg	119±16	123±18	n/a
AD (D), mm hg	78,2±10,3	81,3±9,8	0.06
AD (Av), mm hg	91.9±11.4	95.3±11.7	n/a
AD (P), mm hg	41.2±10.0	42.0±12.5	n/a
Creatinine*(micromole)	84 (70-97)	84 (67-108)	n/a
Proteinuria *, мg/day	837(243-2.096)	7551(5.208-12.586)	0.05
GFR *, ml/min	112.4±47.3	106.8±48.0	n/a

Note:*- data presented asa median (25%-75%); BMI- Body mass index; AD – arterial pressure; S – systolic; D – diastolic; Av – average; P – Pulse; GFR – glomerular filtration rate;

Table 2

Red blood values in examined groups

Values	proteinuria<3.5g/s (n=70)	proteinuria >3.5 g/s(n=73)	p<
Hemoglobin, g/dl	142.7±20.3	134.9±20.8	0.05
Erythrocytes, mln/mcl	4.63±0.46	4.43±0.45	0.05
Thrombocytes, mln/mcl	250.3±23.2	239.1±27.5	0.05

Table 3

Biomedical measurements in examined groups

Values	proteinuria<3.5g/s (n=70)	Proteinuria>3.5 g/s (n=73)	p<
Blood serum iron, (micromole)	18.7±7.0	17.4±7.8	n/a
Total protein, g/l	59.7±12.4	43.4±10.1	0.05
Total Ch, (mM/l)	5.06±2.0	8.45 ± 3.66	0.05
Cholesterol HDL, (mM/l)	1.11±0.41	1.17±0.42	n/a
Cholesterol LDL*, (mM/l)	2.7 (2.1-3.7)	5.2 (3.7-8.2)	0.05
TG*, (mM/l)	1.7 (1.0-2.1)	2.2 (1.8-3.6)	0.05
Fibrinogen *, (mg/ml)	4660.5 (3108-6660)	7659 (5772-10656)	0.05
PTI *, (%)	88 (79-96)	83 (79-100)	n/a

Note:*- data presented as a median (25%-75%); Cholesterol HDL – cholesterol of high-density lipoprotein; cholesterol LDL – cholesterol of low-density lipoproteins; TG- triglycerides; PTI – prothrombin index

Table 4

Echocardiographic indices in examined groups

Indicators	proteinuria <3.5 g/s (n=70)	proteinuria >3.5 g/s (n=73)	p<
LA, cm	3.0±0.3	3.1±0.3	0.05
ESSLV, cm	3.0±0.2	3.1±0.3	0.05
EDS LV, cm	4.7±0.3	4.9±0.3	0.05
LVEF, %	66.4±3.4	65.9±3.8	n/a
IVST, cm	0.82±0.08	0.84±0.08	n/a
TLVRW, cm	0.81±0.08	0.83±0.11	n/a
RV, cm	1.75±0.32	1.79±0.36	n/a
FWRV, cm	0.36±0.4	0.38±0.4	n/a
LVM, g	221.7±43.3	247.7±57.8	0.05
ILVM, g	130.5±18.8	138.5±24.6	0.05

Note: LA– left atrium; ESS – end systolic size; EDS – end diastolic size; LVEF – left ventricular ejection fraction; IVST– interventricular septum thickness; TLVRW– thickness of left ventricular's rear wall; RV - right ventricle; FWRV – front wall of right ventricle; LVM – Left Ventricular Mass; ILVM – indexed left ventricular mass.

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THE THERAPY OF POST-STROKE DEPRESSION - THE FACTOR OF IMPROVEMENT OF LIFE QUALITY

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Depression prevents the rehabilitation of patients and also is connected with the low quality of life. We examined 30 patients with post-stroke depression (18 men and 12 women, the average age is 55,1±1,27 years) in 1 – 12 months of the ischemic stroke. Patients took antidepressant fluvoxamine for 6 weeks. Neurological, psychopathological and psychometric investigations in dynamics were carried out. The latter included examination according to Gamilton's, Bek's, Spilberger's scales, questionary of quality of life MOS SF-36. It is established that the preparation is efficient both for treatment of depression and anxiety of patients who had ischemic stroke as well as it facilitates the rise of quality of life of these patients.

Key words: ischemic stroke, post-stroke depression, anxiety, antidepressants, quality of life.

Depression as a complication of the acute stroke (AS) was decribed in 1843 [Durand - Fardel]. Incidence rate of stroke provoked interest to the problem of poststroke depression (PD) prevalence of which according to different data makes up from 30 till 60% of cases [9, 12, 2, 3, 7, 8].

In most patients who had AS the level of their every day and social activity and as a whole life quality (LQ) decrease in comparison with the period defore stroke [12, 3, 4, 5, 13].

According to the investigators in sprite of good restoration of every day life functions (ADL) and return to the job in 83% of patients LQ doesn't reach the level which was before stroke [12, 4, 11]. One of the causes is PD which makes difficulties in participating patients in rehabilitation events, reduces their effectiveness and as a result promotes the severity of disability [12, 4, 5, 8].

Preparations of choice for the treatment of PD are selective inhibitors of reverse catch of serotonin (SIRCS) [1, 2, 5, 8, 10]. Thus accoding to A.B. Gekht and co-authors investigations the preparation of the SIRCS group-cytalopram is very effective in the treatment of PD [2]. Possible effectiveness of another preparation of the SIRCS group – fluvoxamin in the treatment of PD is also mentioned [7, 10]. Fluvoxamin has a barely pronounced sedative effect therefore it can affect the anxiety conditions, correct sleep disturbances and it doesn't cause pronounced lethargy [7, 10]. Side antichlinergic sedative effects as a rule are barely pronounced and rare. It allows to apply fluvoxamin in case of accompanying somatic diseases in elderly and working patients [1, 8, 10].

The information mentioned above was the basis to study possibilities of fluvoxamin application patients with PD.

The aim: assessment of the affect of antidepressant of the SIRCS group – fluvoxamin on the course of depression in patients who had AS.

Materials and methods: 30 patients with PD were examined in the period from 1 till 12 months after ischemic stroke – 18 males (60%) and 12 females (40%), age from 41 to 61 years (the mean age – 55,1±1,27 years). Duration of depressions was from 1 till 11 months. As diagnosis was made on the basis of anamnesis, clinical indices, presence of focus neurologic deficiency and data of computed tomography (X – ray and magnetic resonance). Clinical assessment of neurologic status was added with number assessment of neurologic deficiency according to Lindmark score. Integral assessment of the condition of healthy person according to this score is 487 numbers. According to Gekht and

co – authors data indices less than 345 numbers are typical for the severe stroke in restorative period 345 – 404 numbers for the stroke of the middle severity and 404 and more numbers for the stroke with limitead consequences [2].

PD diagnostics was conducted according to ICD – 10 criteria [6]. During 6 weeks patients received besides traditional angioprotective, nootropic, hypotensive therapy fluvoxamin in the form of tablet – 100mg once aday in the evening every day. In the investigation Hamilton score of depression (HDRS) was used according to which indices from 7 to 15 numbers were considered as a small depressed episode, 16 and more numbers – as a large depressed episode. Assessment of anxiety was made according to Spilberger score of anxiety: to 30 numbers – low, 31 – 45 – moderate, 46 and more – high. Investigations according to these techniques were conducted before therapy in case of the primary psychopathologic examination and then in 2,4 and 6 weeks of treatment. Questionnaire of life quality MOS SF – 36 was also filled in. assessment of parameters is made according to 100 numbers score.

Criteria of insertion: absence of pronounced aphasia, of rough intellectual disturbances, psychosis, somatic diseases in the stage of decompensation and absence of antidepressant taking in anamnesis.

Results and discussion: among the examined persons patients with a large depressed episode – 70%prevailed, a small depressed episode was determined in 30% of patients according to HDRS criteria.

Assessment of the structure of depressed episode has shown that anxiety and asthenic effects, somatovegetative symptoms with the prevalence of sleep disorders, general somatic symptoms and disorder of the sexual function were determined first of all. In this case patients as a rule had criticism to their condition. Mean number according to HDRS and Spilberger scores in patients who had ischemic stroke exceeded greatly the normative indices of healthy people (table 1).

By the end of the second week of therapy with fluvoxamin patients noticed subjective improvement of their condition: sleep became normal, irritation became less, tearfulness reduced. However improvement of mood was marked after the 4th week of therapy, that was confirmed by the indices of Gamilton's score (table 1).

Application of fluvoxamin led to the great decrease of expression of reactive anxiety (RA) in patients with PD. The level of personal anxiety (PA) was high enough that characterizes anxiety as a type feature of personality. Symptoms of somatic anxiety decreased. Reduction of unpleasant sensations in the boody (sensations of air shortage, palpitation, feeling creepy all over and hyperhidrosis).

During the 4th week of treatment tendency to the reverse development of behavioural disorders was observed. The patients began to assess their condition more adequately, hypochondriac fixation reduced. They spoke about their somatic disorders with less interest. They could and wanted to maintain contact, their activity became higher, apathy reduced.

At the end of treatment weakness and fatique reduced greatly, activity capacity for work and physical exercises increased, cheerfulness was observed, patients took more active partin rehabilitation events. Such disorders as difficulties in falling asleep, frequent awakenings, absence of rest feeling after sleep became normal. Depression, anxiety and tearfulness disappeared, mentaland physical hyperesthesia reduced. Anxious reactions to unfavourable situation began to have adequate character. Amplitude and frequency of reactions similar to psychopathologic ones in the form of irritability and anger reduced. According to Lindmark score considerable changes in neurologic status were not noted in 6 week of fluvoxamin treatment (table 1).

Fluvoxamin tolerance was satisfactory in all cases. During the first 5-7 days of treatment 6 (20%) patients had mild nausea, which then stopped, 8 (26,7%) patients had low evident. Mild anorexia was observed in 6 (20%) cases and stopped in two weeks. These side effects which appeared against the background of fluvoxamin taking were not caused by drug withdrawal. Then according to general principles of depression treatment the patients were recommended to take the drug during 6 months in order to prevent recurrence of symptoms of depresson [4,5,11].

According to the results of the investigation, introduction of fluvoxamin into the complex treatment of patients who had AS of ischemic character with PD statistically correctly affects all indices of LQ under the MOS SF 36 questionnaire after 6 weeks of therapy leading to the improvement of all parameters of LQ of the patients (table 2). Such indices as physical activity, pain, general health, vital capacity, social activity, mental health increased in comparison with the initial ones 1,2 – 1,5 times, but indices of role of physical and emotional problems in the limitation of vital activity against the background of fluvoxamin therapy increased 4 times. The results show that depression intensifies feelings of corporeal trouble increasing their affective saturation (table 2).

Conclusions:

1. The investigation showed the effectiveness and sufety of fluvoxamin therapy in the treatment of depressive and anxious disorders in patients who had AS.
2. Not only rehabilitation events aimed at the functional recovery of walking, self – servicing but also treatment of PD in these patients which may occur frequently and prevent from reintegration of patients into the family and society, recovery of mental and motional activities contribute to the increase of LQ of patients who had stroke. Thus, complex approach to the treatment of patients of this group is necessary which means cooperation of doctors of different specialities, in particular, neurologists and psychiatrists.

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Table 1.

Index dynamic of depression, anxiety, and nidal neurological deficits during fluvoxamine treatment, marks.

Показатели		Контрольные точки исследования				P	P1	P2
		До лечения	Через 2 недели	Через 4 недели	Через 6 недель			
Общий балл по шкале HDRS		20,67±1,19	17,8±1,2	11,67±0,83	9,43±0,44	p>0,05	p<0,001	p<0,05
Общий балл по шкале Спилбергера	ЛТ	58,87±2,12	58,27±2,12	52,8±2,34	46,73±2,16	p>0,05	p>0,05	p<0,001
	РТ	56,27±2,35	50,6±2,41	43,07±1,87	34,87±1,64	p>0,05	p<0,001	p<0,001
Общий балл по шкале Линдмарк		384,6±33,4	-	-	385,7±33,6	-	-	p>0,05

Примечание: - P – достоверность различий между исходными данными и через 2 недели;

P1– достоверность различий между исходными данными и через 4 недели;

P2– достоверность различий между исходными данными и через 6 недель;

Table 2.

Iu.S. Grishchenko, I.I. Dudin.

The therapy of post-stroke depression as the factor of improvement of life quality during the period of rehabilitation.

Mean observation of LQ during fluvoxamine therapy, marks (according to the MOS SF36).

	LQIndexes							
	PF	RP	BP	GH	VT	SF	RE	MH
Before treatment	42,45±2,97	10,38±1,96	59,8±3,42	32,36±1,18	28,23±1,61	38,21±2,11	22,64±2,95	42,42±1,93
After treatment	60,0±3,15	41,67±3,15	85,83±4,2	39,0±1,4	39,0±1,4	59,17±3,55	91,11±3,94	61,87±1,83
p	p<0,001	p<0,001	p<0,001	p<0,001	p<0,001	p<0,001	p<0,001	p<0,001

Note: p – Reliability of distinctions

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Anemic syndrome in elderly patients with complicated systemic osteoporosis

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Summary: extension of anemia syndrome was searched in 373 elderly patients with systemic osteoporosis complicated by proximal femoral fracture who received expert care at the Center of emergency medical care of Republican hospital №2. Anemia syndrome is detected in 70.0±2.4% of patients during hospitalization. Reduction of hemoglobin level in dynamics is 19.5±2.0% of the initial level. Anemia syndrome increases lethality level in the next two years of observation.

Keywords: anemia syndrome, complicated osteoporosis, lethality.

Introduction: According to WHO, anemia is detected in adult women with a hemoglobin (Hb) decrease of less than 120 g/l, and men - less than 130 g/l [9]. Some chronic diseases are accompanied by anemia syndrome progress, considered as independent nosological entity that affect the course of the underlying disease. For example, OPTIME research shown 12% increased risk of death or re-hospitalization with Hb less than 120 g/l in patients with chronic heart failure [8].

The most common causes of anemia in the elderly patients are chronic diseases, iron deficiency, malnutrition and metabolic disorder [7]. Latent iron deficiency in the population of Russia is about 30-40%, and 50-60% in some regions (North, North Caucasus, Eastern Siberia) [1, 2].

Anemia prevalence in hospitalized elderly patients is 36-80% [5].

It is known that anemia correction positively affects the course of chronic diseases, improves the patients quality of life [7]. Packed red cells transfusion and iron preparations (oral and parenteral), erythropoietin and their combination are used to treat anemia [7].

Possible complications of packed red cells transfusion limit the use of this method. Under

preoperative anemia and blood loss ≥ 500 ml Hb target level is 85 g/l, hematocrite number (Ht) is 26% according to the "Model Regulations on the Use of Blood Components" [6] made on the basis of the "Rules of the Russian Association of Transfusiologists" approved by the Order of the Board of RAT dated September 3, 2007 No. 10.

Proximal femoral fracture (PFF) is the most frequent and severe of fractures associated with osteoporosis [3]. Mortality caused by PFF during the first year is up to 12-40% [4]. Interstitial blood imbibition caused by PFF lowers the level of Hb.

The aim of this work is to study the prevalence, dynamics and impact of anemia on late fate of elderly patients with systemic osteoporosis complicated by PFF.

Materials and Methods: extension of anemia was searched in 373 elderly patients with systemic osteoporosis complicated by PFF: 1 group – 242 patients (191 women, middle age 74.6±0.4 years old and 51 men, middle age 74.3±0.7 years old) with arterial hypertension (AH) and systemic osteoporosis complicated by PFF. The ratio of men and women among 120 elderly patients was 1:2.75, and 1:5.4 among 122 senile patients. In this group 216 (89.3±2.0%) patients underwent surgery (osteosynthesis of the femoral bone, or total endoprosthesis replacement), 26 (10.7±2.0%) patients were treated conservatively.

The 2d group was consisted of 131 patients (75 women, middle age 76.1±0.9 years old and 56 men, middle age 71.8±0.9 years old) with PFF under systemic osteoporosis without arterial hypertension (63 elderly and 68 senile patients). Male to female ratio was 1.17:1 among elderly patients and 1:2.1 among senile patients. 116 patients of the 2d group were operated (88.5±2.8%), 15 patients were treated conservatively (11.5±2.8%).

Control group (group 3) was consisted of 52 patients (32 women, middle age 73.5±2.0 years old and 20 men, middle age 72.9±1.2 years old) with arterial hypertension without PFF who were treated at the emergency department of the Republican Hospital No. 2. Male to female ratio was 1.0:1.5 among elderly patients and 1:2.5 among senile patients.

General clinical study of red blood was made by the Hospitex Diagnostics Hema Screen 13 automatic analyzer, made in Italy.

Statistical analysis was performed using the STATISTICA 8.0 software package.

Results and Discussion: During examination of blood parameters anemia of several levels of severity was detected in all age groups.

Anemia at admission was diagnosed in 126 (52±3.2%) patients of Group 1: in 9 male (28.1±4.0%) and in 35 (39.8±4.4%) female elderly patients. Mean red cell volume of low level (<0.86) was observed in 4 (3.2%) males and 23 (18.3±3.4%) females. The average volume of red cells (mean corpuscular volume - MCV) of the low level (75mkm^3) was observed in 8 (6.4%)

females. At the same time, mean corpuscular hemoglobin concentration (MCHC) was above normal (41.7±0.9%) in 17 (13.5±3.1%) females. Re-examination (3-4 days after admission) of red blood in patients with anemia showed further declines: male erythrocytes to 2.85±0.05x10^{12}/l, Hb up to 85.5±4.1 g/l, hematocrite number (Ht) to 23.6±1.3%. Hemoglobin (Hb) level compared to level at admission decreased by 21.9 g/l (19%). Female number of erythrocytes decreased to 2.8±0.7Ч10^{12}/l, Hb up to 80.3±1.7 g/l, Ht up to 22.2±0.6%. Reduction in Hb level compared with the level at admission was 27.1 g /l (25.2%).

Anemia (107.5±3.0 g/l) among senile men was detected in 13 (68.4±2.4%) ones. Re-examination after 3-4 days of hospitalization of these patients showed Hb level decreased to 85.2±3.6 g/l, which is 20.7% lower than the initial level.

Among senile women at admission anemia was detected in 59 (57.3±4.9%) patients: the number of red blood cells – 3.38±0.04x10^{12}/l, Hb – 104.3±1.4 g/l, Ht – 25.3±0.6%. Reduced cell color ratio (0.80±0.01) was observed in 41 (39.8±4.9%) patients. Moderate anemia (Hb – 81.2±0.7 g/l) was detected in 5 (4.9±2.1%) women. MCV below 75 mkm^3 (68.9±1.1 mkm^3) is observed in 9 (8.7±2.8%) cases. Increased levels (34.8±0.1 pg) of Hb in red blood cells (mean corpuscular hemoglobin – MCH) was observed in 10 (9.7±2.9%) women. Hb level in women of this age group decreased by 15.3% in the dynamics.

In group 2 anemia at admission was observed in 102 (77.9±2.7%) patients among which 23 (22.5±4.1%) elderly male patients had Hb level of 106.8±4.0 g/l, and 92.0±4.0 g/l in the dynamics with a decrease of 13.9%. Cell color ratio of low level (0.78±0.02) was observed in 13 (12.7±3.3%) patients. At the same time, 6 (5.9±2.3%) male patients of this age group had MCH higher than the upper normal level (37.1±1.3 pg).

Among elderly patients of group 2 anemia was observed in 20 (69.0±8.5%) women. Reduction of Hb after 3-4 days of hospitalization (from 104.5±2.6 g/l to 84.4±2.9 g/l) was 19.2%. Cell color ratio in 10 (34.5±8.9%) women was lower than normal one (0.79±0.01). Increased level of MCH was observed in 2 (6.9±4.7%) female patients of this group. At the same time, 2 (6.9±4.7%) patients had low levels of MCV (65.0±0.7 mkm^3) and MCH (24.7±0.1 pg).

In group 2 at admission 19 (86.0±7.4%) senile men had Hb level lower than 130 g/l (112.5±3.1 g/l). Low cell color ratio (0.80±0.01) was detected in 10 (45.5±.10.6%) of them. Increased levels of MCH (37.5±1.6 pg) was observed in 3 (13.6±7.4%) cases. At the same time, the mean corpuscular volume was normal (82.4±1.8 mkm^3). Re-examination shown that the average Hb level (85.7±3.4 g/l) reduced by 23.8% compared to the initial level.

Anemia at admission with an average Hb 105.1±2.3 g/l was detected in 31 (67.4±6.9%) senile women of group 2. Moderate anemia with Hb 78.5±4.7 g/l was observed in 2 (4.3±2.9%) of

them. Low cell color ratio (0.79±0.01) was observed in 22 (47.8±7.4%) women. MCH of the level above normal one (35.3±0.2 pg) was detected in 2 (4.3±2.9) and of the level below normal one (25.4 pg) - in 1 patient of this group. The level of Hb in the dynamics (88.3±2.4 g/l) decreased by 16%.

In group 3 anemia was observed in 16 (30.8±6.4%) patients (5 men and 11 women). Moderate anemia (Hb <90 g/l) was detected in 3 (5.8±3.3%) of them. MCH of more than 33.3 pg was observed in 3 (5.8±3.3%) cases, and less than 27.0 pg in 5 (9.6±4.2%) cases. MCV was increased (110 $mkm^{3)}$ in 1 (1.9%) patient. The decrease of corpuscular volume was observed in 6 (11.5±4.3%) patients, where the average rate was 60.6±0.8 mkm^3.

The difference of anemia prevalence between two groups is significant: the Kruskal–Wallis one-way analysis of variance - H (2, n=425) = 10.745; p=0.0046.

Anemia clinically diagnosed by weakness, headaches, insomnia, sinus tachycardia and sometimes by arterial hypotension.

The treatment of anemia included packed red cell transfusions, oral iron preparation, folic acid, parenteral administration of cyanocobalamin. The dose and duration of treatment were selected individually.

216 patients of the Group 1 were operated and 26 patients received conservative treatment. Preoperative duration was 4.2±0.2 days. The average hospital stay for patients treated operatively was 7.5±0.2, and for those treated conservatively – 21.6±2.7 days.

Late fate was followed up in 126 patients (116 - after surgery, 10 - after conservatively treatment). 29 of these patients died during the period of observation (23.0±3.4%): 20 people died during a year (18 - after surgery, 2 - after conservatively treatment), 9 people died over the next 2 years.

116 patients of Group 2 underwent the surgical treatment, 15 patients got conservatively treatment. Preoperative duration was 3.8±0.8 days. The average hospital stay for patients treated operatively was 14.8±0.6, and for those treated conservatively – 15.1±4.6 days.

Late fate was followed up in 77 patients of this group. During 2 years of observation 12 (17.9±4.7%) of 67 operated patients, and 3 (30.0±14.5%) of 10 patients who underwent conservatively treatment died. Lethality over 2 years of observation was 19.5±4.5%.

The analysis of contingency shown that Hb level significantly affect the late fate: Hb and lethality over 2 years of observation - $\chi 2 = 9.79$ (df = 3; p=0.021).

While analyzing the impact of anemia on late fate Cochran's Q test was Q=157.37 (df =1; p=0.0001), which confirms the negative impact of anemia on mortality within 2 years of observation.

Conclusion

1) Anemia is diagnosed in 70.0±2.4% of hospitalized elderly and senile age patients with systemic osteoporosis complicated by proximal femoral fracture.

2) Reduction of hemoglobin level in the dynamics is 19.5±2.0% compared to the initial level.

3) The two-year observation showed that anemia significantly increases lethality among elderly and senile patients with proximal femoral fracture under systemic osteoporosis. Adequate treatment of anemia in this group of patients is required to reduce the death rate.

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ENDOSCOPIC INTERVENTIONS AT HEPATOPANCREATOBILIAR ZONE PATHOLOGY

Summary
Presented in this report data confirm feasibility and need for the use of endoscopic treatment of diseases of the biliary tract as a pre-operational and final treatment at high risk of operation needed. Made endoscopic intervention for 365 patients with choledocholithiasis and papillary stenosis, studied the results in the immediate post-operational period. As a result by 65% reduction of bilirubin was achieved from baseline and improvements of patients which allowed to reduce pre-operational period, and for 13% patients with high risks of operation needed endoscopic intervention became the effective final methods of treatment.

Keywords: choledocholithiasis, papillostenosis, endoscopy, biliary hypertensions, concomitant pathology.

Throughout the regions biliary pathology has a tendency for rise. Thus digestive diseases in the last decade (2000-2010 years) in the Republic of Sakha (Yakutia) therefore morbidity rate of the population has grown by 2.1 times [2]. The types and scope of surgical interventions depend on changes in the organs of hepatopancreatobiliary and gastro duodenal zone, exactly on the comorbidities biliary tract, pancreas and duodenum, which differentially set indications for various interventions on the organs of parsing system considering identified changes in its every link. Comorbidities as the risk factors of post-surgical complications affect the results of surgical treatment [4-6, 9-11]. In our research the risk factors of patients with biliary tract diseases as well as with other diseases are diabetes, lung disease, cardiovascular system, kidneys, etc. In particular cases the identified changes by different organs are probably playing one of the leading roles in pathogenesis of hepatopancreatobiliary and gastro duodenal zone require noninvasive surgical correction in time [3, 6-8]. This tactic contributes to the reduction of mortality and in some cases allows using minimally invasive surgery as a final effective treatment for patients with high operative risk [1, 2, 4, 5]. In our research endoscopic papillosphincterotomy is regarded as an alternative to surgery of the BAN with concomitant diseases.

Materials and methods

The presented work is based on the analysis of results of surgical treatment of 365 patients with biliary hypertension from 1470 patients with diseases of a gastroduodenal zone (GDZ) and gepatopankreatobiliary (GBZ) zone, being on treatment in surgical offices of Republican hospital No. 2 of the Center of emergency medical care of the Republic of Sakha (Yakutia) during the period with 2005-2010g.Of the 1470 examined patients with abnormal biliary pathology (choledocholithiasis and papillary stenosis) were 365 people. All patients are divided into two groups:

1) Indigenous patients (937 persons) - born in the far north and immigrants living in the North for more than 5 years;

2) Non-indigenous patients - Caucasians (533 persons) – living in the North less than 5 years. For comparison of relative sizes associability tables were used, thus in the analysis values of criterion of a consent of Pearson x2, an arithmetic average a standard deviation (M± б) were studied at the reached significance value of signs p<0,05.

Results and discussion

There were 218 of 1470 (14.8%) patients with choledocholithiasis during the study period including patients with residual stones - 69 (32%). Among them indigenous - 249 (68.2%), non-indigenous - 116 (31.8%) patients.

Age from 21 to 60 years was 77.4% of the total number of patients with diseases of the bile ducts and BAN (365), the average age of the patients was 48 ± 0,3 years. Women - 149, men - 69, the ratio of men and women is 1:2. The symptoms of recurrent pancreatitis were observed in 60 (28%) patients, cholangitis - in 53 (25%), and obstructive jaundice after cholecystectomy was detected in 29 (14%) patients. These symptoms often were combined.

The principal place of comorbidities among non-indigenous people has cardio-vascular system diseases which proved to be a risk factor of post-surgical complications in non-indigenous 12.3% and 8.8% cases in indigenous patients.

There were 11.8% among them indigenous 65.8% and non-indigenous 34.2% patients with related lung diseases. Most of the patients are the patients with pneumosclerosis - 78 (29.1%), pulmonary emphysema - 63 (23.4%), bronchial asthma, 58 (21.7%) and residual pulmonary tuberculosis - 43 (15.3%), chronic bronchitis - 27 (100%), in the group with related lung diseases 152 (56.5%) of patients with diseases of the GPB and GDZ were operated.

Diabetes mellitus was diagnosed in 11.8% of all patients; the vast majority was women - 61.7% (166), men - 38.3% (103 persons). Indigenous people with diabetes were 65%, non-indigenous - 35%. Older than 60 years was 23.3% (63) patients. Mild diabetes was at 48.9% of patients. Patients with this form of diabetes were 38.4% (103) of patients.

60 patients with diabetes were operated, complications occurred in 14 patients, of which 7 people died. Moreover, in all cases diabetes was decompensated, unyielding for correction.

BAN stenosis was diagnosed in 147 people, or 10% of total number of researched people. The following groups: indigenous people - 89, non-indigenous - 58. Most often at good-quality stenoses level of a bilirubinemia made from 75 to 200 µmol/l with duration cholestasis till 2 weeks, especially at radical persons (28-174,6 µmol/l; M=62,04; P <0,001, and with duration holestasis to 1 level of a bilirubinemia made in the same group (62,3-276,3 µmol/l; M=123,85; P <0,05 against indicators at not radical 68,4-143,4 µmol/l P <0.001). Bilirubinemia level more than 200 µmol/l was available at not radical only for 5,6% of all patients with the holestasis. With the purpose of pre-surgery preparation for patients with hypertension in the bile and pancreatic ducts the endoscopy papillosphincterotomy was made in 156 cases, micro holangiostomy with percutaneous transhepatic access - 17 patients, under the supervision of a laparoscope - 2 patients. Pre-surgery biliary decompression with external drainage of the biliary system allows improving the condition of patients, lower serum bilirubin more than 65% from baseline already at 4-5 days after admission.

Of the 326 patients with common bile duct stones and stenosis BAN 187 (57.4%) patients underwent reconstruction surgery; reconstructive surgery was made for 139 patients (42.6%). In 156 cases endoscopic papillosphincterotomy was made with need for re-intervention after previously undergone surgery for biliary tract and gall bladder, as well as in 19 patients with obstructive jaundice, suppurative cholangitis and high surgical risk was the final non-invasive surgery with a good outcome.

In 48 cases, the Dormia basket was used, the rest - limited with dissection of BAN. We used two methods of papillosphincterotomy: cannula when mouth of BAN cannulated and dilated when dissection was subject of CBD sphincter, distal sphincter of BAN and partly sphincter pancreatic duct. To avoid perforating duodenal incision did not exceed 10-15 mm.

As an urgent action at the height of jaundice in order to decompress biliary endoscopic papillosphincterotomy is performed in 102 patients.

Information provided in this report data confirm the feasibility and need for endoscopic treatment of diseases of the biliary tract as preoperative preparation and as a final treatment at high operative risk.

CONCLUSIONS:

1. At the surveyed patients with biliary hypertension the risk factors complicating a postoperative current and demanding use of modern low-invasive technologies (EPST) come to light.
2. EPST use in case of identification residual choledolithiasis allows avoiding repeated surgeries at patients with high operational risk.
3. Tactics of two-stage treatment allows liquidating obstruction of biliary tract and as a result a toxemia and the bacteremia, conducting to biliary sepsis, multiorgan insufficiency, prepares patients for radical operation.

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Development of a population-based study protocol of life quality of the Republic Sakha (Yakutia) population

UDC: 614.1. (571.56)

The article deals with planning and organizing the process of population-based study of the life quality of the adult population of the Republic Sakha (Yakutia). Described in detail the logical structure developed the study protocol and determines the amount of the minimum representative sample.

Keywords: quality of life, the population study, the development of the study protocol.

Introduction. The study of life quality (QOL) - a reliable method of assessing health and general well-being, which allows to quantify the characteristics of multi-component of human life - physical, psychological and social functioning [1, 4, 5].

For the various institutions of society are more valuable data on the results of population studies, QOL, the so-called normal population QOL. The norm in this case are the values of QoL mean of the population of a country and a region. Note that the standard values are found in all countries [2, 3, 6, 7, 8, 9, 10, 11, 12, 13, 14].

According to the methodology of the study of quality of life first and fundamental step in conducting population-based study is to develop a research protocol QOL. The study protocol QL - a document that develop before the start of the study, and which do not change during the study. At the stage of development of the study protocol tasks such as evaluation of the sample size, the definition of research tools, verification of inclusion criteria, etc. [4, 5].

This article presents the main stages of development of a protocol population-based study of quality of life of the adult population of the Republic of Sakha (Yakutia).

Development of a research protocol.

Protocol population study QOL was developed in accordance with the recommendations of the International Project study of quality of life - ICO. In accordance with the principles of the construction protocol population-based study made the following provisions:

1. Defining goals and objectives of population research, design and entry criteria.

The purpose of the study:

To study the regional quality of life of the adult population on the model of a representative sample of the population of the Republic of Sakha (Yakutia).

Research objectives:

• Determine the volume of a representative sample of the population for the study of the quality of life of the adult population of the Republic of Sakha (Yakutia), taking into account age and gender characteristics of the population;

• Identify indicators of the quality of the adult population of the Republic of Sakha (Yakutia), depending on sex, age and area of residence of respondents using a standard questionnaire SF-36;

• Conduct a standardization of the data for each of the scales of the questionnaire to determine the standardized population-based indicators of quality of life according to sex, age and area of residence of the respondents;

Criteria for inclusion in the study. The study will include individuals of both sexes aged 15 and older, living in the industrial, agricultural and arctic zones of the Republic of Sakha (Yakutia), of different social groups, regardless of the presence or absence of any medical condition. The study will not include persons who have not attained 15 years of age and persons with any disability group.

Study Design

A population study on the quality of life of the adult population, health-related planned by the three medical and economic zones of the Republic of Sakha (Yakutia) - industrial, agricultural and Arctic. In the industrial area by the quota and random sampling selected Yakutsk and Tomponsky area in the Arctic - Even-Bytantai and Oleneksky in the agricultural zone - Nyurbinsk and Namsky region. In Yakutsk will be selected two typical areas: the center and the outskirts of the city. In rural areas, out of the total population by the list of random numbers will be selected respondents corresponding sex and age.

Data will be collected by questionnaire respondents direct interview.

2. Description of the research tools

The study will use a questionnaire assessment of QoL SF-36 and the socio-demographic map, developed in this work, and are tested in a pilot study.

The questionnaire SF-36 includes eight health concepts that are most often measured in population studies and who are most affected by the disease. SF-36 questionnaire for self-completion by the respondent to the survey computer or to fill it with a trained interviewer in person or by phone. It is applicable at the age of 14 years and older. The model underlying the construction of scales and measurements of total SF-36 questionnaire has three levels:

- 36 questions;
- 8 scales formed from 2-10 issues;
- 2 total measurement, which together span.

35 questions were used to calculate the scores on scales of 8, 1 - for the assessment of the state of patients for the past 4 weeks.

Analysis of QOL held on the following scales:

1. Physical functioning (PF) - Physical Functiong (PF) - the scale that assesses physical activity, including self-care, walking, climbing stairs, carrying heavy loads, and the performance of significant physical activity. The indicator reflects the scale of the amount of daily exercise, which is not limited to health: the higher, the more physical activity, according to the study, it can be done. Low scores on this scale indicate that physical activity is considerably limited health.

2. Role-physical functioning (RFF) - Role Physical (RP) - a scale which shows the role of physical problems in limiting life, reflects the degree to which health limits the performance of normal activities, ie characterizes the degree of restriction of work or daily activities the problems that are associated with health: the higher the score, the less, according to the respondent's health problems limit their daily activities. Low scores on this scale indicate that the daily activities significantly restricted physical state of health.

3. The scale of pain (B) - Bodily Pain - assesses the intensity of pain and its

impact on the ability to engage in normal activities, including work on the house and outside in the past month: the higher the score, the less, according to the respondent, pain they experienced. Low values of the scale indicates that the pain significantly limits the physical activity of the test.

4. General health (NEOs) - General Health (GH) - assesses the state of health at the moment, the prospects of treatment and disease resistance: the higher the score, the better the health status of the respondent or the patient.

5. The scale of viability (F) - Vitality (V) - involves assessment by the respondent or by the patient feel full of strength and energy. Lower scores indicate a fatigue study, reduced vitality.

6. The scale of social functioning (SF) - Social Functioning (SF) - assesses satisfaction with the level of social activity (socializing, spending time with friends, family, neighbors, collective) and reflects the extent to which physical or emotional state of the respondent or their patient's limits: the higher the score, the higher the social activity for the last 4 weeks. Low scores correspond to significant restriction of social contact, reducing the level of communication due to the deterioration of health.

7. Role-emotional functioning (RAF) - Role Emocional (RE) - involves the assessment of the extent to which emotional state interfere with work or other regular daily activities, including a large amount of time for their execution, reducing the amount of work done, reduction in water quality: the higher the the less emotional state limits daily activity of the respondent.

8. Psychological health (PZ) - Mental Health (MH) - characterizes the mood, the presence of depression, anxiety, assesses overall positive emotions: the higher the score, the more time respondents felt calm, at peace during the last month. Low scores indicate the presence of depression, anxiety, psychological troubles.

4. Description of socio-demographic map

In accordance with the recommendations of the International Quality of Life Assessment Project has developed a special socio-demographic map that takes into account cultural and social characteristics of the Republic of Sakha (Yakutia). Socio-demographic map consists of 14 questions and includes demographic characteristics (gender, age, occupation, education, marital status) and the substantive nature of the questions that provide information about the level of income and living conditions.

5. Informed consent

Texts invitations to study and informed consent of the respondent presented below.

Dear yakutyanin!

You know that health is one of the most important values of the person and the need to take care of him. According to the World Health Organization, "health - is the complete physical, mental and social well-being and not merely the absence of disease.

"We invite you to participate in a study of quality of life related to health of the population of the Republic of Sakha (Yakutia). The results of the study you will learn from the media. We guarantee complete anonymity of the information received.

Thanks for agreeing to fill out a questionnaire!

The text of informed consent is given below:

I understand that this study is conducted to determine the quality of life of the adult population of the Republic of Sakha (Yakutia). I provided the following

information on the ongoing investigation:

• conducted a population-based study, and does not disclose confidential information about each of the respondents;

• As a result of the study will identify indicators of quality of life of the adult population of the Republic of Sakha (Yakutia), depending on age and sex using a standard questionnaire SF-36;

• will be held standardization of the data to determine the population of standardized indicators of quality of life according to sex, age and residence area of the adult population of the Sakha Republic (Yakutia)

• Based on the data obtained will be developed recommendations for the use of research results in the medical and social fields.I understand the information provided.

I had the opportunity to ask me questions and I got (a) answers to my satisfaction. I voluntarily agree to participate in this study.

6. Methods of statistical analysis

The total sample size for the study population, as well as for individual medical and economic zone of the Republic of Sakha (Yakutia) is defined for a given power of 80% and the level of statistical significance of $p < 0.05$.

Test samples for the presence or absence of a normal distribution performed by constructing a histogram of the frequency and test Kolmogorov - Smirnov. If the distribution of the sample is different from the normal, to test hypotheses about the significance of differences between the means of the sample will be used nonparametric methods Mann - Whitney (Mann-Whitney U-test) and the Kruskal - Wallis test (Kruskal - Wallis ANOVA). Analysis of the relationships between the groups sampling will be conducted using the Spearman correlation coefficient.

Conclusion

Population-based study QoL adult population of the Republic of Sakha (Yakutia) is a well-designed study, the relevant recommendations ICOLA. Conducting population-based study in accordance with the developed protocol will develop standardized QOL indicators, to create referent base of populational QOL values, which can be used to compare the QOL of patients with various diseases in accordance with the age and sex of patients, assessing the effectiveness of therapy in scientific research, further development integrated approach to the assessment of QoL of the population, taking into account the objective characteristics, conditions and processes of life.

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ANALYSIS OF QUALITY OF EMERGENCY MEDICAL CARE TO THE PATIENTS WITH TRAUMA IN A MEGAPOLIS

Lyadova M. V.

The Summary:

The detailed analysis of the call cards and the accompanying ambulance sheets of patients, which were taken to the state hospital No1, Emergency Department, during the period from the September 2012 to the July 2013, was done in this article. It is devoted to the investigation of the patients of trauma profile with injuries of the musculoskeletal system of different localization. 350 accompanying sheets and call cards of ambulance were analyzed. The patients were classified by age, sex, injuries' degree, hospitalization time, and time of the day.

The assessment of the quality of the ambulance at the prehospital stage was based on the following features: the level of the ambulance rendering, the compliance with ambulance standards, accuracy, timeliness, validity, sufficiency, and adequacy. The next stage was to detect the defects in rendering of emergency medical care: organization, diagnostics, and treatment. After that, the assessment of the influence of the different factors on the process and results of medical assistance was done. The timeliness and correctness of diagnosis installing were analyzed. The research showed that the diagnosis was correct for 73% of patients, and incorrect – for 19% (hyperdiagnostics), 5% (hypodiagnostics), 3% (the discrepancy to installed diagnosis).

Also, the degree of the satisfaction of patients in medical aid was defined. In this context the following factors were analyzed: the timeliness of the ambulance arrival, the quality of medical care, the individual features of ambulance workers. The opinion poll covered 250 responders among patients. The results showed, that 78% of the respondents appreciated positively, 8% mentioned the duration in the arrival of the ambulance, 14% had the difficulty in answering.

So, based on the investigation, it could be concluded that, an ambulance work in the conditions of megapolis depends on many difficulties like as traffics, remoteness, a great number of calls, weather and so on. The mass accidents are one of the specific features, when more than few people may be injured simultaneously. It requires working accurately.

Keywords: emergency medical care, quality of medical care, the assessment of quality.

Nowadays any megapolis is characterized by such situations when more than few people are

injured simultaneously. According to the statistics, the possibility of the development of such events in a megapolis is about 7 cases per month. The relative frequency of emergency situations to the population amount of the city is about 17.5 cases per 1 million inhabitants in a year. The absolute majority (85%) is connected to road traffic accidents and fires [2]. The frequency of deaths in the prehospital period depends directly on the quality of medical aid on this stage. Also it is necessary to note that the transporting time of patient to hospital influences on the quality and the completeness of ambulant service [4].

The detailed analysis of the call cards and the accompanying ambulance sheets of patients, which were taken to the state hospital No1, Emergency Department, during the period from the September 2012 to the July 2013, was done. The article is devoted to the investigation of the patients of trauma profile with injuries of the musculoskeletal system of different localization. 350 accompanying sheets and call cards of ambulance are analyzed.

The classification of patients by sex and age is represented by the diagram (figure 1). As it shows, the groups of the male patients of 35-39 years old and the female patients over 70 years of age are predominant. The elderly patients have a fracture of the proximal femur mainly. In the 98,6% of cases the diagnosis, installed by an ambulance, was confirmed radiologically.

Among delivered patients 71,2 % are the citizens of Moscow; 8,4 % - of the Moscow region; 11,3% - of other Russian Federation's regions; 6,3% - of other former soviet republics; 1,4% - of other states; 1,4% - persons without a place of residence.

The classification of the patients in accordance with the circumstances of injury is represented in Fig. 2. As it illustrates, the street injury is on the first place that could be explained by weather conditions (ice, rain and others). The next one is the road traffic accident trauma: in such cases 18% - passengers, 23% - drivers, 59% - pedestrians. And the last place is the trauma accidents after falling on a street and at home. In these cases the majority is the patients of elderly age and persons with alcoholic intoxication.

Depending on the time of day, 23.0% of patients were hospitalized in the morning, 31.0% - in the daytime, 32,0% - in the evening and 14.0% - in the night. The most of the patients arrived in the evening and during the day. But it is necessary to underline, that 25% of morning and day patients were injured in the evening or tonight or earlier.

The assessment of the quality of medical care at the prehospital stage was done in the following way: 1 – the informative and analytical stage: it involved the analysis of data of the medical documents, assessment of correctness of management and processing of medical documentation. Such criteria were used: good quality reference, satisfactory, unsatisfactory. The evaluation of the quality of implementation of diagnostic and treatment was done in accordance

with the standards of emergency medical assistance. Also, the following criteria were used: accuracy, timeliness, validity, sufficiency and adequacy. The next was the stage of detection of defects in rendering of emergency medical aid: organization, diagnostics, and treatment. After it the influence of objective factors on the process and results of medical care were analyzed. The algorithm of the expert assessment of the medical aid to patients of surgical profile accompanied by unfavorable outcome of medical care» by Tatarintsev A.V., was based [3].

The high level of the quality of medical documentation meant: a full information about a patient, a lack of technical defects in the accompanying sheets (unreadable handwriting, repair); * completion of all the points, including information about the circumstances of the injury, the site of the accident, time of incident, time of delivery in the hospital and the adoption of a call, and also information about the conduct of medical manipulations; competent formulation of diagnosis. Among the 350 accompanying sheets only 265 ones were of a good quality of medical documentation (76,0%). The quality of the 71 sheets (20,0%) could be rated as satisfactory ones. The lack of historical data of the circumstances of the injury was marked in 11 cases, the place of the incident - in 13 cases, the availability of technical defects - in 29, the lack of information about the delivery time to the hospital - in 5 cases, partial absence of information about medical procedures (there is no indication the figures AD, the existence of immobilization) - in 13 cases. The documentation was evaluated as unsatisfactory, when there was a rough violation in the formulation of diagnosis, (7 cases); rough crossings-out and repair (2 cases), the complete lack of information about medical events and historical data (3 cases), gross distortions of information about the patient (2 cases). As a whole the unsatisfactory medical records were revealed in 14 cases, that is about 4.0%.

One of the indicators of the quality of the ambulance is the timeliness of its arrival after accepting a call and the time, spent on its maintenance [1].

The delivery time of patients from the point after receiving the call to the hospital is represented on the fig.3. As it shows, the most part of patients was taken to a hospital more than one hour from the call moment.

The time of departure ambulance after receiving the call is: up to 5 minutes - 176 cases (50,0%), from 5 to 15 min - 111 cases (32,0%), more than 30 minutes - 63 cases (18,0%).

The continuance of arrival to hospital could be explained by the following reasons: the time that the medical workers used for necessary manipulations (in 59 cases); the remoteness from the place and the hospital (in 18 cases) (for example, 12 calls were made from the New Moscow region); so of them with the New Moscow delivered 12); call of ambulance from other clinics (psychiatric hospitals, outpatient clinics, trauma points, other health institutions) for transportation

to the hospital (in 52 cases); the busy schedule of ambulance work (in 34 cases).

One of the important indicators of the quality of medical assistance is timely and correct diagnostics. According to our data, the diagnosis was installed correctly for 255 of the patients (73%), and incorrect – for 65 patients (19%) to hyperdiagnostics, 20 patients (5%) to hypodiagnostics, for 10 patients (3%) the discrepancy to installed diagnosis.

Among the 350 patients, 163 were hospitalized. Among them 17 people refused to be hospitalized. So, it means that only 51,2% could be rated as profile trauma patients. Others didn't need in hospitalization. This group of patients with more precise pre-hospital diagnosis medical help could be offered at the level of Traumatology centre, which reduces the workload of the hospital significantly and economically. It is connected with defects diagnostics not only at the level of the nurse or doctor of ambulance, but also with the work in the structure of outpatient care. So, 35 people (10,0%) were delivered from local trauma centers: There are: bone-traumatic changes in radiological examination are not revealed among 17 patients, fractures without displacement of bone fragments are revealed among 10 patients, and 8 patients had no trauma at all, but they needed to be observed by a local traumatologist because of chronic diseases of the musculoskeletal system. In 8 cases (2.2%) patients after alcoholic intoxication were taken to a hospital because of injuries of various localization.

Another indicator of quality is the timeliness and completeness of the treatment. The main standards for the treatment of patients at the stage of rendering emergency medical aid are: analgesia, the immobilization of the injured limb, infusion therapy, monitoring of hemodynamics. Anesthesia was done in 72,0% cases. In 2% cases patients refused to use analgesics. Among anaesthetic the nonnarcotic [nonopioid] analgetics were used on the prehospital stage for the 38,5% patients. There are analgin and ketorol. Opioid analgesic were used for 49.0% of patients. There is tramal or tramadol. Narcotic analgesics were used in 12.5% of patients. There are morphine, fentanyl. The introduction of narcotic analgesics were intramuscularly (in / m) or intravenously (in/in). It should be noted that use of tramadol in elderly patients led to undesirable consequences, such as hypotension, nausea, vomiting, expressed dizziness. Tramadol was used in such patients (over 65) in 24.0% of cases.

Immobilization limb bone injury was performed in 95,0% of patients where it was necessary, that is connected with the introduction of the more comfortable materials for its provision (Fig. 4).

The purpose of infusion therapy in case of injury at the prehospital stage is not so much blood loss compensation, but rather the maintenance of hemodynamics within hindering the development of shock and providing adequate tissue oxygenation [5]. Infusion therapy was done for

41 patients in the ambulance car. Infusion therapy has not been undertaken for 7 patients, although there were indications: the presence of traumatic shock, fractures more than two segments

Control of blood pressure in persons over 60 years of age was held in 97,0% of cases, which is a good indicator.

The criterion for the quality of work is the satisfaction of the patients in medical care. This indicator includes timeliness of the arrival of the car, quality of care, and the personal characteristics of medical workers. The opinion poll was conducted among 250 patients. 78% of respondents appreciated the work of the emergency positively, 8,0% considered the duration of the arrival of the ambulance car, 14% - had a difficulty in answering.

So, based on the investigation, it could be concluded that, an ambulance work in the conditions of megapolis depends on the many difficulties like as traffics, remoteness, a great number of calls, weather and so on. The mass accidents are one of the specific features, when more than few people may be injured simultaneously. It requires working accurately. Based on the statistics the significant problem in the work of ambulance is the imperfection in the work of outpatient care. In particular the absence of a system of monitoring of patients with chronic pathology, insufficient qualified assistance traumatologic points, which leads to additional workload on an ambulance to transport such patients to a hospital. However, it should be noted that thanks to the Moscow government programmes which have been aimed to improve the technical equipment of an ambulance, its work level became higher.

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THE ENDOSCOPIC SCLEROTHERAPY METHOD AT THE ESOPHAGEAL-GASTRIC BLEEDING IN PATIENTS WITH PORTAL HYPERTENSION

The article reviews the analysis of the results of endoscopic sclerotherapy (ES) in patients with portal hypertension (PH). The effectiveness of the method in the treatment of varicose veins (VV) of the esophagus in case of bleeding and delayed planned order was assessed. ES VV of esophagus in case of PH is an effective treatment and a good alternative to the "open" surgical interventions.

Keywords: portal hypertension, liver cirrhosis, bleeding, varicose veins of the esophagus and stomach, sclerotherapy.

Introduction. Today, treatment and prevention of complications of portal hypertension is an actual problem of modern hepatology. Increased incidence of cirrhosis of the liver is accompanied by increased bleeding portal genesis. Cirrhosis in 70-90% of patients is complicated by the development of esophageal-gastric bleeding, 30% - bleeding from the varices (VV) of the esophagus and the stomach occurs within a year of detection [1, 2]. During the first episode of bleeding mortality is about 50%, and the frequency of recurrence according to various sources is from 45% to 90% [5].

High operational risk, low survival rate and poor tolerance of major surgery have led to the need to find a "minimally invasive" treatment of patients with bleeding of portal genesis. ES VV of esophagus was first described in 1939 by C. Crawford and P. Freckner. But only in the 70's of twentieth century Jonston, Raschke, Pajuet published data obtained on a large number of clinical observations. Since then, it was initiated an intensive introduction into clinical practice of ES [4]. Nevertheless, despite the many years of experience of this technique, currently there is no unified scheme of ES with regard to age, the nature of the disease, size and number of veins treated and the medicine.

The purpose of research work is a comparative analysis of the results of treatment of patients with PH with esophageal varicose bleeding in a RH-2 Centre for Emergency Medicine using endoscopic techniques - sclerosis.

Materials and methods. Since 2005 endoscopy department of Belarus № 2 - Center for Emergency Medicine - started to use techniques of ES at a stop and prevention of bleeding from

esophageal VV in patients with PH. In connection with it we present results of our treatment of patients using the method of sclerosis from 2005 to 2012. In total there were 29 patients (11 men and 18 women) with varicose veins in the esophagus transformation of PH, who treated by this method. It was performed 74 sessions of ES: 16 (21.6%) for urgent indications against bleeding in 13 patients and 58 (78.4%) in the planning and deferred procedure in 16 patients. In order to prevent the first episode of bleeding (3 cases) there were 14 (18.9%) procedures. In 14 patients who had bleeding earlier, the purpose of the "secondary" prevention of recurrence satisfied 44 (59.5%) sessions ES. During endoscopic examination, 93.1% of patients' venous diameter ranged from 4 to 11 mm with the nodes to 7-10 mm, length of 5-70 mm. According to A.G. Schertzinger this pattern corresponds to stage III of esophageal VV. Basically, VV located in the lower and middle thirds of the esophagus. ES procedures were performed in patients aged 26 to 76 years. We divided them into several age groups (Table 1). Since the study covers a longer period, we observed the transition of some patients from one group to another. The cause of PH at 82.4% of cases was decompensated by viral cirrhosis. The average age of patients was 43.8 years.

During 68 sessions (24 patients) the solution of ethoxysclerol (polidokanol) at different concentrations (from 0.5 to 3%) was used as sclerosing medicine. More often (54 times), it was used 0.5% solution of ethoxysclerol. It was injected from 3 to 20 ml for one procedure; each venous trunk had 3 to 8 ml. In 28 of observations (51.9%) it was simultaneously injected in two veins. At the beginning, ES was conducted using 70% ethanol in 5 patients (6 sessions). At the same time, 2-2.5 ml of ethanol was injected and injected on one vessel.

It was formed paravasal "clutch" (8.3 ml) after the injection of sclerosing agents intravenously 46 (62.2%) times during a session. In 16 (55.2%) of the patients it was initially injected all VV (1-3). A single injection of sclerosant was sufficient in 13 observations with moderate process. 16 (55.2%) patients required repeated sessions (1-3 sessions).

In the planning and deferred ES on the background of sustainable hemostasis, gap between 1st and 2nd manipulation, on average, was 5.6 days. If you continue the course, waiting period was reduced to 4.8 days after the 2nd session. In 13 patients, whom the first procedure was performed against bleeding, repeated sessions were conducted at different times, depending on the result. Reaching the hemostasis, parameters were similar to represented, in case of its absence the session was repeated to the next day. At first relapse of bleeding in the hospital it was performed an emergency sclerotherapy vein in the coming hours.

Results. Performing ES in the planning and deferred order, immediate good result was achieved in 15 of cases (93.8% efficiency). During the urgent sessions hemostasis was achieved in 92.3% of patients. Local complications from the use of ethoxysclerol were recorded in 9 cases

(37.5%) (Table 2). Spraying into paravasal fabric in small quantities does not cause complications. Healing of defects was faster without any clinically significant effects.

Using 70% of alcohol complications were observed in 60%. Due to small number of patients (5), which was carried out with ES using 70% of ethyl alcohol, we believe that these complications of patients are not significant.

Inefficiency under ES we understood: 1) failed attempts to stop bleeding (2), 2) repeated relapses (1) bleeding in the hospital.

3 (23.1%) patients on 1-5 days after the manipulation had relapsing bleeding. Repeated sessions of ES were effective in 2 (66.7%) cases. Ongoing bleeding (1) and a second rebleeding in hospital (1) were the absolute indication for laparotomy.

The overall mortality rate in our study was 6.9% (2 cases). These fatal outcomes were recorded in patients who were part of a group of cirrhosis complications (group C according to Child-Pugh), which sclerotherapy performed urgently. Overall mortality for this disease in our clinic was 11.8%. The death of one patient was due to the development of hepatic coma after achieving hemostasis. In 1 case the cause of death was bleeding during the operation that can not be done, because of the very serious condition of the patient. Under endoscopic control after 1 year remission was found in 58.6% of cases. In terms of up to 5 years relapse was observed in 20 (69%) patients. In 50% of patients relapse occurs in the first 6 months, in a long-term period - less.

Our results do not differ significantly from the results presented by other authors. According to V.A. Kashchenko [3], recurrent bleeding in hospital was recorded in 28.6% of cases, mortality was 14.3%, VV relapse within 1 year occurred in 64.3% of patients.

Based on these results, we can conclude that ES is an effective method for correcting VV of esophagus and its complications at PH. At acute esophageal-gastric bleeding from VV of esophagus ES is an alternative to the traditional operations and is the only possible (except the endoscopic ligation) way to achieve hemostasis. High mortality is explained by the severity of the initial state of the patients. Defining moments in forecasting the outcome of treatment of these patients is the functional reserve of the liver. In case of bleeding from the VV of stomach this technique is currently not effective due to imperfection of endoscopic techniques.

Conclusions

1. Endoscopic sclerotherapy should be recognized by the "first line" of acute esophageal variceal bleeding.

2. Important for prognosis are the severity of the initial condition of the patient, the activity of the pathological process in the liver parenchyma and functional reserve of the liver.

Table 1. The patients' age and the number of sessions

Age, years	The number of patients	The number of sessions
26-40	4	11
31-40	7	14
41-50	11	33
51-60	4	9
Up to 60	3	7
Total	29	74

Table 2. Complications of ES

Complication	Sclerosant			
	70% of alcohol		Ethoxysclerol	
	The number of patients	%	The number of patients	%
Ulcers of the esophagus	2	40,0	5	20,8
*Erosion of the esophagus	1	20,0	3	12,5
*Bleeding	-	-	1	4,2
Total	3	60,0	9	37,5

Note. * - During fibrogastroduodenoscopy it was observed 100% of healing.

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CHARACTERISTICS OF ACOUSTIC RESPIRATION IN SMOKING TEENAGERS

Summary

Study of epidemiological characteristics of smoking in teenage population of the Republic Sakha (Yakutia) gives evidence about rather wide spreading and high intensity of smoking among both boys and girls.

Analyzing results received from smoking teenagers we came to the conclusion, that smoking ones have breach of bronchial termeability accompanied with noticeable changes of breathing patterns.

Keywords: teenagers, bronchographia, smoking teenagers.

Due to the high incidence of deviations in the behavior of adolescents, especially high negative forms is urgent to study habits in adolescents, including smoking, which gradually leads to development of functional disorders of the respiratory system. [4]

Currently, computer-based research and analysis of respiratory sounds can quantify respiratory disorders in chronic and acute respiratory diseases in infants and older children. Today, there is a project called Computerized Respiratory Sound Analysis (CORSA) with the participation of foreign researchers. CORSA project aims at the systematic study and development of computer analysis of respiratory sounds. [5]

PURPOSE: To determine the performance of the acoustic respiration and its relative performance by bronhophonography adolescent smokers compared with nonsmokers teenagers.

Research methods

Bronhophonography method (BFG) was developed by Professor SJ Kaganov at the Moscow Institute of Pediatrics and Pediatric Surgery, Health Ministry on the proposal to the Moscow Power Engineering Institute. [3]

At the heart of BFG is an analysis of frequency response range of respiratory sounds. The principle of the method consists of recording respiratory sounds that occur during breathing and changing in various pathological conditions. Direct recording from a sensor with high sensitivity in a wide band of frequencies, including frequencies that are not detected on auscultation, but are of great diagnostic value.

The sensor unit is designed to remove, capture and digital input signal with subsequent transmission to the input port of the computer consists of three basic elements:

1. Sensor acoustic noise;
2. Amplifier that provides the necessary signal level;
3. Analog-to-digital converter (ADC) to convert the analog waveform into a discrete (digital).

In the hardware part of the complex also includes a set of filters designed to generate the frequency spectrum, which contains useful information about the specific acoustic phenomena. In order to prevent cardiac noises are special low-pass filters. Scanning the respiratory cycle is in the frequency range of 100 Hz to 12,600 Hz. The results of computer processing of the measurement results are displayed on the PC screen. Thus obtained is a graphical representation bronhophonograph is called "breathing pattern". [3]

The procedure for recording respiratory sounds made by means of a face mask, with insertion of the sensor, which is gently pressed against the nasolabial triangle. For older children and adults, the sensor is placed in a special mouthpiece. Audio signal is transformed by the analog-to-digital

converter (ADC) in the discrete form, can process and displayed on the PC screen.
The results of the acoustic portrayal respiratory cycle represented as a set of equidistant instantaneous spectra, forming a three-dimensional "surface states", which displays the specific acoustic phenomena that have diagnostic value. Produced record is scanned into a computer display screen, and is conditionally divided into three areas: 1.2 kHz - Region pueril breathing with 1,2-5 kHz - low-frequency region of 5-12,6 kHz - high-frequency region.
For the convenience of evaluation identified changes, you can use the coefficients proposed by the authors of the diagnostic complex, reflecting the acoustic work of breathing in relative units [1, 2].
k1 - is an expression of the relationship of the index, the cost of the emergence of low-frequency waves (1,2-5 kHz) to the base paper (0.1-1.2 kHz) to estimate the acoustic work in the low frequency range.
k2 - is the ratio of energy consumed to the emergence of high-frequency waves (5-12,6 kHz) to the base paper (0.1-1.2 kHz) to estimate the acoustic work in the high-frequency region.
k3 - reflects the ratio of total acoustic work of breathing in all frequency bands, to the basic work of breathing (0.1-1.2 kHz).
In order to improve the reliability of the diagnosis in the channel configuration includes room monitor the patient's breathing (through headphones) to compare individual knowledge and experience of the doctor with the results of computer processing.
Bronchopulmonary obstructive changes are associated with a specific acoustic phenomenon - the emergence of reliable diagnostic features (wave oscillations) at relatively high frequencies (above 5000 Hz). Characteristics of the acoustic patterns are only part of a comprehensive study of the parameters of lung function. The combination of these acoustic patterns with speed and time parameters of respiratory function gives a more complete picture of ventilation disorders in children with bronchopulmonary diseases typical of obstructive and / or restrictive lung diseases.
BFG method allows to quantitatively present the characteristics of obstructive disorders of respiratory noise, control the therapy, monitor the condition of children.
Thus, using the BFG registered specific acoustic manifestations occurring in the bronchopulmonary system of the child, which may be of diagnostic value, and to complement the information obtained by the traditional methods.

Results of the study

Our study was conducted on the basis of secondary schools in the Republic of Sakha (Yakutia). With computer diagnostic complex "pattern" was conducted screening bronhophonography 60 adolescents 15 years. Of these, there were 34 boys, 26 girls. Study group included 30 adolescents with behavioral disorders and with the experience of smoking more than 5 years, the control group consisted of 30 non-smoking teens.
Statistical analysis of the data was performed using the SPSS version 14.0 for Windows. Processing of the results carried by conventional methods and parametric variation statistics. The significance of differences was determined by the t - test Student's -Fisher ($p < 0,05$).
The obtained data are shown in Table 1, 2.
The index of acoustic respiration in the low frequency range (1.2 - 5 kHz) was significantly higher in young smokers - 95,78 ± 72,01 nJ, adolescents in the control group - 17,83 ± 12,84 nJ, in the high range (5 -12.6 kHz) were also significantly higher in adolescent smokers - 3,03 ± 1,40 nJ, adolescents in the control group - 0,41 ± 0,38 nJ.
Ratio (relative value) in the low frequency range (1,2-5 kHz) was significantly higher in smoking adolescents - 21,56 ± 14,64, adolescents in the control group - 16,71 ± 12,17, in the high frequency range (5 - 12.6 kHz) were also significantly higher in adolescent smokers - 0,63 ± 0,18, in adolescents in the control group - 0,41 ± 0,21.
Thus, the absolute and relative performance of the acoustic work of breathing in smoking adolescents with smoking history of more than 5 years was significantly higher than in non-smokers, which is a sign of the presence of chronic bronchopulmonary disease.

Findings

1. Bronhophonography method is non-invasive reliable method for studying lung function in bronchopulmonary disease.
2. Smoking teenagers have bronchial obstruction accompanied by distinct changes in the pattern of breathing.

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Tab. 1
Acoustic indicators of respiratory groups
(Absolute figures)

Acoustic work	basic group	Control group
ARD 1 (low)	95.78±72.01*	17.83±12.84
ARD 2 (high)	3.03±1.40*	0.41±0.38
ARD 3 (common)	98.80±62.82*	18.24±15.10

Note:* Significant difference indices ($p < 0.05$) in groups of adolescents with deviant and normative behaviors.

Tab. 2
Indicators of acoustic respiration
(Relative, ratios)

Coefficients	main group	Control group
C 1	21.56±14.64*	16.71±12.17
C 2	0.63±0.18*	0.41±0.21
C 3	20.94±14.53*	16.30±12.07

Note:* Significant difference indices ($p < 0.05$) in groups of adolescents with deviant and normative behaviors.

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THE COMBINED PRENATAL SCREENING WITHIN THE PRIORITY NATIONAL «HEALTH» PROJECT FOR 2012 IN THE REPUBLIC OF SAKHA (YAKUTIA)

UDK 618.33-007(575.224.232)

Results of the biochemical screening I trimester are given in Yakutia within the Health national project. The obtained data confirm high efficiency of definition of biochemical markers in the I trimester of pregnancy of formation of group of risk of chromosomal anomalies and meets the requirements of early identification of pathology of a fetus.

Keywords: pregnancy, serum markers, ultrasonography of a fetus, invasive procedures, chromosomal anomalies.

Introduction. The problem of hereditary and congenital pathology, first of all the congenital developmental anomalies (CDA) and chromosomal illnesses, continues to remain actual. The quantity of FCA in structure of the reasons of a perinatal and infantile case rate and a mortality was significantly enlarged. Chromosomal syndromes have big specific gravity in structure of congenital diseases, and the most actual is Down syndrome prophylaxis, as most frequent chromosomal pathology. The indicator of the children's invalidism in most cases caused by congenital and hereditary pathology, shows a tendency to body height [2].

The combined ultrasonic and biochemical screening is surveyed now as an obligatory method of the prenatal diagnostics referred on identification of women of groups of high risk of the birth of children with chromosomal illnesses and developmental anomalies [4]. In 2010 within actions of the priority national Health project the new section "Prenatal Diagnostics of Disturbances of Development of the Child" with financial security at the expense of agents of the federal budget which was realized in the Moscow, Rostov and Tomsk areas is included.

The large-scale organization of prenatal screening in the Republic of Sakha (Yakutia) was begun in 2011. Within the Priority national Health project "Prenatal diagnostics of disturbances of development of the child" the mass combined screening of pregnant women in terms of 11-13 weeks 6 days is begun. According to the order Ministry of Health Republic of Sakha (Yakutia) am

No. 01-8/4-196a of 01.03.2011. "About carrying out prenatal diagnostics of disturbances of development of the child in the territory of the Republic of Sakha (Yakutia)" all pregnant women living in the territory of the republic, addressed for medical observation in healthcare institutions are subject to prenatal screening.

According to the literature, the combined ultrasonic and biochemical screening in the I trimester of pregnancy allows to tap 85% of fetuses with chromosomal pathology [3]. Biochemical screening includes definition of levels of serum markers in bloods of mother - PAPP-A (the plasma protein associated with pregnancy) and free β-CGH (free β-subunit of chorionic Gonadotropinum). PAPP-A - a glycoprotein synthesized of trophoblastomas throughout all pregnancy. In combination with other biological and clinical data the lowered PAPP-A values have prognostic value for detection of certain chromosomal anomalies of a fetus. Free β-CGH - a glycoprotein produced of trophoblastomas of a placenta. On an early duration of gestation St. β-CGH stimulates function of a yellow body for synthesis and secretion of placental steroids, estrogen and Progesteronum. Level free β-CGH quickly raises in the first two weeks after conception and reaches a maximum on the 9th week and gradually goes down during the 2nd and 3rd trimester of pregnancy. Research free β-CGH is used for Down syndrome screening.

Materials and research methods. For the immunofluorescent analysis of levels of serum markers Serums of women in the I trimester of pregnancy, in term from 11 weeks to 13 weeks 6 days inclusive were used. Samples of Serum were accompanied by the direction, a blood filled before a capture. The direction contained the following these patients: demographic data; information on a blood sampling; anamnesis; the weight of the pregnant woman measured in day of delivery of a blood; data of ultrasonography of a fetus: the coccyx - the parietal size of a fetus (CRL) has to be 45-84 mm, the thickness of collar space (NTT), existence and the size of a nasal ossicle, the frequency of cardiac reductions (HR) of a fetus, in addition venous duct, a tricuspid regurgitation.

In medico genetic consultation of PNTs State Budgetary Institution Republic of Sakha (Yakutia) RB No. 1-NTsM (PNC GBU RS (Y) RB N 1 NCM) within the national project in December, 2011 the biochemical KRYPTOR analyzer (BRAHMS, Germany), carrying out definition of the PAPP-A levels and free β-CGH in Serum of the pregnant woman is put. The system is founded on the TRACE technology in which the signal which is let out with a temporary delay by an immune complex is measured. All operations are completely automated. The TRACE technology differs high precision and specificity.

The specialized software of "Astraia" (obstetric and gynecologic database) allows to calculate the combined risk of anomalies of a fetation (a Down syndrome (a trisomy 21), Edwards (a trisomy 18), Patau (a trisomy 13) taking into account the biochemical indicators defined in the double test of the

first trimester and results of ultrasonography, 11-13,6 weeks of pregnancy made in terms. Such test is called as the double test of the first trimester of pregnancy combined with NTT or the triad test of the first trimester of pregnancy. Results of calculation of the risks, received by means of the combined double dough, are much more exact, than risk calculations only on the basis of biochemical indicators or only on the basis of ultrasonography.

The software of "Astraia" is based on the algorithms developed by Fetal Medicine Foundation (FMF) and Fund of medicine of a fetus (London). The software considers qualification of experts of ultrasonic diagnostics on the basis of FMF certificate, allows conducting audit of all indicators, and also conducts a database on researches. The accounting of qualification of experts of ultrasonography theoretically excludes false hit of the pregnant woman in group of high risk that involves need of carrying out in this case unreasonable, economically expensive, having 1-2% of complications of invasive diagnostic manipulation.

The first level of prenatal screening begins with ultrasonic research and a blood sampling. Receiving a biomaterial for the first level of screening is carried out by means of vacuum test tubes for unit of Serum of Vacutainer system or similar. Then the biomaterial together with accompanying documentation is transported in medicogenetic laboratory where definition of level of serumal markers and calculation of the combined risk of chromosomal anomalies is made.

At the first stage of calculation of risk of value of concentration of PAPP-A and free β-CGH are transferred to the so-called MoM (multiple of median) characterizing degree of a deviation of this or that indicator from a median. At the following stage of calculation MoM amendment on various factors (mass of a body of the woman, an ethnic origin, existence of some diseases, smoking, multifetal pregnancy, etc.) is made. As a result so-called corrected MoM turn out. At the third stage of calculation the corrected MoM are used for calculation of risks. It allows to create group of risk and with the greatest accuracy to define individual risk. Pregnant groups of high genetic risk are referred on complex inspection to medico genetic consultation of PNTs RB No. 1-NTsM (PNC RB N 1 NCM). The prenatal medico genetic consultation, specifying diagnostics is carried out to MGC to pregnant women with use of ultrasonic research, invasive prenatal diagnostics (amniocentesis, horionbiopsiya, cordocentesis), cytogenetic researches, molecular and genetic diagnostics.

Results and discussion. In laboratory of prenatal diagnostics of MGC for 2012 it is surveyed according to the program of the combined screening of 6726 pregnant women, from them 3542 (52,7 %) are referred from districts and 3184 (43,3 %) - from Yakutsk. 1069 (15,9 %) pregnant women are aged more senior than 35 years. 246 (3,7 %) women are aged more senior than 39 years. 70 pregnant women had two at a birth. Into group of high risk entered 153 (2,3 %) pregnant women. From them 68 (44,4 %) women are aged more senior than 35 years.

Efficiency of screening is defined by its sensitivity (identification level) and specificity (level of false positive and false-negative results). Because the number of necessary invasive procedures depends on level of false positive results, this indicator isn't less important, than detectability in an assessment of efficiency of screening.

77 invasive procedures were carried out. By results of a karyotyping 17 fetuses with chromosomal pathology, including syndromes of the Down (8), Edwards (6), Shereshevsky-Turner (2), Patau (1) were taped. Thus, identification of pathology made 22%. At all ultrasonic markers were noted: NTT augmentation, hypoplasia or lack of a nasal bone.

The false-negative result was observed at one pregnant woman from Yakutsk in term of 12 weeks, results of ultrasonography and biochemical screening in norm. In the II trimester echographical markers of chromosomal anomaly of a fetus are taped, the pregnant woman refused invasive diagnostics, the child was born with a regular form of a Down syndrome.

In all cases of existence of a syndrome of Edwards at a fetus level of markers in a blood of mother was lowered and averaged 0,35 MoM for PAPP-A and 0,21 MoM for free β-CGH. It is necessary to notice that 9 (53 %) women from 17 with chromosomal pathology of a fetus of an age category were more senior than 35 years. At women at whom fetuses with Shereshevsky-Turner's syndrome were taped, the age made 21 and 22 years, respectively.

In 2012 15 children with chromosomal pathology were born, from them 14 travailled women didn't pass the combined prenatal screening (two from Yakutsk, two from Neryungri, two from the Aldan ulus, also on one of Tattinsky, Vilyuysky, Namsky, Churapchinsky, Olyokma, Ust-Aldansky, Eveno – Bytantaysky uluses). From these 14 travailled women 8 were at the age of 35-46 years.

It should be noted the high frequency of chromosomal pathology in the southern districts of Yakutia (Neryungrinsky, Aldan uluses) in recent years, frequency made nearly 1: 200 labors (on the average the frequency of chromosomal pathology makes across Russia 1: 600 labors).

It is important to notice that the combined screening in the I trimester effectively taps not only chromosomal pathology, but also group of high risk on the fetus congenital developmental anomalies (CDA). So, by our results, at a normal karyotype of fetuses, at 2 fetuses congenital heart disease and at 1 fetus – congenital developmental anomaly of the person was taped. At the level of municipal medical institutions the following problems were taped:

insufficient coverage by ultrasonic research in demanded terms with the subsequent blood sampling;

the personnel base (doctors of BRIDLES) is insufficient for continuous work of the national project taking into account territorial features;

inaccuracies in NTT and CRL assessment (NTT measurement – the equipment has to be

standardized);

non-compliance with a technique of a blood sampling at pregnant women;

mistakes in biomaterial processing;

difficulties of the organization "Cold chain" when transporting blood serum in laboratory of prenatal diagnostics of MGC.

Indicators of coverage of pregnant women are given by screening research of the main biomarkers in the table. In 2012 Momsky, Oleneksky, Oymyakonsky and Eveno-Bytantaysky districts didn't participate in screening, the lowest coverage was observed in Abyysky, Allaikhovsky, Nizhnekolymsky, Ust-Maysky, Ust-Yansky uluses. Due to the above, a larger problem in carrying out prenatal screening at the Arctic uluses in connection with the remoteness, the difficult transport scheme, insufficient personnel base.

Thus, our data prove need not only accumulation of own results for definition of normal level of markers in a blood of pregnant women of surveyed population, but also correction of MoM taking into account regional features as in the software of "Astraia" the ethnic origin of the pregnant woman on which final calculation of risk depends is considered. In the I trimester strict correlation between a duration of gestation and level of each marker [1] therefore drawing up in each laboratory of the table of measurements of indicators on a certain week of pregnancy for calculation of own values of a median is necessary is proved.

Conclusion. For rising of efficiency of prenatal screening it is necessary:

The correct organization of processes of inspection on places in the presence of the qualified experts;

24. Equipment of offices of ultrasonic diagnostics by the equipment of high and expert level.

25. Training of experts of BRIDLES and obtaining FMF certificate by them. Training and external audit according to the FMF program allows unifying methodology of ultrasonography and gives the chance to consider reliable results of the fetometers which is carried out by these experts. It finally defines accuracy of calculation of individual risk of congenital disturbances of development in the child.

26. Regional values of a median have to form a basis for calculation of individual risk of the birth of the child with chromosomal pathology.

27. Coverage by screening has to be not less than 80% of the pregnant women who were registered on pregnancies till 13 weeks.

The received results well confirm high efficiency of definition of biochemical markers in the I trimester of pregnancy. The further complex analysis is necessary for elaboration of own strategy of inspection of pregnant women. However it is already clear that prenatal screening in the I-st

trimester of pregnancy is an effective method of formation of group of risk of chromosomal anomalies and meets the requirements of early identification of pathology of a fetus.

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Number of the surveyed pregnant women on the combined screening for 2012

Referrals	Biochemical markersPAPP-A and free β-CGH
Abyskyy	6
Aldansky	186
Aldayhovsky	6
Amginsky	166
Anabarsky	23
Bulunsky	42
Vilyusky	204
Verkhnevilyusky	158
Verkhoyansky	45
Verkhnekolimsky	12
Gorniy	85
Jigansky	42
Kobyaysky	22
Lenskiy	208
Megino-Khangalassky	129
Mirninskiy	339
Momsky	0
Namskiy	232
Nijnekolimsky	4
Neryungrinsky	529
Nyurbinsky	221
Oleneksky	0
Olyokminsky	47
Oymakonsky	0
Suntarsky	146
Srednekolimsky	19
Tattinsky	113
Tomponsky	19
Khangalassky	162
Churapchinsky	215
Ust-Aldansky	156
Ust-Maysky	2
Ust-Yansky	4
Eveno-Bitantaysky	0
Total , areas	**3542**
G/O PNC RB N 1 NCM	31
KRTch PNC RH N 1 NCM	15
MGC PNC RH N 1 NCM	410
G/K PNC RH N 1 NCM	41
Polyclinic N 1	645
Yakutian State Hospital N 2	212
Yakutian State Hospital N 3	573
Yakutian State Hospital N 4	287
Yakutian State Hospital N 5	326
Polyclinic N 5	204

FGBUZ DVOMC FMBA	112
Hospital YNC SO RAMN	73
FKUZ MCC MVD	87
Other clinics	168
Total , in Yakutsk	**3184**

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The structure of extragenital pathology in pregnant women: (data of the Antenatal clinic RH№1-NCM MH RS (Y))

There was studied the structure of extragenital pathology of pregnant women on the basis of women`s consultation of Perinatal center State Inst. MofH RofS(Yakutia) « RH№1- NCM» for the year 2012. The presence of extragenital pathology of pregnant women is a major factor of the high risk of maternal mortality. Most women (90%) have two or more of extragenital pathology simultaneously. In the structure of extragenital pathology of pregnant women the first place take urinary system diseases, 2nd place - diseases of the cardiovascular system, 3rd place - diseases of the hematopoietic system. Diseases of the cardiovascular system are the lead indications for terminate pregnancy. In this work shown necessity for more effective collaboration of gynecologists, general practitioners and specialists of narrow specialization to identify women who are at high risk of perinatal pathology, the forecasting of carrying pregnancy and timely decision on the prolongation and tactics of waging.

Keywords: pregnancy, extragenital pathology, pathology of internal organs.

Introduction

An important part of modern obstetrics to reduce maternal and perinatal mortality is to identify pregnant women who are at high risk of perinatal pathology. One of the main factors of high-risk is the presence of extragenital pathology.

On separate epidemiological studies from 50 to 82% of pregnant women have chronic diseases of internal organs, 60% during pregnancy (at height of tension of adaptation mechanisms) are suffer acute diseases of the internal organs.

The development of high-tech medical care contributed to the formation of groups of women with severe pathology of internal organs.

The introduction of state support for families by the program "Mother's capital" has increased the age criterion of pregnant women [1-6].

The purpose of the study – to study the structure of extragenital pathology of pregnant women.

Materials and methods

Extragenital pathology of pregnant women has been studied on the basis of women's consultation of perinatal center State Inst. MofH RofS(Yakutia) «NMC-RH№1» for the year 2012.

Pregnant women are examination by therapeutist at primary turnout to the women's consultation clinic for the detection and evaluation of extragenital pathology, decision on the possibility of pregnancy prolongation and conducting pregnancy tactics.

Results and reasoning

In 2012 were examined 1150 pregnant women, of them 931(81%) women from villages. By age criterion patients were distributed follows: 21 to 30 years (58.3%) most often approached to the women's consultation clinic with extragenital pathology of pregnancy, on the second place women from 31 to 40 years (29.4%), on the third place later reproductive age women (over 41 years - 3.1%).

For 2012 were examined 18 young 18 year old primigravidas (in 2011 – 11 people):

Structure of extragenital pathology of pregnant women.

In the dynamics of two years (2011 - 2012) has been observed an increase of extragenital pathology of pregnant women at 15,2%. Most pregnant women (90%) have two or more of extragenital pathology simultaneously.

By the frequency of occurrence of extragenital pathology of pregnant women take the first place in 2011-2012 urinary system diseases - 18.6%, of them in 753 cases pregnant women suffered by chronic and gestational pyelonephritis. From all diseases of the urinary tract 1.3% is glomerulonephritis [3,4,6], which impair the prognosis of pregnancy. During the accounting year, recorded 2 cases of chronic renal insufficiency in pregnant women, which is an absolute indication for termination of pregnancy [3,4,6].

The second place belongs to diseases of the circulatory system - 16.1%, the largest percentage of them falls on vegetative-vascular dystonia - 47.7%. Using the echocardiography in surveys of pregnant helps to identify small anomalies of the heart to 22.5%, congenital heart defects - 3.8%.

Hypertonic disease aggravates during pregnancy of women and amounts to 9.3% of all heart diseases [2,4,5,6]. In 2012, there was an increase the number in pregnant women with hypertension stage 3 from 1.2% (2011) to 3.5%.

During the accounting year were examined 28 women with the operated heart of congenital heart defects. Congenital heart defects are increase the percentage of cardiovascular complications and are the most common indications for termination pregnancy for medical reasons [4,5,6].

Diseases of the blood are in third place (12.9%). From all blood diseases 97% is anemia during pregnancy. In 2012 at 6 pregnant detected severe anemia.

Each year a few cases of pregnancy of women with disorders of hemostasis are registered: in 2012 - pregnancy with thrombophilia due to deficiency of antithrombin III, state after occlusive thrombosis of the right axillary vein from 02/08/2011, Rh negative blood affiliation, are the absolute indication for termination of pregnancy by medical reasons [4,6]. But given the categorical rejection from termination of pregnancy the woman is continued to childbearing under strict dynamic observation of obstetrician-gynecologists and hematologists.

Endocrine system diseases are amount 11.5%. In 2012 was the largest number of women with diabetes - 22 (in 2011 – only 6 pregnant women), the level of detection of gestational diabetes remains at the same level each year - 4 cases (in 2011 - 3 cases). Also marked the growth of women with obesity number (in 2011 - 47 person, in 2012 - 94 people).

Diseases of the digestive system have the high percentage (12.7%), the share of chronic viral hepatitis account for 10.4% of all digestive diseases in pregnant women.

The share of respiratory diseases account for 12,4%. In the accounting year there was noted an increase in the level of acute respiratory diseases from 14.5% to 18.4% of all respiratory diseases of pregnant women.

Conclusions:

- Every year there is a growth of the detection of extragenital pathology of pregnant women, which is directly proportional to the age of pregnant women, 90% of pregnant women have 2 or more extragenital pathology simultaneously;
- In the structure of extragenital pathology of pregnant the first place takes urinary system diseases, 2nd place - diseases of the cardiovascular system, 3rd place - diseases of the hematopoietic system;
- Pregnancy of women of later reproductive age is account 3.1%, which was the result of the introduction of the National project and the use of "Mother's capital" and other social benefits for the improvement of material and living conditions;
- Decompensated diseases of cardiovascular system are the lead indication for termination of pregnancy (in 2012 - nine women were offered termination of pregnancy for medical reasons);
- The continued relevance of the medical and social problems for the prevention of teen

pregnancy: lack of knowledge about the physiology of the human reproductive system, lack installation on family and child-bearing, accidental pregnancy;

- it is necessary to activate the work classrooms of family planning; to organize the succession of children`s and adult outpatient services at the primary level; increase the efficiency of collaborative therapy and obstetrics of women with extragenital pathology and the formation of high-risk groups of women of childbearing age, the forecasting of carrying pregnancy and timely decision on the prolongation and tactics of waging.

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Principal directions of preventive measures of prevalence of risky and dangerous alcohol consumption among health workers

The research of the proportion of risky, dangerous, and possibly addicted alcohol consumption among doctors of Yakutsk city was conducted. The interrelation of social and hygienic aspects accompanying risky and dangerous alcohol consumption was studied and risk factors were identified.

Keywords: doctors, health workers, risky alcohol consumption, dangerous consumption, possibly addicted consumption, risk factors, prevention, Yakutsk city.

Health workers, protecting population's health, work in high professional risk conditions, they often forget about themselves and the need of protection against danger connected with their activity [1]. Many researchers consider hospital environment extremely aggressive [1, 2, 3]. Health workers work in the conditions of high emotional tension that leads to fast nervous breakdown and «burning out syndrome" progress [2, 8]. The general case rate of health workers on majority of indicators exceeds other professional groups [3, 13]. So, in 2009 the general case rate among Yakutsk health workers was 1943 per 1000 workers that exceeded adult population general cases (1579 per 1000 people), health workers pathological prevalence (2048 per 1000 people) exceeded Yakutsk population indicator (1385 per 1000 people), health workers cases of morbidity with temporal disability (72, 5 per 100) exceeded population cases of morbidity with temporal disability (53, 5 per 100) [4].

In social, economic and medical aspects alcohol consumption has been one of the most serious problems of mankind for a long time [5]. Numbers of researchers refer doctor's profession to factors of increased risk of alcohol and drugs abuse [6, 10]. Higher level of mental disorders in comparison with average indicator of population is noted among doctors, and it is usually considered to have connections with features of medical profession. According to National institute of mental health (the program of epidemiological research (ECA)), 137 397 doctors or 20, 1%

suffer from alcoholism. In Great Britain about 90% of doctors [9] regularly take alcoholic drinks. In New Zealand researches revealed that drinking habit frequency among doctors makes 1, 7% [10].

L.F. Tikhomirova [7] analyzed 851 cases of alcohol consumption among different health workers. 3, 2% of surveyed male doctors take alcoholic drinks more than once a week. It is considered to be a group of risk. Anesthesiologists made 36%, surgeons — 27, 4%, radiologists — 14, 29%, physiotherapists — 9, 0%, obstetricians-gynecologists — 6, 15%, dentists — 4, 94%. As well as majority of other social and professional categories of population, the debut of alcoholic disease among doctors accrues mainly to young age: 20-24 years (23%), 25-29 years (33%).

Treatment of doctors with alcohol consumption has a number of specific features, even in case of treatment in the ant alcohol center [11]. Recognition of alcoholism put guilt trip, shame and unwillingness to discuss this problem with anybody. Many doctors know about the biopsychosocial causes of alcoholism and treat treatment critically and incredulity since the majority has a feeling of fatality due to the fact of forecasting awareness.

But nevertheless, long or lifelong remission is possible and as a number of authors' researches show it varies from 27% to 92% of cured doctors [12].

In 2009 the government of the Russian Federation approved "The concept on realization of state policy on drop in coverage of alcoholic products abuse and alcohol preventive measures among the population of the Russian Federation for the period until 2020". The concept purpose is the reduction of alcohol consumption per capita. Due to the remaining high prevalence of alcoholism in RS (Y), in 2010 the program "Against measures aimed at alcoholism prevention in the Republic of Sakha (Yakutia)" was accepted.

Research of "medical" alcoholism specific character is difficult due to ethical component. Colleagues, friends, psychiatrists and even narcologists, realizing the full extent of alcoholism demonstration among colleagues, optimize the forecast due to deontological moods. Precedence of punitive measures on the part of the state, administrations, and society leave alone the doctor suffering from alcohol dependence. Meanwhile, social, medical, professional and human losses from similar tactics continue to be.

Research objective: development of integrated scientifically based program on early identification, specific prevention and rehabilitation of doctors consuming alcohol in risky, dangerous and probably dependent mode.

Materials and methods. Historical, retrospective, continuous, selective and sociological methods were the main research instruments. Doctors working in Yakutsk and the system, directed on prevention and rehabilitation of doctors with risky and dangerous alcohol consumption were the object of research. For carrying out anonymous, sociological research the group of 365 respondents

was created to represent the population of 2294 Yakutsk doctors. The response was 90, 4%. Under probability level of certain forecast at not less than 95% (p.<0,05), the representational sample size was calculated by means of the OpenEpi program and confirmed the group of 330 doctors sufficiency. Further according to the method of random sampling, thanks to above-mentioned program the serial numbers of respondents of sampling were calculated. Statistical data processing was carried out by means of standard SPSS package (version 13,0). Intergroup distinctions were estimated by means of nonparametric criteria. 4 groups were created for the comparative analysis: 1) group of anesthesiologists; 2) group of surgeons; 3) group of doctors of therapeutic profile; 4) group of doctors of other specialties. Distribution on specialties in random sampling was similar to population: 7,1% respondents were anesthesiologists, 8,5% - surgeons, 22,1% - therapists and about 60,0% - doctors of other specialties.

Research results. Analyzing obtained data it was founded out that by 2009, there had been 2294 doctors in Yakutsk health care organizations of municipal, republican and federal control (47,0% from all working doctors of RS (Y)) serving about 1 million of RS (Y) population and guests of the republic. There were 1774 (79, 4%) women, 460 (20, 5%) men accordingly. The structure of specialties was as follows: 158 (6, 8%) anesthesiologists, 188 (8, 1%) surgeons, 481 (20, 9%) doctors of therapeutic profile, 1407 (61, 3%) doctors of other specialties. All respondents were represented by 29 health care organizations. Among respondents there were 69 (21, 0%) men and 261 (79, 0%) women.

In age structure experts of 30-40 years (30%) prevailed. As a whole the age structure has the following features: before 30 years – 26,7%, 30-40 years - 30%, 40-50 years – 20,1%, 50-60 years – 17,2%, 60 years and later – 6,0%. Doctor's average age was 43, 9±0, 4 years. For perspective research of demographic indicators the average life expectancy of died anesthesiologists was calculated. Before Belavezha Accords of 1991, on cessation of the USSR existence the average life expectancy of the died anesthesiologist was 56±1,26 years, the average life expectancy of anesthesiologists died after 1990 was 47,6±2,87 years.

Sociological anonymous poll consisted of 3 blocks of questions which had to create answers by the following criteria: 1) prevalence of health harmful risky, dangerous and probably addicted alcohol consumption; 2) satisfaction with living conditions and workplace; 3) questions which would allow to reveal risk factors for carrying out correlation with risky and dangerous alcohol consumption.

The international screening questionnaire AUDIT (Alcohol Use Disorders Identification Test) was chosen as a tool for 1st block of questions disclosure. The questionnaire was developed by the World Health Care Organization experts in 1982 for identification of harmful alcohol

consumption and it is "the gold standard" for primary addiction research. Sensitivity of AUDIT is really high and varies, from 76 to 99% according to researchers. The questionnaire doesn't aim to establish the exact diagnosis, but it allows assuming the existence of problems at a patient. Interpretation of questionnaire answers allows revealing: a) low probability of alcoholic dependence; b) excessive, risky alcohol consumption; c) dangerous alcohol consumption and health harmful alcohol consumption; d) possible existence of alcohol addiction.

The analysis of conducted research led to the following results. The low probability of demonstration of alcohol consumption was found among the majority of examined doctors and was 71, 51% (n=236). Excessive or risky consumption was revealed among 18, 18% (n=60) of doctors. The health-harmful dangerous consumption was registered among 9, 09% (n=30) of doctors. Possible presence of alcohol addiction was revealed among 1, 21% (n=4). The age of doctors taking alcohol in a risky and dangerous mode was 43, 6±11, 6 years. Men's proportion within this group was 93, 2%.

The results within anesthesiologists group were the following: 56, 5% - low probability of addiction, 21, 7%- risky consumption, 17, and 3% - consumption with harmful consequences, 4, and 3% -possible addiction (tab. 1). In the group of surgeons: 53,5% - low probability of dependence, 25,0% - risky consumption, 17,8% - consumption with harmful consequences, and 3,5% - possible addiction. In group of therapists: 87,7% - low probability of dependence, 13,8% - risky consumption, 1,3% - consumption with harmful consequences, there were no people with possible existence of addiction among therapists. In group of doctors of other specialties: 69,1% - low probability of dependence, 19,6% - risky consumption, 10,1% - harmful consequences, and 1,0% - doctors of other specialties probably have a dependence.

Regarding all investigated group, proportions of doctors were distributed as follows: Low probability of dependence: anesthesiologists - 3,9±1,06 (see column P±m in tab. 1), surgeons - 4,5±1,16, therapists - 18,5±4,89, doctors of other specialties - 41,5±2,75. Risky consumption: anesthesiologists -1,5±0,59, surgeons - 2,1±0,79, therapists - 3,0±1,42, doctors of other specialties - 11,8±1,42. Health-harmful dangerous consumption: anesthesiologists - 1,2±0,59, surgeons - 1,5±0,67, therapists - 0,3±0,30, doctors of other specialties - 6,0±0,51. Possible presence of alcohol addiction: anesthesiologists - 0,3±0,30, surgeons - 0,3±0,30, therapists – 0, doctors of other specialties - 0,6±0,60.

Table 1.

Incidence of alcohol consumption within groups, incidence in groups, regarding all examined with risky, dangerous and possibly addicted alcohol consumption among doctors.

Criteria of alcohol consumption	Anesthesiologists n=23			Surgeons n=28			Therapists n=72			Doctors of other specialties n=198		
	n	% within group	P±m	n	% within group	P±m	n	% within group	P±m	n	% within group	P±m
Low probability	13	56,5	3,9±1,06	15	53,5	4,5±1,16	61	87,7	18,5±4,89	137	69,2	41,5±2,75
Excessive or risky	5	21,7	1,5±0,59	7	25,0	2,1±0,79	10	13,8	3,0±0,42	39	19,6	11,8±1,42
Health-harmful dangerous	4	17,3	1,2±0,59	5	17,8	1,5±0,67	1	1,3	0,3±0,30	20	10,1	6,0±0,51
Possible presence	1	4,3	0,3±0,30	1	3,5	0,3±0,30	-	-	-	2	1,0	0,6±0,60

At the next stage the correlation interrelation between 30 risk factors and answers of doctors with risky, dangerous and probably addicted alcohol consumption was investigated. As mentioned above, the proportion of doctors taking alcohol in risky, dangerous and possibly addicted mode was 28, 5% (n=94). As a result of assessment of interrelation according to nonparametric Spearman correlation coefficient ("r"), reliable, direct and weak interrelation between risky, dangerous and addicted alcohol consumption and 7 leading risk factors was established. Factors are ranked as follows: 1) 1st alcohol consumption before 14 years (r=0,19); 2) alcohol consumption in order to dumping emotional and psychic tension (r=0,19); 3) presence of close relatives with dangerous consumption (r=0,16); 4) regular alcohol consumption during students years (r=0,14); 5) modern alcohol consumption 2-3 times a week (r=0,13); 6) dissatisfaction with financial situation (r=0,12); 7) existence of drinking environment (r =0,12).

Communication establishment of risk factors with prevalence volume of risky and dangerous alcohol consumption among Yakutsk doctors allowed developing the project of secondary and tertiary preventive measures for immediate introduction. System measures of primary prevention are necessary for warning further alcohol expansion.

The program of prevention of risky and dangerous Yakutsk doctors alcohol consumption consists of 3 modules: 1) Primary prevention: healthy life style and negative alcohol attitude formation; mindset training of people of all age, children social protection, public control on child education at all levels: education, policy, economy, culture, control over mass media. At this stage the main role is given to family; 2) secondary prevention: early diagnostics, psychologists introduction to the staff, disclosure of psychological trouble of the personality and anti-stressful, psychological assistance (discussions, communicating groups, work with environment and family); 3) tertiary level: compulsory doctors social insurance upon unexpected mistakes, medical-social readapting: mental injuring factors leveling with labor readapting. Possible change of specialization up to profession change by the example of foreign countries on the basis of state, social services, public organizations and state-private partnership expense.

Conclusion:

1. 71, 51% of doctors have low probability of alcohol consumption demonstration and it is the majority of the examined doctors. Doctors with excessive or risky consumption - 18, 18%. Doctors with health-harmful dangerous consumption - 9, 09%. Possible presence of alcohol addiction among Yakutsk doctors -1, 21% that is less than all-Russian indicator (1, 82%), as well as among RS(Y) population (1, 91%).

2. 10, 30% is the total proportion of Yakutsk doctors with health-harmful dangerous alcohol consumption and doctors with possible demonstration of addiction. Men proportion within this group was 93, 22%; the average age was 43, 6±11, 62 years.

3. Surgeons and anesthesiologists (46, 32% and 43, 31% accordingly) have the greatest proportion of risky and dangerous alcohol consumption. 30, 73% and 15, 12% - doctors of other specialties and therapists - accordingly.

4. Probable risk of possible presence of alcohol consumption: anesthesiologists - 4,3%, surgeons - 3,5% and doctors of other specialties - 1,0%.

5. The interrelation between risky, dangerous, possibly addicted alcohol consumption and 7 social- hygienic risk factors of alcohol consumption among Yakutsk doctors is established: 1) 1st alcohol consumption before 14 years; 2) presence of close relatives with dangerous alcohol consumption; 3) regular alcohol consumption during students years; 4) modern alcohol consumption 2-3 times a week; 5) dissatisfaction with financial position; 6) existence of drinking

environment; 7) alcohol consumption for the purpose of emotional tension dumping.

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HEALTH CENTRE FOR CHILDREN TO PROMOTE HEALTHY LIFESTYLE "CHILDREN'S HOSPITAL" - NEW TECHNOLOGIES OF PRIMARY PREVENTION

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Summary: This article describes the indicators of the Health Centre for children on healthy lifestyle based on the consulting department of Children's Hospital of Yakutsk.
Keywords: Health Centre, organizingthe healthy lifestyle, functional deviation.

Health Protection of the younger generation is one of the most topical and important problems of not only the Health Ministry, but also society as a whole. The importance of this state is defined by the fact that children's health is not only an integral indicator of the health of the population, but is the fundamental basis for the formation of the health potential of adult members of society.

The children's total sick rate of all ages (under 17) is growing by 5-6%. There is a preferential growth of chronic disease among the children. Its share in the structure of their health disturbance currently stands at 30-32 %.

Physical development of children is declining. The last 10 years, the number of children with normal weight has decreased among the boys at16.9 %, among the girls at 13.9%. The number of undersized children has increased (1.5 % for boys and 1.0 % for girls).

The study of factors that influence the health ofthe children showed that about 50 % of them are caused by social and economic conditions and the way of life, 25% - by biological and genetic circumstances, 20% - by environmental conditions and climatic factors and 5 %by the features of the Health Care Organization.

The negative trends of health indicators of Russian population require to find new ways for the early rehabilitation of people's health. An important national objective is to prevent the deterioration of the health of people and aspiration to improve it. Therefore, Health Centres are set up to reduce spread of chronic non-infectious diseases.

On May 18, 2009the Resolution of the Government of the Russian Federation№ 413" About financial support at funding expense of the federal budget measures aimed at forming a healthy lifestyle among the citizens of the Russian Federation including the decrease of alcohol and tobacco consumption in 2009" was adopted. On June 10, 2009 the Order № 302 of the Russian Health Ministry "About the measures on realization the decision of the Government of the Russian Federation" dated May 18, 2009was published.

This order contains a list of equipment purchased for the Centres of Health, besides it the Order contained the requirements to the organization of Health Centres' activities forming on a functional basis in the public health institutions of the Russian Federation and municipal health care institutions. These requirements have been specified in the Order of the Health Ministry of Russia № 597 of August 19, 2009 "About the organization of the Health Centres' activities on forming healthy lifestyle among the citizens of the Russian Federation, including the decrease of alcohol and tobacco consumption."

The objectives and functions of the Health Centre

The main activities of Health Centers are the following : assessment of functional and adaptive reserves of the body according to the age-features, the forecast of health; dynamic monitoring of patients at risk of non-infectious diseases; monitoring the realization of measures to organizing a healthy lifestyle and risk factors of the developing of diseases.

Forming of a healthy lifestyle is a set of measures aimed at the preservation of health, the

propaganda of healthy lifestyle, motivating citizens to personal responsibility for their health, development of individual approaches to forming healthy lifestyle, strive against risk factors of diseases, education and public informing about the dangers of tobacco use and alcohol abuse, prevention of socially significant diseases, and increase of the duration of active life.

The functions of the Health Centre are informing the public about the harmful and dangerous factors to human health, group and individual propaganda of the healthy lifestyle, prevention of occurrence and development of risk factors of various diseases (smoking , alcohol, lack of exercise , etc.);forming responsible attitude to health of citizens and the health of their relatives; prevention of the use of narcotic drugs and psychotropic substances without doctor's prescription; formation of the public principles of "responsible parenthood"; learning of hygiene skills of the citizens and motivate them to give up bad habits, including the assistance in the rejection of alcohol and tobacco use; training the citizens to the effective methods of disease prevention according to the age-features; dynamic monitoring of patients at risk of non-infectious diseases; evaluation of functional and adaptive reserves of the body according to the age-features; the forecast of health state; counseling on health protection and strengthening , including recommendations for correction of nutrition, physical activity , physical education and sports, and sleep mode , the conditions of life, work (study) and the rest; development of individual programs on healthy lifestyle; to monitor the implementation of measures to form healthy lifestyle, risk factors for disease.

The organization of public services in the Health Centre

In December 2010 at the address: 10/1Petrovsky Street, Health Centre was opened for children on forming healthy lifestyle based on the Consulting Clinic of Children's Hospital of the Sakha Republic on a functional basis (order № 216 -D on 01.07.2010).

In 2010, the Health Centre for children received equipment in sum of 1248115roublesfrom the Federal subsidies. On December 2011, according to the federal program "Modernization Program of Health of the Republic of Sakha (Yakutia)" (order of the Ministry of Health of Republic of Sakha (Yakutia) on November 17, 2011 № 01-8/4-1851 «About organizing of mobile Health Centers in the Republic of Sakha (Yakutia)" a Mobile Health Centre was received.

There are only 7.5 people in staff list of the Health Centre, including 3.5 doctors and 4.0 medical workers (Table 1). The Centre works in two shifts on schedule. Reception of patients is hold by pediatrician, psychologist, dentist - hygienist, a nutritionist. Recording of citizens for the examination is made by calling the registry of Conculting clinic. In a shift one doctor - pediatrician and two nurses examine 30-35 patients.

Algorithm for the examination at the Centre includes:

1. Measuring of height, weight, blood pressure for screening-level assessment of psycho-physiological and physical health, functional and adaptive reserves of the body with a set of equipment for the measurement of physical development;
2. Assessment of the functional state of the heart with the help of a computerized screening system (rapid assessment of the state of the heart by electric cardiogram signals from the limbs);
3. The evaluation of external breath function with the machine for complex detailed assessment of the functions of respiratory system (computerized spirometer);
4. Determining of the body composition (percentage of water, muscle and fatty tissue) through bioimpedansmetre.
5. Express-analysis of total cholesterol and glucose levels in blood;
6. Determination of carbon dioxide in the exhaled air and kaboksigemoglobin using smokelayzer and analyzer of carbon monoxide in the exhaled air.
7. Express- assessment of the saturation of hemoglobin arterial blood with oxygen (oxygen saturation), pulse rate and regularity of rhythm by pulse oximetry (pulse oximeter).
8. Prophylactic examination of a dentist - hygienist: diagnostics of oral diseases, determination of oral hygiene status and patient teaching on brushing methods; individual recommendations on the selection of hygiene for children, preventive and hygienic measures aimed at preserving the

dental health of children and the development of skills of rational care of the oral cavity.
Based on the results of the examination the doctor makes a full machining report on the state of health and an individual plan on keeping healthy lifestyle, including advice on diet, physical activity, avoiding harmful habits, and others. Persons recognized by the survey healthy are recommended to pass the full comprehensive examination at the Center once a year. In case of defining some functional deviation dynamic monitoring is recommended at the Centre in 2-6 months or an in-depth examination by doctors in the permanent residence.
Defining of diagnosis is not the purpose of the Centre. Experts of the Centre are designed to identify the risk factors for non-infectious diseases and to explain patient in detail their consequences, motivate him to personal responsibility for their health , promote healthy lifestyle and to carry out the correction of risk factors (smoking, poor nutrition, low physical activity, excess body weight), to assist in giving up bad habits.
Health Center provides medical services for the next contingent of citizens:
complex examination of the first consulted children during the year, whose decision of visiting the Health Centre was accepted by their parents (or other legal representative);dynamic health monitoring of the citizens in accordance with the recommendations of the Health Centre's physician and sent to the Health Centre by the medical institutions in permanent residence; the children who were sent by the medical staff of the educational institutions; patients sent by the doctor responsible for conducting additional clinical examination of the first and second groups of health.
Results of the activities of Children's Health Centre for 2010- 2012.
In 2010 - 2012 the total number of visits to the Centre was 8996, including complex examination of 8187 children (2010, 132, 2011 - 2854, 2012. - 5201), dynamic monitoring -809. Among the patients of the Center the proportion of the rural residents is increasing. In 2012 the Mobile Health Centre held work in 8 regions by the order of the Ministry of Health of Sakha Republic. The Mobile Health Centre examined 1032 children (17.1% of the total number of complex examination), 960 (93.6%) - complex examination, 66 (6.3%) - dynamic monitoring.
Analysis of the activities of the Centre for Children on organizing healthy lifestyle showed that 95 % of the visitors were children of school age; children from 0 to 14 were 76.4 %, teenagers of 15-17 ages - 17.9%. As a result of complex examination at the Centre are defined the functional deviations at 80-82,8 % of patients. The most frequently are reported the violations of body composition (overweight, obesity, lack of weight), symptoms of heart function disturbance, over- adaptation mechanisms, disorders of lipid and carbohydrate metabolism, diseases of the oral cavity (Table 1).

The structure of functional deviations identified in the complex examination at the Health Centre

Risk factors	%
Violations of body composition	24. 1
Symptoms of the heart function disturbance	31. 1
Over- adaptation mechanisms	19. 9
Hypercholesterolemia and hyperglycemia	8. 2
Violations of external breath function	26. 4
Hypoxemia	15. 7
Oral diseases	29. 0

Health Centre experts examined 1,441 children, 81.6% of them were directed by other medical institutions. The psychologist consulted 1200 children, 43 (6.3%) of them were found to be healthy, 639 (93.6%) children had elevated levels of anxiety. The doctor-nutritionist examined 929 children and 50 (6.5%) children were found to be healthy, 709 (93.4%) children had functional deviations.

Health education for 2012 - 2013

Activities	Quantity	Number of children
Health fair	9	786
Parent's meeting	4	142
Action "Children's Health Day"	6	735
Open door Days	4	93
Health landing party	17	1316
Public round table	1	67
Parents conference	4	132
Round Table with medical workers	3	77
Public appearance on TV	17	
Interview in periodicals	12	
TV Bridge	1	

The specialists of Consulting clinic and the Health Centre educated 11975 children. Pediatricians trained 8298 children, dietitians– 1239, pediatric gynecologists - 2360, endocrinologists -78 children.

Conclusions:

Health Centre for Children on organizing healthy lifestyle is innovative direction of modern medicine which allowed creating optimal conditions for the primary diagnosis of early and timely implementation of complex health measures on preventing the risk factors.

The organization of the Health Centre was a new and additional opportunity for the public to get information about healthy lifestyle, learn their own risk factors for diseases.

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On measures to improve the trauma service of the Republic of Sakha (Yakutia) on the basis of the National project «Health» and Modernization of the health of the Russian Federation.

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Annotation: Injuries are a major health and social problems of our time, for most countries of the world. Throughout the XX century. relevance of injuries grew, while noting growth of the fatal accident, with the transition to disability, temporary disability.

The epidemiological situation with injuries in the world is extremely tense - each year from various injuries kill nearly 1.5 million people. According to World Health Organization (WHO), European Region each year about 80 million casualties.

It's necessary opening Trauma centers, equipped according to the standards of trauma care to reduce mortality from injuries.

A key issue for the development of a specialized trauma care is the development of a network of Trauma centers from level III to I, the timely re-equipment, modernization of medical equipment, developing new modern high-tech diagnostic technologies.

On the basis of the national project "Health" and Modernization of the health of the Russian Federation, the issues of creating trauma centers I, II, III levels in the Republic of Sakha (Yakutia) were considered.

First, Trauma centers I level are created on the bases of Republican Hospital № 2-Center of Emergency Medical Services, Republican Hospital № 1 - National Medical Center and Trauma centers II level are created in Mirny, Neryungri, Nyurba, Maya. In Trauma center of level I are hospitalized victims with combined injuries, including supplies from a place of road accident with injuries of any severity and localization, the victims are transported from Trauma centers II, III levels, and patients for the staging of surgical treatment of consequences of injuries received in accident.

Keywords: Trauma, Trauma Center I, II, III level, Traffic accident, pre-hospital and hospital phase of care, Republic of Sakha (Yakutia)

Injuries in connection with its worldwide growth and the severe consequences of a priority health problem requiring urgent solution [8, 9]. Every year in the world from various injuries kill about 1.5 million people. [7]. According to World Health Organization (WHO), European Region each year about 80 million casualties. The burden of injuries in an average of almost 2200 injuries per day, or 90 cases per hour. For every death from injuries account for approximately 30 hospitalizations and 300 applying for outpatient treatment. [18]

In the world, every year 1.3 million people die in road accidents. Another 20-50 million people are injured in accidents. However, about 90 percent of all accidents occur in countries with

low and middle-income countries, although there is only 48 percent of registered vehicles of the total number of cars in the world. The lower the standard of living in a country, the higher the figure, according to the WHO report. [20]

In the European Council, each year only road accidents leading to death 75 thousand people, while 3 million are living with serious injuries. [21] Mortality from multiple and combined injuries ranges from 15 to 59% in the world [12, 22].
In Russia only in road accidents annually injured more than 300 thousand people, of which more than 30 thousand dies. The number of deaths in our country on the order above, than in Japan or the UK. According to the presented to the Collegium of the health Ministry of Russia data, the annual economic loss from injury reach 2.6% of GDP [7].
In the structure of injuries special place is occupied by the combination of injuries, which are currently one of the three major causes of mortality of the population, with people under the age of 40 years this cause comes in the first place [1, 3, 11].

Of special social significance in the Russian Federation the problem of injuries attaches high level of disability of the victims is to 25-45% [12, 14]. Disability caused by the consequences of the damage, takes the third place, it is noted its annual growth by 10% [15, 19]. For injuries is characterized by long periods of temporary disability of patients. Due to injuries and various pathologies of the musculoskeletal system every year in the country do not participate in the labour force of more than 6 million people [18].
Annually marked increase in injuries among the population of the Republic of Sakha (Yakutia): in 2006 registered a total of patients with injuries and poisonings 107,6 per 1000 population (the Russian Federation - 86,8; Far Eastern Federal District - 92,2), in 2010. is 110.6 (the Russian Federation 2009. - 86,6; Far Eastern Federal District 2009.- 94,0) [2, 16].
With a total population of 949,3 thousand persons at the beginning of 2010, all treatment-and-prophylactic institutions of the Republic of Sakha (Yakutia) for 2010, registered 105037 different in character and localization of injuries, which is 0.7% more than in 2009. (104341) [2].

In the structure of injuries as in previous years, in 2010, the leading place belongs to the superficial injury and open wounds (46,2%), in the second place - sprains and strains (of 11.2%), in the third place - the fractures of the bones of the upper extremities (8,7%). Injury rate among children (0-17 years) increased by 8.5% and reached 107,2% [2].
In 2010, the adult population injury rate in the Republic in comparison with 2009 decreased by 1.7%, with the largest growth rates were fractures of the spine and bones of the body (by 4.4%).

The vast number of injuries, poisoning and certain other consequences of external causes among adults accounts for accidents not related to production activities (95.9%). Children

dominated household and street injuries (90.9%) [2].

Among the injured men received traumatic injury in 60.2% of cases, the boys - in 62.7% of cases.

Injury rate for men was 141,9 per 1000 population (Republic of Sakha (Yakutia) 2009. - 145,3; Russian Federation 2009. - of 112.9), women - 84,8 (Republic of Sakha (Yakutia) 2009. - 85,2; Russian Federation 2009. - 67,8), i.e. men got injuries in 1.7 times more often than women. Injury rate of boys constituted 131.6 per 1000 population (2009 g. - 121,0), girls - 81,7 (2009 g. - 75,6). Thus, the boys got injuries in 1.6 times more often than girls. Stable second place after the death rate from cardiovascular diseases in terms of public health of the Republic takes mortality from injuries and poisonings (2000-2010) [2]. Road accidents are one of the most significant death and disability in the population of the Russian Federation and the Republic of Sakha (Yakutia). Only on the official data of Management of State inspection of road safety Ministry of internal Affairs of the Russian Federation for the year 2011 in our country happened 199 868 road traffic accidents, as a result of which 251 848 people received injuries of varying degrees of severity, were killed 27 953 people [17, 5].

The demographic damage from road accidents and their consequences for 2004-2010 in the Russian Federation amounted to 506 246 people. The size of the socio-economic damage in the Russian Federation from the consequences of road accidents and their consequences for the years 2004-2010 is estimated at 7326,3 billion rubles [6].

Annually in the Republic of Sakha (Yakutia) are approximately 1000 road traffic accidents, which killed up to 180 people (2010. - 119, 2011. - 157). Injuries of varying degrees of severity up to 1500 people. The mortality rate from road accidents in the Republic of Sakha (Yakutia) for 2010. 12,4 per 100 000 population (Russia - 18,6), in 2011. -16,4 (Russian Federation -19,5) [13]. According to the Department of state inspection of road safety Ministry of internal Affairs for the Republic of Sakha (Yakutia) for the period from 2009 to 2011 in the Republic of Sakha (Yakutia) was 2843 road traffic accidents, which killed 405 and of various severity 3517 people have got wounds [13].

The forecasts of development of transport show that the number of vehicles is growing rapidly, which increases the probability of growth of the number of road accidents and creates problems for the organization of medical assistance to the victims. Along with this, the causes of the growth in the number of traffic accidents and the severity of the injury when they can be and other factors, including the "human factor". For example, in Russia the main reasons is the neglect of the road traffic rules of road traffic regulations; the lack of training and lack of discipline of vehicle drivers; imperfection of the management system and disadvantages of maintenance of safety of road

movement; the lag of development of road infrastructure from an average annual growth of the vehicle fleet; unsatisfactory technical condition of motor roads and rolling stock; insufficient level of active, passive and поставарийной security produced in the country vehicles.

The difficult situation of road safety is largely determined by the ever increasing mobility of the population with the available modal shift from public transport to personal, growing disproportion between the increase in the number of vehicles and increase the length of the road network is not designed for modern traffic flows. The existing road infrastructure in cities corresponds to 60-100 cars per 1 thousand inhabitants, while the current level of the vehicle in Yakutsk has exceeded 200 cars per 1 thousand inhabitants. [13]

In view of the surprises of accidents in health care is often a mismatch situation capabilities health to their needs. This disparity is exacerbated by the lack of logistics and supply the current national health care.

Difficulties of organizing and providing health care in road accidents, especially with the massive number of victims, their lack of study requires the most careful analysis of each such case. To solve the problems of the organization of effective medical care, rapid and targeted resourcing health needs rapid collection and analysis of information received.

Organizational and clinical issues of medical maintenance of road accident victims certainly relevant not only for disaster medicine, because the problem of road traffic injuries defines one of the major areas of daily activities of regional and especially local Emergency Medical Center. Increased requirements for pre-hospital medical maintenance of road accident victims. Implementation of this direction is not possible in practice to use a brand new approach to the preparation of professionals providing emergency medical care in emergency situations.

Rational organization of emergency medical aid to victims of road accidents is only possible within the system, linking pre-hospital and hospital units together. Such an organization of patient care, taking into account the specifics of the current structure of public health, can provide medical assistance to the optimal quantity and quality of each individual injured in the accident. You must make the transition from the "health worker - patient" to the principle adopted in disaster medicine, "medical officer - a contingent of victims." In this aspect, the need is to develop criteria for the effectiveness of medical support at the pre-hospital period, based on a comprehensive analysis of the current post-traumatic period, especially the "golden hour" and the first two days of hospital stay.

The problem of effective medical care of road accident victims remains relevant for decades. This is largely due to the high prevalence and severity of modern road traffic injuries. The measures to reduce road traffic injuries in Russia give hope to reduce their consequences. In 1995, the State

Duma of the Federal Law "On safety of road users." In 1998, in accordance with this law is developed and adopted a federal target program "Improving road safety." Similar programs have been adopted at the regional and local levels of the executive branch. Existing government and territorial commissions to ensure road safety. At the same time, experience shows that these measures do not yield significant results, suggesting the need for further research and scientific evidence, including at regional and local level, programs to improve road safety. To accomplish this urgent task must be carried out not only to analyze the causes of accidents, but also to identify weak links in the organization of medical support to the victims.

Another important aspect to improve the organization of medical care to victims of accidents, improvement of material and technical base of medical-quality training for the subjects of the Russian Federation is the implementation of the national project "Health".

Next, we consider the project «Ensuring provision of timely high-quality medical aid to the injured in road and transport incidents» in conditions of Republic of Sakha (Yakutia). Centre of emergency medical aid is the leading medical institution on rendering of highly qualified emergency medical assistance to the population of the Republic, including on the line of sanitary aviation. The capacity of the hospital - 500 beds (one of them 370 surgical beds), 100 appeals in the admission and diagnostic Department of the day (2 or 3 of them for road accidents), 22 surgical operations per day; the coverage of the population - 950 thousand people per year.

According to the data of the Yakut Republican medical information-analytical center of the Ministry of health of the Republic of Sakha (Yakutia) provision of doctors-traumatologists-orthopedists on Republic of Sakha (Yakutia) comprised in 2010. 0.9 per 10 000 population. The Republic has 225 trauma beds, of which 90 beds deployed in the city of Yakutsk. Density of adult beds of the population of the Republic in 2010 amounted to 2.5 per 10 000 population, children's beds and 1.2, respectively, and orthopedic beds for adults - 0,3 that are below the national average [4].

Medical care in case of accident in stages. It has not been canceled concept of military medicine, ie medical evacuation. The first - the scene is carried first aid. Great help in this should give the people around, the employees of traffic police and emergency medical services. It's time to teach people the basics of first aid. Particular emphasis on the need to make employees of traffic police. Teach them not only in the imposition of tow bleeding, but as paramedics in all developed countries that for 114 hours (tracheostomy, intubation, crowded to the damaged artery, a pressure bandage, overlay fixation on broken limbs, etc.). To do this well include the Centre of disaster medicine, emergency medical care, district health. At the level of Ministry of Internal Affairs to put questions of equipping vehicles of of traffic police kits first aid. The introduction of in-depth

medical questions in the exams for driver's licenses for young people would be targeted. In cases of accidents in remote areas, especially in the Far North, with their climatic characteristics and distance from each other settlements, the effectiveness and efficiency of emergency medical aid to the victims is extremely important.

It is well known that 30% of victims of various accidents and disasters are killed by the late delivery of the first and adequate medical care, from unjustified extension phase insulation (the concept of the "golden hour" in medicine). Extension of specialized medical care increases the percentage of disability and prolongs the healing process and recovery.

At present, the development of Health are the discovery of "en-route" health posts along the roads of the federal and republican values in existing hospitals with modern medical equipment and sanitary transport. Goes to the next level training of medical staff providing ambulance and emergency medical care.

The latest issue of better qualified and specialized medical care is to create Trauma centers I, II, III levels, as one of the main ways to reduce the high mortality from accidents and injuries.

A key issue for the development of a specialized trauma care is the development of a network of Trauma centers from level III to I, the timely re-equipment, modernization of medical equipment, developing new modern high-tech diagnostic technologies.

Reduce deaths from injury will help bringing specialized care by opening the inter-trauma centers, in addition, equipping of trauma according to the standards of trauma care.

Trauma centers III level are on the bases of central district hospitals with surgical department with the release of trauma beds in which doctors work trauma and anesthesiology and resuscitation or intensive care unit.

Trauma centers II level are created on the bases of the Central district hospital acting as inter-hospital having basic profile department (Department of Traumatology, Anesthesiology and Critical Care Medicine), except for separation of combined injuries, and should have the basic profile experts.

Trauma centers I level - a division of the medical organization in the structure of the republican, territorial (regional) hospitals, emergency hospital or other General Hospital, providing organization and delivery of the full range of medical care at the hospital stage with co-victims, multiple and isolated injuries, accompanied by shocks , their complications and consequences.

In Trauma center of level I are hospitalized victims with combined injuries, including supplies from a place of road accident with injuries of any severity and localization, the victims are transported from Trauma centers II, III levels, as well as patients for the staging of surgical treatment of the consequences of the injuries received in the accident.

In the Republic should be opened Trauma centers: III level on the bases of Central Regional Hospital: Suntar, Verkhnevilyuisk Vilyuisk, Tattinsky; the district hospital: Ilbenge, Magaras, Tyungyulyu, Kachikattsy, Nijniy Bestyakh.

II level on the bases Mirny, Neryungri, Aldan, Nyurba, Megino-Kangalassky, Churapcha, Oymyakon, Tomponsky central district hospitals;

I level on the bases of Republican Hospital № 2-Center of Emergency Medical Services, Republican Hospital № 1 - National Medical Center

To provide pre-hospital (first) medical care is necessary to organize the training and retraining of medical personnel providing medical aid to the victims on the site of injury and during transportation, staffing necessary sanitary transport (reanimation of class "B" in accordance with the order of the Health Ministry of Russia of 01.12.2005 № 752 "On equipping ambulances"), medical facilities (including the acquisition of CT, MRI, devices for artificial respiration, anesthesia and respiratory devices, etc.) and related materials, medicines.

To provide assistance to victims and hospital patients should organize training and retraining of medical personnel providing medical aid to the victims the trauma hospital, staffing sanitary transport (reanimation of class "B" and "C" in accordance with the order of the Health Ministry of Russia from 01.12.2005 № 752 "On equipping ambulances"), medical equipment, supplies, and pharmaceuticals divisions Trauma centers to adopt the standard of care to victims with trauma in Trauma centers at various levels.

Ensure Trauma centers II and III levels of qualified staff support diagnostic services: doctors radiologists with the necessary technical support.

For the operation of the Trauma center I level based on Republican Hospital № 2-Center of Emergency Medical Services is necessary to increase staff units at 284.75, including doctors - 71.25; nurses - 108.75, medical orderlies - 103.00; Other - 1.75 introduction of advanced medical technologies, in accordance with the provision of medical assistance to the victims with combined, multiple and isolated injuries, accompanied by shock, approved by Health Ministry of Russia from 15.10.2009, № 991n, specialized staff to provide specialized, including high-tech medical care for patients and victims of road accidents.

The proposed arrangements for medical assistance to victims of road accidents in the full advantages for inclusion in the federal target program "Improving road safety in 2013-2020 years" or program-oriented method of financing of the budget of the Russian Federation.

Conclusion:

1. Trauma centers in the Republic of Sakha (Yakutia) will be created in stages as funding from the national project "Health" and Modernization Program of Health, and other special

programs.

2. First, Trauma centers I level are created on the bases of Republican Hospital № 2-Center of Emergency Medical Services, Republican Hospital № 1 - National Medical Center and Trauma centers II level are created in Mirny, Neryungri, Nyurba, Maya.

3. Combine the creation of en-route medical facilities along federal roads with Trauma centers II and III levels, as a complementary health structures without duplication.

4. Revised staffing Trauma centers, according to the order of care based on an order from the Health Ministry of Russia 15.10.2009g, № 991n.

5. From 2013 to begin implementation of standards for injury.

6. Consider the development of air ambulance in the region, as a way of routing trauma patients.

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THE HEALTHSTATE OF THE POPULATION OF THE FEDERAL SUBJECTS OF THE FAR EASTERN FEDERAL DISTRICT

Results of the analysis of medical demography, morbidity, physical inability parameters describing population health of the Far East federal district as a whole in the all-Russian context according to 2009-2010 official statistics are presented.

Keywords: medico-demographic situation, primary morbidity of the population, physical inability, health of the population.

Introduction. Comparative analysis of population health of the Far East federal district (FEFD) was made according to the following parameters:

1) Medico-demographic situation (birth rate, death rate, natural increase (NI), infantile death rate (ID), death rate from the main 6 reasons (including standardized), life expectancy (LE);

2) Primary morbidity of the population depending on classes of diseases;

3) Physical inability of children aged from 0 till 18 years.

Materials and methods of research. The Russian federal statistics data in the period of 2009-2010 of 83 administrative-territorial constituents of the Russian Federation [1-3] were estimatedby method of percentile. The essence of this method consists in ranking thoseconstituents of the federation which those or other parameters are below the 10-th percentile and above the 90-th percentile as territories with low and high levels of the parameters. Accordingly, constituents of the federation which parameters are from the 10-th and up to the 25-th percentile and from the 75-th and up to the 90-th percentile are included into the number of territories with the level below average and with the level above average. Clearly, those constituents of the federation which parameters are within the limits of the 25-75-th percentile are estimated as the territories of average level of the parameters. More attention was paid to the analysis of statistical data of the Republic of Sakha (Yakutia) for finding-out its position according to the parameters.

Results and discussion.

Medico-demographic situation. In 2010 the *birth rate coefficient* in the Russian Federation

was equal to 12.5 per 1000 population. From constituents of the FEFD only the Republic of Sakha (Yakutia) and the Chukchi autonomous region had high (16.8) and above average (14.7) levels of birth rate accordingly (Tab. 1). According to *death rate coefficient* (the Russian Federation – 14.2 per 1000): the Republic of Sakha (Yakutia) had low level (9.8) and Kamchatka territory and Magadan area had below average level (12.6-13.0).*Natural increase*(the Russian Federation – 1.7): the Republic of Sakha (Yakutia) had high level of this parameter (7.0),the Chukchi autonomous region had the level above average (0.9). More favourable medico-demographic situation as a whole across the Russian Federation was in the North-Caucasian federal district (FD) and rather unfavourable one was in the Central federal district.

Infantile death rate in Russia in 2010 was 7.5 per 1000 infants born alive. In the FEFD only one territory had the level below average (5.9) - Sakhalin area, the Republic of Sakha (Yakutia) had average level (7.2). Khabarovsk territory, Amurskaya area, the Jewish autonomous region and the Chukchi autonomous region were among the territories with high level of infantile death. Kamchatka and Primorskiy territories and also Magadan area had the level of infantile death above average (Tab. 2). Besides the FEFD the North-Caucasian FD also had rather high level of infantile death. The Northwest federal district had the best situation as far as this parameter.

Analysis of death rate from 6 classes of diseases was made: infectious and parasitogenic diseases, tumors, circulatory system diseases, respiratory system diseases, digestive system diseases, traumas, poisonings and some other external reasons (external reasons of death) (Tab. 3). Primorskiy and Khabarovsk territories, Amurskaya area and the Jewish autonomous region had high and above average levels of *some infectious and parasitogenic diseases,* below average level of this parameter was marked in the Republic of Sakha (Yakutia). The situation according to*tumors* death rate was a bit better: the Republic of Sakha (Yakutia) and the Chukchi autonomous region had death rate low and below average accordingly. The Republic of Sakha (Yakutia) had low death rate from *circulatory system diseases* (CSD) and Kamchatka territory, Magadan area, the Chukchi autonomous region had the levels below average. Death rate from *respiratory system diseases* (RSD) was below average in the RS (Y) and Kamchatka territory, high level of death rate was in Magadan area. High and above average levels of death rate from *digestive system diseases* (DSD) were in Primorskiy territory, Magadan and Sakhalin areas, the Jewish and the Chukchi autonomous regions, below average - in Kamchatka territory. The death rate from *external reasons*was high and above average in Khabarovsk territory, Amurskaya and Sakhalin areas, the Jewish and the Chukchi autonomous regions.

The similar analysis was made according to standardized parameters as possible influence of age characteristics of the population of the region on death rate was supposed (Tab. 4). So, 6

constituents of the FEFD from 9 were included into the number of regions with rather low middle age level of the population – 36.7 and younger while in the Russian Federation (2009) it was 38.9 years.

As far as *some infectious and parasitogenic diseases* is concerned high and above average death rate was marked besides the above mentioned 4 regions in the Chukchi autonomous region, *tumors* - in 7 constituents of the FEFD except the Republic of Sakha (Yakutia) and Amurskaya area. According to death rate from *circulatory system diseases* already 8 constituents of the FEFD from 9 except the Republic of Sakha (Yakutia) were among unfavourable ones. High and above average death rates from *respiratory system diseases, digestive system diseases and from external reasons* were registered in 6 regions from 9 in the FEFD. Influence of younger structure of population on death rate from the main reasons was obvious in the FEFD.

Life Expectancy (2009): only Primorskiy territory had the average level of this parameter. Amurskaya, Magadan and Sakhalin areas, the Jewish and the Chukchi autonomous regions had low level of life expectancy totally in both sexes and separately in men and women (Tab. 5).

Such unfavourable medico-demographic situation was observed in the Far East federal district in comparison with other constituents of the Russian Federation. In its turn, the Russian Federation was not among the leading countries of the world: among 50 countries of Europe, Asia, Africa, America and Australia our country had unsatisfactory parameters of general death rate and natural increase of the population.

Morbidity of Population. The analysis of primary morbidity of the FEFD population according to main classes of diseases was made. On the whole the high level of primary morbidity was registered in the Republic of Sakha (Yakutia) and the Chukchi autonomous region. And now let us consider morbidity rate separately according to main classes of diseases noting only unsatisfactory parameters.

High level of morbidity of *some infectious and parasiogenic diseases* was marked in Magadan and Sakhalin areas, above average level - in Kamchatka territory and the Chukchi autonomous region. High level of *tumor* morbidity was observed only in the Chukchi autonomous region. *Blood diseases*: the level above average was in the Republic of Sakha (Yakutia) and the Chukchi autonomous region. High level of *endocrinic system diseases* morbiditywas marked in the Republic of Sakha (Yakutia) and Amurskaya area, above average level - in Sakhalin area. *Mental disorders*: high level was in Sakhalin area and the Chukchi autonomous region, above average level - in Primorskiy territory and Magadan area. *Nervous system diseases*: high level morbidity was in the Republic of Sakha (Yakutia) and the Chukchi autonomous region.

High level of *ophthalmic diseases* morbidity was noted in the Republic of Sakha (Yakutia)

and the Chukchi autonomous region. *Aural diseases* morbidity was high in the Chukchi autonomous region. *Circulatory system diseases*: high level was marked in Kamchatka territory, above average level - in the Chukchi autonomous region. High level of *respiratory system diseases* was also observed in the Republic of Sakha (Yakutia) and the Chukchi autonomous region. High level of d*igestive system diseases* besides the Republic of Sakha (Yakutia) and the Chukchi autonomous region was observed in Sakhalin area. *Skin diseases*: high level of morbidity was in the Chukchi autonomous region, above average level was observed in the Republic of Sakha (Yakutia).

High level of *musculoskeletal system* diseases was observed in the Chukchi autonomous region, above average level - in Sakhalin area. High level of *urinogenital system diseases* was also observed in the Chukchi autonomous region. According to the class*«Pregnancy, parturition and postpartum period»*high level of morbidity was marked in Magadan and Sakhalin areas. High level of *congenital anomalies* was observed in the Jewish autonomous region, above average level - in Kamchatka territory and Amurskaya area. In the class *«Symptoms, signs and abnormalities not classified in other headings»* worse situation was in Primorskiy territory. *External reasons of death*: high level of traumas and poisonings was marked in Primorskiy territory and the Chukchi autonomous region, above average level - in the Republic of Sakha (Yakutia) and Magadan area.

It is seen that in the all-Russian context the Republic of Sakha (Yakutia) had high or above average levels of morbidity in 8 classes of diseases from 18.

Primary morbidity of socially significant diseases.

High level of *active tuberculosis* was marked in Primorskiy territory, Amurskaya area and the Jewish autonomous region, above average level - in Khabarovsk territory, Sakhalin area and the Chukchi autonomous region. *HIV-infection* was diagnosed for the first time and its level was low in Amurskaya area, below average level was in the Republic of Sakha (Yakutia), Kamchatka territory, Sakhalin area and the Jewish autonomous region. *Malignant tumors*: low level was marked in the Republic of Sakha (Yakutia), below average - in Amurskaya area, the Jewish and the Chukchi autonomous regions.

High level of *mental disorders unconnected with drug addiction* was marked in the Chukchi autonomous region, above average level was in the Republic of the Sakha (Yakutia), Amurskaya and Magadan areas, below average level was observed in Kamchatka territory. *Alcoholic psychosis*: high level was marked in the Republic of Sakha (Yakutia), Kamchatka territory, Magadan, Sakhalin areas, the Jewish and the Chukchi autonomous regions. High level of *syphilis morbidity* was marked in Amurskaya area and the Jewish autonomous region, above average level was in the Republic of Sakha (Yakutia), in Kamchatka, Primorskiy, Khabarovsk territories and Sakhalin area; low level was only in Magadan area.

According to the results of primary morbidity analysis of 18 classes of diseases and 6 kinds of socially significant diseases rating of constituents of the FEFD was made (Tab. 6).

From the table it is clearly seen that in the all-Russian situation Khabarovsk territory, the Jewish autonomous region and Kamchatka territory had optimal positions - they had less morbidity of high and above average levels of those or other classes of diseases. Worse situation was in the Chukchi autonomous region, the Republic of Sakha (Yakutia) and Sakhalin area.

Primary physical inability. Situation on primary physical inability of children aged from 0 till 17 years was the following (Tab.7). According to the Russian federal 2009 statistics this parameter in the Russian Federation was equal to 190.1 per 10000 children of corresponding age. The worst position on this parameter was observed in the Republic of Sakha (Yakutia) (250.1 per 10 000) and the Jewish autonomous region (203.5 per 10 000). The best position was in Magadan area where such parameter as time of recognition for the first time of children's inability was equaled to 122.4 accordingly.

The conclusion. Thus, the comparative analysis of the main parameters describing public health (medico-demographic situation, morbidity, physical inability) regardless of incompleteness of the studied parameters gave the certain picture of health state of the population in the constituents of the Far East federal district. Unfortunately, except for common fact of rather favorable medico-demographic situation in the Republic of Sakha (Yakutia) comparing to other constituents of the FEFD, at many other parameters such as morbidity of the population including socially significant ones, position of the republic was unsatisfactory.

In our opinion, such analysis made on the basis of official statistical data, reflecting the main parameters of health in all regions of the country, gives more objective characteristic of the state of population health both in federal districts and in separate constituents of the Russian Federation.

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Table 1

Medico-demographic Parameters in the Far East Federal District (FEFD) in 2010

	Birth rate	Death rate	Natural increase
The Russian Federation	**12.5**	**14.2**	**-1.7**
The Republic of Sakha (Yakutia)	**16.8**	**9.8**	**7.0**
Kamchatka territory	12.1	12.6	-0.5
Primorskiy territory	11.8	14.3	-2.5
Khabarovsk territory	12.9	14.6	-1.7
Amurskaya area	13.8	15.3	-1.5
Magadan area	11.5	13.0	-1.5
Sakhalin area	12.1	14.9	-2.8
The Jewish autonomous region	13.6	15.5	-1.9
The Chukchi autonomous region	14.7	13.8	0.9

Table 2

Infantile Death Rate in FEFD in 2010 (per 1000 born alive)

	Infantile Death
The Russian Federation	**7.5**
The Republic of Sakha (Yakutia)	**7.2**
Kamchatka territory	9.4
Primorskiy territory	9.6
Khabarovsk territory	10.5
Amurskaya area	12.8
Magadan area	9.3
Sakhalin area	5.9
The Jewish autonomous region	10.4
The Chukchi autonomous region	21.8

Table 3

Mortality Rate Coefficients of the MainClasses of Death Reasons in FEFDin 2010 (per100 000 population)

	Infectious and Parasitogenic diseases	Tumors	Circulatory system diseases	Respiratory system diseases	Digestive system diseases	External reasons
The Russian Federation	**23.7**	**204.4**	**811.7**	**52.7**	**64.8**	**152.8**
The RS (Yakutia)	**11.5**	**120.3**	**473.9**	**35.2**	**56.2**	**197.2**
Kamchatka territory	20.2	174.4	638.1	37.4	54.9	142.0
Primorskiy territory	40.6	210.1	776.1	66.0	79.7	170.4
Khabarovsk territory	31.6	194.4	796.8	55.3	77.4	202.3
Amurskaya area	41.6	171.1	788.2	67.0	70.5	231.3
Magadan area	16.1	185.4	588.5	76.3	78.1	191.0
Sakhalin area	20.8	211.0	708.8	63.6	114.7	252.1
The Jewish aut. region	64.9	182.1	789.6	58.9	95.7	230.8
The Chukchi aut. region	35.0	144.1	633.9	57.6	78.2	349.9

Table 4

Standardized Mortality Rate Coefficients of the Main Classes of Death Reasons in the Russian Federation in 2010 (per 100 000 population)

	Infectious and Parasitogenic diseases	Tumors	Circulatory system diseases	Respiratory system diseases	Digestive system diseases	External reasons
The Russian Federation	**21.8**	**178.5**	**683.8**	**45.8**	**58.0**	**139.7**
The RS (Yakutia)	**12.3**	**173.1**	**732.6**	**49.4**	**65.3**	**191.9**
Kamchatka territory	18.0	201.3	893.1	43.0	59.2	128.6
Primorskiy territory	37.8	198.1	787.2	63.0	74.6	154.7
Khabarovsk territory	30.1	193.9	851.5	55.3	75.9	190.7
Amurskaya area	39.8	176.2	879.0	68.0	70.3	218.2
Magadan area	15.4	217.0	797.0	83.7	83.6	166.5
Sakhalin area	18.9	221.8	853.7	61.2	109.2	220.6
The Jewish aut. region	64.4	194.4	891.9	62.6	98.5	224.1
The Chukchi aut. region	45.7	270.4	1276.7	71.5	96.4	328.5

Table 5

Life Expectancy in FEFDin 2009

	Total (Both Sexes)	**Men**	**Women**
The Russian Federation	**68.67**	**62.77**	**74.67**
The RS (Yakutia)	**66.45**	**60.87**	**72.50**
Kamchatka territory	66.06	60.60	72.18
Primorskiy territory	66.72	61.11	72.66
Khabarovsk territory	66.33	60.30	72.83
Amurskaya area	64.41	58.55	70.89
Magadan area	64.06	58.50	70.07
Sakhalin area	64.83	58.63	71.76
The Jewish autonomous region	63.34	57.20	70.38
The Chukchi autonomous region	58.22	53.75	64.62

Table 6

Number of Unsatisfactory Parameters and Rating of Constituents of theFEFDaccording to Morbidity Rate (Statistics of the Russian Federation in 2010)

	High Level and Above average	**Place in Rating**
The Republic of Sakha (Yakutia)	**12**	**8**
Kamchatka territory	4	III*
Primorskiy territory	5	6
Khabarovsk territory	2	I
Amurskaya area	4	4
Magadan area	5	5*
Sakhalin area	9	7
The Jewish autonomous region	3	II
The Chukchi autonomous region	18	9

* - the place is higher due to the best additional parameters

Table 7

Physical Inability of Children Aged from 0 till 17 years (per 10 000 children's population)

	Physical Inability of Children
The Russian Federation	**190.1**
The Republic of Sakha (Yakutia)	**250.1**
Kamchatka territory	157.1
Primorskiy territory	162.6
Khabarovsk territory	184.0
Amurskaya area	194.0
Magadan area	122.4
Sakhalin area	182.4
The Jewish autonomous region	203.5
The Chukchi autonomous region	177.3

SOCIAL, HYGIENIC, MEDICAL AND DEMOGRAPHIC, SOMATIC AND DENTAL STATUS OF FAMILIES LIVING IN EXTREME CLIMATE CONDITIONS

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Results of complex research of the social and hygienic and stomatologic status of the families living in extreme climatic conditions of the North (Yakutsk) more than 10 years are presented. Parameters of social and hygienic, somatic, medico-demographic, stomatologic, orthopedic stomatologic the statuses are studied. Population of the surveyed families was characterized generally young (20-30 years) – (59.3 %) and an average (30-50 years) – (34.1 %) by age, with existence generally healthy adult members of the family (61.8 %) and children (0.03 % - (according to adults). At the same time the quantity of dysfunctional families on psychological factors makes 56.9 %. In 39.0 % of families it is noted at least at one member of the family of a disease of blood circulation or bone and muscular system. The greatest negotiability to stomatologic offices and clinics is noted concerning tooth prosthetics (87.8 %). Level of hygiene of an oral cavity according to Fedorov - Volodkina at children in all families is good. A hygienic index Bernadsky in Tchizhov's updating – Novikova for teeth and artificial limbs at adult members of the family – average (from 0.2 to 0,49) for all families. The complex assessment of parameters of the specified statuses as families as a whole, and each member of the family separately, gives the chance to reveal prime problems of health and social security of the families living in extreme climatic conditions of the North, allows to increase quality of rendering by it necessary social and medical care.

Keywords: family, social and hygienic status, medical and demographic status, somatic status, dental status, health, extreme climatic conditions of the North.

Analysis of the family as a social and biological system can identify patterns of structure, function and stage of development of the family, constituents, among other things, the basis of the formation and interaction of family with health. Family with various aspects of their activities and statuses - demographic, socio-economic, moral, psychological, has a direct and indirect impact on the health of its members. Family creates, maintains and develops the health of its members, thereby having an impact on public health (Artyukhov, Kapitonov, Novikov, 2001) (Grinina, Kicha, Vazhnova, Khalov, 1997) (Kesaeva, 2006) (Cubbins, Szaflarsk 2001).

At the present stage of development of primary care dental service the study of the state and the conditions of formation of the dental health of the family, study the structure of the state of dental care in the urban centers and the trends of its development, the operation of specific medical institutions of various forms of ownership by providing a comprehensive (family) dental care are considered to be relevant and important (Sohov, Sapgayda, Kabanova, 2011).

Northern areas are characterized by specific regional factors: climatic, socio-economic and environmental, that leads to different morphological changes of organs and systems that have a significant impact on health, including dental health. In this regard, the study of the influence of northern environment factors on the human body is relevant from the medical and social points of view.

In the North the intensity of the impact of risk factors for dental disease depends on the

adverse conditions: extreme continental climate with long low temperature in winter, lack of ultraviolet radiation, low mineralization, and an acute shortage of fluorine in the main water sources of drinking water. The high prevalence of dental diseases with predisposing risk factors in the population of the North dictate the need for increased prevention efforts based on evidence-based guidelines (Ushnitskiy,Zenovskiy, Vilova, 2008).

It is known that in modern conditions an important role in the prevention of dental diseases and dental activity (Grinina et al., 1997) (Sohov et al., 2011) belongs to the family. In relation to it studies aimed at exploring the social, hygienic, medical and demographic and physical aspects of the dental health of the population are an urgent problem of not only dentistry, but also medicine in general.

Materials and methods of the research. By methods of questioning and physical examination characteristics of the social, physical and dental status in 123 two-parent families in Yakutsk (surveyed in total - 411 people: men - 120, women - 120, children - 171) were studied by us. The age of the surveyed men and women ranged from 20 to 60 years of age and older, and children from 0 to 14 years. The study was conducted with the use of social hygienic card of dental patient, developed at the Department of Dentistry Postgraduate Medical Education Institute of Dentistry at SBEE HPE "Krasnoyarsk State Medical University named after Professor V.F. Voino-Yasenetsky "(Chizhov,Tsimbalistov, Novikov, 2005). The classification of overweight children of families by Novikov, Kapitonov (2010)were used in a study, the extent of marriage, the duration of residence of the family in the North, the overall composition, housing and feeding conditions of the family; own assessment of the overall health of each adult member of the family, assessment of children's health adult family members were investigated.

Determination of dental status was conducted using the author's study of dental health card of a family member, which reflects the gender, age, presence of comorbid medical conditions, regularity and nutritiousness of food; reasons for contacting the dental clinic (of which some- for fee); orthopedic dental status, type of malocclusion, classification of defects of dentition accordingto Kennedy, classification of edentulous jaws according to Oksman, the definition of hygiene index: according to Fedorov - Volodkina, according to Bernadskaya Chizhov–as modified by Novikov (2005), the index of the CUA, etc.

The results of the study. Among the surveyed families of Yakutsk marriage was registered in 73 families (59.3%). A big number of families 92 (74.8%) live in the city of Yakutsk (and generally in the North) for more than 10 years. The quantitative composition of the family is as follows: 2 people - 11 families (8.9%), 3 people - 68 families (55.3%), 4 people- 36 families (29.3%), 5 people – 8 families (6.5%).

In accordance with the extensive classification by Novikov and Kapitonov of the types of two-parent families with children (2010) the parameters of social and physical status of the families and their members were defined. Thus, the types of families in the demographic and health status (A) were: the fecundity of families: 1 - childless - 11 (8.9%), small families (one child) - 68 (55.3%); with two children - 36 (29.3%) having many (three or more children) - 8 (6.5%). At the same time indicators of age (by spouses) have characterized the following trend: young (under 20) - 6 families (4.9%), young (20 to 30 years) - 73 families (59.3%), medium (30 up to 50 years) - 42 families (34.1%), mature (50 to 60) - 6 families (12.0%), elderly (60 years and older) - 1 family (0.8%), with difference over the age of 10 years - 1 family (0.8%).

It should be noted that these health status of persons surveyed described the presence of some features: healthy (rarely ill family members) - 96 families (78.0%), and often ill family members - 11 families (8.9%), with chronically ill (patients) family members - 16 families (13.0%), persons with disabilities - 0 families (0.0%), with the mentally ill - 0 families (0.0%). Data on the medical and geographical status show more favorable situation of families in the health section, since a significant part of them refers to a group of rare ailing family members.

Further analysis of the data by types of families on social - hygienic status (B) showed the

following structure:

1. The level of education (by the head of the family) with higher education - 85 families (69.1%), with secondary special - 24 families (29.5%), with an average - 14 families (11.4%) with incomplete secondary - 0 families (0.0%), with an initial - 0 families (0.0%), with no education - 0 families (0.0%).

2. The level of provision (compared to the cost of living for a family member): high (up to 10 times) - 15 families (12.2%), above average (above 5-10) - 35 families (28.5%) , middle (2-5) - 40 families (32.5%), low (1-2 times) - 29 families (23.6%), very low (below the average cost of living) - 4 families (3.3%).

3. The degree of well-being (in the image of life): prosperous - 25 families (20.3%); deviant (alcohol abusers) - 19 families (15.4%) dysfunctional for psychological relationships (quarrels, conflicts, etc.) - 70 families (56.9%) other - 9 families (7.3%);

4. The extent of employment in labor: both husband and wife - 99 families (80.4%), works one of the spouses - 14 families (11.4%) doesn't work either one of the spouses - 5 families (4.1%), pensioners, disabled family members - 5 families (4.1%).

5. Social status (revealed by head of the family): -employee's family 76 (61.8%); worker's family- 35 families (28.5%) family of farmers - 0 families (0.0%); soldier's families - 0 families - (0,0 %), pensioner's families - 5 families (4.1%), student's families - 3 families (2.4%) other - 4 families (3.3%).

By the living conditions of the families were divided as follows: good conditions were reported by 105 families (85.9%), satisfactory - 18 families (14.6%), bad - 0 families (0.0%). Under the terms of supply: good –in 100 households (81.3%), satisfactory in 23 families (18.7%).

In accordance with the applicable limit of children's health groups, adult family members attributed their children's health to the following groups: group 1 (chronic pathology absent, rare and easily flowing acute illness or lack of them) - 111 families (154 children) - 90.3%; group 2 - (presence of functional abnormalities, prolonged acute illness followed by a reconvalescent period) - 9 families (12 children) - (7.3%), group 3 - (chronic pathology, birth defects, the presence of functional abnormalities of the diseased system, caries tooth) - 3 family (3 children) - (2.4%).

By the health group adult family members were divided as follows: group 1 (recurrent violations of diet, sleep, rest, motoring, rare and easily flowing acute illness) - 76 families (61.8%), group 2 (frequent and prolonged acute illness, lethargy, irritability, sleep disturbances, impaired of appetite, low-grade fever) - 35 families (28.5%), group 3 (presence of chronic disease) - 12 families (9.7%).

The presence of comorbidities in each member of the family: none (note) - in 58 families (47.2%), circulatory system - in 23 families (18.7%), bone disease - muscular system - in 25 families (20.3 %), endocrine - family 1 (0.8%) respiratory - in 16 families (13.0%).

The reason for the dental clinic referring: consultations - 24 families (19.5%), dental treatment - 68 families (55.3%), removal of teeth - 51 families (41.5%); dentures - 108 families (87, 8%). It should be noted that many families referred to the dental clinic for more than one cause and they were different.

The presence of dentures in the upper jaw of adult members of the family: no prosthesis - in 72 families (58.5%), one bridge prosthesis of any adult member of the family - in 38 families (30.9%). There are more than one bridge of any adult family members - in 22 families (17.9%); bridge and partial denture - in 9 families (7.3%). The presence of prosthesis in the mandible: no prosthesis - in 72 families (74.0%), 1 bridge - in 29 families (23.6%).

Various pathologies of the temporomandibular joint was detected in adults in 68 families (55.2%). The need for prosthetics adult members of the family: on the upper jaw - in 43 families (34.9%) on the mandible - in 63 families (51.2%). Occlusion condition: orthognathic - (neutral) - 92 families (74.7%); prognathic - (distal) - in 24 families (19.5%); progenic-(mesial) - 9 families (7.3%) . The presence of defects of dentition by Kennedy (at least 1 family member): grade 1 - 9

families (7.3%), grade 2 - 20 families (16.3%), grade 3 - in 68 families (55.2 %), grade 4 - 4 families (3.3%). Hygiene according to Fedorov, Volodkina (for children up to 14 years) is good in all of the families 1.1-1.5.

The hygienic index of Bernadskayaas modified by Chizhov – Novikov (2005)for teeth and dentures (for adult members of the family) is - average (0.2 to 0.49) for all families. The index of the CUA (intensity)is very low (0 to 1.1) to 0 families (0.0%), low (1.2 to 2.6) –in 5 families (4.1%), medium (2.7 - 4 4) - in 48 families (39.0%), high (4.5 to 6.5) - 67 families (54.6%), very high - in three families (2.4%). It was revealed that the first component of the index component of useful activity is "P" component - in 72 families (58.5% of families), second component is the "U" - in 27 families (21.9% of families), the third - the component "K" - 24 families (19.6% of families).

Conclusions. Analysis of the results revealed that a greater number of families - 92 (74.8%) of the surveyed lived in the North for over 10 years, where the number of members of the family are 3 people - 68 (55.3%) and 4 - persons – 36 families(29.3%). By age gradation (age of spouses), the largest number of families surveyed are young families (20 to 30 years) - 73 (59.3%), and middle-aged (30 to 50 years) - 42 (34, 1%) and 78% of families (96) are healthy (or rarely being ill).

In addition almost 90% of adult family members - (109 families) have higher and secondary special education, where the most common level of provision (compared to the cost of living for a family member) of the families is in 15 families (12.2%): with average incomes (up to 2-5 times) - 40 families (32.5%) and middle-income families are more (5-10 times) - 35 families (28.5%).

But, at the same time there are few well-off families – only 25 (20.3%), the number of dysfunctional families by psychological relations (quarrels, conflicts, etc.) is 70 (56.9%) and deviant (alcohol abuse) - 19 (15.4%). It should be noted that the highest number of addressing to dental offices and clinics is about dentures - in 108 families (87.8%). The highest number of dental prosthesis is of the adult members of the family: in 22 families (17.9%) - more than one bridge fixed restorations, in 9 families (23.6%).

But at the same time a significant need in prosthetics of adult members of the family on the upper jaw was revealed- in 43 families (34.9%), in the lower jaw - in 63 families (51.2%). According to the index of coefficient of useful activity, more than half of all families surveyed - 115 (93.5%) have a high (4.5 to 6.5) - 67 families (54.6%) and medium (2.7 to 4.4) - 48 families (39.0%) rates. These facts accordingly influence the frequency of defects of dentition among the surveyed contingent and pathology of the temporomandibular joint (55.2% of households).

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The Role of Smoking in the Development of Chronic Obstructive Pulmonary Disease

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The main factor for chronic obstructive pulmonary disease (COPD) is smoking. Scientific researches conducted in recent years have established that smoking during index exceeding the number 120 (the number of cigarettes smoked per day multiplied by the number of months in the year, during which time a person smokes) typically develop symptoms of COPD. It is also proved that the COPD risk increases at the age of 40-60 years. Reputable studies have shown that smoking contributes to such social factors as loneliness, unemployment, etc. In Yakutia smoking has long been widespread and with severe climatic factor it is the factor for the development of COPD.

Keywords: COPD, smoking, epidemiology, risk factors.

Chronic Obstructive Pulmonary Disease (COPD) is a disease characterized not fully reversible bronchial obstruction. Airflow limitation is usually progressive and associated with abnormal inflammatory response of the respiratory tract to harmful particles or gases (mostly smoking) [2].

Currently smoking is considered as a socio-medical problem that involves two approaches:

1 –widely-spread perception of smoking as a habit being harmless enough or having possible but uncertain health risk [3, 21];

2 –perception of smoking asa habit having objective statistics of health damage. It is known that in male population aged 45 and elder over 20% of cardio-vascular disease and 22% of deaths from this disease are caused by smoking [6].It is proved that relative risk of lung cancer among smokers is 9.2 - 14.9 timeshigher depending on time period and intensity of smoking [15].

According to prognosis of the World Health Organization by 2020 tobacco epidemic will move from Western Europe and America whereantismoking propaganda was conducted during the last 20-30 years to developing countries where public health system is unable to fight the epidemic because of lack of antismoking programsfunding. This can be fully applied to Russia [31].

There are two types of smoking: passive and active. Active smoking is the most aggressive risk factor.Significant period of time (sometimes more than 10-15 years) usually pass before clinical manifestations of COPD make people to recognize pathogenic effect of smoking [13]. According to the authors [20] frequency of chronic bronchitis (CB) among smokers is 2.5-4 times higher than

among non-smokers.

Representative sampling of the population of Russia has shown that in our country more than half of men (63.2%) and one in ten women (9.7%) aged 15 and older smoke [10].

Of great importance is the study of patterns of spread of smoking in the population, that is, its dependence on various demographic and social characteristics. It is well established fact that proportion of smokers in the populationdecreases with age increase. The decrease usually begins at first slightly after age of 40 and essentially after 60. Correlation is revealed between smoking and other social characteristics. It is known that low standard of living, social disorders, unemployment, loneliness, low level of educationpredispose smoking [34].

Today pathological effects of smoking on the respiratory system are well studied. Tobacco smoke getting into the respiratory tract damagesmucociliary apparatus [22], causes functional insufficiency of antiprotease in the lower respiratory tract leading to hyperplasia of bronchial glands that produce mucus, damages the immune system protecting lungs, causes allergic response of organism and release of histamine because of degranulation of basophils, results in difficulty of lymph drainage from bronchi and disorders microcirculation in pulmonary capillarybloodstream and impairs lung function [18].

It is suggested that under toxic influence of tobacco smoke alveolar macrophages are damaged with release of oxidizing agents and lysosomal enzymes that causes not onlydamage of lung tissue but also their infection. On the base of the carried out studies [32] it is suggested that tobacco smoke also destroys surfactant or inhibits its production.

There are also studies in which the authors are less categorical in estimation of the negative effect of smoking on lung function compared to the influence of such factors as age, sex, constitutional type, individual parameters of bronchial reactivity [26, 27, 30, 38].

In adults clinical manifestation of chronic bronchitis usually occurs after 3.5 years from start of smoking. With the number of smoked cigarettes increases the risk of disease and mortality from it. Thus, according to the publications,among smokers aged 40-49 and 50-59 chronic bronchitis occurs in 5.2 and 7.4% of cases, among those who smoke from 1 to 9 cigarettes a day - in 8.2 and 13.7% , among those who smoke from 10 to 19 cigarettes a day - in 16.2 and 20.9%,among those who smoke more than 20 cigarettes a day - in 21.4 and 27.4% and in those who smoke more than 40 cigarettes a day risk of chronic bronchitis is 45 times higher compared to non-smokers [7, 9].

Smoking is reliably established and the main risk factor of chronic obstructive bronchitis (COB). Giving up of smoking slows down the rate of decline of lung ventilation function. Tobacco smoking is the cause of higher mortality rate from COPD and there are insignificant differences

observed between various types of tobacco and method of smoking. In Kazakhstan COB casesamong intensive smokers were revealed 2.1 times morefrequently than among non-smokers, 1.7 times more frequentlythan among those who gave up smoking, and 1.4 times more frequentlythan among moderate smokers ($P < 0.05$) [1, 12, 14].

Correlation of cigarette smoking and COPD is more complex than it is usually represented. Despite the close relationship between them smoking itself is not enough for development of the disease. COPD occurs only in minority (about 15%) of long-term tobacco smokers and this fact suggests the presence of some unknown factor that promotes the development of respiratory tract injury. According to the "Dutch hypothesis"there may be some genetic predisposition to respiratory tract injury for COPD development in smokers.The problem is complicatedby the fact that a small number of never-smokers also sufferCOPD which does not differ from that caused by smoking [19].

According to the publications dealing with the problem, smoking increases negative impact on pulmonary system not only environmental but also occupational factors (dust, cement, lime, etc.). For example, smoking increases the negative impact of grain on pulmonary system. Besides of damaging effect of tobacco smoke, tobacco dust also harmfully influences pulmonary systemof people who come in contact with tobacco dust while working in tobacco production. Thus, the prevalence of chronic bronchitis in women was 22% and in men - 15%. However, among smokers chronic bronchitis prevailed in men rather than in women. Thus, according to T.N.Bilichenko et al. (1991) chronic bronchitis occurs among men-smokers 5 times and among women - 3 times more frequently than among never-smokers [4].

Study in Norway showed that professional factors 2-3 times increase risk of chronic bronchitis among farmers but when combined with smoking the risk becomes 6 times higher [23, 24, 25, 28, 29, 33, 35, 37, 39].

Recently conducted studies have established the following,if smoking index is higher than120 (the number of cigarettes smoked per day multiplied by the number of months in the year during which a person smokes),as a rule, COPD symptomsdevelop. It is desirable ofa doctor toregister smoking index in patient's medical card to judge about smoking as a risk factor for the disease in each patient. Those having index 240 (a person smokes 20 cigarettes per day all year through)are defined as “hard smokers”. There is another calculation formula which takes into account time period of smoking and is expressed by the formula “pack / years” i.e. if smoking period is 20 years and a person smokes a pack of cigarettes per dayhis or her smoking index is 20 pack / years [8].

In recent years researchers pay great attention to study of the state of vascular endothelium

in various pathologies. Vascular endothelium is metabolically highly active monolayer of cells lining all blood vessels of a human body. Endothelial cells, specifically responding to different molecular signals, perform a variety of functions, including transport and barrierones, they are involved in metabolism of extracellular matrix, biosynthesis of various cytokines, angiogenesis regulating the process of blood coagulation and platelet aggregation, vascular tone, and immunological reactions. Endothelial activation or damage isfundamentallyimportantfor development of a wide range of disease processes. Obviously, evaluation of endothelial state may have very important clinical implication for understanding of pathogenesis of many human diseases [5, 11, 16, 17, 36].

There are many epidemiological papers concerning tobacco smoking (Table № 1.) [15].

Table 1.**Epidemiological Characteristics of Smoking Prevalence among Adults in the Russian Federation and Abroad.**

Author, year	Contingent surveyed	Place ofepidem.survey.	Men.%	Women.%
R.Liardet al.,1980	899 people	France, Paris	57.0	41.4
M.R. Pandley,1984	2826 people,20-80 years old	Nepal	78.3	58.9
K.Yan,1985	922 people, 18-80 years old	Australia	25.2	18.0
M.Krazyzanowskyet al.,1986	4335 people	Poland, Krakow	59.6	26.7
G.Vegy,1988	3289 people, 20-64 years old	Italy, Venice	49.2	26.9
S.L.Aleynikov, A.N.Kokosov, 1982	5935 men, 6770 Women,adult population	Southern coast of Crimea	85.0	6.29
S.L.Oleynikov et al.,1983	1913 men, 40-59 years old 2361 men,40-59 years old	Moscow, Kaunas	48.2 43.1	
R.F.Mukhametzhanova, 1987	6619 men,40-59 years old	Moscow	47.2	
M.A.Staponkene,1987	5208 men,40-59 years old	Lithuania	33.2	
A.E.Korolkov,1988	1110 people, 16-64 years old	Moscow, medical area	50.3	11.0
L.V.Shuteeva, S.L.Garnitsky. 1990	1500 men,20-69 years old	Kiev	51.1	
I.S. Petrukhin,1991	1785 men, 1621	Tver	63.1	8.6

	women,adult population			
L.V.Chazova et al., 1991	935 men, 1452 women,25-64 years old	Moscow	50.9	11.4
L.N.Korchagina,1996	475 men, 16-67 years old	Stavropol	62.3	
P.Aarva et al., 1999	1378 people,adult population	Vologda	57.0	10.0
E.Y. Mishineva,1999	1379 men, 335 women, builders	Moscow	41.0	49.0
AA Lenknovich et al., 1999	1006 men, 19-55 years old	Dzerzhinsk, Nizhny Novgorod	53.4	
E.R.Iskhakov, 2000	1138 men, 611 women, adult population	Bashkortostan	62.1	3.6
V.A.Glushchenko et al., 2000	316 men, 30-50 years old	Samara	46.5	
V.VI Shchekotov et al. 2001	420people, adult population	Perm	68.2	19.5
I.V.Drozdov, 2004	2004 people, adult population	Chelyabinsk	72.9	20.1
E.I. Bayanov. 2005	230 men,370 women	Leningrad Region.	68.7	17.6

Thus, data analysis of published papers concerning tobacco smoking as exogenous factor of COPD allows the following conclusions:

1. As it is seen from the above, all the researchers note that cigarette smoking contributes to the development of chronic bronchitis and point to a direct correlation of severity of chronic bronchitis to duration of smoking.

2. Currently, there are few studies of the state of vascular endothelium at COPD caused by smoking. Practically there are no data on insufficiency of endothelial function in COPD patients while there are enough factors determining development of endothelial dysfunction, namely hypoxia with increased content of various biologically active substances including cytokines, etc.

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MEDICAL AND STATISTICAL ANALYSIS OF ABORTIONS IN THE REPUBLIC SAKHA (YAKUTIA)

The article presents the results of the study of the dynamics, structure and general description of abortions in the Sakha Republic (Yakutia) within the period 1991-2011. and decrease in reproductive potential of the population.

Keywords: abortion, reproductive health, fertility, reproductive age.

Introduction. Medical and social significance of abortions is determined by their high prevalence, significant proportion among causes of maternal mortality and gynecological morbidity, including infertility, as well as the frequency of complications, significantly reducing the level of women's reproductive health. With the continued downward trend in the total number, the frequency of abortions remains high[1,3,4]. The information about number and dynamics of abortion statistics in the Sakha Republic (Yakutia) makes it possible to evaluate the activities of health care departments and departments of abortion prevention.

The aim of the research is to analyze the dynamics, structure and general description of abortions in the Sakha Republic (Yakutia) in terms of its data 1000 women of childbearing age per 100 births.

Materials and methods. The research is based on official statistics of the Territorial Department of the Federal State Statistics Service of the Sakha Republic (Yakutia) on abortions within the period 1991-2011.; the analysis of the dynamics of abortion rates for the period has been done.

Results. The study of the reproductive function in 2011 shows that 58.3% of pregnancies end in births, 41.7% - abortion, among them 0.7% -pregnancies terminated in the period between 22-27 weeks. For the year 2011 in the Sakha Republic (Yakutia) 11,749 abortions, including 3274 mini-abortions were made (Fig. 1).

According to official statistics (statistical Form number 13, "Information on the termination of pregnancy before 28 weeks") during 1991-2011 the abortion rate in the Republic of Sakha (Yakutia) decreased twice - from 149.5 to 72.6 per 100 births and from 100.0 to 45.4 per 1,000

women of reproductive age. There is a tendency to change the structure and types of abortions. Percentage of spontaneous abortion increased on 3%. Proportion of unspecified abortion increased on 4.3%. Proportion of induced abortions decreased on 7.3% (Fig. 2.).

In the republic interruption of pregnancy before 12 weeks dominates, and its absolute number has declined over the first decade of the new century 1.2 times. The absolute number of interruptions in a period between 22 and 27 weeks has decreased by 2.7 times. As for abortion terms there is a tendency to interrupt pregnancy before 12 weeks (10.3%), while the number of interrupts between 22 and 27 weeks decreased 1.9 times (Table 1.).

The total number of abortions within the period 1991-2011 has decreased from 30062 to 10848, mainly due to the legal medical abortions, the number of which was reduced from 26389 to 8394 thousand, or 72% (Fig. 3). When analyzing the rate of decline in the number of abortions on their types the attention is paid to unequal dynamics of data. There is a maximum decline in number of abortions with the highest medical and social significance - abortion for social reasons (99.4%) and recorded criminal ones (99.2%).

The number of spontaneous abortions has been reduced on 48% in 1991-2011 - from 2262 to 1164. The prevalence of spontaneous abortion as the main feature of violations of women's reproductive health has declined since 2000-2011 from 4.6 per 1,000 women of childbearing age to 3.6 (Fig. 4). This indicator reflects the decline in reproductive health of modern women whose birth and puberty hit at distressed 90s. Trouble situation with spontaneous abortion is the most important factor in reducing the reproductive potential of the population. Today, the share of miscarriage is about 7% of the number of pregnancies that ended childbirth.

The high prevalence of spontaneous abortion is of particular importance today, when there is a decline in fertility and every pregnancy is essential for the preservation of reproductive potential of the population of Russia. Thus, prevention and successful treatment of miscarriage are real reserve to increase the birth rate[2].

Reducing abortions not only reflects the true reduction in their number, but also the absence of "commercial" abortions registration (Fig. 5).

Special attention should be paid to comparison of induced abortion on medical and social grounds. Their dynamics to the greatest extent is stipulated by socio-economic factors and reflects the state of health and the environment and quality of life. The increase in the prevalence and frequency of abortion for social or medical reasons during the 90s is due to the deteriorating health and a reduction of the social status of the population. The sharp decline in the number of abortions for social reasons occurred in 2003 in connection with the reduction of the list of social indications for abortion with 13 positions (according to the Order of the Ministry of Health of the Russian

Federation number 242 dated 11.06.1996) to 4 (Order of the Ministry of Health of the Russian Federation № 484 dated 14.10 .2003) (Figure 6). The reduction of abortions for medical reasons since 2008 is also due to the introduction of the relevant order limiting the maternal indications for pregnancy (Fig. 7).

In 2011, the structure of abortions 11.7% were spontaneous abortions, 10.1, 5% 10.1% - unspecified abortions, 5% - abortions for medical reasons, 73.1 % - legitimate medical abortions (Fig. 8).

An important indicator in the abortion statistics is the number of women undergoing termination of the first pregnancy, which is the maximum risk in terms of subsequent reproductive disorders and the development of obstetric pathology, such as miscarriage or infertility. The number of primiparous among all women undergoing termination of pregnancy was 3.8% of all abortions in 1991, and increased to 10.5 in 1999 (the year of maximum distress of reproductive and demographic parameters) and decreased in 2011 to 7, 5 %.

The analysis of the abortion according to method of abortion reveals that still there is insufficient use of the safest medical methods of abortion: 1.4% in 2011 of the number legal abortions. The underreporting data of medical abortions reflects only the absence of medicinal "commercial" abortions registration made in private clinics. The share of medical abortion is a kind of a "marker" of total registration of abortions.

The analysis of abortions according to the women age became possible only in 1996. Before 1995 in the statistical form number 13 20-34 year old women had been combined into one group, which, of course, accounted for over 70% of abortions. Over the past 15 years, changes in the age structure of abortions correspond to changes in the age structure of giving birth women ("aging age fertility model"). It reflects a common tendency of reproductive and sexual activity of the female population. Among women who undergo abortion, the share of 20-24 year old women increases (22.7% of the total number of abortions in 1996 to 24.2% in 2011). Also the proportion of 25-29 year old women increases (22 , 4 to 29.2% for the same years) . This age group is among "leaders" of termination of pregnancy, as well as among childbearing women. The share of 30-34 year old women in the structure of abortion has not changed (21.1 - 21%). The proportion of women aged 35-39 years decreases (15,3-14,4%).

Comparing the age-specific fertility rate (births per 1,000 women of the same age) and age-specific abortion (number of abortions per 1,000 women of the same age) it is clear that despite the same type of curves women at a younger age mainly give birth than terminate pregnancies: before 34 years SRS indicator is significantly higher than the WAC.

The curve of age-specific abortion rates is flatter, shifted to the right on the axis of the age, that

is over 35, women are more likely to terminate their pregnancies than giving birth (Fig. 9).

The most important and significant in the age structure of abortions is the reduction in number of young women (under 19 years) from 6.7% in 1996 to 5.1% in 2011 in the total abortion rate (Fig. 10) .

There is a decline on36% in number of abortion among 15-19 year old adolescents from 25.8 per 1,000 girls in 2000 to 16.5 in 2011. The rate of abortions decline calculated on the absolute number of them has been different and depends on the type of abortion.

In the structure of "forced" abortion on medical and social needs the number of adolescents (which was 16,6 and 27% in 2007) has dropped to 3 and 25% in 2011. In the structure of abortions among adolescents there is a decline in proportion of spontaneous abortions (from 6.0 to 4.8%), artificial medical abortions (from 7.5 to 4.6%), unsafe and unspecified abortions (from 10.6 to 5.6%).

Conclusion. The analysis of the dynamics and structure of abortion has revealed that the observed decrease in the number of abortions is accompanied by the transformation of the structure of the 90s. The high prevalence of spontaneous abortion determines the significance of this disease in reducing the reproductive potential of the population.

Assessing the miscarriage as the main reason of reproductive losses, it should be recognized that the prevention and successful treatment of this disease are the real reserve to increase the birth rate.

In order to reduce the negative consequences of an unwanted pregnancy it is necessary to introduce a broad practice (along with effective contraception) medical abortion as the most secure in comparison with surgery, and the need for its wider use as an alternative to surgical abortion is clear. This requires the development of an appropriate regulatory framework and health standards that don’t exist now.

To obtain reliable information about the number and structure of the abortion it is necessary to improve the statistics of abortion. Above all to ensure the complete registration of artificial abortions in commercial establishments, as well as to include in the recorded spontaneous abortions abortions code ICD-X O02 (together with existing O03). Also it is necessary to introduce statistical records of information about the complications of abortion (in the form number 13) as an important measure that ensures quality control of medical care for abortion.

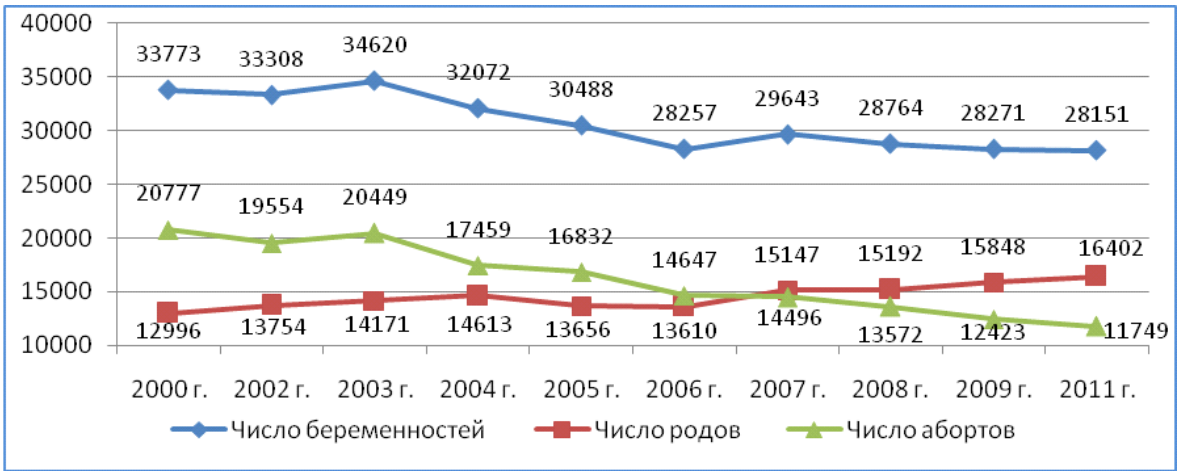

Fig.1. The implementation of the reproductive function in the Sakha Republic (Yakutia) in the dynamics within the period 2000 - 2011.

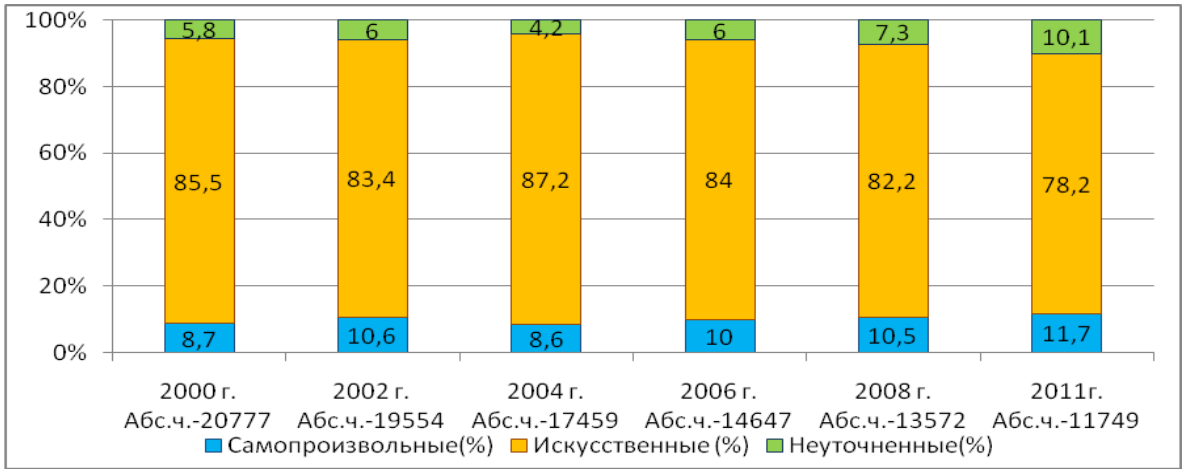

Fig.2. The structure of types of abortion (in%) in the Sakha Republic (Yakutia) in the dynamics within 2000 – 2011

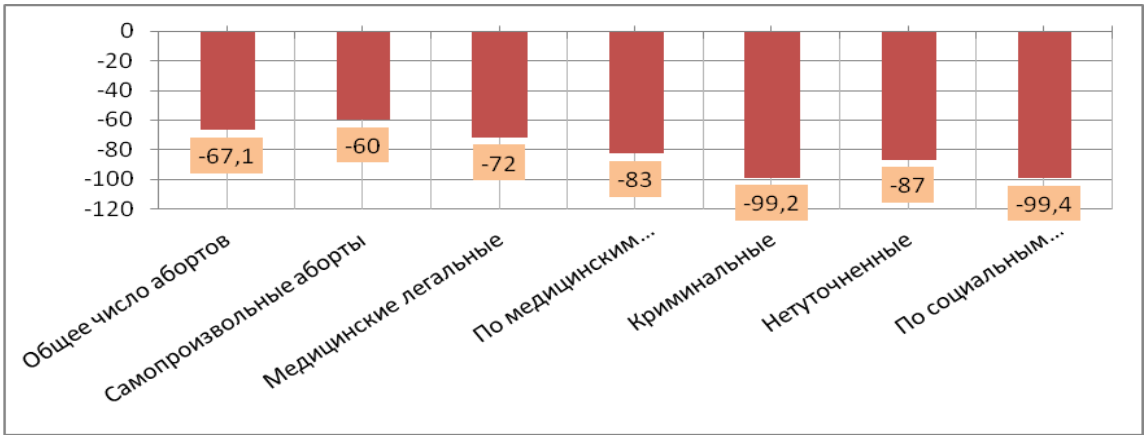

Fig.3. The rate of abortion decline in the period 1991-2011 . (% By 1991)

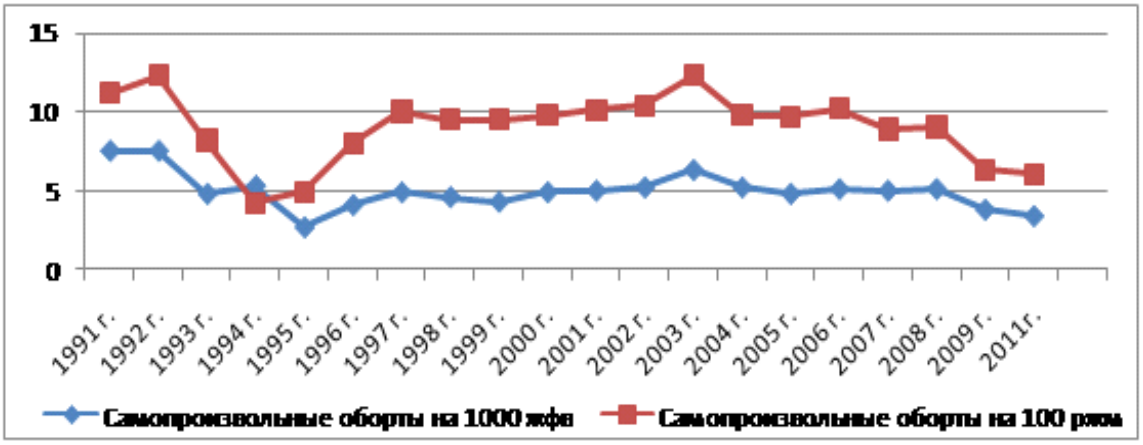

Fig. 4. The dynamics of the prevalence of spontaneous abortions (per 1,000 women aged 15-49) and frequency (100 births) in 1991 to 2011.

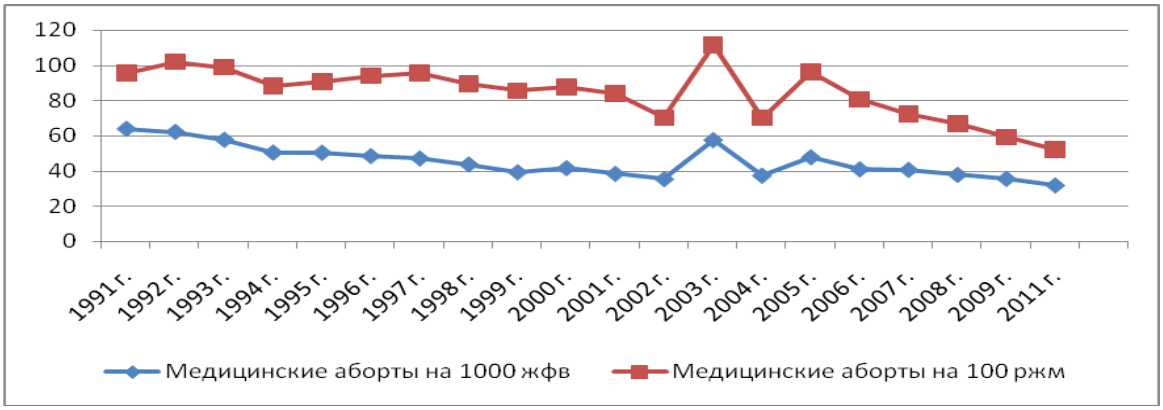

Fig. 5. The dynamics of the prevalence of medical abortions (per 1,000 women aged 15-49) and frequency (100 births) in 1991 to 2011.

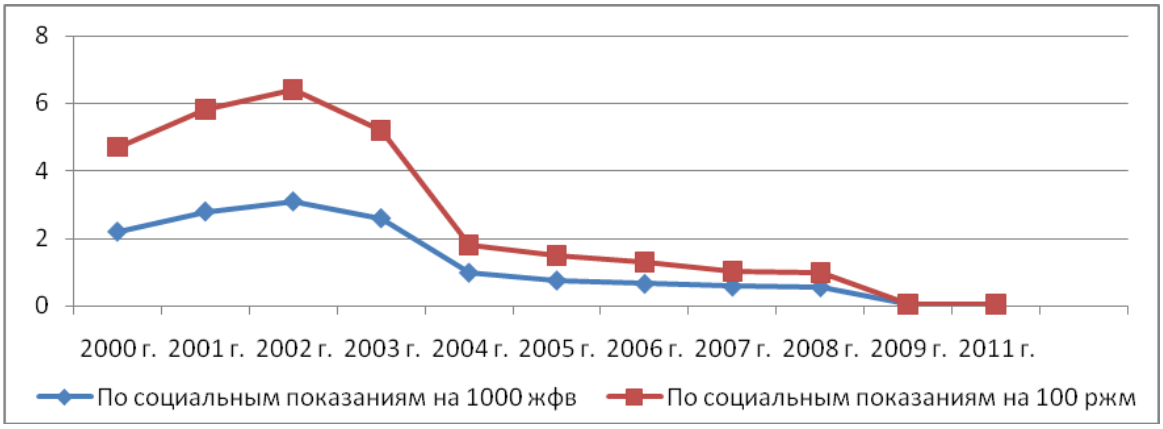

Fig. 6. Dynamics of abortion for social reasons (per 1000 women aged 15-49 years) and frequency (100 births) in 2000 to 2011.

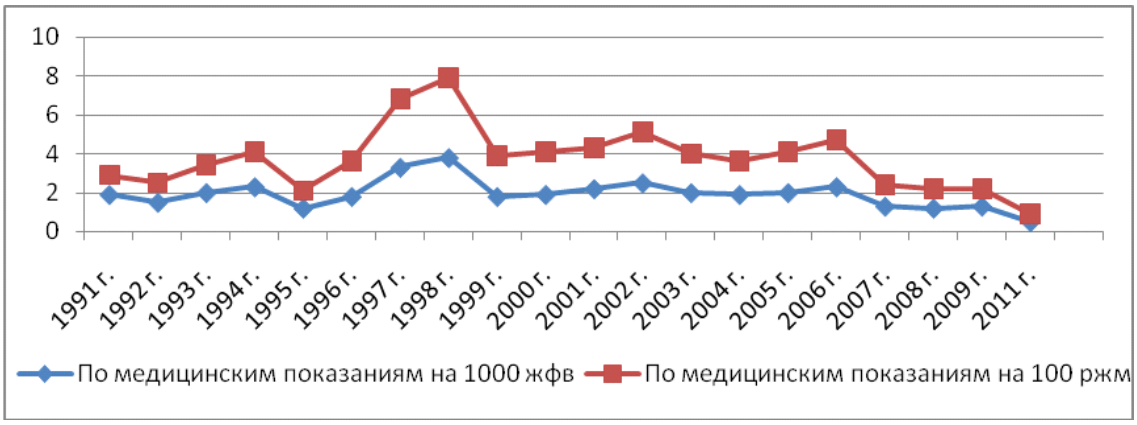

Fig. 7. Dynamics of abortion for medical reasons (per 1000 women aged 15-49 years) and frequency (100 births) in 1991 to 2011.

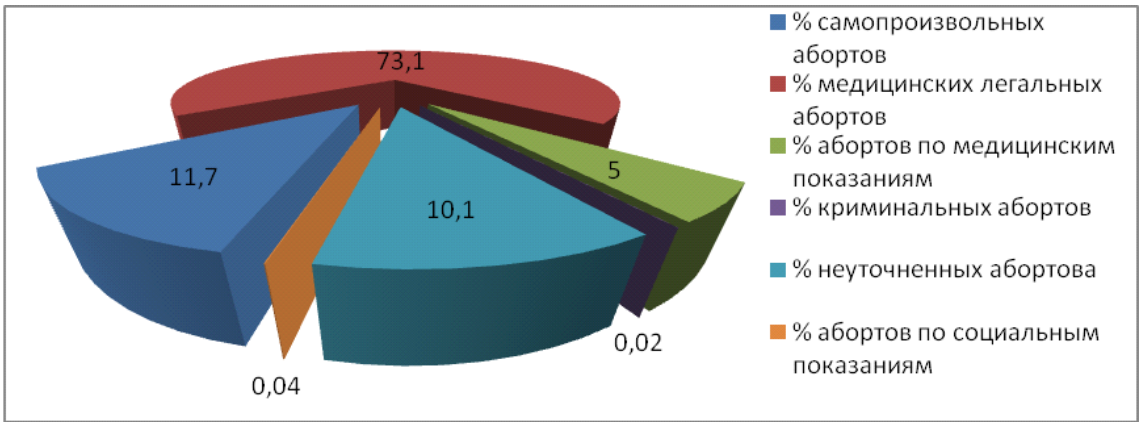

Fig. 8. Structure of registered abortions in 2011 (% of total)

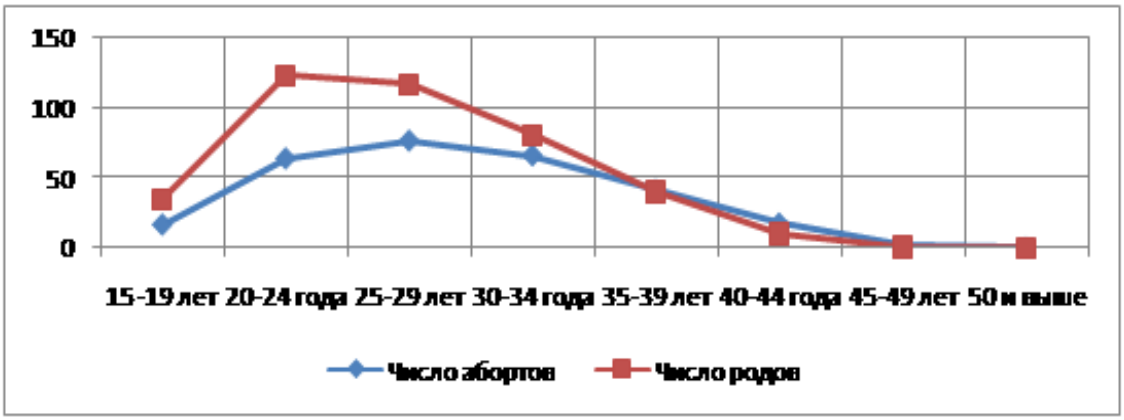

Figure 9. A comparison of age-specific fertility rates and age-specific abortion in 2011

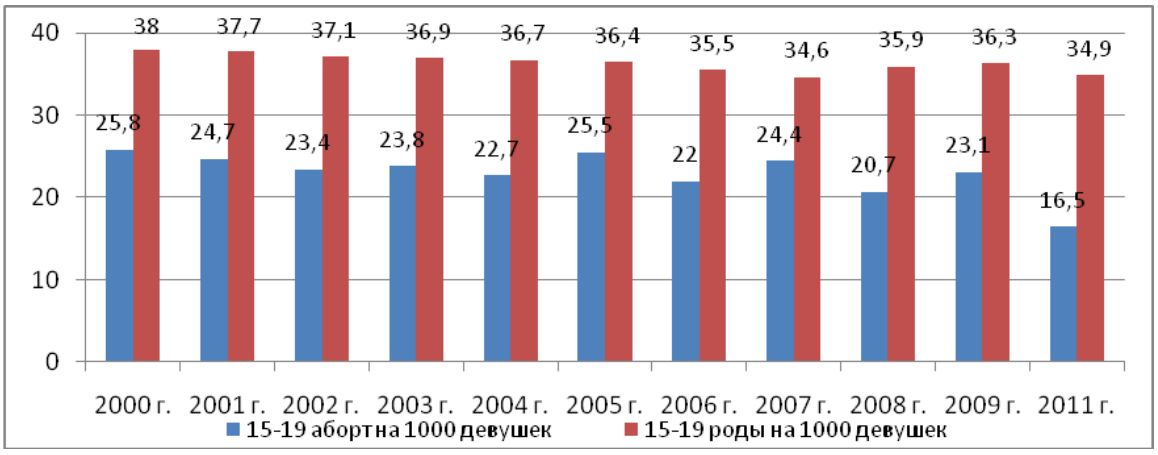

Fig 10. The ratio of prevalence births and abortions among adolescents aged 15-19 years in 2000-2011. (1000 corresponding population)

Table 1

Terms of abortion in the Sakha Republic (Yakutia) in dynamics for the years 2000-2011 (in% to the total number of terminated pregnancies)

Terms of abortion	2000	2002	2003	2004	2005	2006	2007	2008	2009	2011
Before 12 week	85.2	89.6	80.0	74.5	74.8	93.4	95.8	93.3	95.4	95.5
22-27 weeks	3.3	2.8	2.8	2.0	1.5	1.7	1.7	1.5	1.7	1.7

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Lebedeva U.M., Sleptsova N.A., Dokhunaeva A.M., Kirillina S.A., Starovoytov M.L.

NUTRITION AS A PREDICTOR OF HEALTH DISORDERS OF MOTHER AND CHILD IN THE REPUBLIC SAKHA (YAKUTIA)

Abstract

As a result of clinical and epidemiological studies on nutrition and health of mothers and children, it was found that the majority of mothers' diets were profoundly deficient in energy value and all food substances. Consumption of basic foods containing animal protein (meat, fish and eggs), vegetables, fruits and berries were significantly lower than the recommended values. Inadequate provision by macronutrients (proteins, fats, carbohydrates) was detected in 80%; minerals – in 90%; vitamins – in 75%, iron – in 100% of the surveyed women.

The interconnection of insufficient supply of maternal dietary by iron, magnesium, calcium, vitamins C, B_2 with the development of anemia, toxemia of pregnancy, phetoplacental insufficiency, prenatal growth retardation syndrome and chronic fetal hypoxia was proved. And relationship of inadequate supply of iron, magnesium, potassium, vitamins B_1, B_2 , PP with a long period of anhydrous in labor, labor abnormalities, delivery stimulation, operative delivery, bleeding and massive blood loss during delivery and the postnatal stage ($p < 0.05$) is also undeniable. It was revealed that the deficit in the mothers' diet of proteins, fats, carbohydrates, phosphorus, calcium, beta-carotene, vitamin B_1 is associated with the development of asphyxia, fetal malnutrition, intrauterine infection of the newborn child ($p < 0.05$).

The result of carried out research revealed that 94% of pregnant women of the native population with deficiency status and low hemoglobulin index in the first trimester of pregnancy and before childbirth had essential health disorders. It was proved that the predictors of a child health disorders are the following: mother's insufficient consumption of beta-carotene with food ($B = 0.1$; $p < 0.05$), low level of hemoglobulin in the first trimester ($B = -0.6$; $p < 0.018$) and before childbirth ($B = 0.4$; $p < 0.01$).

Keywords: diet, diets, macro - and micronutrients, mothers and children, pregnancy, childbirth, prenatal development, fetus, the newborn child.

INTRODUCTION

The organization of proper nutrition for pregnant women and nursing mothers is one of the important conditions for the normal flow and a successful outcome of pregnancy, maintaining the health of women during pregnancy and lactation, ensuring the correct formation, optimal growth and development of the fetus, and then a newborn baby and children in older life times. All the necessary "building materials" (proteins, fats, carbohydrates, various minerals and vitamins) fetus and the child received only from the mother [4, 5].

Special epidemiological and clinical studies have shown that nutrition disorders during pregnancy and while breast-feeding can lead to serious consequences (miscarriage, premature birth, birth of a child with a variety of prenatal defects, retarded physical and psychological development) and various deficiency states [1, 2, 7].

Adequate eating behavior among pregnant and lactating women in this important period, quality products for women and children, are of particular relevance in the Far North, where there are many families with low social status, where the structure of the food of the population has its own national characteristics, and where high maternal and child morbidity and mortality still remain. Unfortunately, to date, the potential possibilities of nutrition as a factor in reducing maternal and child mortality, morbidity and disability are not fully utilized. This explains the

negative trends in demographics, including low life expectancy of the population.

The **purpose** of our research: to study the predictors of health disorders of mothers and children in relation to the actual maternal nutrition in the Far North.

MATERIALS AND METHODS

We have comprehensively examined 138 pregnant women (mean age 27.6 ± 0.41 years), 118 postpartum women and their newborns. Women's groups were formed by simple randomization of the number of women attending antenatal clinics in connection with this pregnancy. All the women and children were examined by a single protocol. The diagnosis of primary and related diseases in the mother and the child is installed in accordance with the International Classification of Diseases the X revision (1990).

Assessment of nutrition and dietary habits was conducted based on a survey of mothers in accordance with the international standards of the WHO integrated non-communicable diseases CINDI program [1, 4]. Calculation of the food set and the chemical composition of food were done in the Laboratory of structure and planning of nutrition study of the Institute of Nutrition RAMS, Moscow.

The peripheral red blood content was done on the hematology analyzer COULTER COUNTER (Switzerland). Evaluation of anemia in women was conducted by the level of hemoglobin below 112 g / l [7], in the newborns at the first day after birth, according to the WHO, - 194 g / L.

The work was carried out in several stages:

Stage I - comprehensive clinical evaluation of the health of the surveyed pregnant women, postpartum women and their newborns;

Stage II - Assessment of dietary intake and dietary habits of pregnant women in the II half of pregnancy (28. 9 ± 0. 45 weeks);

Stage III - Analysis of iron supply of pregnant women, postpartum women and their newborns during the different periods of observation;

Stage IV - Assessment of the relationship of nutrition and health of mother and child.

RESULTS AND DISCUSSION

Clinical characteristics of the observed women and children

We found toxemia of pregnancy in half of the women from the total number of the surveyed women; the number of mothers with placental pathology increased with pregnancy course and at delivery reached 75. 8% (Cochran Q-Test = 28. 3; $p < 0.000001$). In the III trimester fetal prenatal growth retardation was observed in almost each tenth women (11. 6%, Cochran Q-Test = 19. 7; $p < 0.0001$).

At a comprehensive clinical evaluation of the health of the surveyed pregnant women, postpartum women and their newborns it was revealed that prior to delivery 86.4 % of the patients had a probability of preeclampsia developing, hemorrhage in childbirth and the postpartum period, the weakness of labor forces, abnormal labor, birth tract traumas, retinal detachment, hypoxia, fetus asphyxia, fetal infection, prenatal pathology, septic processes in the postnatal period.

From the 138 studied women 118 women delivered. Herewith, the high rate of complications in childbirth and the postnatal period was noted (Fig.).

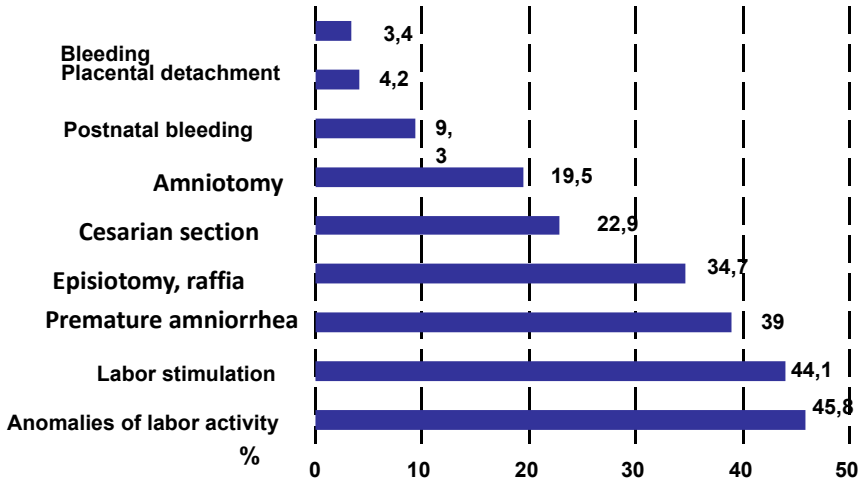

Fig. The frequency of labor disorders among the surveyed women.

Newborn babies were mostly of average length, weight, girth parameters. The exceptions were the children born immature (6.7%), preterm (8.5 %), with prenatal growth retardation syndrome (15.3%).

Satisfactory condition at birth was observed in 48.3 % of children. Almost every second child was born in a state of moderate severity (43.2 %), each 12th - in a serious condition (8.5 %).

Different variations in health status were reported in 51.7 % of children, including in two thirds (72.9 %) of them chronic hypoxia, hypoxia during labor (70.3 %), in 2.5% - asphyxia in labor were revealed. In the early postnatal adaptation period the risk of prenatal infection was diagnosed in 83.1 %, prenatal hypotrophy - in 12.7 %, prolonged jaundice - in41.5 %.

Almost in the each fourth child movement disorders syndrome was classified. The normal course of neonatal period in only 58.5 % of children was noted.

Clinical manifestations of iron deficiency in the form of IDA before 13 weeks of pregnancy were diagnosed in a third of the surveyed pregnant women, at 14-26 weeks time – in more than 70 %, in the III trimester - in 77,5% (Cochran Q-Test = 89 75 , $p < 0.000000$) [4].

In the course of pregnancy, there was a decrease in hemoglobin in the peripheral blood (ANOVA Fridman $\chi^2 = 73.37$; $p < 0.00000$) (Table 1). Hemoglobin level below normal was recorded in 26.8 % of women in the I trimester; in 61.7% in the II one; in 70.0 % and more women in the III trimester before delivery, in total in 62.9% of women in labor and in 47.3 of the newborns.

Table 1

The dynamics of blood hemoglobin (HBG) at different stages of pregnancy and the postpartum period

The observation period	n	HBG, g / l						Reference values
		M	s	m	Min	Max	95% CI	
1 Trimester	138	121,3	12,4	1,1	81	147	119,2–123,4	120–145
2 Trimester	125	114,7	10,1	0,9	86	144	112,9–116,5	115–130
3 Trimester	118	111,8	9,9	0,9	85	133	109,9–113,6	112–130
Before labor	92	111,6	9,9	1,0	82	128	109,6–113,7	112–130
In women in labor	118	113,8	15,6	1,4	73	156	110,9–116,7	115–130
In the newborns	118	186,9	26,5	2,5	97	256	181,9–191,9	194–208

Note. M - the arithmetic mean, s- standard deviation, m - standard error of the mean.

Nutrition and dietary habits among the surveyed women

We studied how mothers were informed about the healthy diet products and found that women who believed the basis of healthy eating to be fish and meat products represented 83. 6 %, dairy products - 60.7%. The share of cereals, bread and potatoes had respectively 36.1 %, 44.3 % and 41 %, fats and sweets - 21.3 %.

The results show the discrepancy of actual consumption to the SanPin recommended standards [6].

The results showed inadequate intake by pregnant women of basic foodstuffs, such as meat (actual consumption - 155.9, the recommended amount - 180 g / day) and fish (33.5 and 100), vegetables (127.5 and 500) and fruits (143.5 and 250 g / day respectively). An increased intake of certain food groups such as milk (actual consumption - 435.6, recommended amount - 250 g / day), bread and bakery products (185.1 and 100 g / day) was revealed. The consumption of sweets was almost in 1.5 times higher than recommended values (77.7 and 50 g / day).

In this research, we studied the energy and macro - and micronutrients consumption. The actual energy consumption, nutrients by the surveyed women was compared with the norms of the physiological requirements for nutrients and energy for pregnant women (Table 2).

Table 2

The average daily intake of energy and nutrients

Macronutrients	Recommended norms	The actual value of consumption	
		M	m
Protein, g / d	96	72	2,4
Fat, g / d	85	77	3,3
Carbohydrates, g / d	348	240	8,4
Energy value (kcal)	2550	1939	62,9

With regard to the average daily intake of protein, fat, carbohydrates, we found insufficient dietary intake of almost all the macronutrients. Normal energy value of the diet is noted only in 18 % of pregnant women.

In this study, we have examined thoroughly the consumption by pregnant women vitamins (B1, B2, PP, A, C) and minerals (iron, calcium, magnesium, phosphorus, potassium, sodium). The average daily intake of vitamin B1 was 55 %, Vitamin B2 - 72 %, PP – 7%, and C-63, A – 77% of the recommended values. It should be noted that a lack of the average daily intake of vitamin B1 was found in 91.8%, B2 - in 77.1%, C – in 77.9, A – in 88.5, PP – in 72.9 % of women (Table. 3). Therefore, the consumption of vitamins in accordance with the rules was registered only in 20% of surveyed women.

Table 3

The average daily intake of essential vitamins, mg / day

Vitamin	Recommended amounts	Actual consumption	
		M	m
A	1,5	0,8	0,2
B_1	1,7	0,9	0,03
B_2	1,8	1,3	0,1
PP	19	13,1	0,5
C	90–100	63,3	4,5
Beta - carotene	3,5	1,9	0,2
Retinol ret.ekv	1200 - 1400	1087,6	193,6

A similar situation is observed with the average daily intake of minerals (Table 4). The average daily calcium intake was 59 %, Magnesium - 60%, Phosphorus - 88%, potassium - 83 % of the recommended norm. As for the intake of sodium, its average daily consumption was 121 % of the recommended norm. Insufficient average daily calcium intake was observed in 90.2 %, magnesium - at 95.1 %, phosphorus - at 88.5 %, potassium - 73% of surveyed women. Women consumed iron in 3 times less than the norm (36% of norm) and its insufficient intake was observed in all surveyed women. Thus, consumption of minerals in accordance with the recommended values for pregnant women was observed only in 10% of the women under study.

Table 4

The average daily intake of essential minerals, mg/day

Mineral	Recommended amounts	Actual consumption	
		M	m
Fe	38	14,7	0,5
Ca	1100	649,2	28,6
Mg	450	278	8,8
P	1650	1136,6	35,7
K	3500	2905,9	93,7
Na	2400	2914	112,3

Thus, by studying actual nutrition of pregnant women by the daily food recall, we revealed an expressed lack of supply of all the studied macronutrients (proteins, fats, carbohydrates) and micronutrients (vitamins, micro and macroelements), except for sodium.

We made the correlation analysis of the relationship of actual nutrition of pregnant women, alimentary substances (macro- and micronutrients) with the morbidity level, frequency of complications of pregnancy and childbirth, disorders of adaptation and neonatal morbidity.

So, we have proved the relationship of the diet of the pregnant with low supply of iron, magnesium, calcium, vitamins C, B2 with the development of anemia, gestosis, prenatal growth retardation syndrome and chronic fetal hypoxia ($p < 0.05$). Also we found a strong correlation in the diet deficient in iron, magnesium, potassium, vitamins B1, B2, PP with the pathology of labor (prolonged fluidless period, an abnormality of labor activity, labor stimulation, operative delivery, bleeding and massive blood loss during delivery and the postpartum period) ($p < 0.05$). We proved a close correlation of low supply of the diet of pregnant women with main nutrients (proteins, fats, carbohydrates), phosphorus, calcium, beta- carotene, vitamin B1 with the development of asphyxia, fetal hypotrophy, intrauterine infection of the newborn child ($p < 0.05$).

The correlation analysis revealed a close relationship to a statistically significant hemoglobin (HGB) linkage in postpartum women and newborns with energy value of the diet of the mother and the supply of the diet with B vitamins (B1 , B2) (Canonical $R = 0,87$, $\chi^2 = 37,92$, $p < 0.09$) .

Taking into account the clinical and laboratory indicators of maternal and child's states we have developed a mathematical model that predicts the baby's condition at birth with accuracy up to 94%. The results of the logistic regression analysis revealed that the state of the newborn is most closely connected with the supply of the mother with beta- carotene ($B = 1.015$, $p < 0.05$), hemoglobin level of women in the first trimester ($B = -0.573$, $P < 0.018$), and prior birth ($B = 0.423$, $p < 0.014$).

CONCLUSIONS:

1. We found that health disorders of mother and child in the Republic of Sakha (Yakutia) are formed on a background of malnutrition.
2. The actual diets of mothers have a low energy value, the content of all diets with studied macro- and micro-nutrients (proteins, fats, carbohydrates, vitamins and minerals).
3. We revealed a high level of iron deficiency and anemia among pregnant women in different periods of pregnancy, childbirth and newborn related to poor nutrition of mothers.
3. In pregnant women, nursing mothers and their babies health disorders are associated with insufficient consumption of essential nutrients from food ($p < 0.05$).

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KEY INDICATORS OF DISABILITY DUE TO GLAUCOMA IN THE REPUBLIC SAKHA (YAKUTIA)

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Considering the higher level of general (1247,2 per 10 thousand adult population) and primary (165,3 per 10 thousand adult population) glaucoma in RS (Y), we have conducted the statistical research of results obtained while inspecting invalids due to eye illnesses in RS (Y) and its regions.

The analysis of inability due to glaucoma in RS (Y) in 2001-2010 has revealed the leading position of glaucoma in the structure of blindness and weak eyesight in nosology of PI due to eye illnesses, the increase of IM of general inability of the population and IM of primary inability due to glaucoma on 7,2 % and 25 % accordingly, the decrease in amount of invalids I and II groups from FRI due to glaucoma and the increase in number of persons with III group, the highest parameters estimated in the arctic region.

The analysis of the basic markers of inability due to glaucoma in RS (Y) in 2001-2010 has shown the necessity of adequate monitoring of glaucoma patients, especially in the remote arctic areas of the republic for what the reorganization of ophthalmologic service in RS (Y) is necessary.

Keywords: glaucoma, primary inability, general inability, intensive marker.

Blindness is considered one of the important international problems of the modern society caused by high and steadily increasing prevalence of blindness among the globe population. According to WHO in the world there are about 150 million blind people [3]. At 13 % the blindness is caused by glaucoma, occupying the second place after cataract in nosology of blindness structure. This marker differs in the countries with different level of economy and different quality of life of the population [8].

Over the last 10 years in the Russian Federation (RF) the level of blindness due to

glaucoma has grown in 3 times from 8 to 22 per one thousand population, the blinds due to glaucoma are registered at not less than 70 thousand persons. In nosology of blindness and weak eyesight glaucoma in our country has grown twice from 14 to 29 % [4]. The share of glaucoma in nosology of primary inability due to eye illnesses has increased from 14 % to 28 % at average, as well as among invalids of senior age up to 40 % [5].

The severity of primary inability due to eye diseases was aggravated, the amount of invalids of I-II groups has increased from 60 to 85 % mainly at patients with glaucoma, firstly addressed to medical-social examination (MSE) with III-IV stages of the disease [5].

Considering high level of general (1247,2 per 10 thousand adult population) and primary (165,3 per 10 thousand adult population) glaucoma in the Republic Sakha (Yakutia) (RS (Y), we conduct the statistical research of outcomes inspecting invalids owing to eye illnesses in RS (Y) and its regions.

The purpose: to study indicators of general and primary inability due to glaucoma in RS (Y) and its regions in 2001-2010.

Material and methods: the Act of medical and social examination of citizens of Bureau MSE RS (Y) for 2001-2010, the form № 209 «Data on invalids' health maintenance» in RS (Y) for 2001-2010.

Results and discussion. In 2001-2010 the amount (absolute number) of invalids with eye diseases among adults in RS (Y) for 10 years has increased up to 13,9 % (from 2874 to 3275). Despite the decrease in relative density of glaucoma in the structure of blindness and weak eyesight to 2,1 % (from 36,8 to 34,7 %), it occupies the first place throughout all period of the research.

The intensive marker (IM) of general inability due to glaucoma for 10 years has increased up to 7,2 % (from 15,2 to 16,3 per 10 thousand adult population) (Tab. 1).

The primary inability (PI) is the main medical and social criterion of public health. The level PD of eyesight in the Russian Federation was reduced from 5,8 in 2005 to 2,5 in 2008 [2]. According to the bureau MSE among subjects of the Russian Federation the level PI of adult population RS (Y) in 2009 occupied 47th place [1]. While analyzing the basic markers of inability in RS (Y) for 2002-2006 the growth rate of people recognized as invalids for the first time (FRI) on 37,9 %, among senior aged on 95,8 % was noted. In 2007-2009 the primary inability among adult population has grown up to 31,0 %, among senior aged - 35,7 %. In nosology PI in PC () in 2001-2010 of eye disease occupied the 6th ranging place [1].

From Tab. 2 it is visible that intensive marker of PI in RS (Y) during the investigated period has grown on 47,8 % (from 50,8 to 75,6 per 10 thousand adult population); IMPI on eye diseases

and eye traumas has grown on 14,7 % (from 3,4 to 3,9 per 10 thousand adult population); IMPI on glaucoma on 25 % (from 1,2 to 1,6 per 10 thousand adult population). Relative density of eye diseases in structure PI increased up to 46 % (from 6,0 to 8,8 %) by 2006, and further decreased to 5,2 % by 2010.

The high growth rate of addressed patients in establishments MSE and firstly recognized as invalids in 2005 was subject to the Federal laws № 173 «About labour pensions in the Russian Federation» and № 166 «About state maintenance of pensions in the Russian Federation» about inability pension appointment by degree of restricted labour activity having come into force since January, 1st, 2004. Another Federal law № 122 «About state social help» having been adopted since January, 1st, 2005 confirmed monthly monetary payments (MMP) instead of existing privileges [6].

During the reorganization of inability pensions the increase of IM of firstly recognized inability more than on 43,5 % is marked. By 2005 and 2007 it has made 72,9 and 70,3 per 10 thousand adult population accordingly. The same tendency is observed among invalids with eyeball diseases. IM of firstly recognized invalids among the given group by 2005 has increased on 47 % (from 3,4 to 5,0 per 10 thousand adult population). IMPI with glaucoma has also reached the maximum values in 2005, the growth rate has made 50 % (from 1,2 to 1,8 per 10 thousand adult population), and since 2006 the given marker is at one level (1,6 and 1,5 per 10 thousand adult population).

In 2001 the relative density of glaucoma among causes of PI eye illnesses made 35,5 % and, having increased by 2006, reached the maximum value of 52,6 %. Further, despite the decrease of this marker to 37,3 % by 2010, glaucoma nevertheless remains in the leading position among the causes of PI of eye illnesses.

Apparently from Tab. 3 in RS (Y) in 2007-2010 the 1st group invalids among firstly recognized glaucoma patients has decreased on 5 % (from 50,4 to 45,4 %), the second - on 0,8 % (from 22,0 to 21,2 %), the third - has increased on 5,8 % (from 27,6 to 33,4 %).

Women at the age of 55 years and more senior as well as men aged 60 years and over predominated among FRPI: in 2007 - 85,3 %, in 2008 - 83,6 %, in 2009 - 86,0 %, in 2010 - 81 % [7].

From Fig. 1 it is visible that IMPI due to glaucoma in regions RS (Y) is non-unified. In the Arctic region practically for all period of the research the highest parameters of IMPI are revealed, the growth rate amounting 16 % (from 1,9 to 2,2 per 10 thousand adult population) during 2002 and 2010, reaching the maximum in 2008 (3,2 per 10 thousand adult population).

In the Central region IMPI in comparison with 2002 has increased on 11 % (from 1,8 to 2,0 per 10 thousand adult population) by 2006, and further has decreased up to 1,5, 1,2 and 1,1 per 10 thousand adult population in 2007, 2009 and 2010 accordingly.

In Viljujsky region IMPI has grown on 180 % (from 0,5 to 1,4 per 10 thousand adult population), however the maximum value - 2,5 per 10 thousand adult population was noted in 2005 Since 2006 IMPI was at one level - 1,2, but a little increase (on 1,4) was noted in 2010.

In Southern region for the investigated period IMPI has increased more than three times (from 0,4 to 1,7 per 10 thousand adult population). By 2005 the parameter has increased to 1,5 per 10 thousand adult population, further by 2008 has decreased to 0,7, but in 2010 the growth up to 1,7 was noted repeatedly.

In all regions of the republic the growth of IMPI was observed in 2005 with the adoption of the law having changed the appointment of inability pension, and the law, confirmed MMP. The further studies pointed out the considerable growth of IMPI in the Arctic region (the highest value was in 2008 - 3,2 per 10 thousand adult population). In the given group the highest parameters of general glaucoma (1479,1 per 100 thousand adult population exceeding republican on 18,5 %) and primary glaucoma (190,8 per 100 thousand adult population exceeding on 19,6 %) are registered.

Thus, the analysis of glaucoma inability in RS (Y) in 2001-2010 has revealed:

- The growth rate (absolute number) of invalids with eye illnesses among adults in RS (Y) on 13,9 % (from 2874 to 3275);

- The leading position of glaucoma in the structure of blindness and weak eyesight, despite the decrease in its relative density from 36,8 to 34,7 %;

- The increase of IM of general inability at glaucoma patients on 7,2 % (from 15,2 to 16,3 per 10 thousand adult population);

- The growth of IMPI due to eye diseases on 14,7 % (from 3,4 to 3,9 per 10 thousand adult population);

- The growth of IMPI due to glaucoma on 25 % (from 1,2 to 1,6 per 10 thousand adult population), stable marker 1,6 noted since 2006;

- The leading position of glaucoma in nosology of PI due to eye diseases with the increase of its relative density from 35,0 to 37,3 %;

- The decrease in amount of 1st group invalids with FRPI due to glaucoma in 2007-2010 on 5 % (from 50,4 to 45, %), II - on 0,8 % (from 22 to 21,2 %), the increase in number of persons with III group on 5,8 % (from 27,6 to 33,4 %);

- The highest values of IMPI in the arctic region during 2002 to 2010 on 16 % (from 1,9 to 2,2 per 10 thousand adult population) and reaching the maximum rate in 2008 (3,2 per 10 thousand

adult population).

The analysis of the basic markers of inability due to glaucoma in RS (Y) in 2001-2010 has shown the necessity of adequate monitoring of glaucoma patients, especially in the remote Arctic areas of the republic for what it is needful to reorganize the ophthalmologic service in RS (Y):

1. Establishment of an unified out-patient polyclinic on the basis of the State Budgetary Establishment RS (Y) the Yakut Republican Ophthalmologic Hospital (SBE RS (YROH) uniting all ophthalmologic service of the republic with the organization of a unified republican glaucoma center.

2. Introduction of medical information systems and telemedical technologies for carrying out remote medical consultations, new methods of diagnostics and treatment.

3. Organization of mobile specialized service on the basis of YROH for remote areas of the arctic region which can render both primary specialized help, and surgical interference on places, providing maximum availability and quality of specialized medical aid to the population.

4. Foundation of intraregional branches SBE RS (Y) YROB functioning as advisory-diagnostic units, equipped according to the order MH RF from November, 12th, 2012 № 902н «About adjustment of the order in rendering medical aid for adult population with eye illnesses, its additional device and orbit» in the Central, Viljujsky and Southern regions of the republic.

Table 1

Markers of General Inability due to Eye Illnesses and Glaucoma in RS(Y) in the period of 2001 and 2010.

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Adult invalids with eye illnesses (abs.)	2874	2881	2829	2801	3144	3116	3276	3168	3246	3275
Glaucoma relative density (%)	36,8	29,9	34,4	36,9	37,9	39,0	35,6	36,2	34,6	34,7
IP of general inability due to glaucoma (per 10 thousands adult population)	15,2	12,5	14,0	15,6	17,7	17,9	16,9	16,5	16,2	16,3

Table 2

The analysis of showings of primary survey patients by specialized bureau MSE in RS (Y) in 2001-2010

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
IMPI in RS(Y) (per 10 thousands adult population)	50,8	50,4	50,6	57,0	72,9	70,4	58,9	66,2	76,2	75,6
IMPI due to eye illnesses (per 10 thousands adult population)	3,4	3,3	2,4	3,2	5,0	3,6	3,0	3,3	3,8	3,9
IMPI due to glaucoma (per 10 thousands adult population)	1,2	1,2	1,0	1,1	1,8	1,6	1,5	1,6	1,5	1,6
Relative density of eye illnesses (%)	6,0	6,3	5,4	5,6	7,8	8,8	5,1	5,0	4,9	5,2
Relative density of glaucoma (%)	35,5	36,2	44,7	45,2	49,2	52,6	41,4	50,2	35,7	37,3

Table 3

The structure of firstly recognized inability due to glaucoma in the period of 2007-2011 RS(Y) (%)

Group of inability / Year	I group	II group	III group
2007	50,4	22,0	27,6
2008	48,2	22,7	29,1
2009	57,0	21,5	21,5
2010	45,4	21,2	33,4

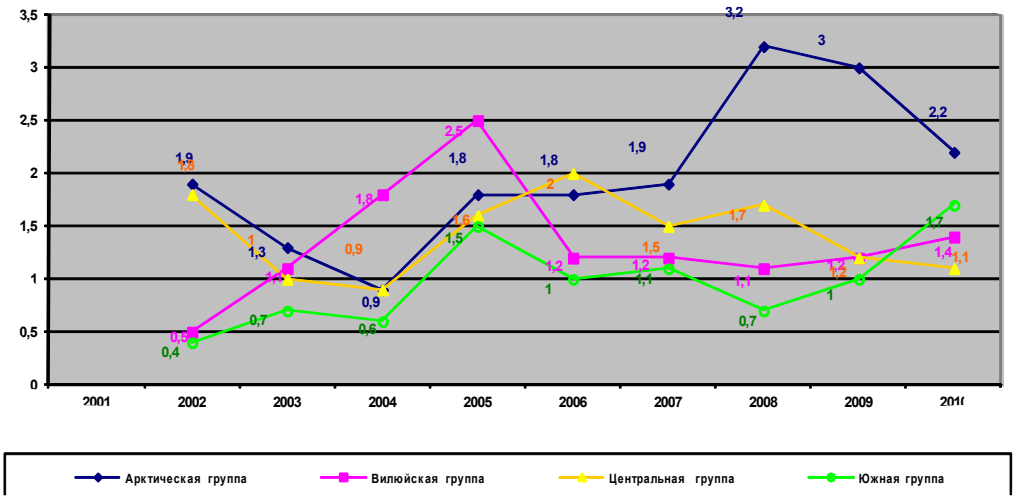

Рис. 1.

Fig. 1. Dynamics IMPI due to glaucoma in regions RS (Y) in 2001-2010 (per 10 thousand adult population).

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STRUCTURE AND PREVALENCE OF DENTAL AND JAW ANOMALIES AND DEFORMATION IN CHILDREN DURING MIXED OCCLUSION PERIOD IN EXTREMELY CONTINENTAL CLIMATE

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Abstract. The structure and prevalence of dental and jaw anomalies and deformation were studied in children aged 6-12 living in extremely continental climate in Zabalkalye. High prevalence of dental and jaw anomalies was revealed, with distal occlusion and maxillary deformation being wide spread. Main etiologic factors contributing to prognathic occlusion develop-ment were determined.

Key words: prevalence of dental and jaw anomalies, mixed occlusion formation, sagital occlusion, children aged 6-12.

Dental and jaw anomalies occupy a leading position among the diseases of the maxillofacial area. According to E. Udovicki (2003), functional and morphological variations were found in 75% of children aged of 3 years, and it exceeds frequency of caries and other dental diseases by occurrence. The data of the population epidemiological studies of several regions of Russia are quite contradictory and show great variability in the prevalence of dental and jaw anomalies in different regions, which ranges from 11,4% to 71,7% [2, 6, 7].

In the last 30-40 years there has been a tendency towards increase of the frequency of children dental and jaw anomalies. This is due to the fact that resistant pathological mechanisms affect its formation [5]. Obviously, the prevalence of dental and jaw anomalies can justifiably be regarded as one of the integral parameters characterizing the health status of children in a particular region. [4] Several authors assume that the increase of incidence is related to changes in environmental conditions: atmospheric air pollution, changes in the micro-and macro-element composition of drinking water [1]. Their conclusions are based on the inseparable connection of macro-and micro-organisms.

During the formation of mixed occlusion in children of 6-13 years there occurs intensive formation of dental, respiratory and musculoskeletal systems, neuromuscular regulation of organs and tissues [3, 8]. With the growth of the jaws and teeth change the formation of occlusion occurs [9].

The aim of our study was identification of the structure and the prevalence of dental and jaw anomalies, caries prevalence and its intensity in children with mixed occlusion, living in Chita town.

Material and methods of research. The subjects were divided into groups according to the period of dentition system development: group 1 - six to eight years (the period of initial mixed occlusion), 2 group - from nine to thirteen years (the period of late mixed occlusion). The total number of the surveyed was 660 people in each age group by 329 and 331 children. The subjects lived in districts with different content of fluoride in drinking water and the level of air pollution.

To determine the prevalence and structure of the dental and jaw anomalies the medical-geographical research methods proposed by the Central Research Institute of Dentistry (CRIS) were applied, with the scientific and practical guidance on the application of the dental and jaw anomalies epidemiological studies developed by the dental department at WHO headquarters and the dental diseases epidemiology Commission of International dental Association (Form WHO/IDA).

Estimation of oral hygiene in children had been identified by index of Volodkina and Fedorov (1971). The prevalence of dental caries and dental and jaw anomalies was determined as a percentage. To do this, the number of people with certain signs of dental caries or dental and jaw anomalies (except the local demineralization) was divided by the total number of examined in this group and multiplied by 100. The intensity of the caries process in the mixed occlusion period was determined by **КПУ+кп** index. In determination of the physical status dispensary cards f-113u and f-112u had been used.

The research results were treated by methods of variation statistics with calculation of the average values (M) and standard deviation (ð) and the error of the average (m). The reliability of differences of indicators of relevant research methods was determined by the Student's criteria. A value was considered statistically reliable if match the value of $p < 0,05$ in the table.

Results and discussion. The frequency of the dental and jaw anomalies is calculated as a percentage of the total number of children examined with the dental and jaw anomalies (table 1). The overall prevalence of dental and jaw anomalies in the initial mixed occlusion period was 66,3±3,5%, in the late period significantly higher rate 69,3±2,4% ($p < 0,01$) was observed. This

figure reveals a low rate of self-regulation of dental and jaw system, even in cases where functional disorders were the causative agent.

The distal occlusion takes the highest position in relation to other dental and jaw anomalies and averages 25,5±1,9 and 34,4±1,3% ($p<0,01$). Continental climate influence on the overall physical health of children is confirmed by the analysis of physical cards. If during the period of temporary occlusion the surveyed patients had conservative treatment for adenoids, than in mixed occlusion period 37,4% underwent surgery - **adenoektomy**. Nasopharyngeal tonsil hypertrophy contributes to a gothic palate formation, short-cut dentitions and lengthening of the frontal section of upper jaw, so that there is a formation of two types of distal occlusion: the frontal shape and combined with distalization of the mandible and the relation of the teeth of the second class by Engle.

Table 1

The frequency and structure of the dental and jaw anomalies and the prevalence of dental caries in children mixed occlusion period (M±m)

Studied periods of dental and jaw system development	Initial mixed occlusion (6-8 years); (n=329)	Late mixed occlusion (9-13 years); (n=331)
The overall prevalence of dental and jaw anomalies (%)	66,3±3,5	69,3±2,4**
Prognathic occlusion (%)	25,5±1,9	34,4±1,3**
Mesial occlusion (%)	6,4±0,8	4,3±1,2**
Deep overbite with deformation of dental rates (%)	19,1±1,1	14,9±1,4**
Open occlusion (%)	14,9±1,4	5,8±1,1***
Oblique, cross occlusion (%)	20,2±0,9	7,4±0,9***
Anomalities of individual teeth and dental rates (%)	13,9±1,1	33,2±1,4***
Early loss of temporary teeth (to the physiological changes over the year) (%) / loss of the permanent teeth	21,5±1,4	11,3±2,1***
Caries prevalence (%)	70,2±1,8	58,3±1,7***
The median of caries intensity	5,0±0,8	4,2±0,1**
Hygiene index according to Fedorov-Volodkina	2,63±0,4	2,08±0,1**

*Note. * relevant difference between periods of dental and jaw system development, where * $p < 0,05$; ** $p < 0,01$; *** $p < 0,001$*

Mesial occlusion in the first period of mixed occlusion was 6,4 %, 4,3% in the second . It should be noted that the true shape of mesial occlusion, which has in its etiology genetic predisposition to the excessive development of basis mandible was detected only in 1,4% of cases. 98,6% consisted of two forms of mesial occlusion - a false front mesial occlusion and constrained mesial occlusion.

Frequent colds induce not only the development of distal occlusion, but also because of the mouth breathing and hypotonus of circular muscles of the mouth – open occlusion. This figure was in the initial mixed occlusion 14,9±1,4%, in the late mixed occlusion 5,8±1,1% ($p < 0,01$). Decrease in the proportion of this disease is concerned with a reduction in the nasopharyngeal tonsil in given age aspect or held adenoectomy. Infantile type of swallowing as one of the etiological factors of a given nosology was detected in 2,8% of cases.

Deep occlusion with the deformation of dental rates in the period the initial mixed occlusion

was 19,1±1,1%, in the generated constant occlusion 14,9±1,4% ($p < 0,01$).

Transversal anomalies of occlusion are due, primarily, to delay of physiological abrasion of temporary canines, by completion of the physiological changes of the teeth group tended to decrease performance. In the first period of the initial mixed occlusion the rate of oblique and cross occlusion was 20,2±0,9%, in the period decreased to 7,4±0,9% ($p < 0,01$). Early loss of temporary teeth during the initial mixed occlusion was 21,5±1,45%, in the period of generated occlusion was 11,3±2,1% ($p < 0,01$). Despite the quantitative decrease in this indicator, its share in the second period is higher because in 38% of cases first permanent molars were removed, which are the keys to permanent occlusion.

The prevalence of dental caries in the second period has a tendency to decrease due to the physiological changes of temporary teeth affected by caries. This figure at the age of 6-8 years was 70,2±1,8%, and in 9-13 years – 58,3±1,8% ($p < 0,001$). The average intensity rate of caries also had lower values in the second period due to the physiological change of teeth 4,2±0,1 towards to the first period of 5,0±1,7 ($p < 0,01$).

The valuation of hygienic condition in the first period corresponded to 2,63±0,4 – «bad» , the second 2,08±0,1 ($p < 0,01$) - "satisfactory" state of oral health. The motivation for the care of a cavity for 9-13 years significantly increased.

Conclusion. The results of the derived data indicate a high prevalence of children dental and jaw anomalies and dental caries during mixed occlusion period. Moreover, among children of 6-13 years there are revealed a high proportion of sagittal anomalies – 34,4% and hypoplasia of the jaw bones in the second period which are leading to the influence of climatic and geographical features of Zabaikalye. It is established that children living in Chita town, suffer acute respiratory infections for at least 3-4 times a year. Nasopharyngeal tonsil hypertrophy is a leading etiological factor in the deformation of the upper jaw and distal occlusion development.

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THE QUALITY OF LIFE OF CHRONIC OBSTRUCTIVE PULMONARY DISEASE PATIENTS

Abstract
The analysis of the literary data testifies that COPD leads to deterioration of all life quality components of the person. Restrictions for normal life of patients accrue with illness weighting. At the same time there is other data relative to influence of illness gravity on life quality. Appreciable variability of life quality indicators within one severity level was shown too. The literary data about sex influence on life quality inconsistent.
There are too little researches about life quality of patients with different severity level of COPD and its dynamics in illness development. Only individual researches contain the data about influence of long basic therapy on life quality of patients with COPD.
Keywords: chronic obstructive pulmonary disease, quality of a life, SF-36, SGRQ.
The chronic diseases inclined to progression and proceeding with exacerbations lead to stress chronisation and can lead to essential restrictions in all components of normal existence of the person [9]. In turn these restrictions can be more important for the patient than symptoms of illness. In this connection the concept of life quality (LQ) has been entered. The individual, its physical, psychoemotional and social status is an object of LQ research [2].
LQ is an integrated characteristic of physical, psychological, emotional, social functioning of the person which is based on its subjective perception [7]. Based on the recommendations of WHO Scientific research institute of pulmonology of Ministry of Health of the Russian Federation has offered to define LQ as a degree of comfort of the person both in itself, and within the limits of the society [2]. It completely depends on a physical, psychoemotional condition, level of independence, a social standing, environment and personal representations of an individual.
The feature of the modern approach to LQ assessment is the development of objective procedures of quantitative measurement of all components entering into this concept. LQ categories can be measured separately or in aggregate by means of various questionnaires, scales, indexes. All of them are divided into the general and specialized. It is necessary to perceive that LQ questionnaires do not estimate weight of disease. They reflect patient tolerance to the disease [23].
General questionnaires at COPD patients are applied to LQ comparison with population indexes defined in various population group, regions, countries, for LQ comparative analysis at COPD and other diseases, in epidemiological researches, for an assessment of efficacy of medical and preventive actions [18]. SF-36 (The 36-item MOS Short-Form Health Survey) is used more often of such questionnaires for LQ research [21]. It allows analysing of LQ in compliance with 9 scales reflecting the physical and psychosocial status of the patient for last 4 weeks. Assessment criteria are physical activity (PA), a role of physical problems in restriction of vital activity (RV), a pain (B), general well-being (GW), viability (V), social activity (SA), a role of emotional problems in vital activity restriction (RE), mental health (MH), the way one feels comparison (CF). The assessment is manufactured with respect to 100-point scale. The better part of LQ canons of criticism such as PA, GW, V, SA and MH are direct: the above a point, the better LQ of patient. Estimated criteria of such LQ indexes as RV, P, RE are anatropic: the higher the value, the less the influence on person LQ.
The physical status of the respondent is characterized by 5 scales (PA, RF, GW, V), the psychosocial

status estimates also on 5 scales (RE, SA, MH, GW, V). Last two indexes are defined both physical, and mental status of the person. As a whole, general questionnaires are the tool allowing estimating LQ interrelation with the social status, mental health and the general well-being of an individual [20].

Specialized questionnaires are oriented on concrete nosology, therefore they are more sensitive to change of the health status and LQ conditioned only by certain diseases [18]. SGRQ (the respiratory questionnaire of clinic «Sacred George») has received a wide circulation in the capacity of the special questionnaire for LQ assessment at COPD patients [2; 4; 17]. It includes 76 questions, 4 generalized domains in the capacity of such estimated parameters as «Symptoms», «Activity», «Influence», «the Sum». The assessment of each domain was manufactured after code conversion of «crude points» by the instrumentality of 100-mark scale. Estimated criteria are anatropic: as the point rises negative influence of illness on respondent LQ becomes more negative. Changes of such and such scale at least 4 points are considered clinically significant in researches made in dynamics of disease or at an assessment of efficacy of various medical programs [17]. Mean LQ deterioration at COPD patients in line with SGRQ questionnaire compounds 1,87 points per annum [19].

Modern researches have shown LQ decrease of COPD patients starting with the easy and moderated disease [9]. The researches of last decade have confirmed a close tie between COPD severity and patients LQ. The same researches show that the patients' perception of their symptoms, physical and mental activity reflects weight of illness truer and more exact than the data of objective research in many cases [9; 15]. The harder the COPD, the worse the LQ. In sum E. Stahl. et al. have revealed that average values of SGRQ domain «Sum» have compounded 25, 32, 36, 53 points for I, II, III, IV stages of COPD, respectively [15].

Similar results were received by R. Antonelli-Incalzi et al. However, they didn't reveal statistically significant LQ differences depending on severity level according to questionnaire SF-36 [10]. Nevertheless, LQ parameters varied within one stage of disease, for example, LQ of COPD patients become worse at every fourth patient with 0 stages than a mean score of LQ indicators at patients with severe COPD. It can be bound that LQ indicators won't be compounded with functional indicators of an individual underlying classification of a stage of illness, and reflect how the patient transfers the disease [5].

Besides, the phase of disease, feature of its current, age and a floor of respondents, the smoking, an accompanying pathology, the functional status, efficiency of medical and rehabilitation measures influence on LQ . S. Spencer and P.W. Jones have established that the repeated exacerbation occurred more often at patients who have higher SGRQ score when incorporated into the research [24]. ISOLDE Research has shown interrelation between frequent COPD exacerbations and lower LQ according to SGRQ questionnaire initially and its fast deterioration further [16]. The augmentation of hospitalization frequency was accompanied by LQ deterioration. According to I.M. Osman et al. patients having the general SGRQ estimation by 4,8 points above within the first year after an extract from a hospital, were with repeated hospitalization [22]. The augmentation of illness duration was accompanied by its heavier clinical course and increase of negative LQ influence. Researches had shown that the longer the respondent was ill, the greater its LQ declines. Thus, according to A.G.Chuchalin data, LQ indexes increased by 15-18 points over the subsequent decade in comparison with the 5-year-old season of illness in all SGRQ domains [4]. The age and increase of patients number with heavy clinical course was associated with augmentation of illness duration that can cause the LQ decrease, but the long clinical course can be considered as independent predictor of LQ decrease.

The reported data about sex influence on LQ of COPD patients are inconsistent. Some researches have shown that men have better LQ indicators even under more expressed disturbances of pulmonary function [10]. Poor LQ on «Influence» domain and the general indicator was marked in women in comparison with men [10]. Subjective reaction to clinical implications of illness has been more expressed in men on the results of multicenter research «IKAR-COPD»; they estimated

degree of FA restriction on «Activity» domain and the general negative COPD influence on a state of health. The psychological problems associated with COPD and defined by «Influence» domain had no statistically significant sexual differences [3; 4].

The analysis of age influence on LQ was shown that its augmentation was accompanied by authentic LQ depression [4; 10].

The majority of researches have found relationship between smoking and LQ. Authentic differences on such SGRQ domains as «Symptoms», «Influence» and the general LQ are taped between smokers and ex-smokers. However it was not revealed authentic differences between them on «Activity» domain [12]. Research «IKAR-COPD» has taped depression of LQ level only at high (smoking index (SI) = more than 30 pack-years) value of an smoking-index [3].

Rising of C-reactive protein level (CRP) was associated with LQ depression at COPD patients. The Score on LQ scale of «Sacred George» clinic at COPD patients was more than at patients with normal CRP value [11].

As already it has been told above, increase of COPD severity conducts to LQ depression, but appreciable variability of LQ indicators within one stage was shown too [6; 10]. The given circumstance was possibly bound that FEV1 reflects the clinical and functional status of the patient not in full. Thus, there was low correlative relationship between FEV1 and dyspnea intensity and tolerance to exercise stress. The coherence between FEV1 and LQ indicators was confirmed not in all studies.

The dyspnea which is the basic complaint of patients and forcing them to address for medical aid, also influences on LQ. In a number of researches it was shown that correlation communications between dyspnea level and LQ indicators closer in comparison with those between LQ and size of bronchial obstruction [6]. The interrelation between dyspnea level and all LQ domains was high, thus higher communication was at «Activities» domains ($r=0,83$ on MRC scale and $r=0,70$ on Borg's scale, $p<0,05$) and «Sum» (MRC $r=0,81$ on MRC scale and $r=0,73$ on Borg's scale, $p<0,05$) [6].

Authentic connection between «Symptoms» domains ($r=0,63$), «Sum» ($r=0,62$) and size of residual volume of lungs was established. More expressed interrelation between LQ indicators and a dyspnea was due to the fact that bronchial obstruction and a hyperinflation act the part in a dyspnea genesis; the contribution of these factors to depression of the functional status can vary at different patients.

The expressed influence on LQ renders tolerance level to exercise stress. Return correlation between «Activity» domain under the SGRQ questionnaire and the 6-Minut Walk Test (6MWT) distance was shown [14]. Significant inverse relationship between all scales of the SGRQ questionnaire and 6MWT distance was received in I.N. Trofimenko and B.A. Chernjak's research [6].

The BODE-index including tolerance to exercise stress estimated by the instrumentality of 6MWT, a dyspnea ratable by MRC scale, obstruction (FEV1) and body-weight index [25] is an integrated indicator of the functional status of an individual. It was shown that patients with high BODE-index parameters had worse LQ parameters on «Activities», «Influence», «Sum» domains of SGRQ, than patients with an average and low index [6].

It is necessary to note polimorbidity, characteristic for COPD patients among the factors influencing on LQ. It was shown by means of SF-36 questionnaire that a combination of three and more diseases reduce LQ on psychoemotional and social scales more than advanced age and clinic functional indicators [26]. LQ analysis with use of specialized SGRQ questionnaire has shown similar result, i.e. the worst indicators were shown on the scales characterizing the psychosocial status and general LQ indicator [10]. Differences of LQ indicators depending on an accompanying pathology decrease in process of augmentation of illness gravity. Communication between severity level of COPD and SGRQ scales was more expressed for the patients who do not have accompanying pathology [9].

Prognostic LQ value deserves attention at COPD patients. Deterioration of 3 domains of the questionnaires indicators testifies to simultaneous deterioration of all LQ aspects. The accurate interrelation of death frequency and LQ was noted According to T. Oga and coworkers. The augmentation of the general estimation under SGRQ questionnaire on each point was accompanied by growth of death risk by 3,3 % [8].

It was shown in research of P. Almagro and coworkers that the augmentation of the general estimation by SGRQ by 10 units was accompanied by mortality growth by 21 % during the period later on discharge from the hospital [20].

Similar results were received and in a work of A. Domingo-Salvany et al. [13]. The growth of mortality at men with COPD by 61 % at estimation deterioration under SGRQ questionnaire by 1 standard deviation was shown. Similarly LQ deterioration under SF-36 questionnaire was the risk factor of death.

Thus, as the analysis of the literary data testifies, COPD leads to deterioration of all LQ components of the person. Restrictions for normal life of patients accrue with illness weighting. At the same time there is other data relative to influence of illness gravity on LQ. As stated above appreciable variability of LQ indicators within one severity level was shown too [6; 10]. The literary data about sex influence on LQ inconsistent.

There are too little researches about LQ of patients with different severity level of COPD and its dynamics in illness development. Only individual researches contain the data about influence of long basic therapy on LQ of patients with COPD [1].

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Quality of a life at patients with chronic obstructive pulmonary disease
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THE ROLE OF PRENATAL DIAGNOSTICS IN THE PREVENTION OF CONGENITAL AND GENETIC DISEASES

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Annotation

In the review methods of prenatal diagnostics of congenital and genetic diseases are represented. Questions of prenatal screening of pregnant women as a means of decreasing child mortality and disability in Russia are discussed. The authors tell how to increase the effectiveness of prenatal diagnostics service in prevention of genetic pathology.

Keywords: prenatal diagnostics, congenital and genetic diseases, screening of pregnant women, medical and genetic consultation.

Prenatal diagnostics is a method of clinical medicine, which allows to evaluate on different stages of prenatal development the fetus, the risk of disease (congenital or genetic) in combination with families counseling (prenatal counseling). According to Baranov V.S. (1994), one of the founders of Russian prenatal diagnostic service, prenatal diagnostics (PD) is a new branch of medical genetics appeared in the 80s of XX connecting Obstetrics, Gynecology and Perinatology on the one hand and Human Genetics, Molecular Biology, Cytology, Embryology, Pathophysiology on the other [3].

That's why there are different methods used in prenatal diagnostics. First of all, it is the main non-invasive ultrasound (U/S.), which allows evaluating normal or abnormal structure of the organs of the fetus at various stages of development, further to determine the risk of congenital abnormalities, chromosomal aberrations, some genetic diseases [2]. The effectiveness of ultrasound depends on the technical condition of an apparatus and the skill of an ultrasonographer. It is known that over the past decade U/S apparatus has been improved that makes it possible to visualize subtle

organ failure of the fetus in a multiple spatial projections [11, 13, 19]. For example, 3-D ultrasound, Doppler, coronary angiography can currently detect up to 80-85% of congenital malformations in the II trimester of pregnancy (20-22 weeks) [15].

According to selective studies in Russia and other developed countries detection of congenital malformations in first-level health facilities is 20%, in the second level ones - 55%, and in perinatal centers it reaches 90% [14]. These data demonstrate that it is right to develop modern obstetrics and create perinatal centers as powerful, well-equipped facilities, having not only in-patient departments but also conducting a truly effective work to identify birth defects [12]. Large numbers of patients, significant staff with constant training, analysis and generalization of the experience can significantly improve the quality of diagnostics. As an example of high quality diagnostics is the work of the Scientific Center for Obstetrics, Gynecology and Perinatology of Russian Academy of Medical Sciences where the detection of congenital malformations is 94%. Every year, the department of functional diagnostics of the Center examines about 30,000 pregnant women and diagnoses 500 cases of congenital malformations. The introduction of three-dimensional ultrasound improves the diagnostic capabilities and improves detection of defects, especially smaller structures of the body (polydactyly, cleft upper lip, etc.) [6].

Nonetheless, deviations in the fetus development revealed through a variety of direct non-invasive diagnostic techniques with the help of ultrasound do not prove the presence of chromosomal and genetic diseases. In some cases the combination of specific ultrasound markers can suspect a presence of chromosomal pathology with a certain probability [16, 19]. Therefore the diagnosis of chromosomal and genetic diseases is carried out using special laboratory tests of samples of the fetus material (bioptates) obtained by different invasive methods of PD under the ultrasound control [15].

Invasive methods of obtaining fetal material for laboratory diagnostics are divided depending on the duration of pregnancy and the objectives of the examination. In the early stages of pregnancy in the I and II trimesters invasive chorion-biopsy and placenta-biopsy are used. In the later stages of fetal development in the II and III trimester amniocentesis (obtaining samples of amniotic fluid), and cordocentesis (obtaining the fetus blood with umbilical cord puncture) are used. For example, in accordance with the type of laboratory tests for cytogenetic research it is preferable to use specimens from chorion cells or fetus blood, for most biochemical studies to use amniotic fluid and blood. Higher quality DNA specimens are usually obtained from chorion-bioptates.

These methods are in place and substantially modified in the laboratory of Institute of Prenatal Diagnostics of Scientific Research Institute for Obstetrics and Gynecology named after D.O.Ott RAMS. According to data of the year 2005, more than 7 000 invasive procedures to obtain fetal

material for research (including 2 679 chorion-biopsy, 3 392 placenta-biopsy, 379 amniocentesis, 882 cordocentesis) were carried out [15]. According to data of the year 2007 in the Laboratory of Clinical Genetics of Scientific Center for Obstetrics, Gynecology and Perinatology RAMS 2 839 invasive procedures of prenatal diagnostics (chorion-biopsy, amniocentesis, cordocentesis) were made within 5 years. The number of complications (mostly abortions) was from 2.2 to 0.3%, on average 0.7%. As a result of these studies 91 cases of fetal pathology were detected. 97% were eliminated, and postnatal confirmation was 100% [6].

Since obtained through invasive procedures cells have fetus origin and their genotypic characteristics correspond to the body of the fetus as a whole, for the prenatal diagnostics of the fetus reliable and efficient cytogenetic (method of karyotyping of chromosomal specimens obtained from chorion cells or placenta) and molecular-genetic research methods (method of direct or indirect DNA diagnostics) are used most commonly [15].

Biochemical, cytogenetic and molecular-genetic analyzes should be routine for that laboratory where they are carried out by qualified personnel. Prenatal diagnostics can give the following results:

• If the fetus has serious illness – termination of pregnancy is recommended.

• If the suspected pathology of fetus was excluded – the pregnancy is prolonged.

•When the suspected pathology has been excluded and other fetal abnormalities are found.

•If ambiguous data (balanced adjustments *de novo*, mosaic options, the new gene mutations, etc.) has been obtained – often further or additional prenatal study (on available specimen or specimen obtained by additional invasive procedure, often cordocentesis) are made.

•When congenital defects or multiple congenital defects and chromosomal disorders are excluded – prenatal consultation is necessary. It should include consultation of obstetrician-gynecologist, geneticist and pediatric surgeon to determine the possibility (feasibility) to continue pregnancy, to calculate the risk of monogenic diseases and to decide if the correction of defects is possible.

•It was possible to decrease the high risk of a particular disease, but the probability of the disease remained significant [8].

One of the most difficult problems of PD is the ethical aspect of PD that inevitably arises in all its stages.

Particular problems are caused by the fact that in the majority of genetic diseases diagnostic opportunities are ahead from therapeutic ones. Therefore, the only measure to prevent the birth of the ill fetus is still a prenatal diagnostics of the disease followed by termination of pregnancy if the family agree. [5] An alternative but still unaffordable for many families method is the pre-implantation diagnostics.

Thus, the role of medical and genetic counseling to provide complete information about the features of the clinical manifestations of the disease is becoming more important. The principle of freedom of choice in reproductive decisions for families should be saved but this choice should be informed. The individual choice can be affected by personal attitude to human life, the desire to prevent human suffering, social and economic conditions in the absence of adequate treatment and social support to the disabled and the chronically ill. Traditionally, abortion was considered ethically acceptable when there was a risk of severe genetic fetus disease. This view was formed when it was possible to diagnose prenatally a small number of severe hereditary diseases. Nowadays when it is possible to diagnose less severe disease, to identify genes of susceptibility to multifactor diseases, to investigate genes of normal signs discussions about ethical aspect become more and more actual [26].

The aim of prenatal diagnosis is to prevent the birth of children with severe congenital and genetic diseases. To select a risk group on the congenital defects, chromosomal and monogenic diseases among the general mass of pregnant women in a given region so-called screening is carried out. Total screening may study 80-90% of women. In many regions of Russia, due to the lack of trained personnel and inadequate infrastructure, screening is often used as selective method. According to leading experts, the main screening programs in PD should include:

Ultrasound screening. It is made three times during pregnancy (10-14, 18-22 and 30-32 weeks). Depending on the examination ultrasound screening is divided into Level 1, Level 2, Level 3. Early detection of congenital defects (CDF) and markers of chromosomal aberrations in the I trimester greatly facilitates decision on prolongation of pregnancy and therapeutic abortion during this period is 3-5 times safer for a woman's life than at a later time [17]. For example, congenital heart disease (CHD) occupy a leading position in the structure of congenital anomalies of the fetus, making 16-40 % of cases, often combined with a chromosomal abnormality. Every year in Russia about 10 000 children with CHD are born [2]. Diagnostics is often difficult to perform. Screening for fetal CHD is possible at 12-14 weeks by consistent detection of markers: thickening of nuchal fold more than 3 mm, the rate of blood flow in diastole through ductus venosus less than 2 cm/s. Later, when chromosomal aberrations has been excluded, the algorithm of consistent detection of CHD markers allows to detect a high-risk group of isolated heart defects [20, 21, 22, 23, 25]. The use of high-density, high-frequency transvaginal (TV) detectors allows visualizing the basic structure of the fetal heart, discharge of the great vessels, to carry out Doppler sonography study at 13-14 weeks of pregnancy [24].

Biochemical screening. It identifies the main marker serum proteins in the mother's blood: alpha-fetoprotein (AFP), human chorionic gonadotropin (hCG), free (unconjugated) estriol, pregnancy-

associated plasma protein A (PAPP-A), free β-subunit of human chorionic gonadotropin (β-hCG). The concentration of the main marker proteins varies depending on the duration of pregnancy and the condition of the fetus.

Simple blood test is not enough to find out if the risk of congenital malformations is high or not. At the first stage of a computer calculation the numbers obtained in laboratory diagnostics are transferred into so-called MoM (multiple of median), characterizing the degree of deviation of an indicator from median. MoM = [value of the indicator in the patient's blood serum] / [median of the indicator for the duration of pregnancy]. At the next stage of the calculation the correction of MoM according to various factors (body weight, women, race, the presence of certain diseases, smoking, multiple pregnancy, etc.) is made. As a result there is so-called corrected MoM. On the third stage corrected MoM is used to calculate the risk. Software is specially installed for used in laboratory methods determining indicators and reagents. It is unacceptable to calculate risk using analyzes made in different laboratories. The most accurate calculation of risk of fetal abnormalities is made using ultrasound findings, performed at 10-13 weeks of pregnancy. Since the value of the index and median have the same units of measurement, the value of MoM has no units. If the MoM value of a woman is close to 1, the value of the index is close to the average in the population. If the MoM value is greater than 1, the value of the index is above the average in the population. If the MoM value is lower than 1 – the value of the index is below the average in the population. In the analysis forms next to the absolute values of the index there are corrected MoM values for each index [9]. The interaction between the members of the laboratory, clinical specialists and experts in the instrumental diagnostics is necessary at all stages of the diagnostic process as the calculation of the risks of prenatal screening is a complex procedure performed together. This technique involves the clinical history and clinical examination of the pregnant woman, ultrasound examination of the fetus and the data of immunochemical blood test. It cannot be properly processed and implemented without any participant of the diagnostic process. [7]

Cytogenetic screening. It determines a higher risk for chromosomal aberrations based on the family's reproductive history (age of the mother, one of the spouses carriage of a chromosomal aberration, a prior child with multiple congenital defects or chromosomal diseases). Karyotyping of the fetus at various stages of fetal development requires the use of complex techniques, which includes a variety of methods for preparing and colour staining chromosomes specimens, each of which has its own advantages and disadvantages. The efficiency of diagnostics depends on the quality and quantity of fetal material, and its accuracy is determined by a resolution of the analysis methods, the choice of which is chosen according to the indication for PD and gestational age. Before performing invasive intervention it is necessary to evaluate the adequacy of the obtained

fetal material to specific objectives of the study [10].

Molecular screening. As in Russia at the present time only 70 mono-gene disorders are technically available for molecular genetic testing, it is possible to conduct their prenatal diagnostics. However, the existing organizational problems, lack of specialists, the high cost of diagnostics, as well as the inhomogenuity of the ethnic composition of the regions of the Russian Federation, the specific spectrum of mutations among the population of Russia significantly limit the introduction of molecular screening to the Health Care of the Russian Federation. In the Russian Federation candidates for the molecular-genetic screening are monogenic diseases such as cystic fibrosis, phenylketonuria, congenital adrenal hyperplasia, spinal muscular atrophy (Werdnig Hoffmann disease). [15]

Immunological screening. It allows early detection of the presence of potential pathogens of infectious diseases causing abnormalities in the development of the fetus, such as rubella virus, cytomegalovirus, herpes virus, the causative agent of toxoplasmosis. For example, infection of the fetus with virus rubella can follow the mother's infection at any stage of gestation. In this case the outcome of rubella is highly dependent on gestation. The probability of infection of the fetus at less than 8 weeks of pregnancy is 54%, at 9-12 weeks – 34%, at 13-24 weeks – 10-20%, and no more than 12% since the end of the second term [4]. The most common fetus malformations that occur when infected with rubella virus, are retardation, deafness, cataracts, retinopathy, aorticopulmonary window, patent ductus arteriosus, hypoplasia of the pulmonary artery (or valve stenosis), hepatosplenomegaly [18]. Another important prenatal immunological test is to determine mother's Rh when the pregnancy is immunoincompatible. [1]

Prenatal genetic screening of pregnant women is a part of a national program on prenatal diagnostics. In Russia the Order №316 MH RF of December 30, 1993 "On Further Development of Medical Genetic Services of the Ministry of Health of the Russian Federation" and the Order №457 MH RF of December 30, 2000 "On Improving Prenatal Diagnostics in the Prevention of Congenital and Genetic Disorders in Children" played an important role in its formation. These orders not only regulated the structure of the whole PD service in Russia, but also defined the interrelation of its various departments taking into account existing peculiarities of the organization of medical genetic services in the regions of the Russian Federation. In 2010 the Resolution of the Russian Government № 1141 of December 27, 2010 to support regions with PD subsidies from federal budget was given. These subsidies financially provided procedures of prenatal diagnostics of children developmental disorder.

Thus, nowadays the role of prenatal diagnostics as basic part of prenatal medicine is constantly growing. In Russia there are significant reserves for PD development and decreasing

child mortality and disability. Firstly, there is an improvement in population awareness about importance of medical-genetic consultation as well as improvement in quality of prenatal diagnostics (specialists' trainings, high-quality equipment, different methods used). Secondly, it is increasing role of prenatal centers in providing quality of prenatal diagnostics in regions.

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THE DETECTION OF MYCOBACTERIUM TUBERCULOSIS AMONG THE PATIENTS OF THE YAKUTSK CITY CLINICAL HOSPITAL BY AUTOMATED BACTEC MGIT-960 SYSTEM

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Summary

In this study, conventional culture test for tuberculosis was comparatively analyzed against automated BACTEC MGIT–960 test system, the latter showed high effectiveness.

Keywords: *Mycobacterium tuberculosis*, culture diagnosis, BACTEC MGIT–960 automated systems.

In Russian Federation, the diagnosis of tuberculosis (TB) is performed both in clinical diagnostic laboratories of the primary network (these laboratories conduct primary detection of sputum-positive patients), and in tertiary bacteriologic laboratories of the anti-TB service.

The existing epidemiologic situation for TB in Russia and in the world demands quick and effective detection of *M.tuberculosis*.

At the same time, more accurate and evidence-based approach to formulating indications for diagnostic culture tests for TB infection has become a necessity, so that patients subject to further examination could be selected more wisely. In immobile patients, it is reasonable to use triple microscopy by means of primary network laboratories instead of sputum culture test. But in case of suspicion for the diagnosis of TB and in case of presence of relevant symptoms, the patient must undergo a proper full examination at the anti-TB hospital [4].

Microbiologic investigations have profound meaning in the detection of TB patients and are ones of the basic TB diagnosis verification tools. Culture diagnosis with solid media is the current "gold standard" for the detection of the causative agent of TB, but slow growth of *M.tuberculosis* substantially delays verification of diagnoses and complicates the choice of chemotherapy regimens. Following the introduction of the rapid automated BACTEC MGIT-960 detection system to daily practice, completely new level of bacteriological diagnostics has been achieved [1,2,3,].

Starting in 2008, automated BACTEC MGIT–960 system is used to perform liquid medium-based TB diagnosis in the Bacteriologic Laboratory of the "Phthisiatry" Research & Practice Center. In our experience, mean time to detection of the TB causative agent using liquid medium was 11.8 days, while mean detection time for solid egg-based medium was 40.6 days, i.e. the detection of *M.tuberculosis* was made 3.4 times more rapid. Inoculability of *M.tuberculosis* was 31% for liquid medium, which was 2.6 times quicker than that for solid medium (11.5%) [5].

In this study, we explored inoculability of *M.tuberculosis* by automated BACTEC MGIT–960 system among the patients of the Pulmonology Department of the Yakutsk City Clinical Hospital.

All patients underwent minimum compulsory clinical examination at the admission – triple Ziehl-Neelsen sputum microscopy at the Clinical Diagnostic Laboratory of the Yakutsk City Clinical Hospital. This examination did not detect any positive case in this patient group.

During 2011, 364 specimens from 223 patients with various inflammatory or obstructive forms of lung diseases had been referred to the laboratory, after the TB doctor's advice. Of them, 234 (64.3%) specimens from 143 (64.1%) patients had been tested by automated BACTEC MGIT–960 system.

As a result of the study, 14 (6.3%) sputum-positive patients were detected, of them 11 (7.7%) were detected by rapid automated test, 3 (3.7%) were detected using the classical method. Inoculability of *M.tuberculosis* from specimens using liquid media was 7.3% (17 out of 234), which was 1.9 times higher, compared to inoculability by classical method using solid media (3.8% – 5 out of 130).

Starting in 2007, activities necessary to improve anti-TB service in Yakutsk have been undertaken among the primary network physicians: workshop in cooperation with the WHO representatives, educational lectures on the requirements to specimen collection and transportation to the laboratory. One of the key questions at the workshop was a more evidence-based approach to referring patients to bacteriological laboratory for TB test.

We compared the data for 2011 with the data for 2005. In 2005, only persons from the risk group, i.e. patients with acute, chronic lung diseases or immobile patients without adequate evidence-based indications, were subject to conventional bacteriological culture test for TB. Total number of inoculations performed was 6548, with the specimens obtained from a total of 3242 patients. Inoculability rate was 1.8% – this was a reliable estimation showing a wasteful approach to patient referral to culture tests. In 2011, with the use of automated BACTEC MGIT–960 system, detectability of positive results increased by a factor of 4.3 and reached 7.3% (17 out of 234). This comparative analysis showed the effectiveness of measures aimed at improving the indications for

diagnostic culture tests for TB infection.

In conclusion, the study results have shown high effectiveness of BACTEC MGIT-960 system used to detect TB among the patients of the Pulmonology Department of the Yakutsk City Clinical Hospital, who somehow had not been recognized as epidemiologically risky based on Ziehl-Neelsen microscopic sputum test results. But concluding from their existing medical records, and after TB doctor's consultation, these patients were selected for further examination, which allowed a more early detection of sputum-positive cases with various forms of airway TB.

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COMPARISON OF CHANGES IN THE HUMAN CARDIOGRAM DURING SPORADIC AND RECURRENT GEOMAGNETIC STORMS (ON THE EXAMPLE OF THE INHABITANTS OF YAKUTSK CITY)

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The analysis of changes of a symmetry coefficient of a T-wave of the electrocardiogram during two types of geomagnetic storms is carried out. It is shown that the growth of the parameter characterizing a state of a human cardiovascular system coincides with the beginning of a storm. Maximum values are reached on the third day after the beginning of a storm – at the recovery phase. More clearly this dependence may be observed for the recurrent storms.

Key words: geomagnetic storm, cardiovascular system, human health, Dst-index

Introduction

At the present time a dependence of human health on solar and magnetic storms can be considered as an established fact. In this regard, there was even the term "space weather" because studies show that the magnetic field of the Earth has at times no less, and even greater impact on people's health and in general on living organisms, than meteorological factors and terrestrial weather.

Recent research established [1-5] that main target, which is influenced by heliogeomagnetic disturbances, is the heart and cardiovascular system. It is shown in such indicators, as a variability of a heart rhythm and frequency of heart reductions. In [3] it is shown that one can identify the disease, essentially determined by external (ecological) factors (exogenous nature of the disease or

factors related to the characteristics of the functioning of the body's own (endogenous nature of the disease). The former include cardiovascular disease (cerebrovasculitises, heart rhythm disorders, ischemic heart disease), and upper respiratory tract infection (bronchitis, asthma, etc.).

Nevertheless it is noted [2], despite the undoubted successes of the cardiology which has revealed of multiple risk factors for cardiovascular diseases, it is still unclear what exactly is the reason for starting of sharply developing coronary insufficiency, and what role of external factors is.

The aim of our work is to clarify the dependence of the cardio-vascular system of the geomagnetic conditions (from magnetic storms) on the example of inhabitants of Yakutsk city.

Geomagnetic situation

The comparison of changes of the parameter characterizing a cardiovascular system state (of a symmetry coefficient of a T-wave of the electrocardiogram) at group of volunteers in Yakutsk, with geomagnetic storms within March and April, 2011 is carried out in this work.

For this period 8 geomagnetic storms were recorded. The parameters characterizing storms are specified in table 1: data, storm beginning hour(Δt), storm main phase duration, low-latitude Dst-index amplitude(ΔDst), class of a storm, high-latitude AE-index sum (ΣAE), parameter β and type of a storm – sporadic (s) or recurrent (r). The class of a storm was determined by Dst-index amplitude – a difference between the maximum value of an index and the minimum in the main phase of a storm. According to [6, 7], there are 5 classes of a storm basing on the Dst-index decreases: small storms with Dst amplitudes from 31 to 50 nT, moderate storms – from 51 to 100 nT, big storms – from 101 to 200 nT, and storms with amplitudes more then 200 nT usually named extra- or superstorms. During period under the consideration there were registered 4 moderate (M) and 4 small (S) storms.

Table 1. Data and parameters of the geomagnetic storms durin March-April of 2011.

№	Date	Begino	Δ t	Δ Dst	Class	Σ AE	β	Type
1	March, 1	10	6	84	M	3358	0,0250	s
2	Marcy, 10	01	31	84	M	15153	0,0055	r
3	April, 1	17	11	52	S	5191	0,0099	r
4	April, 6	10	11	67	M	8022	0,0084	r
5	April, 8	15	13	40	S	4436	0,0090	r
6	April, 11	17	18	79	M	3930	0,0201	s
7	April, 18	8	10	43	S	2917	0,0147	s
8	April, 19	23	11	42	S	3313	0,0127	s

Dst- and AE - indexes of a geomagnetic field during March-April, 2011 are shown in fig.1. The left axis – Dst in nT (the top curve), the right one – AE in nT (the bottom curve), on the x axis – days of months. These indexes show the geomagnetic field activity at low (Dst) and high (AE)

latitudes. The first one characterizes the intensity of the ring current located in an internal magnetosphere with the radius about 6 Earth's radiuses, and the second one caused by ionospheric current systems in polar and subpolar regions of the Earth.

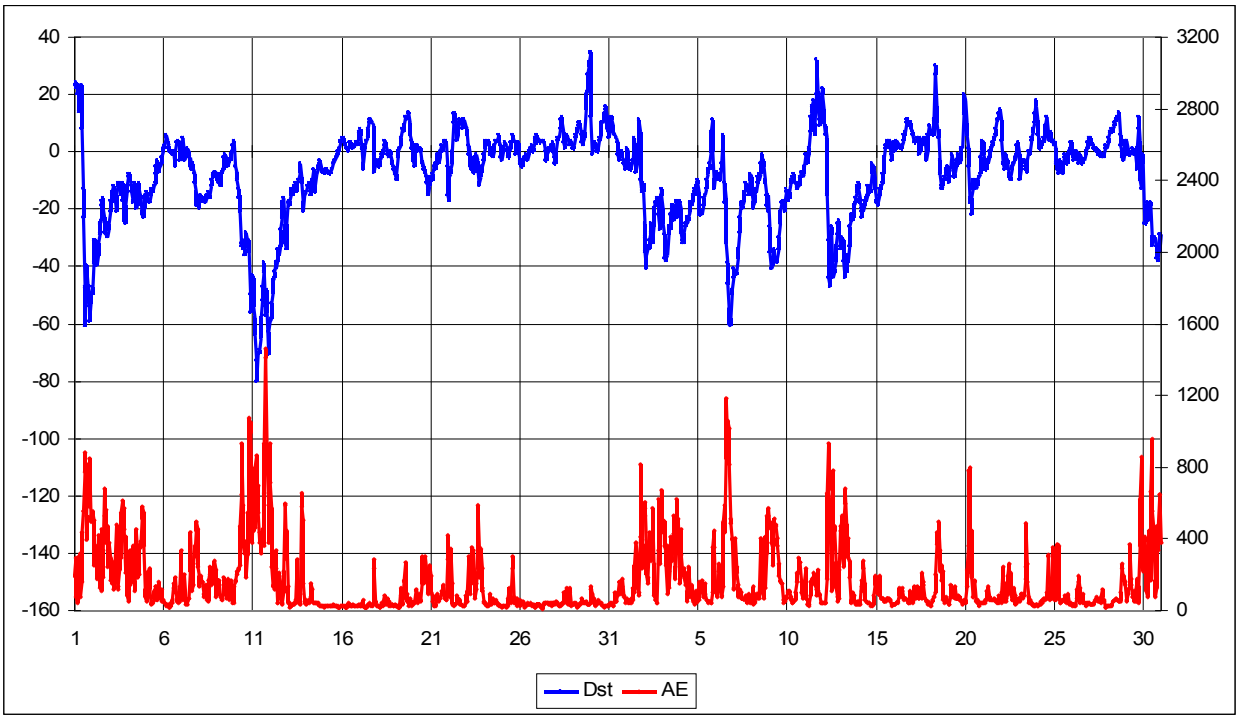

Fig. 1. Geomagnetic storm indices Dst (top curve, left scale) and AE (bottom curve, right scale) at March-April of 2011.

Geomagnetic storms can be refer according to their origin in two types [6]. Sporadic storms are caused by solar wind flare streams, and the recurrent one are usually caused by long-living high-speed streams. It was suggested in [8] for the storm type definition to use a parameter β which is calculated on a formula:

$$\beta = \Sigma \, AE / \Delta \, Dst,$$

where Σ AE is the sum of AE-index during the main phase of a storm Δt, and Δ Dst is amplitude of Dst-index. This suggestion is substantiated by understanding that these two indexes characterize the energy entering from the interplanetary medium into the magnetospheres during the storm main phase: Σ AE – to the auroral region, and ΔDst to the equatorial region (ring current). It is shown [6] that for the two types of the storms parameter β significantly differs. Sporadic storms (flare type) have β <0,0100, and for recurrent storms β> 0,0120. Thus, using β one can to determine the storm type – sporadic (s) or recurrent (r). The calculated values Σ AE and β, and also type of a storm are shown at three last columns of Table 1.

At the analyzed time interval four storms are carried out to a moderate (M), and another four

storms – to the small (S) according to common opinions (Tabl. 1). Two moderate storms were sporadic type (No. 1 and No. 6), and two – recurrent type (No. 2 and No. 4). Small storms also were divided: two recurrent types (No. 3 and No. 5) and two sporadic one (No. 7 and No. 8). It is necessary to note that two moderate storms, sporadic (first) and recurrent (second) may be considered as isolated: the second storm began 5 days later after the end of the first one. The end of a storm is time, then Dst-index returned to it prestorm level (see fig. 1). Four storms at the first half of April followed one after another with an interval of 3-5 days (No. 2-6), and the geomagnetic field have no time to recover. Two last small sporadic storms were not isolated too: the storm No. 8 began 40 hours after the storm No. 7. At polar latitudes it is observed higher activity during each of storms, and AE-index reaches the maximum values more than 1300 nT on March 11 whereas in quiet time it's values are 30-80 nT.

Results and discussion

The cardiovascular system state for group of 17 volunteers during March 01 to April 29, 2011 is investigated. In the present work a symmetry coefficient of a T-wave of the electrocardiogram (further – the electrocardiogram parameter T) was chosen as a parameter of investigation. The value or amplitude of a teeth of an electrocardiogram is one of the main indicators which are using for the interpretation of the electrocardiogram [9]. The type of a teeth and intervals between them depends on alternate of excitement and relaxation phases of a cardiac muscle. Teeth appears and grows at those moments when any myocardium parts are working, but another one are in the rest. The tooth T most often shows on various disturbances in a cardiac muscle state. More detail one can see this methodic of measurements of parameter T in works [4, 5].

Measurements were carried out in two conditions – in the rest and after physical activity. Averaged by a method of epoch composition values of parameter T are shown on Figure 2 for all group of examinees – for a quiet condition (a) and after physical and emotional activity (b).

a)

b)

Fig. 2. Histogram of averaged by a method of epoch composition values of parameter characterizing cardiovascular system state (parameter T, a symmetry coefficient of a T-wave of the electrocardiogram) – for a quiet condition (a) and after physical and emotional activity (b).

For a quiet condition six increases of parameter T with maxima on March 4, 13, and 22 and on April 1, 10 and 19 are separated on the histogram. The first two increases are connected with the moderate isolated storms on March 1 and 10 – after the beginning of a storm parameter T begin to increase and reach the maximum at third day of a magnetic storm. During a small sporadic storm No. 3 the maximum of parameter T is observed in day of the storm beginning – on April 1. It is possible to consider in this case parameter T reaches maximum at third day after the beginning of geomagnetic activity increasing because its growth can be connected with positive splash of Dst-index as far as 35 nT on March 29.

During the time of three nonisolated storms on April 6, 8 and 11 one can see the growth of parameter T, and this growth is much more considerable previous one though the storm intensity was smaller. May be this is an evidence that in the case of storms follow one after another the magnetic storm effect can accumulated in a human being. During the time of two small storms on April 18 and 19 one can see the same behavior – the value of parameter T increase is comparable with the increase during moderate storms in March.

One would think, the third parameter T increase with the maximum on March 22 isn't connected with a storm. Amplitude of Dst-index fluctuations was less than 20 nT, and that isn't storm-time. It is necessary here to take into account behavior AE-index which increase evidences the substorm activity growth in polar latitudes. It is known that usually substorm activity increases during storm-time and this show Fig. 1. The substorms appear also means tha geomagnetic activity growth at high latitude region and this reflected in a human being. Since March 20 AE-index begins

to increase, its values exceed 300 nT, and on March 23 substorm activity reaches almost 600 nT. Perhaps the increase of parameter T on March 22nd are caused by this type of geomagnetic disturbance – the substorm.

The parameter T behavior after the loading have some differs. First, we see any not six but only four increases. Secondly, all of them have less value, than in a quiet condition. It is necessary to note parameter T have no response on a storm No. 1, March 1. It could have an explanation if a sporadic storm didn't acts on examinees after loading. However two last storms also were sporadic. Take into attention that the fourth parameter T increase began on April 6 and, gradually increasing, reached a first maximum on April 9, and absolute maximum on April 18. Therefore it is logical to explain this parameter T increase as effect of accumulation on three recurrent storms following one after another on April 6, 8 and 11. Therefore, and in this case during two sporadic storms examinees under loading didn't feel any effects on April 18 and 19.

Conclusions

The parameter T characterizing a cardiovascular system state of the of volunteers in Yakutsk city - the symmetry coefficient of T-wave of the electrocardiogram - during the March-April 2011 showed a clear dependence on geomagnetic conditions - namely, the rise during geomagnetic storms

2. On average, the growth of parameter T begins with the beginning of a geomagnetic storm and reaches a maximum at the third day of the storm.

3. More precisely, ' this dependence appears during the periods of storms of recurrent type

4. After loading dependence on geomagnetic activity appears less clear

5. Not all of the 17 subjects equally show a dependence on geomagnetic factors: part reacts significantly and their amplitude change varies several times, and for the other changes consist of some percents.

To clarify these preliminary conclusions require further research on a larger statistical material.

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Development of a population-based study protocol of life quality of the Republic Sakha (Yakutia) population

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The article deals with planning and organizing the process of population-based study of the life quality of the adult population of the Republic Sakha (Yakutia). Described in detail the logical structure developed the study protocol and determines the amount of the minimum representative sample.

Keywords: quality of life, the population study, the development of the study protocol.

Introduction. The study of life quality (QOL) - a reliable method of assessing health and general well-being, which allows to quantify the characteristics of multi-component of human life - physical, psychological and social functioning [1, 4, 5].

For the various institutions of society are more valuable data on the results of population studies, QOL, the so-called normal population QOL. The norm in this case are the values of QoL mean of the population of a country and a region. Note that the standard values are found in all countries [2, 3, 6, 7, 8, 9, 10, 11, 12, 13, 14].

According to the methodology of the study of quality of life first and fundamental step in conducting population-based study is to develop a research protocol QOL. The study protocol QL - a document that develop before the start of the study, and which do not change during the study. At the stage of development of the study protocol tasks such as evaluation of the sample size, the definition of research tools, verification of inclusion criteria, etc. [4, 5].

This article presents the main stages of development of a protocol population-based study of quality of life of the adult population of the Republic of Sakha (Yakutia).

Development of a research protocol.

Protocol population study QOL was developed in accordance with the recommendations of the International Project study of quality of life - ICO. In accordance with the principles of the construction protocol population-based study made the following provisions:

1. Defining goals and objectives of population research, design

and entry criteria.

The purpose of the study:

To study the regional quality of life of the adult population on the model of a representative sample of the population of the Republic of Sakha (Yakutia).

Research objectives:

• Determine the volume of a representative sample of the population for the study of the quality of life of the adult population of the Republic of Sakha (Yakutia), taking into account age and gender characteristics of the population;

• Identify indicators of the quality of the adult population of the Republic of Sakha (Yakutia), depending on sex, age and area of residence of respondents using a standard questionnaire SF-36;

• Conduct a standardization of the data for each of the scales of the questionnaire to determine the standardized population-based indicators of quality of life according to sex, age and area of residence of the respondents;

Criteria for inclusion in the study. The study will include individuals of both sexes aged 15 and older, living in the industrial, agricultural and arctic zones of the Republic of Sakha (Yakutia), of different social groups, regardless of the presence or absence of any medical condition. The study will not include persons who have not attained 15 years of age and persons with any disability group.

Study Design

A population study on the quality of life of the adult population, health-related planned by the three medical and economic zones of the Republic of Sakha (Yakutia) - industrial, agricultural and Arctic. In the industrial area by the quota and random sampling selected Yakutsk and Tomponsky area in the Arctic - Even-Bytantai and Oleneksky in the agricultural zone - Nyurbinsk and Namsky region. In Yakutsk will be selected two typical areas: the center and the outskirts of the city. In rural areas, out of the total population by the list of random numbers will be selected respondents corresponding sex and age.

Data will be collected by questionnaire respondents direct interview.

2. Description of the research tools

The study will use a questionnaire assessment of QoL SF-36 and the socio-demographic map, developed in this work, and are tested in a pilot study.

The questionnaire SF-36 includes eight health concepts that are most often measured in population studies and who are most affected by the disease. SF-36 questionnaire for self-completion by the respondent to the survey computer or to fill it with a trained interviewer in person or

by phone. It is applicable at the age of 14 years and older. The model underlying the construction of scales and measurements of total SF-36 questionnaire has three levels:

- 36 questions;
- 8 scales formed from 2-10 issues;
- 2 total measurement, which together span.

35 questions were used to calculate the scores on scales of 8, 1 - for the assessment of the state of patients for the past 4 weeks.

Analysis of QOL held on the following scales:

1. Physical functioning (PF) - Physical Functiong (PF) - the scale that assesses physical activity, including self-care, walking, climbing stairs, carrying heavy loads, and the performance of significant physical activity. The indicator reflects the scale of the amount of daily exercise, which is not limited to health: the higher, the more physical activity, according to the study, it can be done. Low scores on this scale indicate that physical activity is considerably limited health.

2. Role-physical functioning (RFF) - Role Physical (RP) - a scale which shows the role of physical problems in limiting life, reflects the degree to which health limits the performance of normal activities, ie characterizes the degree of restriction of work or daily activities the problems that are associated with health: the higher the score, the less, according to the respondent's health problems limit their daily activities. Low scores on this scale indicate that the daily activities significantly restricted physical state of health.

3. The scale of pain (B) - Bodily Pain - assesses the intensity of pain and its impact on the ability to engage in normal activities, including work on the house and outside in the past month: the higher the score, the less, according to the respondent, pain they experienced. Low values of the scale indicates that the pain significantly limits the physical activity of the test.

4. General health (NEOs) - General Health (GH) - assesses the state of health at the moment, the prospects of treatment and disease resistance: the higher the score, the better the health status of the respondent or the patient.

5. The scale of viability (F) - Vitality (V) - involves assessment by the respondent or by the patient feel full of strength and energy. Lower scores indicate a fatigue study, reduced vitality.

6. The scale of social functioning (SF) - Social Functioning (SF) - assesses satisfaction with the level of social activity (socializing, spending time with friends, family, neighbors, collective) and reflects the extent to which physical or emotional state of the respondent or their patient's limits: the higher the score, the higher the social activity for the last 4 weeks. Low scores correspond to significant restriction of

social contact, reducing the level of communication due to the deterioration of health.

7. Role-emotional functioning (RAF) - Role Emocional (RE) - involves the assessment of the extent to which emotional state interfere with work or other regular daily activities, including a large amount of time for their execution, reducing the amount of work done, reduction in water quality: the higher the the less emotional state limits daily activity of the respondent.

8. Psychological health (PZ) - Mental Health (MH) - characterizes the mood, the presence of depression, anxiety, assesses overall positive emotions: the higher the score, the more time respondents felt calm, at peace during the last month. Low scores indicate the presence of depression, anxiety, psychological troubles.

4. Description of socio-demographic map

In accordance with the recommendations of the International Quality of Life Assessment Project has developed a special socio-demographic map that takes into account cultural and social characteristics of the Republic of Sakha (Yakutia). Socio-demographic map consists of 14 questions and includes demographic characteristics (gender, age, occupation, education, marital status) and the substantive nature of the questions that provide information about the level of income and living conditions.

5. Informed consent

Texts invitations to study and informed consent of the respondent presented below.

Dear yakutyanin!

You know that health is one of the most important values of the person and the need to take care of him. According to the World Health Organization, "health - is the complete physical, mental and social well-being and not merely the absence of disease.

"We invite you to participate in a study of quality of life related to health of the population of the Republic of Sakha (Yakutia). The results of the study you will learn from the media. We guarantee complete anonymity of the information received.

Thanks for agreeing to fill out a questionnaire!

The text of informed consent is given below:

I understand that this study is conducted to determine the quality of life of the adult population of the Republic of Sakha (Yakutia). I provided the following information on the ongoing investigation:

• conducted a population-based study, and does not disclose confidential information about each of the respondents;

• As a result of the study will identify indicators of quality of life of the adult population of the Republic of Sakha (Yakutia), depending on

age and sex using a standard questionnaire SF-36;

• will be held standardization of the data to determine the population of standardized indicators of quality of life according to sex, age and residence area of the adult population of the Sakha Republic (Yakutia)

• Based on the data obtained will be developed recommendations for the use of research results in the medical and social fields.I understand the information provided.

I had the opportunity to ask me questions and I got (a) answers to my satisfaction. I voluntarily agree to participate in this study.

6. Methods of statistical analysis

The total sample size for the study population, as well as for individual medical and economic zone of the Republic of Sakha (Yakutia) is defined for a given power of 80% and the level of statistical significance of $p < 0.05$.

Test samples for the presence or absence of a normal distribution performed by constructing a histogram of the frequency and test Kolmogorov - Smirnov. If the distribution of the sample is different from the normal, to test hypotheses about the significance of differences between the means of the sample will be used nonparametric methods Mann - Whitney (Mann-Whitney U-test) and the Kruskal - Wallis test (Kruskal - Wallis ANOVA). Analysis of the relationships between the groups sampling will be conducted using the Spearman correlation coefficient.

Conclusion

Population-based study QoL adult population of the Republic of Sakha (Yakutia) is a well-designed study, the relevant recommendations ICOLA. Conducting population-based study in accordance with the developed protocol will develop standardized QOL indicators, to create referent base of populational QOL values, which can be used to compare the QOL of patients with various diseases in accordance with the age and sex of patients, assessing the effectiveness of therapy in scientific research, further development integrated approach to the assessment of QoL of the population, taking into account the objective characteristics, conditions and processes of life.

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Results of the fundus state study in elderly and senile patients suffering from dyscirculatory encephalopathy, depending on the region of residence and ethnicity

Kudrina P. I.

In the article the results of the fundus study in patients with dyscirculatory encephalopathy depending on the region of residence and ethnic group by direct ophthalmoscopy are given. In this case they revealed more expressed changes in the fundus state in the non-indigenous population and in patients living in ecologically unfavorable region.

Keywords; fundus, elderly and senile age, encephalopathy.

It is known that blood flow in the blood vessels of the retina has an anatomical, physiological, embryological relationship to the cerebral circulation. [1] There are reports of the functional changes of blood circulation in the vessels of the retina in patients with lacunar stroke. [2] Data from four large epidemiological population studies have shown an independent correlation between symptoms of hypertensive retinopathy identified by fundus photography, and the risk of stroke. According to the observations T.Wong et al. [5], the symptoms of retinopathy was associated with reduced cognitive function during standard neurophysiological tests, and with the defeat of the white matter of the brain and cerebral atrophy, identified on the basis of magnetic resonance imaging. Some studies have shown consistently weaker and less consistent relationship between the other changes of the retina (eg, generalized and localized narrowing of the arteries and arteriovenous cross) as cognitive dysfunction and symptoms of brain lesions on magnetic resonance imaging [3,4]. These observations support the concept that the study of the fundus is an important measure for determining risk stratification of cerebrovascular disease (CVD), and all patients with the disease, so need regular monitoring ophthalmologist with research retina.

The aim of this work was to study the state of the fundus in elderly and senile patients with chronic cerebral ischemia (CCI), depending on the region of residence.

Material and methods

206 patients were examined with HIM I and II stages. All patients during the observation period were admitted to the neurological department senior center (GC) of Belarus № 3. The criteria for the diagnosis was confirmed clinically and instrumentally carotid arteries with appropriate clinical HIM. With the goal of work, age criterion, region patients were divided into two groups: the principal, including 2 groups, and control, which in turn are based on the stage of HIM were divided into subgroups A, including patients with CHEM-I and subgroup B, consisting of patients with CHEM-II. In this first study group included indigenous people of the Arctic Zone of Yakutia, characterized preserved the traditional way of life and clean environment (n = 38), while the second major group consists of urbanized residents of Yakutsk indigenous - Yakuts (n = 44). In each of the 2 selected groups were present between the ages of 60 to 85 years, the group also consisted of representatives of 4 regional categories of patients with the same pathology, but at the age of 35 to 55 years (n = 35). Thus, we have observed how the principles of regional and age division of the studied groups of patients that met the objectives of the study.

All the patients studied state fundus direct ophthalmoscopy, which indirectly reflects the state of cerebral hemodynamics. In this case, the difference in the estimated increase in the caliber of the arterial and venous vessels (normal ratio is 2:3), Salus symptom-Gunn (abnormal veins cross

indentation at the intersection with the deep tissues of the arteries of the retina), the narrowing of the retinal arteries, thickening of the arterial wall, symptom of "copper wire" with moderate symptom of "silver wire" with its sharp intensity.

According to the distribution of patients by age, as can be seen from Table 1, in the ratio of men and women in both groups dominated by women, and this can be explained by higher average life expectancy of women [Krivoshapkin V.G.2001]. In the comparison group met HIM equally common in both sexes. Distribution of patients by sex Table №1.

By age (Table №2) in both groups in the I-th main group was dominated by people aged 71-75 years, in the II-nd group had more patients aged 60-65 years.

Results. The study conducted by the state of the fundus in patients with ED-I,-II and DE when comparing the main groups and comparison groups are shown in Table № 3. Comparative results of the study states fundus

Group observations options pathology in the fundus narrowing of the arteries and veins of the retina or retinal angiopathy angiosclerosis Macular degeneration

As can be seen from the table, revealed differences in the nature of changes in the fundus. In the study of the state of the fundus patients CHEM-I, the changes were reflected in the narrowing of arteries, veins, angiosclerosis, angiopathy and macular degeneration. The biggest share was suffering from narrowing of the arteries, veins and angiopathy of the retina, with the lowest frequency encountered angiosclerosis and retinal degeneration. When CHEM-II, none of the patients, even the "young" age, there were no rules, the changes were more severe than in CHEM-I.

At that if DE-I dominated those with retinal angiopathy, when DE-II was the greatest proportion of patients with retinal dystrophy and angiosclerosis. Violation of visual function is expressed by the complaints of blurred vision, foresight, and floating spots before the eyes.

It should be noted that hypertensive angiopathy, angiosclerosis and degeneration of the retina in HIM and HIM-I-II was significantly more prevalent in group II members, and less frequent in the North.

Thus, on the basis of the results it can be stated that the DE-II changes in the fundus were more severe than in the DE-I, and determined in all patients. At the same time, the representatives of the urban population of Yakutia vascular pathology, reflects the state of the fundus, has a more pronounced and "running" in nature, in similar stages of cerebrovascular disease than that of the rural population in remote areas of the country. This can also be traced as possible traces of urbanization. Our work proves once again that the vascular changes in the fundus are a symptom of the target lesion in atherosclerosis and hypertension.

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COMPLICATED FORMS OF PRIMARY TUBERCULOSIS IN CHILDREN AND ADOLESCENTS

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Summary. Analysis of complicated forms of pediatric primary tuberculosis is presented, based on x-ray findings of 45 patients, treated in the 'Phthisiatry' Research & Practice Center, Sakha Republic (Yakutia). The study revealed that clinical x-ray pattern of primary tuberculosis complex correlated with age factor. We observed that due to age-specific host responsiveness differences, a complicated clinical progression of primary tuberculosis complex occurred more often in adolescents and infants, and manifested as bronchopulmonary involvement with generalization of the process spreading to other organs and systems. In preschool and junior school age, an unfavorable tuberculosis progression was far rarer exclusion and manifested predominantly as lymphogenous seeding.

Keywords: primary tuberculosis, complications, children, adolescents, computed tomography.

X-ray findings of 155 children and adolescents with tuberculosis (TB) of intrathoracic lymph nodes or primary tuberculosis complex have been analyzed in the 'Phthisiatry' Research & Practice Center, to study CT-based semiotics of primary tuberculosis. Complicated disease forms were found in 45 out of 155 patients (29%). In half of the patients, the specific process was complicated by 2 and more complications, of which lymphogenic seeding (45.4%) and bronchopulmonary involvement (18.2%) were diagnosed most often.

Complications of primary tuberculosis in children and adolescents

Complications of primary tuberculosis:	Age groups (n)				Total (n=155)
	0-3 year (n=52)	4-6 year (n=50)	7-13 year (n=48)	14-17 year (n=5)	
Total number of children with complications:	*13 (25%)*	*13 (26%)*	*16 (33%)*	*3 (40%)*	*45 (29.0%)*
Bronchopulmonary involvement	5	4	2	1	12 (18.2%)
Bronchonodular fistula	-	1	-	-	1 (1.5%)
Bronchogenic seeding	1	2	3	1	7 (10.6%)
Lymphogenic seeding	8	9	12	1	30 (45.4%)
Hematogenic seeding	2	-	-	1	3 (4.6%)
Pleurisy	-	1	3	-	4 (6.0%)
Destruction	1	-	1	1	3 (4.6%)
Chronic tuberculosis	-	1	2	-	3 (4.6%)
Infiltrative exacerbation	-	1	-	-	1 (1.5%)
Generalized tuberculosis, including:	2	-	-	-	2 (3.0%)
Meningitis	-	-	-	-	-
Involvement of bones	1	-	-	-	1
Involvement of vertebrae	1	-	-	-	1
Enlargement of intra-abdominal lymph nodes	-	-	-	-	1
Involvement of adrenal gland	1	-	-	-	-
Number of complications:	*19 (28.8%)*	*19 (28.8%)*	*23 (34.8%)*	*5 (7.6%)*	*66 (100%)*

The clinical and radiological manifestations of intrathoracic processes showed some age-specific differences. Based on them, patients were divided to 4 age groups (Table).

In children aged 0 to 3, more severe forms of complications, such as generalization of TB infection to other organs or bronchopulmonary involvement, are found more often than in other age groups. Primary pneumonic alterations in children from this age group often occupy a large part of the lung or an entire lobe. These patients are detected mostly on visit to a hospital. The most frequent diagnosis is pneumonia, and following the inefficiency of nonspecific antibacterial therapy differential diagnosis for presence of TB is required. On x-ray pictures, caseous process in mediastinal lymph nodes manifesting as tumor-like bronchadenitis was especially pronounced in early age; in such cases tuberculosis was characterized by predominant presence of large parcels of caseation-alterated lymph nodes.

Monitoring 1. 4 month old child. Right lung has diminished volume. Heterogeneous consolidation area in lung tissue with signs of athelectasis is recognizable in segments S1, S3 and in right middle lobe. Within the consolidation area, lumina of dilated bronchi and an ovoid cavity sized 1.3x1.1x0.8 sm are seen. The rest of lung compartments show heterogeneously decreased pneumatization and the presence of multiple disseminated foci, in some places merged into infiltration areas with indistinct boundaries.

Conglomerates formed by perivascular, paratracheal, tracheobronchial (2.0x1.98x2.5 sm),

subcarinal (1.28x1.34x1.47 sm), right bronchopulmonary (1.2x0.9x0.8 sm) lymph node groups are identified in hilar structure and in upper mediastinum.

Diagnosis: tumor-like form of tuberculosis of the intrathoracic lymph nodes, complicated with bronchopulmonary involvement leading to tissue destruction and lymphohematogenous seeding (fig. 1).

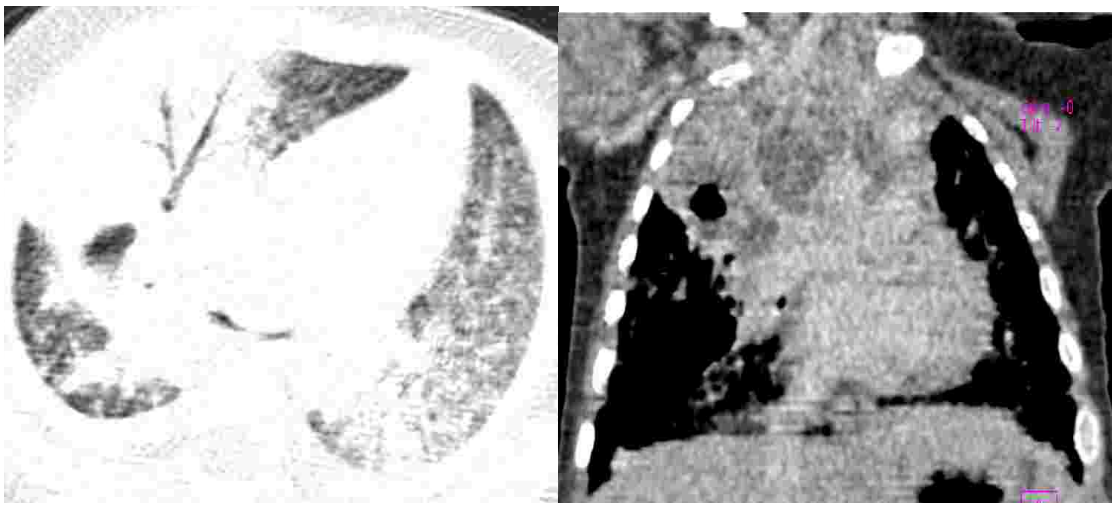


Fig. 1. Computed tomography of the lungs and mediastinum. Tumor-like form of tuberculosis of the intrathoracic lymph nodes, complicated with bronchopulmonary involvement leading to tissue destruction and lymphohematogenous seeding.

Direct signs of bronchial involvement were bronchial obstruction, altered diameter and deformed walls of the bronchi. Indirect symptoms were various degrees of impaired bronchial lumen patency ranging from hypoventilation to atelectasis, which appeared on CT as well-defined areas of diminished and thickened lung tissue.

Development of bronchonodular fistula was one of complications, which was a precondition to the invasion of caseous-necrotic matter from the molten lymph nodes to bronchial lumina, causing a bronchogenous dissemination.

Monitoring 2. 4 year old child. In segments S1, S2, S3 of left lung, consolidation area with densitometric value of 45-67 HU is identified; it has heterogeneous composition and patches of early-stage calcification. In segments S2, S6, S8, S10 of right lung, subpleural solitary focal opacities with distinct boundaries are seen.

Bronchonodular fistula is seen located at the level of left upper-lobe bronchus and manifesting as both-sided bronchial wall defect reaching 6 mm. in width.

Diagnosis: tuberculosis of the intrathoracic lymph nodes in the infiltration phase (tumor-like form), complicated with bronchopulmonary involvement. Bronchonodular fistula of the left upper-lobe bronchus (fig. 2).

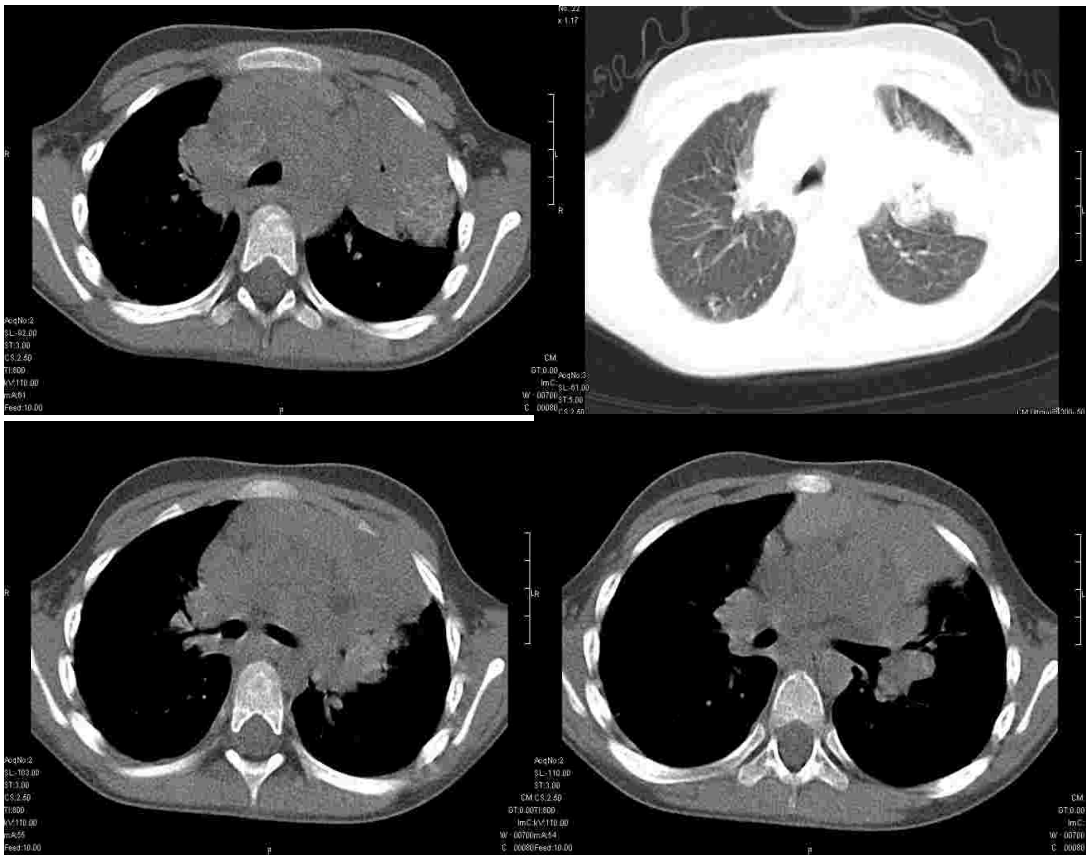


Fig. 2. Computed tomography of the lungs and mediastinum. Tuberculosis of the intrathoracic lymph nodes in the infiltration phase (tumor-like form), complicated with bronchopulmonary involvement. Bronchonodular fistula of the left upper-lobe bronchus.

Tendency to generalization and to hematogenous dissemination of the process was one of the most noticeable features of primary tuberculosis in infants. One of characteristic features in acute microfocal and miliary disseminations was the presence of multiple monomorphous foci distributed over the lungs from apices to diaphragm. These focal alterations were accompanied by a mild response of interstitial structures, which manifested as a diffuse thickening of interlobular intersticium. A characteristic feature in subacute hematogenous disseminations was the development of numerous homogeneous or polymorphous foci in the lungs. And the upper lobes were predominant sites, where alterations took place.

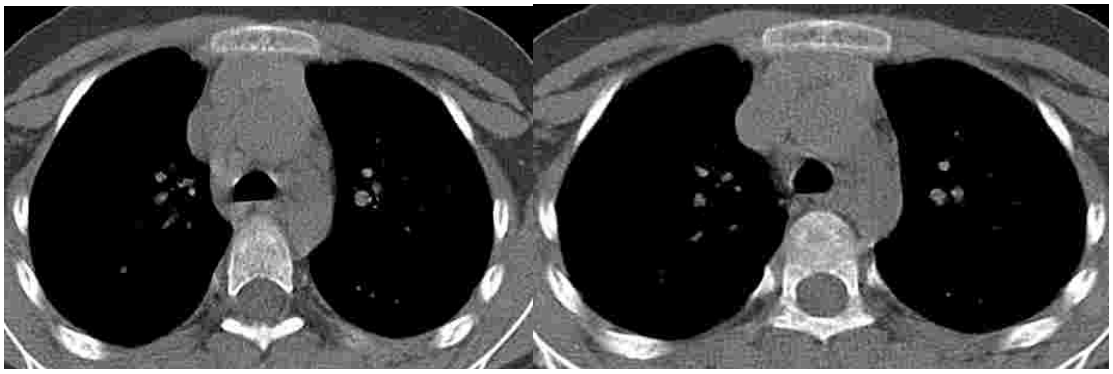
Lymphogenous tuberculous dissemination was seen more often in preschool and school children (groups 2 and 3) and was marked by irregular pattern of involvements. The alterations had predominantly subpleural localization and appeared as productive foci of medium density with relatively well-defined boundaries, 0.3 to 0.5 sm. large. These foci were found more often in anterior and posterior segments of the upper lung lobes, in apical segments of lower lobes, in lingular segments and in middle lobes.

A slower progression of primary TB was more common in children from these age-groups. If the pulmonary process with acute onset was later followed by a prolonged disease course, this was the reason to consider chronic process. Lymphotropic nature of *M.tuberculosis* was seen in the tendency of the disease towards lympho-glandular progression with involvement of new groups of lymph nodes.

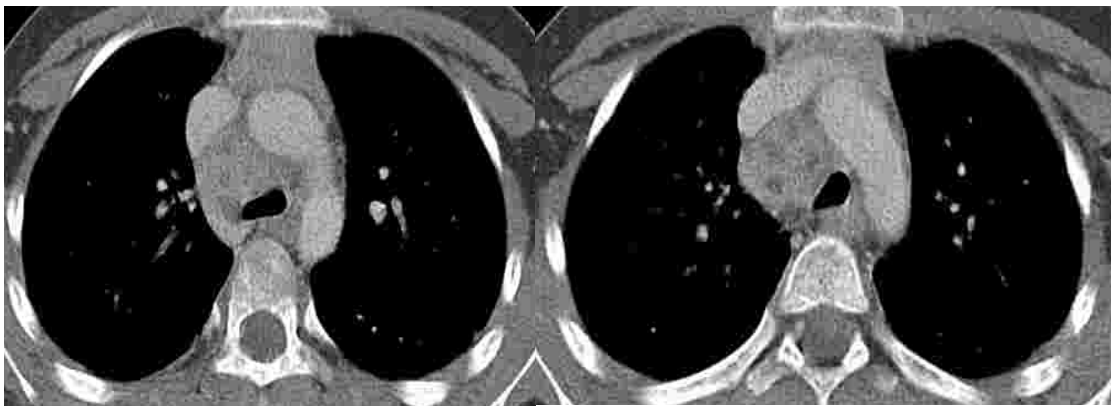
Monitoring 3. 7 year old child. Upper mediastinum reveals homogeneous retrocaval and subcarinal lymph nodes sized up to 0.7-0.9 sm. After 3 months of specific treatment, negative tendency is observed, manifesting as enlargement of lymph nodes along with development of

conglomerates sized 5.3x2.9x3.0 sm and with 24-35 HU density on native scans. Contrasting resulted in increase of the density up to 94-99 HU. The structure of lymph node conglomerate is heterogeneous, with small hypodense areas of necrosis.

Diagnosis: tumor-like form of tuberculosis of the intrathoracic lymph nodes (infiltrative exacerbation) (fig. 3).



At first visit



After 3 months of treatment

Fig.3. Computed tomography of the lungs and mediastinum. Tumor-like form of tuberculosis of the intrathoracic lymph nodes (infiltrative exacerbation).

Involvement of pleura in primary TB occurred in 6% of preschool and school children. Pleurisy in primary TB is always a complication, as far as serous membranes are especially sensitive to inflammatory responses that develop during the first phase of infection. Besides, because the lymphatics of hilum and pleura are directly interconnected, inflammatory process can easily spread on pleura.

Destruction of pulmonary tissue was the rarest complication in a primary tuberculosis complex. Such alterations may take place in an affected lymph node as well. In this case a “glandular cavity” is diagnosed on CT.

Tendency towards progressive disease is observed more often in adolescence, compared to early preschool and preschool age, along with clinically favorable forms of tuberculosis that also develop in this age. Almost all intrathoracic lymph node groups (6 and more groups) can be involved in the process.

Monitoring 4. 16 year old patient. S2 and S6 of left lung show multiple peribronchial centrilobular small foci.

Multiple enlarged paratracheal, retrocaval, subcarinal, para-aortic, left and right bronchopulmonary lymph node groups are visualized, merging into conglomerates.

Diagnosis: tumor-like form of tuberculosis of the intrathoracic lymph nodes, complicated with lymphohematogenous seeding (fig. 4).

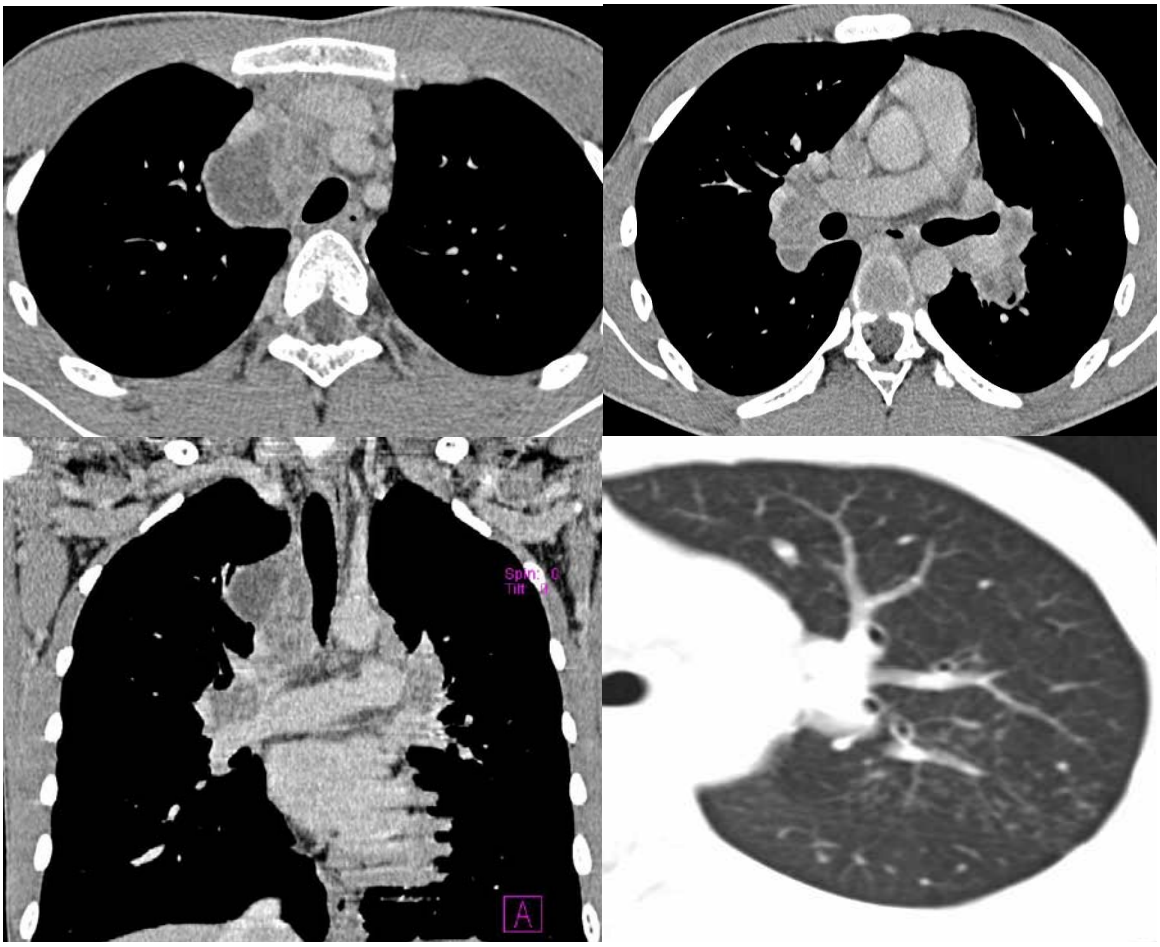


Fig. 4. Computed tomography of the lungs and mediastinum. Tumor-like form of tuberculosis of the intrathoracic lymph nodes, complicated with lymphohematogenous seeding.

Along with the involvement of lymph nodes, miliary, acinar and exudative lobular foci were found, as a byproduct of either hematogenous and lymphogenous generalization, or bronchogenous spread of infection. Marked exudative response, necrosis, and development of cavities, all of which are signs of a progressive disease were seen in adolescents. In the presence of preexisting primary tuberculosis that started to develop in the past but stopped in early phase, adolescents developed pulmonary alterations that are indicative of secondary forms of tuberculosis.

Monitoring 5. 14 year old patient. In right segments S1, S2, S3 and in left segments S1, S2, S3, S4, S5 multiple cavities and deformed bronchial lumina are recognized in the presence of preexisting extensive infiltration.

In the lower compartments of lungs, there are multiple low density foci of various sizes, merging into areas of infiltration.

Lung hila are broad and reveal numerous hyperplastic bronchopulmonary lymph nodes with small patches of calcium. Upper mediastinum shows hyperplastic perivascular, retrocaval, para-aortic, subcarinal, paraesophageal lymph nodes sized up to 1.5 sm.

Diagnosis: Bilateral caseous pneumonia (complication of tuberculosis of the intrathoracic lymph nodes) (fig. 5).

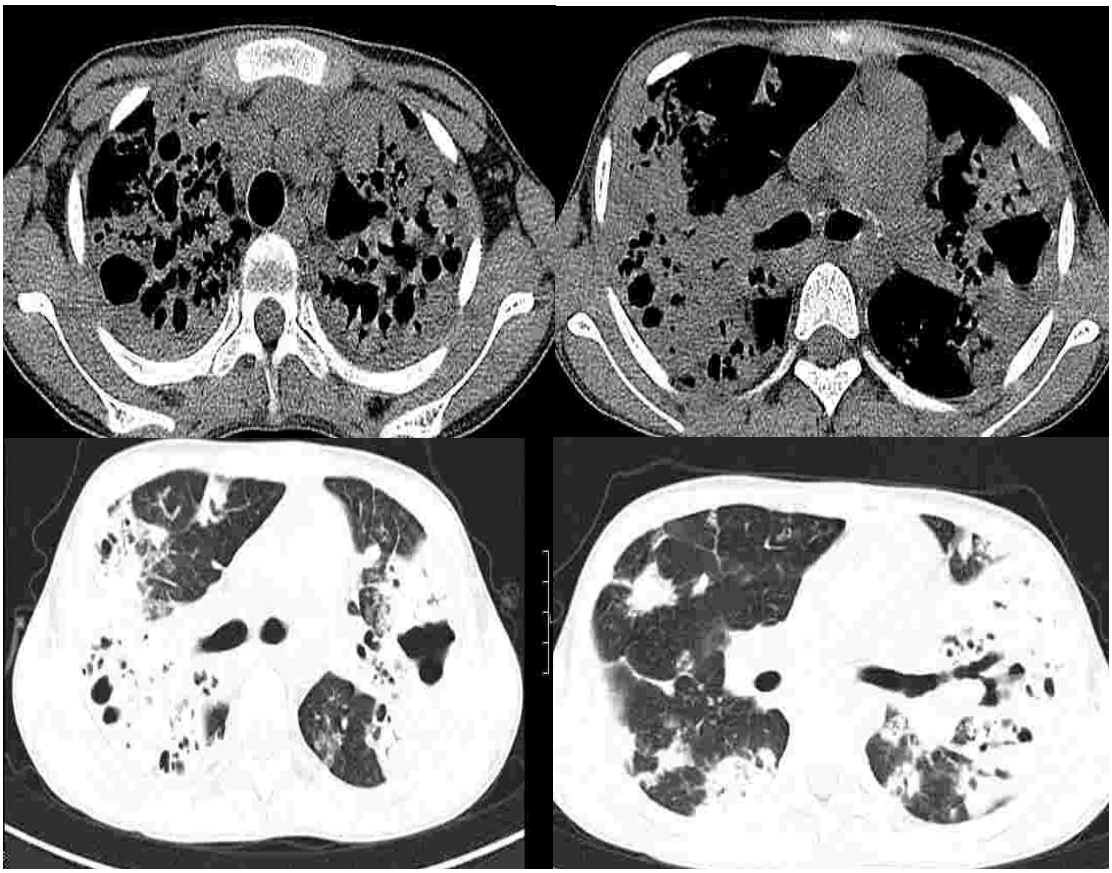


Fig. 5. Computed tomography of the lungs and mediastinum. Bilateral caseous pneumonia (complication of tuberculosis of the intrathoracic lymph nodes).

Conclusions. To summarize the analysis, it must be stated once more, that due to age-specific differences in responsiveness, complicated clinical progression of the primary tuberculosis complex occurred more often in adolescents and infants, manifesting as a disease with bronchopulmonary involvement, accompanied by a generalization of the process onto other organs and systems. In preschool and junior school age, an unfavorable clinical progression of tuberculosis was a rare exclusion and occurred predominantly in the form of a lymphogenous seeding.

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SYSTEMIC THROMBOLYTIC THERAPY OF ISCHEMIC STROKE. CASE REPORT (REGIONAL VASCULAR CENTER, YAKUTSK)

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Abstract. Systemic thrombolytic therapy can significantly reduce the degree of neurological deficit and improve outcome in patients with ischemic stroke. The effectiveness of this method was illustrated by the presented clinical report of systemic thrombolysis held in ischemic stroke patient in Regional Vascular Centre, Yakutsk. The "dramatic" decrease of focal symptoms (NIHSS score 2 points) occurred after thrombolysis in 44-old-year patient had initial severe neurological deficits (hemiplegia, hypoesthesia, dysarthria, gaze paresis (NIHSS score 15 points)). This led to the full recovery of lost function and to the independence of the patient's daily life. Thus, systemic thrombolytic therapy can significantly reduce the degree of neurological deficit and improve outcome in patients with ischemic stroke. In Yakutia the number of performed procedures and the result of reperfusion therapy in ischemic stroke will depend from the timely and coordinated work of many pre-hospital and hospital specialists, and from the degree of public awareness about the first signs of a stroke. Another important objective is the introduction of new reperfusion methods in ischemic stroke, including intra-arterial thrombolysis, mechanical clot extraction and combined thrombolytic therapy, in Regional Vascular Center.

Key words: ischemic stroke, thrombolytic therapy, systemic thrombolysis.

Introduction. Pathophysiological basis of ischemic stroke is a cerebral vessel occlusion due to thrombus or embolism, which leads to a decrease of blood circulation in the relevant section of the brain and to the subsequent development of ischemic stroke. The use of methods of reperfusion in the first hours of the disease promotes the prevention or minimization of the extent and severity of brain damage [4]. Currently, the most effective method of restoring blood flow in the occluded

cerebral vessel is reperfusion with thrombolytic agent rt-PA (recombinant tissue-type plasminogen activator) [2].Since recently, systemic thrombolytic therapy (TLT) is used in the first 4.5 hours of the onset of symptoms. Increasing the time of "therapeutic window" (from 3 hours to 4.5 hours) for systemic thrombolytic therapy was made on the basis of recent studies ECASS III, which was completed in 2008 [5]. Selective thrombolysis techniques contribute to the clot lysis in a wider «therapeutic window» and to the possibility of individual dosing of fibrinolytic drug that will promote to reduces the risk of symptomatic hemorrhagic complications [1].

Case Report. We present the results of the systemic thrombolysis therapy case in acute ischemic stroke held at the Regional Vascular Center (RVC), Yakutsk.

Patient T., 44-year-old, citizen of Yakutsk, Russian nationality, a security guard, admitted to RVS on November 4, 2012 at 14:42.The patient had complaints to the weakness in the left limbs and headache at the admission to hospital.

History of present illness: Onset of clinical symptoms occurred at 13:52 in November 4, 2012. The weakness in the left-sided limbs, "twisted" face appeared suddenly. Ambulance was called immediately. It arrived to the patient at 14:03.Doctor had diagnosed the acute stroke, and then patient was transported to a hospital during 39 minutes. The team consisting of a neurologist on duty, intensive care doctor and nurse began examination of the patient at 14:42 in the RVS's admission room.

The patient's condition on admission regarded as bad. Physical examination. General: The skin and visible mucosa: normal color, moderate humidity, clean. No cyanosis or peripheral edema noted. Body temperature was 36.1 C є. Breathing was independent, effective. Lungs: clear to auscultation. Respirations were 18.Heart: regular rate and rhythm. Blood pressure (BP) on the right (D): 160/80 mm Hg, blood pressure on the left (S): 150/80 mm Hg. Pulse was 100.Saturation ($Sp0_2$) – 97%. Abdomen: soft and non tender. No hepatomegaly noted. Good bowel sounds present. Sign Pasternatsky negative on both sides. Urination: free and painless. Overweight: height – 170 cm, weight - 85 kg, body mass index (BMI) - 29.4.

Neurological status: The patient was alert. He was oriented to time, place and person. Cranial nerves: Eye gap equal. Pupils uniform, photoreaction alive. Eyeballs rejected to right, gaze paresis to left. No nystagmus noted. Left corner of the mouth was omitted. The tongue was rough to the left strongly. Speech disorders: dysarthria. Positive symptoms of oral automatism noted. No active left extremity's movement noted: left-sided hemiplegia. Muscle tone was reduced in the left extremities. Tendon reflexes were reduced in the left extremities. Sensation: left extremity's hypoesthesia. Pathological reflexes: Babinski sign on the left. Meningeal symptoms: no stiff neck, Kernig sign was 85 є on both sides. NIHSS score (Stroke Scale of the National Institute of Health,

USA) – 15 points, Glasgow coma scale score – 15 points, modified functional independence Rankin scale score– 4 points.

Past medical history: The patient denies the chronic diseases, hypertension, diabetes, stomach ulcer, myocardial infarction and stroke. Allergies: none. Social history: Smoking during a long time (from adolescence), recently – one pack a day. Alcohol using: occasionally.

Neurologist was set preliminary diagnosis: Acute stroke in the right hemisphere. Conclusion resuscitation: Vital function's violations not noted.

Laboratory studies were appointed emergency: 1. Computed tomography (CT) of the brain; 2. Blood coagulation: platelets, INR (international normalized time), aPTT (activated partial thromboplastin time), PT (prothrombin time); 3. Echocardiography; 4. Complete blood count; 5. Blood glucose; 6. Electrocardiogram (ECG); 7. Biochemical blood tests; 8. Urine test; 9. Duplex ultrasound study of brachiocephalic vessels, transcranial Doppler scan of cerebral vessels; 10. Chest X-ray.

ECG and blood test sample were performed in the RVS's admission room. ECG conclusion: sinus rhythm, and tachycardia, heart rate 95 beats per minute, vertical electrical axis of the heart. For emergency indications CT study of the brain performed at 14:56. CT imaging showed hyperattenuation of the middle cerebral artery (MCA), fuzzy hypoattenuation in the upper dorsal-frontal divisions, in the middle frontal and precentral gyrus. Conclusion of CT studies: It is not excluded area of acute ischemia in the dorsal-frontal sections of the right hemisphere in the pool right middle cerebral artery.

After CT study patient was admitted to the stroke intensive care unit at 15:15. Results of laboratory tests were received duty neurologist at 15:30. Conclusion of testing: 1. Coagulation: aPTT – 37.6, INR – 1.06, PT – 14.3; 2. Complete blood count: leukocytes – $9.3*10^9$/l, erythrocytes – $4.26 * 10^{12}$/l, hemoglobin – 163 g/l, platelets – 165×10^9/l; 3. Biochemical blood tests: total bilirubin – 11.2; ALT – 28, ASAT – 24, glucose – 6.1 mmol/l.

The cerebral and brachiocephalic vessels ultrasound imaging showed the occlusion of the right internal carotid artery (ICA). Ultrasound imaging conclusion: Signs of stenosis and occlusion of extra-and intracranial sections of brachiocephalic arteries due to combined origin (atherosclerosis and thrombosis) – stenosis of the right ICA (moderate grades), complicated by occlusion ICA (from its beginning to the ophthalmic artery). Signs of development of systemic deficiency blood flow in the right middle cerebral artery (MCA), the lack of collateral compensation flow.

Echocardiogram conclusion: Global left ventricular ejection is normal, fraction of 60%. Violations of local contractility of the left ventricle were not found. Anterior mitral valve is seal slightly. Cavities of the heart are not expanded.

Thus, on the basis of medical history, complaints, clinical, instrumental and laboratory testing clinical diagnosis was established: Ischemic stroke in the right middle cerebral artery (atherothrombotic variant).

The testing of the presence of contraindications for TLT performed according to the methodological manual of the Institute of cerebrovascular disease and stroke (Moscow), 2011 [3]. The procedure contraindications had been not established. Considering the ischemic type of stroke, admission of patient in a 4.5-hour "therapeutic window", preservation of clinical symptoms (severe focal symptoms: NIHSS score 15 points), absence of contraindications the duty neurologist decided to hold systemic thrombolytic therapy. The procedure was carried out with thrombolytic rt-PA Actilyse (alteplase) in a dose of 0.9 mg/kg, with monitoring vital signs (blood pressure, heart rate, respiration rate, body temperature, oxygen saturation), neurological and physical status during the TLT time and during the two days following the procedure. The catheters were installed in the left and right cubital vein before the procedure.

Protocol of the procedure: Patient's weight – 85 kg. The total dose of Actilyse – 76.5 mg.

16:00. Started introduction Actilyse: 7.65 mg intravenously per bolus over 1 minute, then intravenously 68.85 ml during 1 hour. Blood pressure – 174/112 mmHg. Heart rate – 71. Respiration rate – 20. SO_2 – 100%. Body temperature – 36.2 C є. NIHSS – 15 points.

16:15. Blood pressure – 169/112 mmHg. Heart rate – 95. Respiration rate – 18. SO_2 – 95%. NIHSS – 6 points. The positive neurological trend was registered: reduction of motor disorders, the movements in the left extremities appeared.

Neurological status: Consciousness: no lowering. Eye's slits D = S. Pupils were equal and reactive to light. Eyeball's movements were limited to the left. No nystagmus noted. Facial nerve: left corner of the mouth was omitted. The tongue was rough to the left. Left-sided hemiparesis: moderate. Muscle tone in the left extremities was reduced. Tendon reflexes were reduced on the left extremities. Pathological reflexes were not noted. Sensitivity: hypoesthesia in the left extremities. Speech disorders: dysarthria. Meningeal symptoms: no stiff neck, Kernig sign was 85 є on both sides.

16:30. Blood pressure – 183/105 mmHg. Heart rate – 85. Respiration rate – 18. SO_2 - 95%. NIHSS – 3 points. Dynamic of neurological status: Left-sided hemiparesis had reduced. Strength in the left extremities: 4.5 points. Sensory disorders had regressed.

16:45. Blood pressure – 179/125 mmHg. Heart rate – 90. Respiration rate – 18. SO_2 – 94%. NIHSS – 3 points. Dynamic of neurological status: Gaze paresis had regressed. Eyeball's movements were full. Slight left-sided hemiparesis, speech disorders (dysarthria) were observed.

17:00. Thrombolysis was over. Blood pressure – 172/106 mmHg. Heart rate – 64.

Respiration rate – 18. SO_2 – 97%. Body temperature – 36.6 C є.

Patient received the procedure satisfactory. The positive dynamic changes were registered: Gaze paresis had regressed. The movements had appeared in the left extremities. Left-sided hemiparesis regressed to 4.5 points. Following neurological disorders stored: slight hemiparesis (4.5 points) and dysarthria. NIHSS score – 2 points.

The cerebral and brachiocephalic vessels ultrasound imaging registered the reperfusion in right MCA (M1, M2), and signs of collateral compensation through the posterior communicating artery and the functioning of the eye anastomosis.

17:10. Blood pressure – 184/104 mmHg. Heart rate – 84. Respiration rate – 18. SO_2– 98%. CT brain imaging was performed for excluding TLT bleeding complications. No signs of hemorrhagic transformation were observed. CT conclusion: It is not excluded there is acute ischemia in the dorsal-frontal regions of the right hemisphere in the pool right MCA.

CT brain imaging performed after one day from the illness onset, it diagnosed ischemic cerebral infarction. CT conclusion (05/11/12): Ischemic stroke in the pool right MCA, the second stage of evolution.

Medications:the neuroprotective therapy appointed immediately after TLT, the anticoagulation appointed 24 hours later. Vital signs monitoring, neurological and somatic status was performed in stroke intensive care unit during the two days. Then the patient was transferred to the RVC's neurological stroke department to continue treatment and neurorehabilitation. Cardiologist, vascular surgeon, ophthalmologist examined the patient. The treatment (antiplatelet and neuroprotective therapy, physiotherapy, massage, speech therapy sessions, occupational therapy, psychological testing) had given positive trend: regression of motor disorders (to full strength in the left extremities), hemodynamic stabilization.

Hospital discharge physical examination: Skin and visible mucous: clean and normal color. Lungs: clear to auscultation. Heart: regular rate and rhythm. Blood pressure – 120/80 mm Hg. Pulse was 75. The abdomen is soft and painless on palpation. Physiological functions are not violated. Neurological status: Pupils were equal. Eyeball's movements were full. No nystagmus noted. Facial nerve: left nasolabial fold smoothed slightly. The tongue was without deviation. No speech disorders noted. Positive symptoms of oral automatism noted. No extremity's paresis noted. No sensory disorders noted. Coordination tests performed satisfactorily. Meningeal signs were not observed. NIHSS store – 1 point, Glasgow Coma Scale – 15 points, Rankin scale – 1 point, Rivermid scale – 14 points.

The patient was discharged from hospital at November 19, 2012. Diagnosis: Ischemic stroke in the pool right middle cerebral artery (from 11/04/12.), atherothrombotic type. Cerebral and

brachiocephalic artery's arteriosclerosis. Occlusion of the right internal carotid artery. State after systemic thrombolysis (11.04.12). Hemorrhagic transformation 0.

Recommendations: monitoring of blood pressure daily; no smoking and alcohol consumption; diet with restriction of animal fats; and chronic antiplatelet therapy.

Conclusions. This clinical report illustrates the effectiveness of systemic thrombolytic therapy with rt-PA in patients with initial severe neurological deficits (hemiplegia, hypoesthesia, dysarthria, gaze paresis (NIHSS score 15 points)). Positive neurological changes was observed on 15 minutes after TLT beginning – movements appeared in the left extremities, followed reduction of the degree of paresis and sensory disorders, regression of contralateral eye paresis. There were "dramatic" decrease of focal symptoms (NIHSS score 2 points) after TLT, it led to the full recovery of lost function and to the independence of the patient's daily life (modified Rankin scale score – 1 point). Clinical improvement occurred against persistent occlusion of internal carotid artery by ultrasound in the dynamics. This phenomenon can be explained by reperfusion in the right middle cerebral artery's system through collateral circulation via the posterior communicating artery and ophthalmic anastomosis. It was confirmed by transcranial Doppler study.

The time from the onset of the first symptoms to the admission in the RVC was 50 minutes, from hospitalization to the first CT study – 14 minutes, to the procedure TLT – 78 minutes. In general, the time from onset of symptoms to the TLT procedure was 2 hours 08 minutes. Thus, thrombolytic therapy was performed to the patient in the first hours after illness onset, during the so-called "therapeutic window". The time factor is very important for the success of thrombolytic therapy. The longer period before perfusion likely results the less of the rapid normalization of microcirculation in the ischemic zone and results the higher risk of additional reperfusion injury and hemorrhagic complications [2].

Thus, systemic thrombolytic therapy can significantly reduce the degree of neurological deficit and improve outcome in patients with ischemic stroke. In Yakutia the number of performed procedures and the result of reperfusion therapy in ischemic stroke will depend from the timely and coordinated work of many pre-hospital and hospital specialists, and from the degree of public awareness about the first signs of a stroke. Another important objective is the introduction of new reperfusion methods in ischemic stroke, including intra-arterial thrombolysis, mechanical clot extraction and combined thrombolytic therapy, in Regional Vascular Center.

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