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The edition address:
677019, Yakutsk, Sergeljahsky highway, 4,
M&ChHCC NCM, unit S1-01,
tel.(4112) 32-15-26; 39-55-52
The telefax (4112) 32-19-81
E-mail: ysc_tech@sakha.ru
yscredactor@mail.ru
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The contemporary state and problems of specialized oncological assistance to the population of Yakutia

Ivanov P. M., Tomskiy M.I., Kiprijanova N.S., Nikolaeva T.I., Makarova N.N., Zharnikova T.N., Aleksandrova E.N., Bodunov B. E.

The retrospective analysis of oncological assistance state in the Republic of Sakha (Yakutia) 1995-2007 shows that there are a lot of problems, requiring a decision. The most important of them are the increase of annual preventive medical examination and the improvement of logistical base of the Yakut republican oncological clinic (YROC), which doesn't meet contemporary requirements.

Key words: neoplasm, prevalence, dynamics, forecast.

Introduction. In Russia 285,9 thousand people died because of malignant neoplasm (MN) in 2007. In death-rate structure from all causes it is 14,0% of male population and 13,4% of female one. The correlation of men and women – 1,0:1.2. The proportion of deads because of MN in able-bodied age (15-59) is 13,4%, in reproductive age (20-44) – 14,1% women. About 1/3 (28,3%) of men's death are caused by lung cancer, 13,8% - stomach cancer, 7,1% - urino-system cancer, 5,8% - prostate gland cancer, 5,6% - colon cancer and 5,4% - rectum one. 17,3% of women's death are caused by lactic gland cancer, 12,3% - stomach cancer, 9,2 – colon, 6,4 – lung cancer, 6,2 – rectum, 5,8 – ovary, 5,3 – hemoblastosa, 4,7 – colii uteri, 4,7 – colli uteri (uterus neck).

Research purpose – studying of the state of specialized oncological assistance to the population of the Republic of Sakha (Yakutia)

Materials and methods. The YROC account materials on a state of specialized oncological assistance to the population in 1995-2007 were put to the intensive retrospective analysis. During this period the common number of cases with MN was 24,2, the number of the deads – 16,1 thousand people. The correlation index of the deads to the patients during this period is 0,67, by variations – from 66,0 in 2007 till 79,0 in 1995.

Results and discussion. 1340 death cases from MN were registered in Yakutia in 2007. The specific proportion of people not registered in oncological register is high among the deads (Yakutia – 5,3%, Russia – 5,4%). In Russia 2,7% from common number of the patients, revealed in 2007 the diagnosis was put after the death. In Yakutia it was 3,0%.

The relation index of the deads to the patients in 2007 in Yakutia was 66,0. Particularly, 100,0 – the deads from gullet cancer, 93,0 – lung, 91,5 – stomach, 73,7 – colon cancer. More

patients than were revealed died from MN for a year in Eveno-Bytantaysky (300,0), Oleneksky (180,0), Allaikhovsky (111,1), Ust-Aldansky (111,1), Namsky (109,7), Verkhneviluysky (106,0) districts of Yakutia. Intolerably low quality of patients' registration with gullet cancer was registered in Gorny (200,0), Olekminsky (166,7), Nurbinsky (150,0), Aldansky (120,0) districts and in Yakutsk (166,7). With stomach cancer in Eveno-Bytantaysky (300,0), Momsky, Ust-Aldansky, Ust-Yansky (200,0) and other districts.

In 2007 more patients with lung cancer died than registered in Eveno-Bytantaysky (200,0), Megino-Kangalassky (150,0), Abiysky (150,0), Oleneksky (150,0), Suntarsky (133,3), Lensky (127,8), Viluysky (125,0), Olekminsky (125,0) districts by average republican indicator 93,0. In quantity of the relation index by colon cancer Tattinsky (300,0), Verkhneviluysky (200,0), Olekminsky (125,0) districts are in trouble. As much patients as were revealed died in Momsky and Namsky districts.

Morphological confirmation of diagnosis let us judge the real degree of analysed information about oncological patients. In Yakutia the specific proportion of patients with MN with morphologically confirmed diagnosis was from 66,7 to 83,5% during the last ten years. In 2007 lung cancer 48,7 (Russia 58,3), gullet cancer 76,8 (78,2), stomach cancer 78,7 (82,0) patients had morphological confirmation. Frequency of morphologically confirmed cases with MN of reproductive organs is relatively high: lactic gland – 96,1 (Russia 95,4), colli uteri 95,0 (97,5), colli uteri– 96,1 (96,4) and ovary 87,3 (87,7).

In dynamics the common indicators of morphological confirmation of diagnosis had a tendency to growth. In 2007 the part of patients with morphologically confirmed carcinoma diagnosis was higher (73,2%) than in 2000 (63,2). The highest percent of morphological confirmation of the diagnosis was recorded in Gorny (92.3%), Nizhnekolymsky (90,9), Momsky (88,2) districts, the lowest indicators - in Verkhnevilyusky (36,4), Verkhoyansky (31,2) and Tattinsky (33,3) districts.

According to the analysis, the indicators of morphological confirmation of diagnosis depending on tumor's nosological form varies to a considerable extent. With gullet cancer the part of the patients with confirmed diagnosis in Bulunsky (33,3) and Verkhnevilyusky (27,3) districts is lower than the average republican levels (69,7%). With stomach cancer in Zhigansky and Nizhnekolymsky districts (33,3 and 37,5; in Yakutia - 76,4), with colon cancer in Lensky (29,6) and Gorny (25,0) districts (RS – 68,1%). With average republican indicator 77,6% diagnosis' confirmation with rectum cancer in Verkhnekolymsky and Tattinsky districts is 50,0 and 40,0% (RS – 68,1%).

According to the contemporary conception, the development of polyneoplasia is connected with the wide introduction of highly effective combined methods of treatment of malignant tumors with the help of radial therapy, polychemotherapy and immunosuppressia. In the Republic of Sakha the part of patients with initially multitumors in 2007 in common number of new revealed patients with MN was 2.2% (Russia – 3,1), including 22,7% (the Russian Federation (RF) 33,0%) synchronous. The indicator of initially multitumors MN was 4,6% in 2007 in Yakutia (the RF – 10.0).

In 2007 the percent of inclusion with preventive examination of the population was 95,8% in the republic. From common number of the patients with initially diagnosed MN 10,0% were revealed on the preventive examinations. The indicator of the active revealing of visual located tumors is intolerably low: lactic gland (from 18,9 to 25,0%), colli uteri (from 16,7 to 39,2%) and thyroid gland (from 13,6 to 19.1%).

In the RS(Y) among the patients for the first time in life diagnosed MN the part of the patients with the 1-2nd stages varied from 17,4 to 39,2%, with the 3rd stage – from 30,6 to 39,2%.

During the last 5 years (2003-2007) from 9076 patients with the first time in life diagnosed MN in 801 (8,8%) cases the tumor were revealed on the preventive examinations. 591 (73,8%) patients had the 1-2nd stage of disease, which makes 21,5% from the common number of patients diagnosed on the same stage. Relatively high specific proportion of diagnosed cases in the 1-2nd stages of the process exceeding 40,0% was fixed in Mirninsky (41,0%), Nerungrinsky (45,8%) districts at the end of the analysed period.

Meanwhile, in spite of relatively high inclusion with preventive examination of the population of the republic, the neglected stage of the disease is revealed in 32,7 – 41,4% (the RF – 22,8%) cases from all number of the first registered patients with MN. Moreover, the stable tendency to the increasing of the part of patients with 4th stage is found in all localizations. Because of it from the number of the first diagnosed patients half of them lived only about a year after diagnosis. In 1995 the indicators of lethality in a year made 55,2%, in 2007 – 46,3% (RF 30.2 in 2007) on the whole because of the death reduction from stomach cancer (from 70,5% in 1995 to 59,0 in 2007), colon cancer (from 53,5 to 43,4%) and rectum cancer (from 45,4 to 39,8%). Foregoing indicators average in Russia in 2007 made 53,5; 34,4 and 30,0%. Meanwhile the percent of lethality in a year from lung cancer (71,9 in 1995 and 71,8% in 2007), gullet cancer (71,3 and 75,0%) practically stayed on the same level (RF – 55,3 and 63,3 in 2007). The indicators of the lethality on the first year after diagnosis exceeded the indicators of neglecting (the 4th stage) in 1,3-1,5 times, which is the result of not objective estimate of the process

spreading level by the registration of patients. It relates to the indicators with tumors: of head, neck, larynx, thyroid gland and colli uteri.

In 2007 from 1914 patients 707 or 36,9% (RF – 52,0), or 60,3 on 100 patients with the 1-3rd stages of disease (RF – 75,1) ended their treatment on radical program. During 1995-2007 the number of people, ended special treatment, had a tendency to the reduction (from 47,1 to 36,9%).

The specific proportion of the contingent, ended special treatment in relation to the patients, registered with the 1-3rd stages of disease, decreased on 1/3 (from 84,2 to 60,3%). The number of patients, who were treated by chemoradial therapy decreased more than in 4 times (from 9,7% in 1995 to 2,0% in 2007). The reduction of the part of patients, ended only the course of radial (3,7 times) and chemotherapy (2,3 times) was considerable. Meanwhile, the number of patients ended only surgical treatment increased in 3,3 times, and the number of people ended special treatment as a complex and combined ones increased in 1,2 times.

It should be admitted, that the treatment, first of all, combined and complex ones, is held back because of the lack of logistical base of the YROC. In spite of it, the common number of patients, irrespective of the disease stage and the time of registration and patients ended their medicinal treatment (including other therapies) made up 726 people or 37,9% from the common number of registered for a year, including patients with MN of lymphatic and circulatory tissues – 83 (11,4%). Besides, 431 people got radial treatment, which corresponded to 22,5 on 100 registered patients.

The indicators of the correlation of patients with MN, ended special treatment, reckoning on 100 new revealed (1st indicator) or on 100 patients with 1-3rd stages of disease (2nd indicator) not only show the level of treatment, but also allow to learn its dynamics. In 1995-2007 in the republic the reduction of the part of patients, ended special treatment was found among the patients with stomach cancer (1st – from 30,2 to 22,3 and 2nd – from 66,7 to 41,5%), lung cancer (from 43,2 to 4,5 and from 68,4 to 57,1%), coli uteri (from 85,2 to 35,0 and from 94,5 to 93,7%), corpus uteri (from 90,5 to 92,3 and from 100,0 to 96,1%) and ovary cancer (from 95,0 to 76,9 and from 100,0 to 96,8%).

Among some territories of Yakutia the lowest first indicator (less than 25,0%) was found in Zhigansky, Churapchisky, Verkhnevilyusky, Verkhoyansky, Anabarsky, Srednekolymsky districts, and the second one (not higher than 30,0%) – in Verkhoyansky, Zhigansky, Oleneksky, Srednekolymsky districts. During this period the average republican indicators were 38,8 and 68,4% (RF – 52,0 and 75,1%).

During the last 5 years 204 patients with stomach cancer ended special treatment, which is 22,1 on 100 new registered or 39,1 on 100 patients with the 1-3rd stages of disease (RF – 33,9 and 64,7%). The indicators lower 10,0% were found in Aldansky, Verkhoyansky, Kobyasky, Olekminsky and other districts. With lung cancer these coefficients are unwarrantedly low in comparison with average Russian indicators (24,4%). It should be mentioned, that in 15 from 35 districts of the republic anyone didn't end the treatment, although there were cases of lung cancer there.

The specific proportion of the surgical methods as an independent kind of special treatment increased (from 26,9 to 41,3%) for the last years (1995-2007). The part of combined (or complex) methods of treatment increased, which won recognition because of its high effect (from 28,0 to 45,1%). Meanwhile, the part of radial and medicinal therapy in structure of using of treatment kinds decreased in 6,0 and 2,0 times.

The high indicators of using of the surgical methods as an independent kind of a special treatment were recorded by stomach (66,7%), bladder (64,3%), rectum cancer (61,7). The radial therapy was used with high frequency by the treatment of larynx cancer (40,0%), mouth and gullet cancer (38,9%) and шейки матки (25,0%). The anti-tumor medicinal therapy was widely used by the treatment of MN of lymphatic and circulatory tissues (86,9%, RF – 75,7%) and by the treatment of MN by children (64,3%, RF – 49,0%).

In all in 2007 from 613 patients, registered and ended the special treatment with using of a surgical methods (as an independent kind of treatment, as a component of complex and combined methods) were cured 554 (RS – 87,7%, RF – 78,5%) patients.

Besides using of conservative methods of treatment the most progressive ways of treatment such as “Daily hospital”, “Home hospital”, “Out-patient reception hours” were introduced for the last years, which increased the qualitative indicators of a specialized help.

At the end of 2007 the number of patients under the observation reached 8146 people, that exceeds in 62,2% the indicators of 1995. At the end of the year the indicators of the contingent under the observation made up 481,9 and 856,8 on 100000 of population, the growth was almost in twice for the analyzed period.

The part of the contingent under the observation for 5 and more years increased from 48,7% in 1995 to 51,6% in 2007. The lowest indicators of 5-year survival were found by gullet, lung, prostate gland and rectum cancer. The part of living 5 or more years among the registered contingent in 2007 more than 50% was established by cancer of mouth and gullet, stomach, larynx, skin, lactic gland, uterus body and neck, ovary, bone and soft tissues. The high indicators on number of patients under observation at the end of the year were in Lensky (1115,4) district

and in Yakutsk (1244,3), the lowest indicators – in Verkhnevilyusky (296,5), Anabarsky (324,2) districts. 51,6% of patients lived 5 or more years among those who were registered at the end of 2007. The indicators exceeding the average republican ones were registered in 12 districts, among them Ust-Aldansky (60,2), Bulunsky (58,7), Verkhoyansky (58,3) districts and the town Yakutsk (57,6). But the indicators were not so high in Anabarsky (30,8), Ust-Maysky (35,2), Momsky (35,3) and other districts.

The lethality among the contingent under the observation shows an effect of treatment. Moreover, the lower the lethality coefficient is, the higher the index of contingent accumulation is. It means that the number of living after the treatment increases. In RS(Y) for 1995-2007 the accumulation index increased from 3,2 to 4,3%, the lethality decreased from 20,2 to 14,1%.

The growth of the accumulation index was found by cancer of thyroid, uterus body, leukemia. It was lower by cancer of mouth and gullet, esophagus, colon and bladder. The positive dynamics of accumulation index in the most districts shows the improvement of oncological help in the region. In 2007 by the average republican indicators (6,1) the highest accumulation index was in Yakutsk (9,1), Mirninsky (9,2) and Nerungrinsky (7,1) districts.

In the RS(Y) at the end of 2007 from 100 patients under the observation 14,1 died, that was 69,8% of the level in 1995 (20,2). The relation of the indicator of lethality in a year (2007) to the indicator of neglect (the 4th stage) in 2006 is 1,3. That is like the average Russian indicator.

Conclusion. Thus, the results of the retrospective analysis of the state of oncological help in RS(Y) let us mention that the last 10 years are characterized of the improvement of qualitative indicators and specialized medical help, first of all owing to the growth of patients' part, ended surgical and combined methods of treatment.

The introduction into clinical practice of more progressive ways of treatment of oncological patients in the out-patient department brought to the growth of the accumulation index and lethality reduction. At the same time the problem of improvement of oncological help on the places of the initial medical section is very current today.

It is necessary to introduce our approved ways of the treatment of patients in the out-patient department, which allows us to increase the qualitative indicators of specialized help.

Таблица 1

Основные показатели состояния онкологической помощи населению РС (Я)
в 1995-2007 гг.

Локализация опухоли	Годы	Морфологическая верификация диагноза	Выявлено при профилактических осмотрах (% к новым больным)	Летальность на 1-м году жизни с момента установления диагноза	На 100 новых больных приходится умерших
Всего ЗН (C00-97)	1995	62,7	5,8	55,2	75,9
	2007	73,2	10,0	46,3	70,0
Пищевод (C15)	1995	58,7	3,2	71,3	96,3
	2007	76,8	0,0	75,0	100,0
Желудка (C16)	1995	67,0	1,6	70,5	91,6
	2007	78,7	5,9	59,0	61,5
Ободочная кишка (C18)	1995	56,1	0,0	53,5	79,4
	2007	75,8	3,2	43,4	73,7
Прямая кишка (C19-21)	1995	82,3	2,0	46,3	70,6
	2007	88,6	9,3	39,8	56,8
Легкое (C33,34)	1995	34,3	9,3	71,9	79,4
	2007	48,7	14,1	71,8	92,9
Кости и мягкие ткани	1995	83,3	6,7	50,0	61,3
	2007	88,1	7,1	28,6	76,2
Кожа (C44,46.0)	1995	100,0	19,2	7,1	13,8
	2007	96,7	22,2	2,9	13,3
Молочная железа (C50)	1995	98,2	15,2	11,7	61,2
	2007	96,1	27,0	11,3	46,6
Шейка матки (C53)	1995	98,2	16,4	27,6	62,1
	2007	95,0	20,0	18,2	51,2
Тела матки (C54)	1995	100,0	3,7	14,8	53,6
	2007	96,1	3,8	11,9	69,2
Яичник (C56)	1995	91,9	8,1	41,7	73,0
	2007	87,3	4,8	32,8	56,2
Простата (C61)	1995	36,4	0,0	50,0	118,2
	2007	73,3	0,0	28,6	66,7
Мочевой пузырь (C67)	1995	55,0	0,0	57,9	77,3
	2007	87,9	6,1	51,6	57,6
Щитовидная железа (C73)	1995	90,9	13,6	14,7	26,1
	2007	95,3	19,1	6,7	23,3
Лимфомы C81-96)	1995	100,0	0,0	43,2	69,4
	2007	88,9	7,4	33,3	31,5

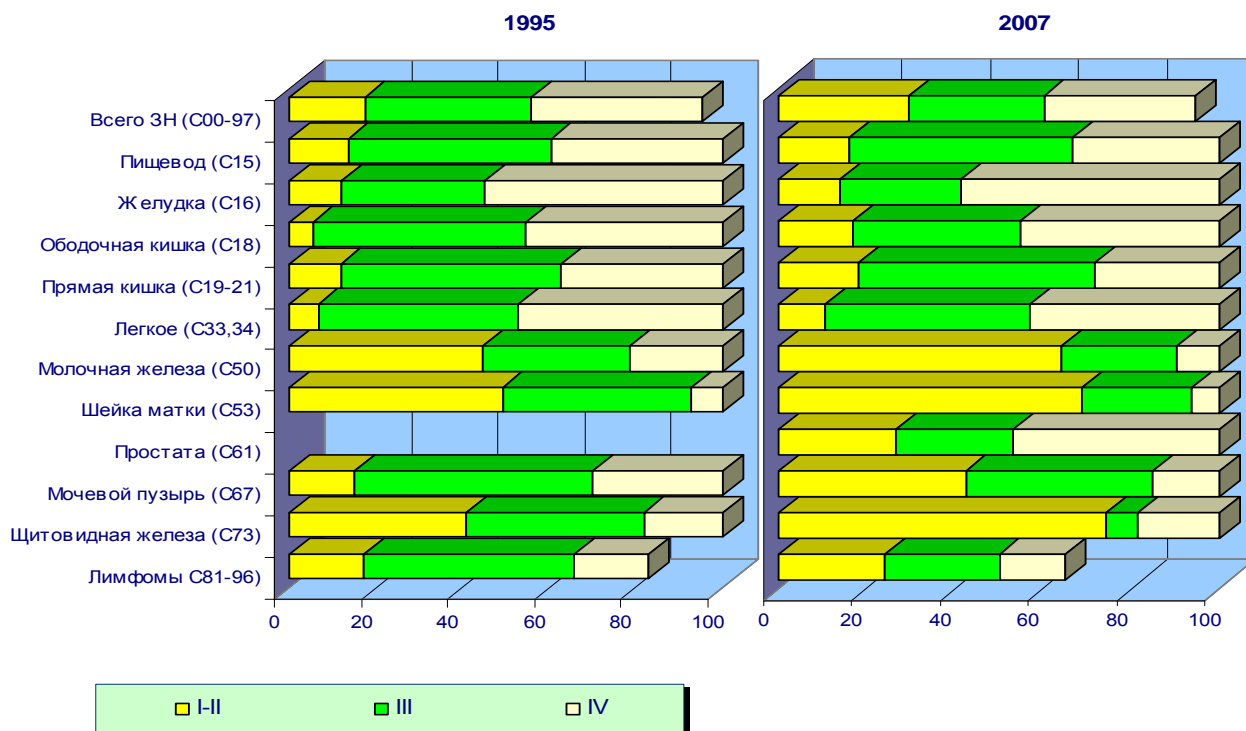


Рис. 1 Распределение вновь выявленных больных по стадиям процесса в 1995 и 2007 гг. (в %)

Таблица 2

Лечение больных злокачественными новообразованиями в РС(Я) в 1995 и 2007 гг.

Локализация опухоли	Год	абсолютное число	на 100 вновь выявленных больных	
			всего	с I-III ст.
ЗН – всего (C00-97)	1995	729	47,1	84,2
	2007	707	36,9	60,3
Пищевод (C15)	1995	50	39,7	65,8
	2007	7	10,1	66,7
Желудок (C16)	1995	52	28,1	62,6
	2007	42	22,3	41,5
Прямая кишка (19-21)	1995	22	43,1	68,7
	2007	47	53,4	71,6
Легкое (C33,34)	1995	107	34,3	64,8
	2007	14	4,5	57,1
Меланома кожи (C43)	1995	11	73,3	100,0
	2007	14	73,7	78,9
Молочная железа (C50)	1995	78	69,6	88,6
	2007	129	72,5	90,4
Шейки матки (C53)	1995	45	81,8	88,2
	2007	28	35,0	93,7
Тела матки (C54)	1995	18	66,7	72,0
	2007	24	92,3	96,1
Яичник (C56)	1995	34	91,9	100,0
	2007	26	54,2	83,3
Мочевой пузырь (C67)	1995	10	50,0	71,4
	2007	14	42,4	84,8
Гемобластозы (C81-96)	1995	69	89,6	-
	2007	76	71,1	-

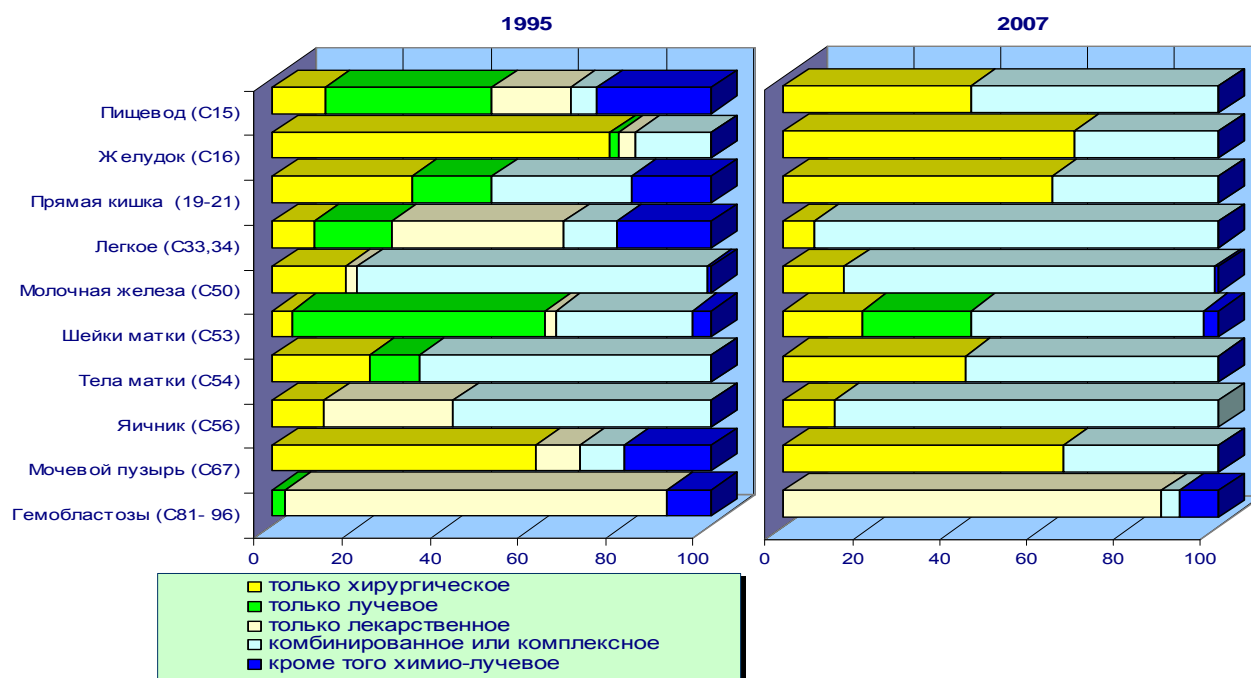


Рис. 2. Лечение больных злокачественными новообразованиями в РС(Я) в 1995 -2007 гг.

Таблица 3.

Контингенты больных злокачественными новообразованиями, состоящих под наблюдением ЯРОД на конец 1995-2007 гг.

Локализация опухоли	Год	Находились под наблюдением на конец года		Из них: 5 и более лет		Летальность (%)
		Абс. число	на 100 тыс. населения	Абс. число	% к общ. числу наблюдений	
ЗН - Всего (C00-97)	1995	5021	481,9	2443	48,7	20,2
	2007	8146	856,8	4205	51,6	14,1
Головы и шеи (01-14)	1995	176	16,9	93	52,8	19,3
	2007	210	22,1	123	58,6	14,3
пищевод (C15)	1995	116	11,1	23	19,8	52,8
	2007	96	10,1	30	31,3	41,8
Желудок (C16)	1995	390	37,4	162	41,5	32,3
	2007	574	60,4	299	52,1	23,1
Ободочная кишка (C18)	1995	176	16,9	73	41,5	22,1
	2007	369	38,8	175	47,4	15,9
Прямая кишка (19-21)	1995	136	13,1	42	30,9	20,9
	2007	320	33,7	110	34,4	13,5
Легкое (C33,34)	1995	337	32,3	75	22,3	45,1
	2007	414	43,5	155	37,4	40,1
Кости и мягкие ткани (C40-41)	1995	161	15,5	90	55,9	10,6
	2007	229	24,1	131	57,2	12,3
Меланома кожи (C43)	1995	78	7,5	47	60,3	7,1
	2007	121	12,7	69	57,0	9,0
Др. НО кожи (C44-46,0)	1995	403	38,7	264	65,5	1,0
	2007	488	51,3	172	35,2	2,4
Женская молочная железа (C50)	1995	901	172,7	490	54,4	7,3
	2007	1539	314,4	886	57,6	5,1

Шейка матки (C53)	1995	508	97,4	351	69,1	6,6
	2007	601	122,8	380	63,2	6,4
Тела матки (C54)	1995	152	29,1	71	46,7	14,1
	2007	280	57,2	163	58,2	6,0
Яичник (C56)	1995	238	45,6	135	56,7	10,2
	2007	305	62,3	192	63,0	8,1
Щитовидная железа (C73)	1995	162	15,5	75	46,3	3,6
	2007	516	54,3	307	59,5	1,9
Лимфомы (C81-85)	1995	188	18,0	88	46,8	11,7
	2007	329	34,6	187	56,8	4,9
Лейкемии (C91)	1995	110	10,6	36	32,7	22,5
	2007	253	26,6	102	40,3	8,0

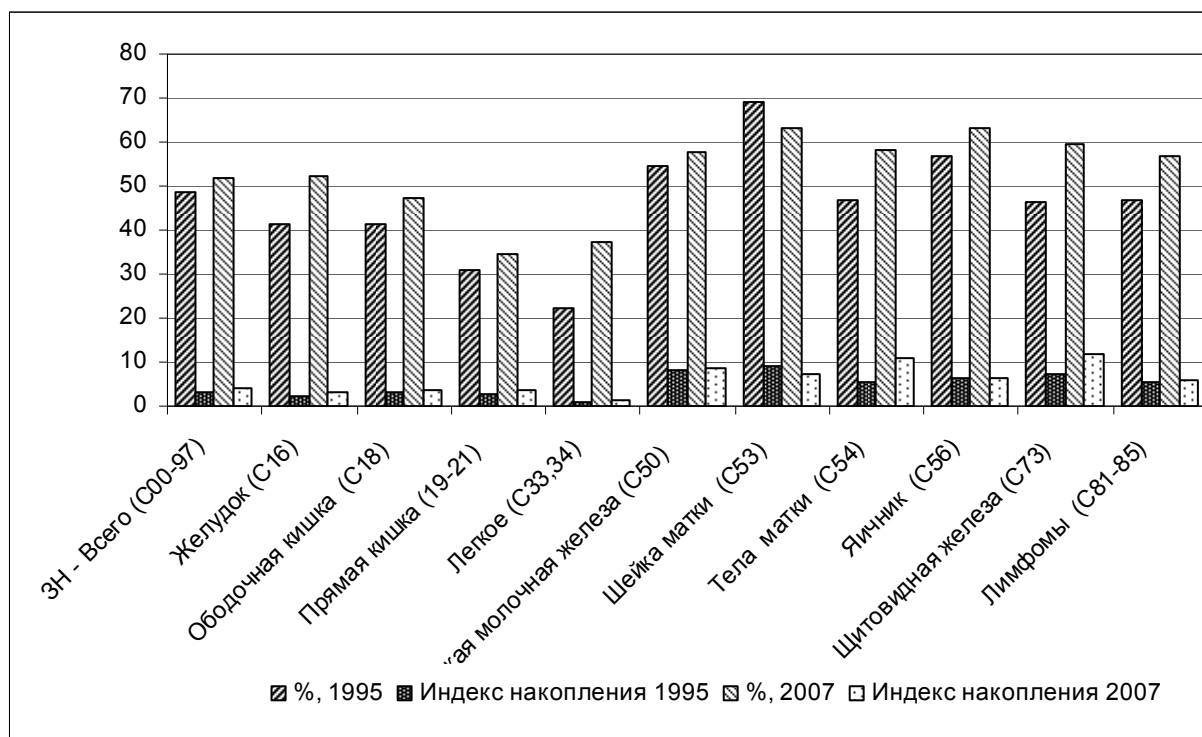


Рис. 3. Индекс накопления контингентов за 1995 и 2007 гг.

Авторы:

Сотрудники ЯНЦ КМП СО РАМН:

ИВАНОВ Петр Михайлович - д.м.н., проф., зав.лаб., зав. курсом онкологии МИ ЯГУ;

ТОМСКИЙ Михаил Иннокентьевич - д.м.н., проф., директор ЯНЦ КМП СО РАМН;

КИПРИЯНОВА Надежда Сидоровна - д.м.н., с.н.с., зав. кабинетом онкологии г Якутска;

ИВАНОВА Феодосия Гаврильевна - к.м.н., зав. лаб., зав. химиотерапевтическим отделением ГУ ЯРОД, гл. внештатный онколог МЗ РС (Я);

НИКОЛАЕВА Татьяна Ивановна - к.м.н., с.н.с., зав. хирургическим отделением ГУ ЯРОД;

МАКАРОВА Наталья Николаевна - к.м.н., с.н.с., врач-онкогинеколог ГУ ЯРОД;

ЖАРНИКОВА Татьяна Николаевна - к.м.н., н.с., зав. хирургическим отделением ГУ ЯРОД;

КАРТАЕВ Петр Дмитриевич - гл. врач ЯРОД;

СМЕТАНИНА Валентина Дмитриевна - н.с. ЯНЦ КМП СО РАМН, з

Александрова Елена Николаевна – м.н.с. ЯНЦ КМП СО РАМН

Nikolaeva T.I., Ivanov P. M., Migalkina T.A., Ivanova F.G.

Early diagnostics of a breast cancer

The analysis of the primary medical documentation and the questioning data of women with breast cancer are carried out. It is found out that patients with a disease incipient stage (I-IIA) regularly passed professional surveys and consultations of the gynecologist. With augmentation of a cancer stage (IIB-IIIA) the quantity of women, to whom preventive examinations were not made or were made formally, increases.

Keywords: breast cancer, preventive examinations, early diagnostics.

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2. Epidemiological features of malignant tumours of mammary gland in region of Siberia and the Far East // L.F. Pisareva [et al.]. - Tomsk: Publishing house of Tomsk university, 2006.-206 p.

**REPRODUCTIVE HEALTH PROFILE OF THE CHILDREN LIVING
IN THE NORTHERN REGION OF REPUBLIC (SAKHA) YAKUTIA**

**Burtseva T.E., Makarova A.M., Dranaeva G.G., Chernogradskaya M.V., Kupryakov S.O.,
Stepanuk N.F., Nikolaeva L.A., Yakovleva S.Y., Chasnyk V.G., Uvarova T.E.,
Samsonova M.I.**

Yakut research center CMP of the SB RAMS

Pediatric center of the Republic hospital №1-NCM

For the purpose of studying of reproductive health of the North children complex investigation of 1205 children and teenagers of indigenous population in northern areas of republic is carried. In article results of the analysis of the inspection data of 837 girls and 368 boys are presented.

Keywords: reproductive health, degrees of the pathology, gynecologic diseases, urologic diseases, children of the North.

Introduction. In Russia now is a critical demographic situation. The statistical date of the berth rate is increase but the prognosis of 2020 is bed. In present number of newborn of the reproductive woman is 1,17. Well-known, if this incidence 2,15 the demographic situation is increase [3]. The reproductive health of the people is depending of the somatic health, physical status and has diseases of the teenager's periods. Some publication describes the somatic and reproductive health condition of the teenager's gels [5, 1, 2, 4]. There are many publications about

gynecology and somatic profile of the gels [1-5]. But not much studies about reproductive health teenager's boys and northern children.

The goals: present the date of the pathological profile of the reproductive system and structure of the gynecology and urology disease children's living of the external northern regions of Republic of Sakha Yakutia.

Material and methods. From 2007-2009 examined by gynecologist, endocrinologist, ultrasound examination - 837 gels and 368 boys examined by urologist. The pathology profile of the disease of reproductive systems and structure of the disease presented from results of the examination.

Results.

Reproductive health condition of the gels and teenagers is not good. By the official date of the health ministry of the republic of Sakha Yakutia incidence of the gynecology disease in gels 0-14 years increases from 28,4‰ to 65,5‰, in gels 15 to 17 years - from 81,3‰ до 112,3‰. By the official date of the health ministry of the republic of Russia incidence of the common gynecology disease in gels increases to 21,6%, teenagers –to 24,1%, 65-70% teenagers have a some chronic somatic disease, 112‰ gels detected reproductive disease. High spread gynecology disease by the gels in Russia (12—15%).

In Republic of Sakha Yakutia incidence of the gynecology disease have a increase tendency. The first please in structure is inflammation disease (42%), than dismenorrhea (27%), and than tumor (3%).

On the table 1 is present that the pathology profile of the gynecology disease gels 23,4 to 100 examined. Every each of 3-4 gels has gynecology problems and need consultation of gynecologist. In structure the first please is vulvitis (40,3%). About the case history of gels vulvitis provide over 1 year. The second places is disorder of menstrual cycle (36,6%) and the second – disorder of the sexual development (7,6%).

Incidence of the pathology profile boys living of the northern region of Yakutia is low (10,3 to 100 examined), but the some disease of the boys have a operation (see the table 3). The boys, living the northern region, need to transport to Yakutsk and operated to Pediatric center. In structure the first please is fimosis (39,4%), than varikoccele (21%), synechii (15,7).

Conclusion.

The basis on this work necessary:

1. Organized examination of the children, living in the north region, by the gynecologist and urologist, and provide some small operation in regional hospitals,

2. Work out the republic programm «Reproductive health children of Republic Sakha Yakutia»

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Table 1

Incidence of the disease of the reproductive system of the gels living in the northern regions of Republic of Sakha Yakutia

Settlement	Number of the disease (Absolute)	Incidence of the disease of the reproductive system (of the 100)
Kebergene	13	22,8
Kistatem	14	21,9
Gigansk	26	21,7
Srednekolimsk	29	33,3
Chokurdax	22	17,6
Russkoe Uste	8	40,0
Olenegorsk	6	15,4
Berezovka	9	16,4
Andrushkino	44	33,6
Sayilik	16	16,0
Verxnekolimsk	9	23,1

total	196	23,4
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Table 2

The structure disease of the reproductive system of the gels living in the northern regions of Republic of Sakha Yakutia

Disease	Absolute	%
Vulvitis	79	40,3
dismenorrhea	72	36,6
Delay of the sexual development	15	7,6

Table 3

Incidence of the disease of the reproductive system of the boys living in the northern regions of Republic of Sakha Yakutia

Settlement	Number of the disease (Absolute)	Incidence of the disease of the reproductive system (of the 100)
Verhnekolimsk	8	17,8
Kistatem	4	12,1
Gigansk	11	10,6
Sayilik	8	9,0
Belaya Gora	7	7,1
Total	38	10,3

Table 4

The structure disease of the reproductive system of the boys living in the northern regions of Republic of Sakha Yakutia

Disease	Absolute	%
fimosi	15	39,4
varikocel	8	21,0
Synechi	6	15,7

Authors:

1. Burtseva Tatiana Egorovna- PhD, research director of the Yakut research center KMP SB RAM,
2. Makarova Avgustina Makarovna – scientific of the Yakut research center KMP SB RAM,
3. Dranaeva Galina Gavrilovna – PhD, chief pediatrician of the Health Ministry of the Republic of Sakha Yakutia
4. Chernogradskaya Marfa Vladimirovna – gynecologist,
5. Kupryakov Sergey Olegovich - urologist,
6. Stepanuk Nina Fedorovna - urologist,
7. Nikolaeva Ludmila Alekseevna- PhD, director of the Pediatrician center,
8. Yakovleva Svetlana Yanovna- PhD, head of the polyclinics,
9. Chasnyk Vyacheslav Grigorevich- MD, professor,
10. Uvarova Tatyana Egorovna- PhD, scientific of the Yakut research center KMP SB RAM,
11. Samsonova Margarita Ivanovna- PhD clinical director of the Pediatrician center

Adress: bourtsevat@rambler.ru

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**MICRONUTRITION STATUS of PREGNANT and THEIR NEWBORN
CHILDREN**

Alekseeva S.N., Petrova P.G., Ivanova O.N.

*Medical institute of North-East federal university named after M.K.Ammosov,
Yakutsk, Russian Federation*

To reveal the condition of a mineral exchange, the estimation of 22 chemical elements in hair of 102 not pregnant, 50 pregnant and their newborn, living in Yakutsk was carried out. Macro- and microelement structure of pregnant women hair was more changed especially there were authentically low levels of cuprum, phosphorus, iodine. Accumulation of microelements in a newborn organism is connected with the phenomenon of "superstorage", thus essentielle microelements are not collected.

Key words: pregnant, newborn, microelements.

Alexeeva Sargylana Nikolaevna – master teacher of Department of pediatrics and pediatric surgery Medical institute Northeast Federal university, phone number. 89246613846, 39-56-09, e-mail: sargylanao@mail.ru;

Petrova Palmira Georgievna – m.d, professor., director of Medical institute Northeast Federal university;

Ivanova Olga Nikolaevna– m.d., professor. Manager of Department of pediatrics and pediatric surgery Medical institute Northeast Federal university.

Introduction. The important role of microelements (ME) in life activity of a human doesn't give rise to doubt. For last years the considerable number of the researches devoted to investigation of impact of trace substance on metabolism has congested [2, 5]. The occurrence of imbalance of trace substance of inhabitants of several areas is governed by biogeochemical distinctions and man-made pollution has detected [4].

It is known that children and gravidas are more amenable to sickness allied with disorder of mineral turnover. Children's body is peculiar marker medication of hypersensitivity of the body to condition surroundings. The children's level of health is one of the most sensitive index reflecting changes of environment's quality [4]. In the first place unfavorable conditions of environment pose a hazard to children who because of morph functional immaturity are notable for hypersensitivity to defective or supernumerary inflow of chemical elements from without [5]. Hereby the problem of search of deficit and imbalance of macro- and microelements at pregnant women and children of North is actual and serves as a methodical base for conduction ecophysiological searches.

Objective: Observation macro-and-micro elemental composition at the system "mother – newborn" into conditions of Yakutsk.

Materials and methods: As biologic test subject hair is the most appropriate material for medical and ecological experimentation and also is possessed of advantage in comparison with other biosubstrates. It is simple indolent and available for the mass searches. The inspection is noninvasive that eliminate the risk of dangerous contact with AIDS, hepatitis etc. The inspection of 102 not pregnant women and 50 pregnant women and their newborn children including questioning and search of content of 22 chemical elements (Al, B, Ca, Cd, Co, Cr, Cu, Fe, Hg, K, Li, Mg, Mn, Na, Ni, P, Pb, Se, Si, Sn, Ti, V, Zn) in hair was carried out. The prescription of women's home in that city averages from 6 to 35 years. Their professional activity was never connected with unhealthy works.

Analytical searches are done by method of atomic emission spectrometer and mass spectrometry with inductively bound argon plasma (АЭС-ИСП, МС-ИСП) in laboratory of Centre of Biotic Medicine in Moscow city (certificate of accreditation ГСЭН RU ИОА.311, registration number in State register ПОСС RU.0001.513118 date May of 29, 2003).

Results and discussion.

For detection of features of mineral composition in hair of pregnant women the pair wise comparison of average value of examined index with reference values using in the capacity of standards in Centre of Biotic Medicine (Moscow), also recommendation of P. Bertram (1992) was carried out. Data analysis showed essential differences of hair's chemical composition (Chart 1).

Contents of copper, phosphorus, iodine at the pregnant women of Yakutsk city were below limits of biologically tolerance level (BTL), index of calcium, cobalt, magnesium is on the lower bound. The reduction of content of copper, phosphorus, iodine at the body of gravidas conform with population rate of deficit of that micro elements [2, 3, 6].

For pregnant women of Yakutsk city living in extreme climatic geographic conditions the frequency of occurrence of deficits and redundancies was calculated, essential deformation of elemental profile was ascertained cause various degree of deficit of many biogenic elements. The elemental state is characterized by prevalence of low content of I (95%), Cu (77,5%), Co (65%), Mg (55%), P (47,5%), K (40%), Ca (20%), Se (17,5%) in hair.

Except low content of some bioelements at pregnant population the increased content of silicon was revealed in hair. The evidence conform with previously published facts of Shitz I.V. (2006). The frequency of occurrence of silicon's plenty is 55% that makes it possible to refer observable territory of Yakutsk city to vast silicon biogeochemical province.

Hyperelementozas are occurred with major frequency at pregnant women. The content of potassium, manganese, sodium, phosphorus exceeds BTL (Chart 2).

The distinctive features of elemental state of pregnant in comparison with not pregnant living in Yakutsk are reliable distinctions by Al, B, Ca, Cr, Cu, Fe, Hg, Na, Ni, P, Pb, Sn, V aside the reduction at pregnant. The depletion of the mother's body by macro-and micro elements is connected with accumulation of it in tissues and organs of fetus [1].

The content of macro- and micro elements in test of newborn children's hair in Yakutsk considerably differs from "background" facts (mineral composition of newborn children's hair in Moscow). In analysis there is imbalance of chemical elements expressing in reduction of essential element like cobalt also ratio distortion of electrolytes as prevalence of sodium over potassium (Chart 3). There is redundant storage of iodine, potassium, sodium, phosphorus, silicon. In hair there is sharp predominance of sodium over potassium, calcium, magnesium that can be indirect evidence of elevation of tissue's hydrophilia and hypoxic shift of electrolytic exchange. Supernumerary content of potassium can be regarded as a factor of immaturity, insufficient differentiation of tissues, organs and systems [4].

The rate of registration of low values about advisable physiological norms was established by index of calcium (97,7%), sodium (97,7%), magnesium (91,%), zinc (75,5%), potassium (64,4%), phosphorus (53,3%), chromium (46,6%), manganese (40%), selenium (17,7%) at newborn children.

The finding of inspection pairs “mother-newborn” shows reliably high level at newborn children such elements like: Al, Ca, Cd, K, Li, Mg, Mn, Pb, V. The given elements are increased in 2 and more times. In the body the metals and macro elements are accumulated and from essential micro elements the zinc is stored. The accumulation in the body of newborn contacts with occurrence “superreserving” because of high requirement during the time of antenatal and postnatal development. Not only essential micro elements is accumulated but also toxic in limits of biologically allowable level at low contents of it at mother.

Apparently from the diagram (pic.a), a condition hypoelementozas are found more at pregnant women. To significant elementozas which occur at the pregnant women and her newborn it is possible to attribute reduction of copper (at 77,5 % of pregnant and 88,8 % of newborn children). The most significant hyperelementozas are registered only at newborn (pic.B). At the body of newborn metals and macro elements accumulate, from essential micro elements zinc accumulates .

Received thus « the element portrait » allows to present an element structure of examined pregnant and their newborn children of Yakutsk more visually. Element structures of pair "mother - newborn", elements containing in numerator, which contents in hair redundant, and in a denominator is insufficient (tab. 4) are below given. The frequency of concerning the increased contents of silicon and concerning the low contents of copper were observed in group of pregnant and newborn children.

Conclusions. The features of the state of women of Yakutsk in III term of pregnancy are reduction of the contents of copper, phosphorus, iodine and the increased contents of silicon. The element state of pregnant women authentically differs from not pregnant following essential micro elements Cr, Cu, Fe, the given micro elements also are reduced at newborn. At the body of newborn the metals and microelements accumulate. Increase of a level of silicon at the body of mother is accompanied by increase also at newborn. Downturn of a level of copper at the body of mother is accompanied by reduction of the contents also at newborn.

The comparative analysis of the contents of chemical elements (mkg / ú) in hair of pregnant
Yakutsk with the reference values

Ele men t	Mothers n=45	Biologically allowable level (БДУ) 1	
		Lower bound	Upper bound
	M±m		
Al	2,22±1,6	0	40
B	0,58±0,32	0	5
Ca	771±379	600	3000
Cd	0,009±0,01	0	0,25
Co	0,02±0,03	0,01	0,5
Cr	0,24±0,05	0,15	1
Cu	9,69±1,31 *	11	17
Fe	20±13	10	50
Hg	0,56±0,35	0	2
I	0,19±0,22 *	0,3	10
K	97,28±242,71	25	110
Li	0,043±0,15	0	0,1
Mg	69±55	60	200
Mn	1,18±1,73	0,25	1,8
Na	159±167	50	250
Ni	0,19±0,09	0	2
P	138±21 *	140	170
Pb	0,15±0,10	0	3
Se	0,41±0,2	0,2	1,8
Si	56±26 *	13	50
Sn	0,11±0,1	0	2,5
V	0,02±0,006	0	0,3
Zn	231±67,5	180	230

The note: * - values of a median below and above БДУ are allocated

1 - V.A.Demidov, A.V. Skylnyi, 2001

Chart 2

The average contents of chemical elements in hair of pregnant and not pregnant women of
Yakutsk, (mkg / ú)

Ele ment	Pregnant n=50	Women n=102	Ele ment	Pregnant n=50	Women n=102
Al	2,22±1,6*	9,64±1,04	Mg	69±55	191±23
B	0,58±0,32*	0,8±0,14	Mn	1,18±1,73	2,62±0,27
Ca	771±379*	1700±186	Na	159±117*	527±126
Cd	0,009±0,01	0,08±0,01	Ni	0,19±0,09*	0,57±0,05
Co	0,02±0,03	0,05±0,01	P	138±21*	217±61
Cr	0,24±0,05*	0,52±0,05	Pb	0,15±0,10*	2,2±0,54

Cu	9,69 - 1,31*	13,37±0,91	Se	0,41±0,2	0,39±0,04
Fe	20±13*	25,06±1,53	Si	56±26	49±6,64
Hg	0,56±0,35*	1,2±0,2	Sn	0,11±0,1*	0,63±0,11
K	97,28±242,71	295±52	V	0,02±0,006*	0,06±0,01
Li	0,043±0,15	0,09±0,026	Zn	231±67,5	195±8

The note: * - reliability of distinctions ($p < 0,05$)

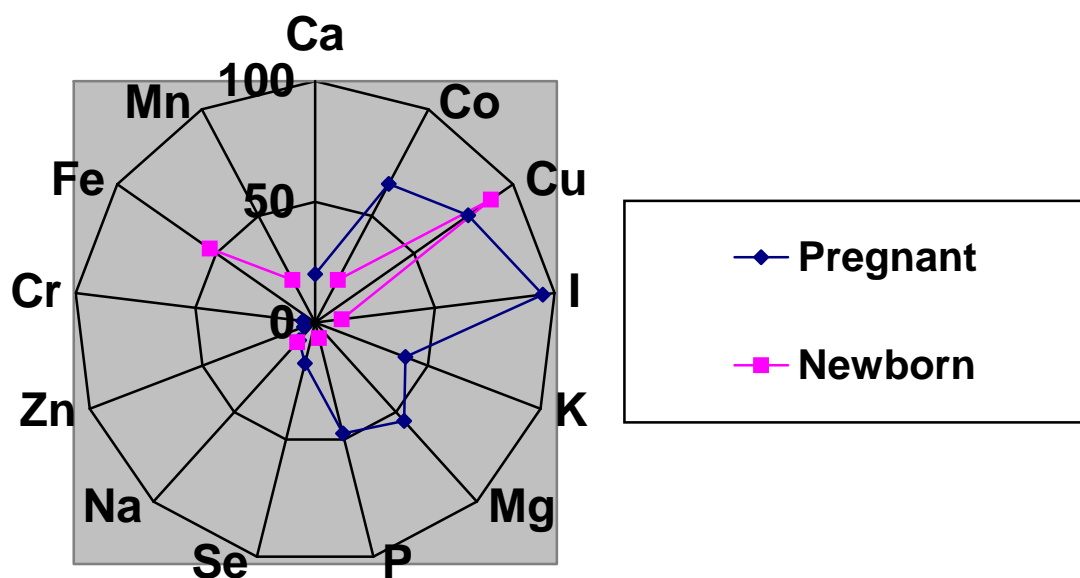
Chart 3

The comparative analysis of the contents of chemical elements (mkg / ú) in hair of newborn of Yakutsk with the referent values

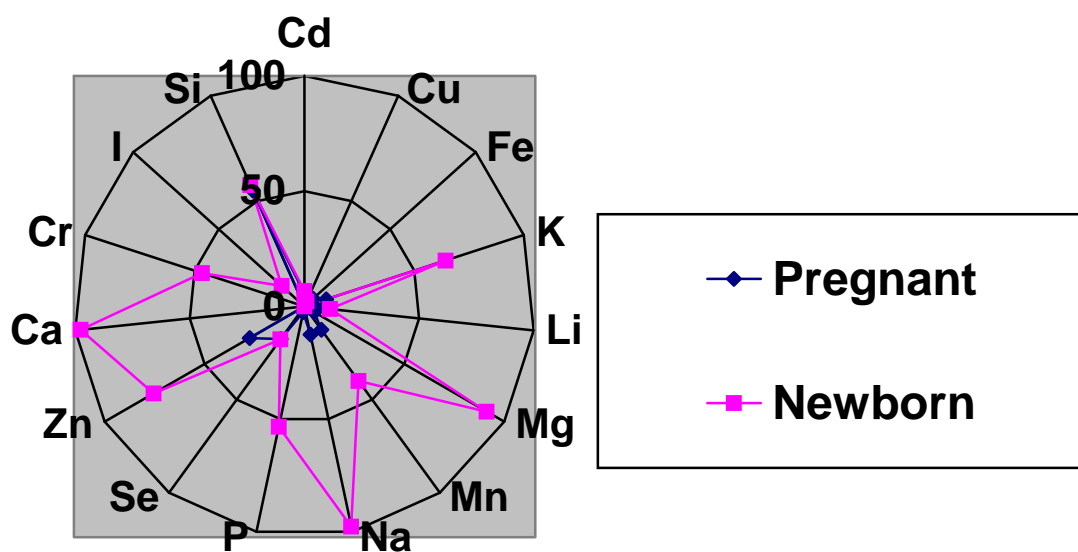
Element	Newborn n=45	Biologically allowable level (БДУ) 1	
	M±m	The bottom border	The top border
Al	3,23±2,7	2,0	40,0
B	3,87±4	0	5,0
Ca	1500±545	200	1500
Cd	0,08±0,16	0	0,5
Co	0,019±0,01 *	0,2	1,0
Cr	0,94±0,52	0,5	1,5
Cu	7,57±2,22	6,5	15,0
Fe	32,49±16,79	15,0	50,0
Hg	0,64±0,38	0	1,0
I	18,85±69,23*	0,3	10
K	2722±1892*	340	1900
Li	0,053±0,13	0	0,1
Mg	118±73	25	120
Mn	2,19±5,83	0,5	3,0
Na	3599±2109*	210	800
Ni	0,57±0,5	0	2
P	195±126*	120	160
Pb	1,44±4,6	0	5,0
Se	1,32±0,45	0,8	3,0
Si	46±10*	5	30
Sn	0,14±0,22	0	2,5
V	0,22±0,14	0	0,5
Zn	212,43±65,69	125	250

The note: * - values of a median below and above BTL are allocated

1 - V.A.Demidov, A.V.rocky, 2001



a)



b)

Pic. Frequency of registration hyperelementozas (á), hyperelementozas (á) at pregnant and their newborn children of Yakutsk, ()

Chart 4

The redundant and insufficient contents of elements at pregnant and their newborn children in Yakutsk.

Pair « mother - the child »	Element structures	
	Surplus	Lack
Pregnant	Si	I, Cu, Co, Mg, P, K
Newborn	Ca, Cr, To, Mg, Mn, Na, P, Si, Zn	Cu, Fe

The note: elements are included, frequency of deviations in which contents exceeds 30 %.

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Value of different variants of EEG registration in diagnostics of epileptical paroxysms in children

Guzeva O.V.

Revealing of clinic-electrophysiological features of various forms of epilepsy in children on the basis of analysis of results of the complex diagnostic study including clinic-anamnestic, neuro-visualization and electrophysiological data, video-EEG monitoring and working out of tests for their differential diagnostics was under study. Complex diagnostic study with video-EEG monitoring has allowed to establish epilepsy at all children, and inaccurate directional diagnosis has appeared in 22, 08 % of cases, and in most cases (71, 78 %) it was defined.

Keywords: epilepsy, video-EEG monitoring, epileptiform activity.

Introduction. An important condition of adequate therapy is early differential diagnostics of epileptic and nonepileptic paroxysmal conditions at children [10]. Differential diagnostics of these conditions in applied medicine is based now on clinical data, data of anamnesis and indicators of routine EEG which not always is correctly registered and interpreted. The data of routine EEG confirms it's insufficient of information in case of not clear character of paroxysmal consciousness [2, 3]. That is why studying of a complex of the data of research of monitoring EEG and video-EEG except clinical and anamnesis data and indicators of routine EEG is actual.

EEG at children in comparison with adults has a number of features. Slow waves, weak expressiveness of regular rhythmic fluctuations at younger children are observed in norm on EEG. It is caused by non-simultaneous maturing of a bark and subcrustal formations of a brain, and also various degree of their participation in formation of biocurrents of a brain [4, 5].

Video-EEG combines video-monitoring of the patient with simultaneous record EEG. This research allows to fix epileptic activity during an attack, to compare a clinical picture of an attack with changes on EEG, to define epileptic focus, to distinguish epileptic attacks from nonepileptic attacks [2, 6, 7, 8].

Thus, data of EEG at children with paroxysmal consciousness frustration has essential value for diagnostics, estimations of efficiency of spent treatment and the illness forecast.

Indicators of EEG should be considered in aggregate with an etiology, pathogenesis and features of clinical display of disease [1, 3].

According to the literature, indicators of video-EEG monitoring have the greatest diagnostic value during different stages of a dream [9, 11]. However, the quantity of publications and detailed discussion of results of video-EEG monitoring at children with paroxysmal frustration of consciousness of different age isn't enough.

Objective of this research is revealing of clinical and electrophysiological features of various forms of an epilepsy at children on the basis of the analysis of results of the complex inspection including anamnesis, clinical, neurovisual and the electrophysiological datas, including of video EEG monitoring and working out of criteria of their differential diagnostics.

Materials and research methods. On Department of nervous illnesses, the Center of diagnostics and treatment of an epilepsy and nonepileptic paroxysmal frustration of consciousness at children (SPbGPMA) 163 children with paroxysmal frustration of consciousness from 1 month till 18 years, from them 37 (22,70 %) children under 3 years, 28 (17,18 %) – from 3 to 6, 32 (19,63 %) – from 6 to 9, 23 (14,11 %) – from 9 to 12, 16 (9,82) – from 12 to 15 and 27 (16,56 %) – from 15 till 18 years are surveyed. Children went to clinic of nervous illnesses SPbGPMA for character specification of paroxysmal consciousness frustration. Considerable group patients with suspicion on nonepileptic made character of paroxysms (22,09 %), and at the majority sick (71,78 %) were required to specify the epilepsy form. The basic diagnoses in directions for inspection of children are presented to tab. 1.

Among surveyed children of 95 boys (36,68 %) and 68 girls (26,25 %).

Anamnesis data (a current of pregnancy, sorts, the neonatal period, psychomotor development), the family anamnesis, somatic and neurologic statuses was in detail studied.

For diagnosis specification to all patients monitoring in a condition of wakefulness and in the sleep video-EEG was carried out.

Results and discussion. About 40 % of patients addressed for consultation in SPbGPMA with EEG data, spent in other medical institutions, other patient routine (usual) EEG carried out in clinic (tab. 2). At 4 patients with эпилептическими paroxysms at the moment of record of video-EEG-monitoring the data of routine EEG was absent.

The magnetic resonance imaging of a brain was spent at 117 (71,78 %) children. Absence of organic changes of a brain on MRI is revealed approximately at 1/3 (32,48 %) children with epileptic paroxysms. Expansion of subarachnoideal spaces is established at 19,66 %, ventriculomegalia – at 10,26, the combination of expansion subarachnoideal spaces and ventriculomegalia - at 11,97, expansion of subarachnoideal spaces and ventriculomegalia were combined with other developmental anomalies of a brain only in insignificant number of cases (0,61), other developmental anomalies of a brain are found out at 24,79 % of children with an epilepsy.

For specification of diagnosis it was spent video-EEG-monitoring of all patients in a condition of wakefulness and a dream (tab. 3-4).

To thicket at surveyed children during wakefulness came to light focal epileptiform changes – at 64 (39,26 %). Functional immaturity of a brain was marked at 49 (30,06 %) and only at 1 (0,61 %) patient EEG was normal.

Focal changes with secondary generalization during wakefulness are revealed at 11 (6,75 %) patients, the centers in the left and right hemisphere are found out approximately with identical frequency in frontal and temporal areas. Epileptiform focal changes without secondary generalization are revealed at 64 (39,26 %) patients, is slightly more often they were marked in the left hemisphere, than in right, on frequency of localization of the center frontal and temporal areas prevailed, is more rare – parietal and occipital.

The conducted researches have shown that at photostimulation epileptiform activity at patients with epileptic paroxysms has appeared for the first time in 14 (8,59 %) cases, accrued – in 17 (10,43 %) and remained in 13 (7,98 %) cases.

At photostimulation reaction of mastering of a rhythm was absent at 56 (34,36 %), is moderately expressed at 44 (26,99 %), is expressed at 10 (6,14 %) patients with an epilepsy.

Hyperventilation was spent at 112 (68,71 %) from 163 children. Hyperventilation wasn't spent to children of younger age. Against hyperventilation at an epilepsy paroxysmal epileptiform activity appears at 8,93 % of children, diffuse and focal epileptic activity – at 45,54 % of children, the index of slow wave activity – at 45,54 % of children accrues. As a whole of epileptiform changes on EEG accrue at hyperventilation at 54,46 % of children with an epilepsy.

In the sleep came to light epileptiform focal changes with secondary generalization – at 40 (24,54 %) children is more often, and at 26 (65 %) from them were marked multifocal changes, at 7 (17,5 %) the center settled down in the left hemisphere, mainly in lobno-temporal areas, at 5 (12,5 %) – in the right hemisphere, also mainly in lobno-temporal areas, at 2 (5 %) children – in frontal area of the right and left cerebral hemispheres.

Epileptiform focal changes without secondary generalization are revealed at 28 (17,18 %) children. At 9 (11,25 %) from these patients the center settled down in the left hemisphere, and in 7 (77,78 %) cases – in a frontal share. At 13 (46,43 %) patients the center settled down in the right hemisphere, more often in lobno-temporal areas (76,92 % of cases). In the left and right hemispheres the center is revealed at 6 (21,43 %) patients, and center localization in frontal area was marked at 4 (66,67 %) children.

The general data on EEG changes during wakefulness and a dream during monitoring video-EEG testify that at surveyed children came to epileptiform focal changes with secondary generalization (28,83 %) and without secondary generalization (20,25 %) is more often. Were often found out epileptiform diffuse and multifocal changes (31,29 %), are more rare – generalized epileptiform change (9,20 %) and is rare – epileptiform diffuse activity (3,68 %). Epileptiform activity isn't registered only at 11 (6,75 %) patients, at these children activity and functional immaturity of a brain is revealed diffuse slow wave activity.

Epileptic attacks during carrying out of video-EEG of monitoring were marked at 44 (26,99 %) children. At 18 (40,91 %) from them during attacks were registered epileptic diffuse and multifocal changes, at 14 (31,82 %) – epileptic focal changes with secondary generalization, at 8 (18,18 %) – epileptic focal changes and at 4 (9,09 %) – epileptic focal changes.

The general data about очаговых changes at video-EEG monitoring during the periods of wakefulness and a dream at surveyed children testifies that at 80 (49,08 %) children with epileptic paroxysms in wakefulness and dream stages were more often marked multifocal

epileptiform changes (40 %), approximately with identical frequency the centers of epileptiform activity settled down in the left and right cerebral hemispheres separately and together.

Epileptiform activity was registered in frontal, temporal and frontal-temporal areas is more often, is more rare – in parietal and occipital areas.

Indicators of EEG at sick children testify that after a dream remain focal epileptiform changes (58,28 %), are registered generalized changes (10,43 %) less often, it is quite often marked disorganized α - activity (30,06 %). Normal EEG it is noted only at 2 children of this group (1,23 %).

Frequency of revealing epileptiform changes at children with an epilepsy at different variants of research EEG is presented to tab. 5.

Diagnostic value of given videos-EEG of monitoring in a dream condition proves to be true their statistically authentic difference from the indicators received at other investigation phases (tab. 6).

The given tables testify that there is an authentic distinction in frequency of revealing of epileptiform activity on EEG at video monitoring during a dream in comparison with other variants of record EEG. It confirms necessity of carrying out of video-eeg-monitoring at children with record in the sleep for character specification paroxysmal consciousness frustration.

Complex inspection with video-eeg-monitoring carrying out has allowed to establish that at children with an epilepsy the erroneous diagnosis is established in 22,08 % of cases, and in most cases (71,78 %) it was specified (tab. 7).

As a result of complex inspection the definitive diagnosis an epilepsy is established at all surveyed children.

The presented data testifies to enough high diagnostic importance of indicators of EEG at hyperventilation for carrying out of differential diagnostics epileptic and nonepileptic paroxysms at children.

Conclusions

Authentic distinction in frequency of revealing of epileptiform activity on EEG is established at video monitoring during a dream in comparison with other variants of EEG record. Detectability of epileptiform and epileptic activity at video EEG monitoring in comparison with routine EEG increases in 3,7 times.

At character specification of paroxysmal consciousness frustration it is necessary to be based on the complex data including careful gathering of the anamnesis, character of clinical displays of paroxysms, results of neuroimaging and laboratory inspection. It is necessary to consider quality of carrying out and adequacy of interpretation of EEG data.

At use of results of video-EEG monitoring (during wakefulness and in the sleep) the probability of statement of the correct diagnosis and appointment of timely adequate treatment considerably raises. The invaluable help in differential diagnostics epileptic and nonepileptic paroxysms and specification of the form of an epilepsy at children is rendered by registration of a paroxysm during monitoring video-EEG.

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Table 1

The diagnoses of children before receipt in clinic of nervous illnesses of SPb ГИМА

Diagnosis	Number of the surveyed children	
	abs.	%
Nonepileptic paroxysms	36	22,09
Epilepsy ?	3	1,84
Epilepsy of the concrete form	17	10,43
Epilepsy of not specified form	106	65,03
Without diagnosis	1	0,61
Total	163	100%

Table 2

The basic results of the analysis of routine EEG

Sign	Number of is surveyed th children	
	abs.	%
Generalized complexes of sharp, spike, polyspike-slow wave	6	3,68
Focal epileptiform activity	35	21,47
Paroxysmal activity	13	7,98
Combination of diffuse and focal changes	18	11,04
General diffuse changes	1	0,61
Delay of maturing of a base rhythm	75	46,01
Normal	11	6,75
No data	4	2,45
Total	163	100%

Table 3

Results of video-EEG monitoring at children with epileptic paroxysms during wakefulness

Changes of EEG during wakefulness	Number of children	% from total number of children
Generalized epileptiform activity	11	6,75
Focal epileptiform activity with secondary generalized	11	6,75
Epileptiform diffuse activity (without accurate focus)	15	9,20
Epileptiform diffuse and multifocal changes (3 and more focuses)	12	7,36
Epileptiform focal changes	64	39,26
Diffuse slow wave activity, functional immaturity	31	19,02
Functional immaturity, /// complexes of spike-slow wave	18	11,04
Age norm	1	0,61
Total	163	100%

Table 4

Results of changes of EEG at children with paroxysmal consciousness frustration in the sleep

changes of EEG during the sleep	Number of children with consciousness frustration in the sleep	
	abs.	%
Generalized epileptiform activity	18	11,04
Focal epileptiform activity with secondary generalized	40	24,54
Epileptiform diffuse activity (without accurate focus)	13	7,98
Epileptiform diffuse and multifocal changes (3 and more focuses)	51	31,29
Epileptiform focal changes	28	17,18
Diffuse slow wave activity, functional immaturity	13	7,98
Total	163	100%

Таблица 5

Frequency of revealing of epileptiform changes at children with paroxysmal consciousness frustration on routine EEG and video-EEG-monitoring

Stages of carrying out of researches	Number of children with epileptiform changes		The relation to number of given routine EEG
	abs.	% in relation to number of children with epileptiform paroxysms	
Routine EEG	41	25,15	-
Video-EEG monitoring – Wakefulness condition	113	69,33	2,76
– Dream condition	150	92,02	3,66
– Dream and wakefulness condition	152	93,25	3,71
– Condition after awakening	112	68,71	2,73

Table 6

Reliability of distinction of frequency of revealing epileptiform activity at different investigation phases of EEG

Compared investigation phases	Number of children with epileptiform changes	Significance value P	Confidential probability
Routine EEG –vide EEG monitoring– wakefulness	41	$2,2 \times 10^{-15}$	> 0,9999
	113		
wakefulness-dream	113	0,001	0,999
	150		
dream and wakefulness	150	0,154	0,846
	152		
dream and wakefulness - after awakening	152	0,00006	> 0,9999

Table 7

Distribution of the specified basic diagnoses at children with epileptiform paroxysms in clinic of nervous illnesses of SPbGPMA

Diagnosis	Number of children	Number of children in %
Idiopathic epilepsy	10	6,14
Symptomatic and kryptogenic genereralized epilepsy	16	9,82
Symptomatic focal epilepsy	66	40,49
Kryptogenic focal epilepsy	68	41,72
Syndrom of Landau-Kleffner	3	1,84
Total	163	100%

УДК – 618.39 – 089.888.14 – 084(571.56)

Reproductive health of adolescents and women after the artificial abortion.

Potential ways of the reproductive health rehabilitation

N.I. Douglas, Ye.A. Borisova, Ya.G. Rad, T.Yu. Pavlova

Obstetrics and Gynaecology Chair, Paediatric Department, Medical Institute,
M.K. Ammosov Northeastern Federal University
58, Belinskogo Street, Yakutsk, Sakha Republic (Yakutia) 677000

The article discusses one of the abortion consequences, namely chronic autoimmune endometritis resulting in sterility and a number of various pathological processes in the uterus and other reproductive organs. The authors make an attempt to evaluate efficiency of the therapeutic and preventive measures package aimed at the reproductive health rehabilitation in 13 teenage girls and 53 reproductive-age women after first pregnancy artificial abortions.

Keywords: adolescents girls, reproductive-age women, reproductive health, artificial abortion, sterility, endometritis.

Problem of abortion primarily makes a cause of problems of reproductive health in Russia and specifically in Republic of Sakha (Yakutia). Changes that are caused by abortion make influence on the young woman's health during all her life. Chronic and as a rule autoimmune endometritis is developed, that leads to not only to sterility, but to different pathological processes in the uterus and other organs of reproductive system. Persistent endometritis hinder normal implantation of fertilized ovum in the uterus wall, embryogenesis and in the end leads to various complications of pregnancy and birth. This way reproductive potential of the country is decreasing (Radzinsky V. E., Orazmuradov A. A., 2009).

We are trying to estimate efficiency of therapeutic activities complex, aimed on the recovery of reproductive health of 13 adolescents and 53 reproductive-age women, after first pregnancy artificial abortion.

Table 1

First pregnancy artificial abortion

Groups		n	first pregnancy artificial abortion.	
			absolute	%
Control	Adolescents	30	1	3,3
	Reproductive-age women	52	10	19,2
Yakutians	Adolescents	114	9	7,9*
	Reproductive-age women	110	23	20,9
Evenkiis	Adolescents	49	3	6,1*
	Reproductive-age women	98	20	20,4

Note: * $p < 0,05$ – authenticity of differentiation is established comparing to control

As it can be seen from the data first-time pregnant reproductive-aged women's every fifth pregnancy led to an induced abortion, statistically important differences between groups are not detected. Among adolescent first pregnancy termination diagnosed among native women.

Therapeutic activities complex included:

- antiphlogistic therapy complex, concerning strict relevancy of antibacterial therapy prescription;
- hormonal contraception – usage of low-dosed oral contraceptives from the 1st day of the postabortion period according to the contraceptive scheme, not less than for 6 month.
- correction of intestine and vagina microbiocenosis;
- wide use of physiotherapeutic procedure.

In our research was used combination of small doses of alternating magnetic field and sinusoidal modulated current with intravaginal insertion of Lidaza and Dimexidum. Before conducting treatment course tampon with Lizada and Dimexidum was inserted intravaginally, then magnetotherapy was conducted (used low-frequency alternating magnetic field (AMF) of the device AMT-02 "Magniter", used sinusoidal current No. 5, then pulsatory current – No. 5, intensity of magnet field 30 mT, exposure time 15 minutes).

After AMF procedure without rest continued by sinusoidal modulated current in stimulating mode (alternating current mode – P1, type of work – PP, modulation rate – 50 hertz, modulation depth – 100%, current rate – up to contraction of front abdominal wall muscle under electrode, exposure time 10 minutes). Treatment course consisted of 10 daily procedures.

The reason to use magnetic field is that it has a strong positive anti-inflammatory and improving microcirculation effects, also absence of thermal exposure, that allows to use it in 2 hours after pregnancy termination. Treatment effect of sinusoidal modulated current is due to uterotonic, anti-inflammatory, defibrosing effects, and also their ability to improve trophic tissues. (Levchenko I. M., 2007)

According to the conducted therapy in the postabortion period all patients were divided in two subgroups: received therapeutical activities complex treatment and not.

Table 2

Grouping according to the conducted treatment

Groups		n	Treatment complex proposed	
			absolute	%
Control group	Adolescents	1	1	100
	Reproductive-age women	10	6	60
Yakutians	Adolescents	9	2	22,2
	Reproductive-age women	23	12	52,2
Evenkiis	Adolescents	3	1	33,3
	Reproductive-age women	20	11	55

Due to the low quantity of medical supervision of patients after surgical pregnancy interruption, patients were united in two groups according to their age and without regard to the nationality (Fig. 1).

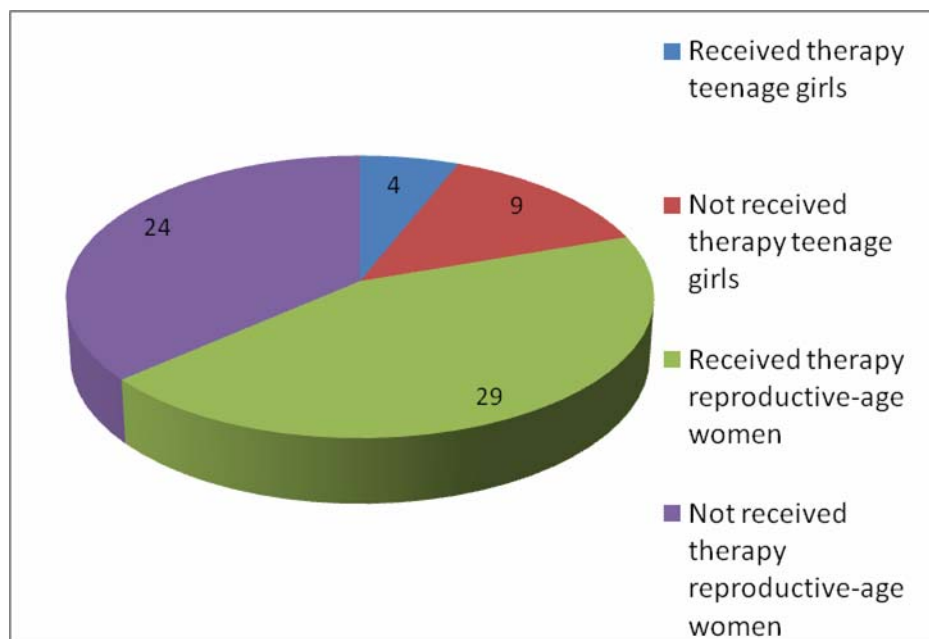


Figure 1. Grouping according to the conducted treatment

Analysis of the involutinal processes of uterus on the third, sixth and eighth day after pregnancy termination has shown the relation to the rehabilitation activities (Table 3).

Table 3

Size of uterine body on the third day after the abortion

Groups		n	Size of uterine body, mm.		
			Lengh	Front-back	Width
Adolescents	Received therapy	4	68,1±0,43*	57,1±0,38*	58,1±0,32*
	Not received therapy	9	71,1±0,43	60,1±0,44	60,1±0,43
Women	Received therapy	29	70,4±0,46*	58,8±0,34	60,9±0,36
	Not received therapy	24	73,4±0,48	60,4±0,44	61,1±0,41

Note: * $p < 0,05$ – authenticity of differentiation is established comparing to the not received therapy group

As it can be seen from the data, on the third day after the abortion size of the uterine body of teenage girls and reproductive-age women, who have received therapy during the post abortion period, was smaller comparing to the same parameters in the group, who hasn't received therapy. Significant difference can be registered while comparing all estimated size of uterine body of teenage girls, among reproductive-age women statistically significant differences could be

traced in comparison only of the length of uterus. When comparing the parameters of the uterus diagnosed reduction of the size of the uterus in adolescents when compared with women of reproductive age, which may indicate a more contractile activity of uterine muscles in this age group.

On the sixth day of post-abortion period decrease in all compared parameters is observed in comparison with the third day. (Table 4)

Table 4

Size of uterine body on the sixth day after the abortion

Groups		n	Size of the uterine body, mm		
			Length	Front-back	Width
Adolescents	Received therapy	4	57,1 \pm 0,33*	48,1 \pm 0,3*	49,1 \pm 0,32
	Not received therapy	9	60,1 \pm 0,32	54,1 \pm 0,24*	50,1 \pm 0,34
Women	Received therapy	29	58,4 \pm 0,36*	48,8 \pm 0,34	52,9 \pm 0,31*
	Not received therapy	24	61,3 \pm 0,38	51,4 \pm 0,32	55,1 \pm 0,37

Note: * $p < 0,05$ – authenticity of differentiation is established comparing to the not received therapy group

On the sixth day was traced the similar trend of reduction of the uterus in girls and women receiving the proposed treatment.

On the eighth day the investigated parameters of the uterus in the groups receiving the proposed complex, no longer differed from the normative parameters of the not pregnant uterus (Table 5).

Table 5

Size of uterine body on the sixth day after the abortion

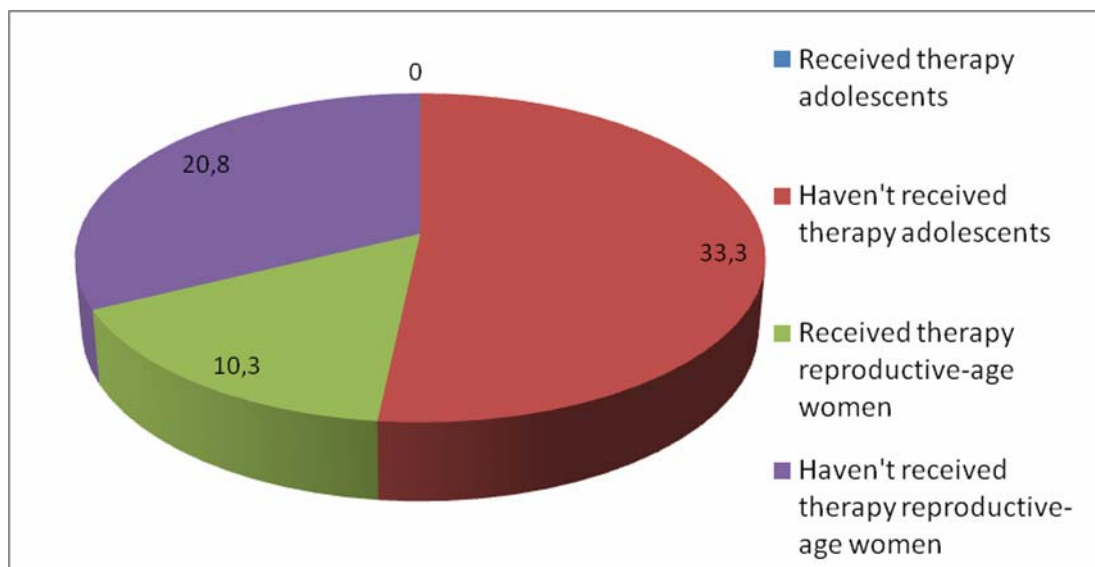
Groups		n	Size of the uterine body, mm		
			Lengh	Lengh	Lengh
Adolescents	Received therapy	4	47,1 \pm 0,33*	46,1 \pm 0,3*	44,1 \pm 0,32
	Not received therapy	9	57,1 \pm 0,32	52,1 \pm 0,24*	49,1 \pm 0,3
Women	Received therapy	29	48,9 \pm 0,23*	47,8 \pm 0,24*	50,9 \pm 0,27*
	Not received therapy	24	60,3 \pm 0,28	50,4 \pm 0,3	54,1 \pm 0,25

Note: * $p < 0,05$ – authenticity of differentiation is established comparing to the not received therapy group

On the eighth day it was clearly traced statistically significant lag on all of the estimated parameters of uterus among girls and women, who have not received the therapy. In these groups uterus size on the eighth day was still increased.

On the eighth day 5 reproductive-age women (20,8%), who haven't received rehabilitation therapy, had clinical signs of acute endometritis. The similar clinical picture was diagnosed in 3 adolescents (33,3%), not received proposed therapy.

In the group of adolescents received proposed treatment complex was not diagnosed a single case of endometritis, but in the group of reproductive-age women acute endometritis was stated among 3 women (10,3%) (picture 3). All patients with acute endimetritis have received etiopathogenic therapy.



Picture 2. Frequency of post-abortion acute endometritis.

In the group of women, received proposed therapy but with developed post-abortion endometritis, all of them in anamnesis had chronic salpingo-oophoritis. It is obvious that artificial abortion became a starting procatarxis of exacerbation of chronic inflammation of the appendages and as a consequence of post-abortion endometritis.

On the whole conducted treatment complex, including hormone treatment and use of physiotherapy, allows to halve the frequency of complications such as “post-abortion endometritis”.

The results indicate tonomotory and anti-inflammatory effects of our proposed rehabilitation complex.

Study of the hormonal status features after pregnancy termination in women who didn't use oral contraceptives was conducted in 1, 3 and 6 months after pregnancy termination.

Estimating follicle-stimulating hormones showed (Table 6) its level rehabilitation in adolescences in 6 months after the abortion, that is definitely later comparing to reproductive-aged women, who had FSH rehabilitated in 3 months.

Table 6.

Blood level of FSH (ME/l) in the early follicular phase

Group	n	Month		
		1	3	6
Haven't received therapy girls	9	27,4±2,4*	10,3±2,1*	6,1±1,5*
Haven't received therapy women	24	19,6±2,1	7,8±1,1	9,4±2,0

Note: * $p < 0,05$ – authenticity of differentiation is established comparing to the women of reproductive age

Also significant increase of FSH level was stated in 1 and 3 months in adolescents in comparison to women of reproductive-age.

More intense changes are found in the content of luteinizing hormone in women with terminated pregnancy (Table 7).

Table 7

Blood level of LH (ME/l) in the early follicular phase

Group	n	Month		
		1	3	6
Haven't received therapy girls	9	17,4±2,2*	10,3±2,0	14,2±2,5*
Haven't received therapy women	24	12,6±2,0	8,8±1,0	10,4±2,0

Note: * $p < 0,05$ – authenticity of differentiation is established comparing to the women of reproductive age

Studying of LH level in dynamics showed its increase in a month after pregnancy termination, authenticity of differentiation was traced in a group of adolescents. Gradually LH level was decreasing to the 3d month of supervision, but 2 teenage girls (22,2%) during 6 months after abortion LH peak was stated, reaching 20,5 ME/l.

Among women of reproductive age parasitic peaks of LH were diagnosed in 2 patients (8,3%), maximum rate of LH made 15,2 ME/l.

Studying of lactation hormone level (Table 8) on the 2nd – 3d day of the menstrual cycle, showed its rehabilitation during 6 months after abortion in

Table 8

Blood level of lactation hormone (ME/l) in the early follicular phase

Group	n	Month		
		1	3	6
Haven't received therapy girls	9	891,4 \pm 122,8*	609,7 \pm 132,1	304,7 \pm 39,5*
Haven't received therapy women	24	630,7 \pm 142,1	658,7 \pm 139,1	617,8 \pm 240,1

Note: *p<0,05 – authenticity of differentiation is established comparing to the women of reproductive age

the teenage girls. In the group of women of reproductive age lactation hormone level remained for 3 month moderately high in 17 (70,8%) women, in the group of adolescents in 5 (55, 5%).

In 6 month after pregnancy termination all adolescents had normal lactation hormone level, while reproductive-age women' hyperprolactinemia level remained the same in 9 (37,5%) (maximum rate of lactation hormone on the 2nd day of the menstrual cycle was 857,9 ME/l).

Estimation of progesterone level on the 22 – 24th day of the menstrual cycle, as an ovulatory menstrual cycle marker, has shown (Table 9), that

Table 9

Blood level of progesterone in (nmol/l) in the luteal phase.

Group	n	Month		
		1	3	6
Haven't received therapy girls	9	10,4 \pm 2,8	15,7 \pm 7,1	20,7 \pm 12,5
Haven't received therapy women	24	10,7 \pm 2,1	18,7 \pm 6,9	21,8 \pm 11,6

Note: *p<0,05 – authenticity of differentiation is established comparing to the women of reproductive age

On the 3rd month after artificial abortion ovulation regenerated. 2 girls (22,2%) had increased progesterone level over 20 nmol/l, among women of the reproductive age this number was definitely higher and made – 11 (45,8%)

In 6 months after conducted abortion progesterone level increase over 20 nmol/l was diagnosed in 4 (44,4%) girls and in 15 (62,5%) women of the reproductive age.

This way, artificial abortion of young girls anovular menstrual cycles are diagnosed more than in every second (55,6%).

Termination of first pregnancy among women of reproductive age leads to several other hormonal disorders – it is mostly dominated by moderate hyperprolactinemia - more than every third (37,5%) and anovulatory menstrual cycles diagnosed in 37.5% of women.

Evaluation of features for restoring gipotolamo-pituitary-ovarian function after 9 months in all patients who terminated first pregnancy, including receiving rehabilitative therapy, including use of low-dose OK for 6 months after the abortion, showed (Table 10) a statistically significant difference in its condition .

Table 10

Blood levels of FSH (IU / L), LH (IU / L) and prolactin (IU / L) in the early follicular phase.

Group		n	FSH	LH	Prolactin
Girls	Not received therapy	9	5,1 \pm 1,7	15,2 \pm 3,5	304,7 \pm 39,5
	Received therapy	4	3,0 \pm 1,4*	4,2 \pm 1,1*	206,4 \pm 41,5*
Women	Not received therapy	24	6,1 \pm 2,0	11,1 \pm 3,8	607,8 \pm 240,1*
	Received therapy	29	5,4 \pm 1,2	6,1 \pm 1,3*	417,8 \pm 280,1*

Note: *p<0,05 – authenticity of differentiation was established.

In the level of FSH statistically significant differences were found in a group of teenage girls, those girls who received treatment had a significantly lower FSH level. There was a similar situation with the level of LH: LH level was significantly higher among girls who were not receiving therapy.

There was a statistically significant increase in prolactin level among girls who were not receiving complex therapy, but its levels did not go beyond the normative values. The situation is different among women of reproductive age. We found no statistically significant differences in the levels of FSH, however, significant differences could be traced with respect to LH. LH levels were significantly higher in women who did not receive the proposed therapy.

In women of reproductive age there had been an increase of prolactin levels. Among women who did not receive rehabilitative therapy, a statistically significant increase was stated when compared to the same factor in women receiving the proposed treatment. Although even in women of reproductive age who received therapy in postabortal period, prolactin levels

significantly exceeded the permissible standard values. This situation was due to detection of moderate hyperprolactinemia in 5 (17,2%) women. In the comparable group of hyperprolactinemia is diagnosed in more than a third (37,5%), which is 2,2 times higher when compared with women receiving therapy.

Determining the level of progesterone in the luteal phase in 9 months after abortion showed (Table 11) that

Table 11

Blood levels of prolactin (nmol / L) in the luteal phase.

Groups		n	Progesterone
Girls	Not received Therapy	9	22,9 \pm 14,5
	Received therapy	4	28,7 \pm 11,5*
Women	Not received Therapy	24	23,7 \pm 13,6
	Received therapy	29	32,9 \pm 16,2*

Note: *p<0,05 – authenticity of differentiation was established.

in girls and women of reproductive age progesterone levels did not change drastically when compared with its level, defined at 6 months after the abortion. In 9 months after the abortion increase of progesterone level above 20 nmol / L was diagnosed in 4 (44.4%) girls and 16 (66,6%) women of reproductive age who were not receiving the proposed treatment.

Among girls and women who have undergone rehabilitation, the increase in progesterone level above 20 nmol / L was diagnosed in significantly greater number of observations: in 3 women (75%) and 24 (82,7%).

Overall, these results demonstrate that the proposed complex of rehabilitation treatment after artificial abortion stimulates the recovery of two-phased menstrual cycle in the vast majority of patients, prevents the formation of menstrual disorders.

In addition to hormone research, a survey by the tests of functional status, in particular, the analysis of basal body temperature charts, as measured during 3 menstrual cycles (Fig. 3, 4). Study of the menstrual cycles, was performed 9 months after artificial abortion.

In adolescent girls basal temperature charts are as follows: among the last complex of rehabilitation treatment two-phase cycles occurred in 3 (75%), anovulation was found in 1 (25%) girls, and among who haven't received proposed therapy a two-phase menstrual cycle was diagnosed in 3 (33,3%), inadequate luteal phase (IDLF) was diagnosed in one in nine (11.1%), and more than every second (55,5%) - anovulation.

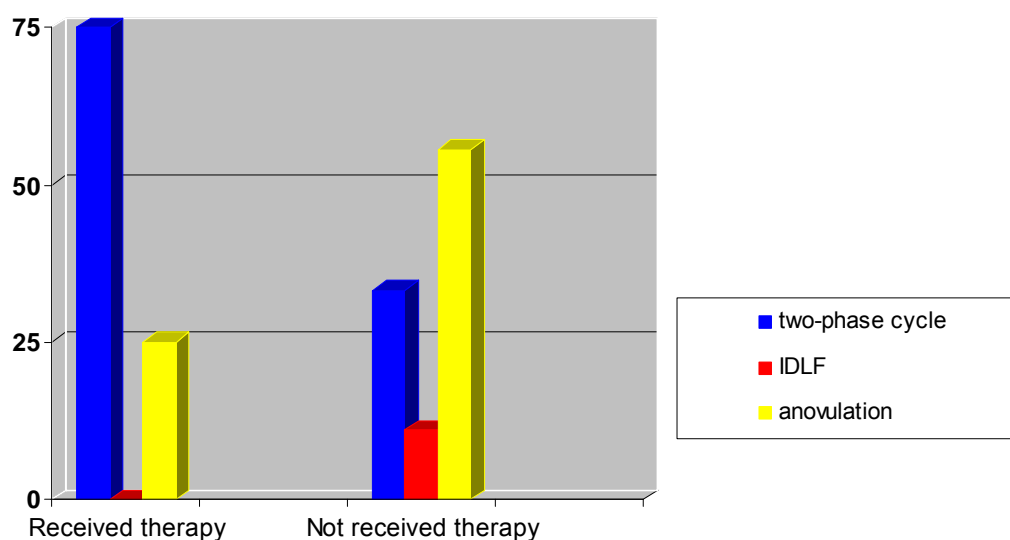


Fig. № 3. Characteristics of the teenage girls' menstrual cycle.

In women of reproductive age estimated basal body temperature charts showed that among the complex of rehabilitation treatment in the past two-phase cycles occurred in 24 (82,7%), IDLF syndrome - in 13,8% of women, anovulation was found in 1 (3.4%) , among those who have not undergone the proposed therapies a two-phase menstrual cycle was diagnosed in 10 (41,7%), IDLF syndrome was diagnosed in one in four (25%), and every third (33,3%) - anovulation.

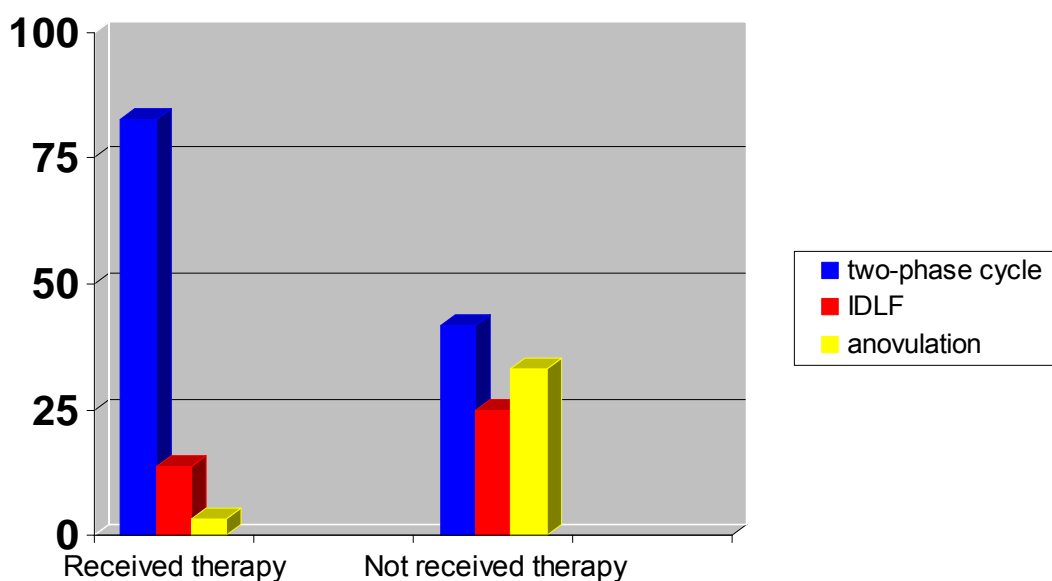


Fig. № 4. Characteristics of the menstrual cycle in women of reproductive age.

Thus, our analysis of basal body temperature charts of our surveyed patients showed that one of the main gynecological disorder identified in adolescent girls after artificial abortion is anovulation. Complex of rehabilitation measures reduces the likelihood of the formation of adolescent girls anovulation in 2,2 times.

In women after artificial interruption of the first pregnancy, major gynecological disorder is a detectable decrease in functional activity of the corpus luteum - IDLF and anovulation. Frequency of two-phase menstrual cycles after a proposed complex of rehabilitation treatment in women of reproductive age increases almost in 2 times, 2,4 times reduces development of IDLF syndrome, in 9,8 times reduces the frequency of anovulation formation.

Summary. Artificial termination of first pregnancy contributes to the formation in adolescent girls:

- post-abortion endometritis in 33.3%;
- gynecological disorders by type of anovulatory menstrual cycles in 55,6%, IDLF syndrome in 11.1%;

among women of reproductive age:

- post-abortion endometritis in 20,8%;
- hyperprolactinemia - every third (37,5%);

- gynecological disorders by type of anovulatory menstrual cycles in 33,3%, IDLF syndrome in 25%;

Using the proposed set of preventive and treatment activities, including complex anti-inflammatory therapy; the use of low-dose OC on the first day of post-abortion contraceptive period by the scheme for at least 6 months; gut and the vagina microbiota correction, the wide use of physical therapy (a combination of low doses of an alternating magnetic field and sinusoidal modulated currents), facilitated by:

in adolescent girls:

- Lack of formation of inflammatory diseases of the uterus and appendages in postabortion period, while in the comparison group post-abortion endometritis was diagnosed in one out of three;
- reduce the likelihood of anovulation formation in 2,2 times;

among women of reproductive age:

- reduce the incidence of acute inflammatory diseases of the uterus and appendages in 2 times;
- reduction of 2,2 times the frequency of the formation of moderate hyperprolactinemia;
- reduce the formation of hormonal disorders according to the type IDLF syndrome in 1,8 times, anovulation - in 9,8 times.

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**ENDOSCOPIC AND MORPHOLOGICAL FEATURES OF UPPER
GASTROINTESTINAL TRACT PATHOLOGY IN ADOLESCENTS OF SAKHA
REPUBLIC (YAKUTIA)**

Pak M. V., Savvina N.V., Lehanova S.N.

Institute of postgraduate education North-Eastern Federal University named after

M.K. Ammosov

Children's City Hospital

Republic Hospital № 1 - National Medical Center

The article is devoted to the actual problem - pathology of the upper gastrointestinal tract in adolescents. Performed endoscopic and morphological study of 188 biopsies from antrum to identify features of the changes in the mucosa in the HP-associated gastritis in adolescents 10 -17 years, living in the Republic of Sakha (Yakutia). Revealed the predominance of neerozivnyh forms gastroduodenitis. The frequency of HP infection in the general structure of surveyed adolescents aged 10-17 years was 58,5%. Chronic gastritis in children 10-14 years are associated with the second and third degrees of HP infection, and in adolescents aged 15-17 years with a first degree of infection and their lack of HP.

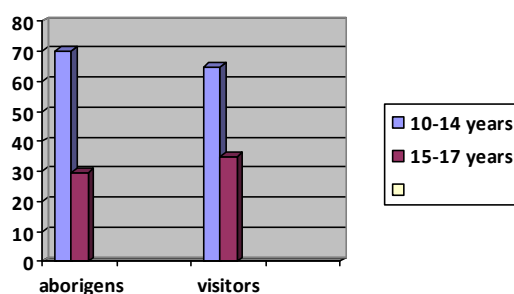
Keywords: endoscopic, morphological features, gastritis, adolescents, *Helicobacter pylori*.

Introduction. A distinct increase in the prevalence of digestive diseases up to 10% a year has been according to epidemiological studies. Medical and social importance of diseases of the gastrointestinal tract is determined by a chronic relapsing course, the development of serious complications in the most crucial period of growth and development. Diseases of the stomach and duodenum occupy a leading position in the structure of gastroenterological disease, which frequency in children and adolescents makes over 60% of all diseases of the digestive tract. Prevalence of diseases of the digestive system, according to official statistics, amounted to 90-150 per 1000 child population, in 2000-2005 yy. by uptake to outpatients, and the detection of gastritis and duodenitis during adolescence increases almost two times in the Republic of Sakha [4, 10]. Chronic inflammatory diseases associated with *Helicobacter pylori* (*H. pylori*) have core weight in the pediatric gastroenterology [1-3,5]. According to several authors [8,9], 60-80% of cases of gastritis and 88-100% of cases of duodenal ulcer are associated with *H.pylori* infection in children . In Russia, the infection rate of children and adolescents *H.pylori* is in the range of 60-70% and increases with the age. But the prevalence of HP-infection may vary depending on regional characteristics, ethnicity, socio-

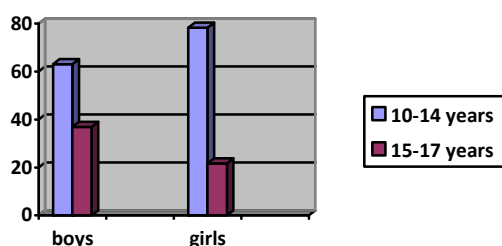
economic status and age of children [6,7]. The survey results also depend on the applied methods of diagnosis of *Helicobacter pylori* infection, which differ in sensitivity and specificity. The study of clinical and endoscopic and morphological features of HP - associated gastritis in children in conditions of extreme climate of Yakutia has relevance in connection with high morbidity, both adults and children of different forms of gastritis. Prolonged, relapsing course of the disease has a negative effect on psycho-emotional tone of children and adolescents, violates the quality of life, contributes to psychological and social maladjustment. Underestimation of the frequency and nature of illness chronic gastritis in childhood and as a consequence, the lack or inadequacy of treatment leads to an increase in the number of people suffering from chronic gastritis in adulthood, and make it more likely to develop complications of gastritis and associated diseases.

The aim of our study is: to identify and evaluate the endoscopic and morphological changes in the gastric mucosa by HP - associated gastritis in adolescents living in the Republic of Sakha (Yakutia).

Materials and methods: 188 primary studies of the upper gastrointestinal tract of adolescents aged 10 to 17 years who were divided according to ethnicity, gender and age were conducted on a clinical basis of the Department of Childhood Illness, Course Health Organization and the Public Health of the Medical Institute, GOU VPO "North-Eastern Federal University named after M.K. Ammosova" in MO «Children's City Hospital» in Yakutsk for the period from 2002 to 2003. Analysis of the structure of applied and examined adolescents revealed no statistically significant differences both in ethnicity and gender in the group, which was presented in a comparable structure indigenous and non-indigenous children (Fig. 1), boys and girls (Fig. 2). When the diagnosis of the stomach diseases, we used classification and grading of gastritis according to the modified Sydney system (October 1996). Endoscopic visual diagnosis was supplemented by taking material for morphological analysis. Sections were stained with hematoxylin and eosin by Romanovsky-Giemsa. The degree of inflammation, activity of inflammation, the presence of atrophy, metaplasia, dissemination of HP were taken into account.



Pic. 1. The structure of the children surveyed, taking into account ethnicity



Pic. 2. Age structure of children by sex

Results and discussion.

In our study children population macroscopic evaluation of mucosa of the upper gastrointestinal tract in 131 adolescents (69.7%) hyperemic gastropathy was found. In 20 persons (10,6%) papules in the antral stomach were determined and they understood as papular gastropathy. Hypertrophic gastropathy was detected in 2 patients (1.1%). Our study showed that the surveyed children isolated involvement stomach occurred in 76 cases (40,4%). Involvement in inflammation mucous membrane duodenum - hyperemic duodenopathy – were determined in 112 children (59.6%). The combined lesion mucous membrane of the esophagus, stomach and duodenum was observed in 11 adolescents (5.9%). Erosive and ulcerative lesions mucous membrane of the stomach and duodenum was detected in 35 cases (18,6%). Erosions of the gastroduodenal mucosa were observed in 17%, ulcers were in 1,6%. One teenager was diagnosed postulcer strain pylorus and duodenal bulb. The study found that age influenced the prevalence of erosive and ulcerative lesions mucous membrane of the upper gastrointestinal tract. Thus, in the age group 15-17 years this rate was 11,2%, in the age group 10-14 years 7,5%. The presence of foamy olive or green contents in the lumen of the stomach was regarded as duodenogastric reflux, and was detected in 30 children (15,6%).

Our studies showed that the overall structure surveyed adolescents aged 10-17 years the incidence of HP-associated gastritis was 58.5%, with prevalence rate HP-contamination in indigenous teenagers. Moreover, in adolescents aged 10-14 moderate degree of HP-contamination were recorded, but in the 15-17 year-olds - a weak degree of colonization by HP were recorded. The study of Loskutova K.S., in the adult population of Yakutia infection is 76.1%. Thus, HP infection in an adult population of Yakutia occurs predominantly in childhood and increases with age, peaking at 10-14 years, since early childhood - a critical period for HP infection.

In analyzing the structure of various degrees of contamination with HP account ethnicity and gender the following data were obtained: a group of indigenous children has weak degree of contamination encountered in 37, 4%, moderate - in 15.3%, expressed degree - in 9,9%. In the group of non-indigenous children weak degree of contamination encountered in 19.3% of cases, moderate - in 17.5% and severe degree - in 12,3%. Thus, according to research HP infection was found statistically more frequently among indigenous children. We found that the sex in a group of non-indigenous children were significantly affected by the infection of HP. For example, boys were less infected with Hp (39,5%) than girls (78,6%) ($p < 0,02$) and the frequency of occurrence among non-indigenous girls (7.5%) was higher compared with indigenous girls (57,2%) ($p = 0,1$). Thus, HP infection has distinction of sex only among non-indigenous children.

As a result, histomorphologic study, 135 adolescents (71.8%) were put diagnosis of superficial gastritis, of whom 83 (61,5%) - superficial follicular gastritis. In 29 subjects (15.4%) occurred erosive gastritis, 22 of them (75,9%) - follicular erosive gastritis. Atrophic gastritis with intestinal metaplasia was diagnosed in 21 adolescents (11.2%). In 3 adolescents (1.6%) pathology in histomorphologic study was not revealed. In the studied biopsies of the surface morphological pattern of gastritis was characterized by inflammatory infiltration of varying degrees of activity, which consisted of leukocytes, lymphocytes, plasma cells mixed with macrophages and eosinophils, often with the formation of lymph follicles with germinal centers. Statistical analysis HP-contamination given histological diagnosis found that the structure of the contamination was dominated by children with chronic superficial gastritis (90.0%). A case of chronic atrophic gastritis HP-contamination declined, as in the cases with intestinal metaplasia, and without it (7,7% and 3,8%, respectively). Thus, a decrease of the frequency of HP-contamination atrophic gastritis, which is consistent with studies of H.I. Maarosa and others having shown that the development of atrophic changes in mucouse HP-contamination significantly reduced, due to worsening conditions for the existence of HP in atrophy due to

changes in the composition of mucus. They noted that in atrophic gastritis superficial epithelium secretes less mucus, which HP is hidden under mucus.

Conclusion. Thus, in the Republic of Sakha (Yakutia) is a high HP infection teenagers, mostly children of secondary school age. At the same time that indigenous children the frequency of HP-contamination was significantly higher than non-indigenous, with a non-indigenous adolescents mild contamination predominated. A characteristic feature is the combined lesions of the mucous membrane of the stomach and duodenum. At the microscopic level, morphological verification of diagnosis superficial gastritis with formation of lymph follicles with germinal centers is dominated. Lymph follicles, formed by a massive attraction of leukocytes, lymphocytes and antibodies in the intrusion of the HP are a response of the mucous membrane. Also, the morphological features of HP-associated gastritis in adolescents in Yakutia are: the early development of subatrophic and atrophic changes in gastric mucosa.

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Сведения об авторах:

1) Саввина Надежда Валерьевна, д.м.н., профессор, заведующая кафедрой детских болезней, акушерства и гинекологии, с курсом организации здравоохранения и общественного здоровья ИПОВ СВФУ.

2) Леханова Саргылана Николаевна, к.м.н., врач-патологоанатом ПАО ЯРБН¹-НЦМ

3) Пак Мария Владимировна, врач-эндоскопист КДЦ ЯРБ№1-НЦМ.

667009 г. Якутск, ул. Клары Цеткина, дом 14/1, кв. 1.

Тел. 47-00-85, сот. тел. 89246615853

pakmv@mail.ru

Borisova N.V., Malogulova I.Sh., Petrova P.G., Kolosova O.N.

THE CHARACTERISTIC OF FUNCTIONAL RESERVES AND GUSTATORY SENSITIVITY AT DIFFERENT ETHNOS, LIVING IN REPUBLIC SAKHA (YAKUTIA)

The functional reserves of cardiorespiratory system are investigated in different ethnic groups of Yakutia.. At research of human gustatory sensitivity ethnic dependence of gustatory senses is established.

Keywords: cardiorespiratory system, gustatory sensitivity.

Introduction. The negative anthropogenous factors influence not only ecological systems, but also promote decrease of reserves of health on individual and populations levels, increase of a degree psychophysiological and genetic pressure, growth of a specific pathology and occurrence of the new forms of ecological illnesses, and in some regions and increase of the phenomena depopulation.

In conditions of Far North on the man render influence of the extreme factors - low temperatures, specific photoperiodicity, factors of an electromagnetic nature, heavy oxygen and carbon modes. For radical ethnos of Far North the extremeness conditions of climate is much lower, than for the visitant of the population, in connection with inclusion in adaptive process of genetic mechanisms of adaptation [1, 6]. However, transition to the new forms of labour activity, fast change (in historical prospect) of nomadic life to settled, radical changes of household conditions, character of a feed and other changes of ability to live could affect on system of human homeostasis of the radical inhabitants [2, 3, 5]. In this connection, the significant interest represents study of reserve opportunities at different ethnic groups of the population of republic.

In extreme conditions the man tests maximal temperature, psychological and emotional of loading, is in a condition of a constant pressure. In this connection adequate feed is a means for simplification, simplification of transition from one metabolic of a condition in another. In turn, an inadequate feed breaks adaptation mechanisms of reorganization of an exchange of substances and character of interaction enzymes. So, carbohydrates the type of a feed at the radical inhabitants of North promotes decrease of activity lipase in intestine; further it results in increase in blood lipoproteins of low and very low density [4].

Hence, lipoproteins the type of a feed of the man in North can be considered as original antistress a means for preservation of stability organism [9]. The study of changes of gustatory sensitivity of the man in North, in turn, is not less urgent, than equation of a feed of the man in extreme climatic conditions.

Materials and methods of research. A general characteristic, volume and the methods of research are submitted in the table 1. Two groups of a quota surveyed were generated: 1 group - surveyed - europeoids, 2 groups - inhabitants of a radical nationality.

Results and discussion. The comparative analysis of the characteristics of anthropological from the inhabitants of Republic Sakha (Yakutia) has shown, that on some

parameters they differ among themselves (tab. 2). So, length and the area of a surface of a body, authentically is higher ($p < 0,05$) at surveyed - europeoids, and index Kettle and Rorers - at the inhabitants of a radical nationality. The index Kettle is important physiological parameter describing constitutional features of the man, degree of its physical development and level of its power exchange.

One of major functions determining serviceability organism, is the function of breath. The parameters of respiratory function can be divided into two components: the characteristics of the actually respiratory device and parameters of gas changes in easy, reflecting transport of gases by blood, work of heart and condition of fabric breath.

The comparative analysis of importance VPC and MVB at surveyed has shown authentic increase of these parameters in a years season in comparison with winter ($p < 0,05$). Thus at europeoids of importance VPC and MVB authentically is higher, than at the radical inhabitants ($p < 0,05$). The seasonal changes VPC have made 2,4 % and 3,9 %, accordingly. Is characteristic to note, that the decrease of the attitude VPC from DVPC was observed in the winter period of year. At the representatives europeoids at this time of year higher importance of MVB are revealed, at the expense of increase of frequency of breath. The observable changes of frequency - volumetric of pulmonary ventilation in the party of relative prevalence of frequency of breath can specify decrease of functional reserves of external breath. At surveyed - europeoids seasonal changes BV and MVB have made 14,3 and 8,4 %, and at the radical inhabitants - 16,4 and 7,7 %, accordingly ($p < 0,05$).

The study tracheobronchial of passableness has shown, that DVPC at surveyed both groups exceeds european age norms on 3-12 of %, is especial in the summer (all parameters are given in percentage of due meanings on Knutson). In the winter period the authentic decrease of passableness bronchus irrespective of an ethnic accessory ($p < 0,05$) was observed.

The passableness of various parts of tracheobronchial systems lower is established, that at the radical inhabitants, than at europeoids. It, apparently, is adaptive a structurally functional component carrying out function of protection of a fabric easy from overcooling and reflecting physiological mechanisms thermoregulation through respiratory ways. At the same time narrowing bronchus increases loading on intimate - сосудистую system [1, 3, 5, 7].

Results of the statistical analysis of seasonal changes of parameters is cardiovascular systems at surveyed essentially differed in contrast seasons of year. So, the frequency of intimate reductions in rest authentically is higher in winter time and at europeoids, and minute volume blood pressure - in years and at the radical inhabitants ($p < 0,05$). The seasonal changes MVBP at europeoids have made 3,3 %, and at the radical inhabitants - 4,4 %. The given shifts specify moderate prevalence of sympathetic nervous system, that in conditions of cold stress can promote a premature exhaustion of functional human reserves. At the same time, the parameters of blood pressure at healthy surveyed had no authentic distinctions in contrast seasons of year, that testifies to more expressed inertness and stability of these parameters.

The very important parameter describing function of cardiovascular system, is the double product (DP), which reflects a level of hemodynamic loading on cardiovascular system. The analysis has shown, that the highest meanings of DP were observed in group of the men - europeoids in the winter, basically at the expense of increase a SBP, and low at the radical inhabitants - summer, that testifies to more economic functioning of cardiovascular system in this period.

The stability of blood pressure optimizes microcirculation and transcapillar an exchange in fabrics, keeping a steady level metabolism, that testifies to more high level adaptation of the man to conditions of Republic Sakha (Yakutia).

In northern conditions at the man is formed lipoproteins a type of a feed appropriate phenogenotypical to properties of the radical inhabitants of North. Opposite, in areas with a warm climate at the inhabitants prevails a lipocarbohydrates type.

However, first of all, the lipoproteins type of a feed answers a condition of metabolism to the man in North testing on long enough influence of the extreme factors of an environment, irrespective of his ethnic accessory.

At alien of the population of North (European) in a condition of a long pressure there is switching a power exchange with carbohydrates such as on lipids. The radical inhabitants of North use for these purposes exogenous fat, whereas alien - endogenous stocks of fat [9].

The received results specify that the average threshold of gustatory sensitivity (TGS) to salty, sour and bitter at the people living in Yakutia, irrespective of ethnos, was authentically below, than at the persons living in others climatic zones (a fig. 1).

Average TGS to sour ($0,054 \pm 0,002$ %) at surveyed in 12 time are lower, than at the persons living in the Central European region of Russia, to salty ($0,073 \pm 0,003$ %) - in 2,7 times, to bitter ($0,00087 \pm 0,00003$ %) - in 1,8 times, to sweet ($0,75 \pm 0,03$ %) - practically does not differ.

The so significant difference in size average TGS to sour, probably, is caused by decrease of need of the man living in conditions of Yakutia, in sour products. In North mens the displacement of acid-alkaline balance in the party metabolic acidosis is marked, is especial in winter time [8].

It is known, that the contents of ions sodium in blood at the persons living in North, in 1,4 times is lower in comparison with the one who lives in a moderate climate [5]. In turn, the size TGS of North native salty stimulus confirms lower need in sodium chloridum.

Lower TGS to bitter can be explained by the character, established during evolution, of a feed of the peoples of North, in particular, of Yakuts. In a diet North native practically there were no products with bitter taste, the food of an animal origin prevailed.

Carried out one-dimensional dispersion the analysis of dependence TGS from ethnos from 95 % by probability has shown, that at the Yakuts TGS to sour makes ($0,059 \pm 0,002$) %, that 20 % is higher, than at Russian. For radical Russian, on the contrary, higher is observed (on 15 %) TGS to sweet (tab. 3). Most negative connection with ethnos was established for the Yakuts in relation to an acid citric ($r = -0,34$; $p = 0,000$), and also to glucose ($r = -0,22$; $p = 0,002$). Correlation connection between ethnos and average TGS to sodium chloridum ($r = -0,01$; $p = 0,903$) and quinine ($r = -0,07$; $p = 0,325$) was revealed not.

Probably, in a basis of the given distinctions of gustatory sensations the features of a feed and exchange of substances various ethnos lay. The Yakuts used in food proteins and fatty food, thus the share carbohydrates and flour food in a diet was insignificant. The reduced need at the radical peoples in sweet is explained evolution usual by a lipoproteins type of a feed more economically favourable for human organism, living in extreme conditions.

The conclusion.

The set marked climatic and ecological characteristics of Republic Sakha shows the critical requirements for existence of the man, that, certainly, results in a pressure of mechanisms of regulation of all systems human organism and first of all cardiovascular and respiratory systems. At research of gustatory sensitivity of the man the ethnic dependence of gustatory sensations is established.

Thus, the results of eco-physiological researches testify to necessity of the complex approach at an estimation of a condition of health and level of functional reserves in various regions of Republic Sakha (Yakutia).

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Influence of the element status on weight of a body of Extreme North residents

Lekhanova E.N.

The resume: Results of one-stage researches of unorganized of Yamal residents at the age of 20-59 years are presented. Influence of chemical elements on an index of weight of a body in the conditions of high widths is presented. The chemical elements influencing formation of superfluous weight of a body and adiposity are defined.

Keywords: chemical elements, unorganized population, the Extreme North, index of weight of a body.

Introduction. Adiposity is a superfluous adjournment of fat in an organism, meets at 20-40 % of the population of the developed countries. Along with it there is almost same group of persons, having excess weight, but yet not reached degree of adiposity [14,15].

This problem is actual for the Extreme North residents. In the conditions of high a latitude etiological factors of development of infringement of a metabolism can become both exogenous and endogenous to feature. To exogenous to factors of superfluous weight of a body and adiposity at of Yamal residents, probably, residing in biogeochemical is province. The high maintenance in iron water (23 maximum concentration limits) and manganese (6 MCL) [2,5] depends on the nature. Besides it, the element structure of environment in district changes at the expense of technogenic influence of the oil and gas industry. For oil presence at it of such metals as vanadium and nickel is typical. All components of oil can contain on the surface of the water. There is a probability of their receipt in fresh underground waters [7].

To endogenous to factors of superfluous weight of a body and adiposity, probably, adaptable reorganisation at migrants. So, at Extreme North residents the metabolism in an organism passes with “carbohydrate and protein” on “protein and fat” [4,10].

The combination exogenous and endogenous factors of a chemical homeostasis lead to high prevalence of superfluous weight of a body and adiposity among unorganized to population of Yamal. The standardized indicator of prevalence of superfluous weight of a body in territory of Yamal-Nenets autonomous region has made: Nadym – 24,5 %, the item of Nyda – 33,6 %, the item Tarko-Sale – 39,9 %, the item of Muzhi – 35,7 %, the item of Se-Jaha – 31,4 % [3].

Persons with superfluous weight of a body and adiposity suffer arterial hypertension, a metabolic syndrome, an ischemic heart trouble, diabetes mellitus of II type, a syndrome apnoe in the sleep, many kinds malignancy, illnesses of the locomotor apparatus is more often [1,10,14,15]. Therefore studying of the reasons of occurrence of superfluous weight of a body and adiposity in the conditions of high widths has one of the important problems of northern medicine.

With an urgency of the above-stated an objective of this research was studying of influence of concentration of chemical elements on indicators of an index of weight of a body among unorganized population of Yamal-Nenets autonomous region at the age of 20-59 years.

Materials and research methods. For object in view performance conducted population-based studies among unorganized population of Yamal at the age of 20-59 years of both sexes. Sample was formed in a random way. From-cliques has made 78,0 % from list structure of inhabitants. In total 1511 persons are surveyed. Middle age of the surveyed persons has made $40,7 \pm 12,9$ years. Northern experience anaborigine has made $23,3 \pm 14,2$ years.

The research report included: anthropometry, selection of hair from an occipital part of a head. Calculation of a growth -weight index of Kettle was made

$$IK = \text{weight} / \text{growth}^2$$

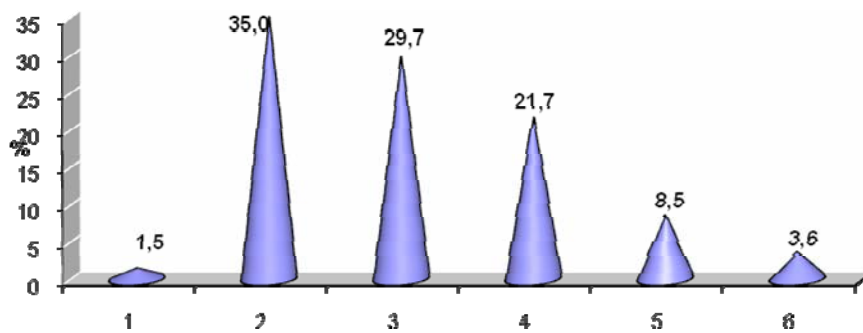
Following criteria of an estimation - to 18,5 lack of body weight are used; from 18,5 to 24,9 normal weight; from 25,0 to 29,9 superfluous weight of a body; from 30,0 to 34,9 obesity I cr.; from 35,0 to 39,9 obesity of II item; above 40,0 obesity of III item [9].

Definition of chemical elements (Fe, Zn, Cu, Mn, Ni, Co, Cd, Pb and Sa) in hair was spent with use of the modern analytical equipment based on principles of nuclear absorption «Spectr AA-50F», firms "Varian" (Australia), with - public methodical recommendations [9]. Results were compared rather regional standard indicators [6].

The statistical analysis was spent with program use "Statistica-6". As distribution of random numbers in most cases differed from holes-malnogo, as a measure of the central tendency the

median, distributions – interquartile scope served. Comparisons of three independent groups were spent with method application Kraskel - Wallis. Pair comparisons were spent by a method the God-send-uitni and χ^2 . The analysis of interrelation of signs paid off with the help of factor tetrachoric correlation (r); the sign contribution was defined on an indicator phi (ϕ) [12].

Results and discussion. The analysis of types of weight of a body on an index of Kettle has shown that prevalence of deficiency of weight of a body the superfluous weight of a body in 29,7 % of cases, adiposity of 1 degree in 21,7 % of cases, adiposity of 2 degrees in 8,5 % of cases, adiposity of 3 degrees in 3,6 % of cases (drawing 1) has made 1,5 % of cases, normal weight of a body in 35,0 % of cases.



1 - deficiencies of weight of a body, 2-normal weight of a body, 3-superfluous weight of a body,
4-adiposity 1 items, 5-adiposity 2 items, adiposity 3 items

Pic. 1. Prevalence of types of weight of a body on an index of Kettle in unorganized population of the Far North at the age of 20-59 years.

The analysis of the element status (ES) is carried out at various types of weight of a body (picture 1). So, at deficiency of weight of body ES it is characterized by surplus Ni and deficiency Ca, Pb. The element status at normal weight of a body, adiposity of 1 and 2 degrees characterized surplus Ni in a combination of deficiency Co, Ca, Pb. For persons with superfluous weight of a body deficiency Co, Ca, Pb is characteristic. At adiposity of 3 degrees ES it is characterized by deficiency Co, Cd, Ca, Pb. Hence, accumulation of chemical elements and the element status of the Extreme North residents depend on weight of a body.

Considering that on accumulation Ca, Co, Cd, Ni in an organism of northerners influence an index of weight of a body, the detailed statistical analysis of the given elements is carried out. The comparison group takes persons with normal weight of a body. Prevalence of deficiency a macrocell of Ca in population reached 86,3 % of cases. At persons with insufficient weight of a

body the greatest is revealed concentration by Ca in an organism that on 17,7 % above ($U=1407,50$, $Z=2,76$, $p=0,005$, Mann-Whitney), than at persons with normal weight of a body. At persons with superfluous weight of a body concentration of Sa more low on 2,6 % ($U=22071,0$, $Z=-2,12$, $p=0,03$, Mann-Whitney) in comparison with persons with body holes-malnoj in weight.

At persons with adiposity of 2 degrees concentration of Sa on 3,9 % more low ($U=53207,0$, $Z=-3,72$, $p=0,0002$, Mann-Whitney) in comparison with persons with normal weight of a body. The interrelation between prevalence of deficiency of Sa and prevalence of adiposity of 2 degrees at tendency level ($r=0,44$, $\chi^2=5,43$, $p=0,02$) is found. The contribution of deficiency of Sa to development of adiposity of 2 degrees reaches 13,0 % ($\phi=0,126$, $p=0,02$). Statistical distinctions concentration an element between ожирениями 1,3 degrees and normal weight of a body are not revealed. Hence, with increase in an index of weight of a body depth of deficiency Ca increases. Deficiency of Ca at northerners influences development of superfluous weight of a body, adiposity of 2 degrees.

Prevalence of deficiency within the surveyed population reaches 58,3 % of cases. At persons with superfluous weight of a body concentration With in 1,9 times more low ($U=105032,5$, $Z=-3,11$, $p=0,001$, Mann-Whitney) in comparison with persons with normal weight of a body. Between-du prevalence of deficiency With and prevalence of superfluous weight of a body the weak interrelation ($r=0,19$, $\chi^2=11,92$, $p=0,0005$) is revealed. The contribution of deficiency With in development of superfluous weight of a body reaches 12,0 % ($\phi=0,118$, $p=0,0005$).

At adiposity of 1 degree concentration With on 12,5 % ($U=79493,00$, $Z=-2,07$, $p=0,04$, Mann-Whitney) in comparison with persons with normal weight of a body. Between it is prevalence deficiency With and by prevalence of adiposity of 1 degree it is found a weak relationship ($r=0,21$, $\chi^2=11,82$, $p=0,0005$). The contribution of deficiency With in development of adiposity 1 reaches 13,0 % ($\phi=0,127$, $p=0,0005$).

At adiposity of 2 degrees concentration with in 2,3 times more low ($U=29427,50$, $Z=-2,52$, $p=0,01$, Mann-Whitney) in comparison with persons with normal weight of a body. Between prevalence deficiency With and prevalence of adiposity of 2 degrees the weak interrelation ($r=0,21$, $\chi^2=7,16$, $p=0,007$) is revealed. The contribution of deficiency With in development of adiposity of 2 degrees reaches 11,0 % ($\phi=0,112$, $p=0,007$).

At adiposity of 3 degrees concentration With in 4,5 times more low ($U=11665,00$, $Z=-2,30$, $p=0,02$, Mann-Whitney) in comparison with persons with normal weight of a body. Between prevalence deficiency With and prevalence of adiposity of 3 degrees the weak

interrelation ($r=0,25$, $\chi^2=5,65$, $p=0,02$) is revealed. The contribution of deficiency With in development of adiposity of 3 degrees reaches 11,0 % ($\varphi=0,106$, $p=0,02$).

Therefore, with increase in weight of a body prevalence and depth of deficiency microcell Co increases. Deficiency with at northerners influences development of superfluous weight of a body and adiposity.

Prevalence of deficiency Cd in population makes 43,7 % of cases. At excess weight of a body concentration Cd in twice more low ($U=104769,5$, $Z=-3,27$, $p=0,001$, Mann-Whitney) in comparison with persons with normal weight of a body. Between prevalence of deficiency Cd and prevalence of superfluous weight of a body the weak interrelation ($r=0,20$, $\chi^2=12,91$, $p=0,0003$) is revealed. The contribution of deficiency Cd to development of superfluous weight of a body reaches 13,0 % ($\varphi=0,131$, $p=0,0003$).

At adiposity of 1 degree concentration Cd in 2 times more low ($U=74708,50$, $Z=-3,45$, $p=0,001$, Mann-Whitney) in comparison with persons with normal weight of a body. Between prevalence of deficiency Cd and prevalence of adiposity of 1 degree the weak interrelation ($r=0,22$, $\chi^2=12,29$, $p=0,001$) is revealed. The contribution of deficiency Cd to development of adiposity 1 reaches 14,0 % ($\varphi=0,136$, $p=0,001$).

Statistical distinctions of concentration Cd between obesity 2,3 degrees and normal weight of a body are not revealed. Thus between prevalence of deficiency Cd and prevalence of adiposity of 3 degrees the interrelation tendency ($r=0,40$, $\chi^2=13,99$, $p=0,0002$) is revealed. The contribution of deficiency Cd to development of adiposity 3 reaches 18,0 % ($\varphi=0,177$, $p=0,0002$). Hence, with increase in an index of weight of a body depth de-fitsita Cd increases. Deficiency Cd in an organism of aborigines of Yamal influences development of superfluous weight of a body and adiposity of 1 degree.

Prevalence of superfluous concentration Ni in population has made 50,0 % of cases. At persons with adiposity of 2 degrees concentration Ni in 18 times above ($U=29161,50$, $Z=2,71$, $p=0,007$, Mann-Whitney) in comparison with persons with normal weight of a body. Statistics distinctions of concentration Ni between superfluous weight of a body, obesity 1,3 degrees and normal weight of a body are not revealed. Thus, superfluous accumulation Ni in an organism of northerners influences on развитие adiposity of 2 degrees.

The received results of research on accumulation with in organism Yamal residents it will be agrees with V.G.Rebrov's data which has defined participation of an element in activation of the enzyme participating in an exchange of fat acids [13]. Deficiency From northern population leads to infringement of an exchange of fat acids that, in turn, leads to development of superfluous weight of a body and further to adiposity.

Thus, results of research allow to make a number of conclusions:

- The element status influences formation of superfluous weight of a body (deficiency Ca, Co, Cd and surplus Ni); adiposity of 1 degree (deficiency With, Cd); adiposity of 2 degrees (deficiency Ca, Co, surplus Ni); adiposity of 3 degrees (deficiency With, Cd);
- Accumulation of chemical elements of Sa, Co and Cd decreases with increase in an index of weight of a body;
- A risk factor of development of adiposity at the Yamal population is deficiency of Ca,
- Results of the study is especially helpful when the organization of individual and population-based preventive measures in respect of overweight and obesity.

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DIAGNOSTICS AND RESULTS OF SURGICAL TREATMENT OF ISCHEMIC HEART DISEASE OF YOUNG PEOPLE

**T.YU.Bykovskya *, A.V.Poddubny, A.A.Djuzhikov, E.V.Fomitchyov, R.M.Sohavon,
E.V.Khorolets ****

Rostov Regional Center of Cardiology and Cardiovascular Surgery. Rostov-on-Don, Russia

* Ministry of Health of Rostov region. Rostov-on-Don, Russia

**Rostov State Medical University. Rostov-on-Don, Russia

The resume

Research objective – to study the peculiarities of the disease activity and possibility of surgical treatment of an ischemic disease (IHD) of patients of young age.

Materials and methods. 95 patients with IHD younger 45 years areexamined, the control group was made with people older than 50. Objective research, an electrocardiography (electrocardiogram), echocardiography (EhoCS), angiocardiology are made to all patients included in the research. According to indications done the surgical operation is performed. Statistical processing of the investigated material was by programmer Statistika 6.0.

Results and discussion. Among IHD 45 patient younger 45, males dominate, with increase in level of atherogenous lipids and level triglycerides in particular in comparison with patients of the senior age groups. Tendency to dilatation cavities of the left ventricle (LV) and decrease in the general contractile ability of myocardium is a characteristic feature for IHD patients of young age at ischemic remodeling. The endovascular technique of a straight line

revascularization prevails in an arsenal of surgical possibilities of correction of infringements of a coronary blood-groove.

Keywords: IHD, young age, myocardium revascularization.

Introduction.

The social and medical importance of IHD problem is defined by growth of disease and deterioration of indicators of death rate and disabled people [2]. The increase in number of patients occurs substantially at the expense of able-bodied people [3, 7, 8, 9]. Studying of IHT peculiarities of people of young age was based on W.M.Yater's et al works. (1948, 1951) [21, 22]. Among traditional risk factors of development IHD of young patients heredity occupies the first place [6, 12]. Family dyslipidemia leading to early development of a coronary atherosclerosis are a consequence of genetically certain infringement of level of lipids [11].

A number of researchers notices that, first, young men more often than in other age cohorts have the first display of illness which is the heart attack of a myocardium (HIM) with the subsequent postinfarction remodeling LV [1, 2, 5]; secondly, among them painless IHD is form widely spread [10, 13]. Pathogenesis developments of an ischemia of a myocardium at young age defines. The changed coronary arteries (CA) [20]. A number of authors testifies that atherosclerotic CA defeat at young patients can reach considerable degree [17, 18].

Against prompt growth of achievements of endorevascular methods and traditional coronary shunting (CSh) a question of a choice of this or that myocardium revascularization method continues to remain debated in particular if the situation concerns the young man. Many authors well estimate direct results at various techniques of rendering assistance to such patients [4, 16, 19]. At research of a condition of patients in the remote period we can't see similar unanimity any more, especially in comparison with patients of older age groups [14, 15]. The solution of this question lies in a plane of the further studying both direct, and the remote results of various kinds of operative IHD treatment at the obligatory account of peculiarities of young age.

Research objective – to study the peculiarities of the disease activity and possibility of an ischemic disease (IHD) of patients of young age.

Materials and methods.

From 2005 to 2008 in Rostov Regional Center of Cardiology and Cardiovascular Surgery passed treatment 101 patients younger 45 received treatment that has made 11,1 % from total amount of patients suffering IHD. 95 clinical cases are analysed. Criterion for inclusion in investigated group (IG) were [anamnestic](#) data, the electrocardiogram registered signs of an ischemia of a myocardium, presence of cicatricial changes LV. Results are made for the hospital

period. For revealing of prominent IHD peculiarities of people of young age this group is compared with indicators of older age group (50 years old and older) - control group (CG). Selection of patients as a part of 100 clinical cases in comparison group is carried out by chance, IHD presence confirmed with angiocardiology (AKG) results was obligatory.

All patient defines the lipidic exchange status, the basic electrocardiograms and EhoCS indicators (device Philips Sonos 7500), including in dynamics after revascularization procedure are estimated. The condition of a coronary channel and LV came to light by means of carrying out AKG selective left and right angiocardiology, left [ventriculography](#), AKG internal chest arteries (ICA) and bypass angiography (device Philips Allura) was carried out if necessary. According to indications the surgical interventions directed to revascularization of a myocardium and reconstruction changed LV were carried out. The Part of patients was made [angioplasty](#) with implantation procedure is with a medicinal covering or without it. CS was carried out in the conditions of artificial blood circulation (ABC). Device connection was carried out by means of cannula an ascending aorta and the right auricle. Cardioplegia - introduction of solution «custodiol» in quantity to two liters in an aorta root, at significant defeats of a trunk of the left coronary artery (TLCA) it was supplemented with retrograde introduction of cardioplegia a solution in a coronary sine. The left departments of heart drainage through the right top pulmonary vein. Left ICA is used as transplants, autovein (the big hypodermic Vein), a beam artery. Its plasticity with use endorevascular patches (synthetic material, autoPericardium) was carried out in aneurysmatic LV changes cases. Single cases of Csh of a forward interventricular branch (FIVA) were carried out on working heart. Direct results of surgical treatment were estimated according to parameters of the nearest postoperative period and the data a functional condition of patients when they were discharged from hospital.

Statistical processing of an investigated material was spent by program Statistika 6.0. Results are presented in the form of $M \pm m$. At definition of authentic distinctions between analyzed indicators we used the nonparametric dispersive analysis - criterion of Kruskal-Wallis that represent summarizing of Man-Whitney's criterion. At normal distribution the t-criterion of Student was applied to a mark of statistical distinctions between two groups of quantity indicators. For a mark of reliability of a difference of a share of an analyzed sign in studied groups used z-criterion. Authentic distinctions of studied indicators considered $p < 0,05$.

Table# 1

Results and discussion.

The basic kliniko-demographic indicators of compared groups are presented in table #1. There is an authentic distinction in groups by the basic criterion of selection - to age of the patient, and also on logically explainable, durations of the anamnesis of disease. Prevalence of male patients in IG pays attention. Considering the previous myocardium revascularization procedures, it is necessary to notice that in IG 3 (3,2 %) have transferred the patient coronary stent (CS) and 2 (2,1 %) CSh, in CG 4 (4 %) had patients CS in the anamnesis, 4 (4 %) CSh, 1 (1%) the patient has transferred both kinds of intervention. In structure of an accompanying pathology hypertensive illness occupies a leading place both groups, diseases of a gastroenteric path 26 (27,4 %) sick IG and 38 (38 %) CG (0,10). Chronic diseases of lungs have met in 3 (3,2 %) cases of IG and in 13 (13 %) CG ($p < 0,001$). Clinically significant defeats of arteries of other pools are diagnosed at 4 (4,2 %) patients of IG against 20 (20 %) in CG ($p < 0,01$), and in IG at 3 (3,2 %), and in CG at 16 (16 %) patients were available consequences of the transferred sharp infringement of brain blood circulation. The diabetes complicated made the basic disease more complicated at 2 (2,1 %) patients of IG and at 22 (22 %) CG ($p < 0,001$).

At research lipid exchange at patients of IG and CG it is revealed that level of the general cholesterol $5,82 \pm 1,6$ mmol/l, $5,92 \pm 1,82$ mmol/l ($> 0,10$), lipoproteins low density $4,7 \pm 1,62$ mmol/l, $4,99 \pm 1,8$ mmol/l (0,10), an index aterogenety $4,82 \pm 2,44$ mmol/l, $5,77 \pm 2,73$ the mmol/l (0,10) is raised in both groups, but authentically didn't differ, accordingly. It is necessary to notice that level of lipoproteins of high density $1,04 \pm 0,3$ mmol/l and level triglycerides $2,32 \pm 1,37$ mmol/l authentically above at young patients in comparison with control group $0,94 \pm 0,26$ mmol/l, $1,93 \pm 1,11$ mmol/l. Among IHD patients of young age dislipidemia IIa and IIb type meet equally often in 46 % of cases. Thus, dislipidemia III and IV type are observed less often – 2 (2,1 %) and 5 (5,3 %) a case accordingly. In the old age group dominates dislipidemia IIa type – 60 (60 %) supervision, follow further dislipidemia IIb type – 28 (28 %), IV type – 5 (5 %), III type – 2 (2 %) a case.

Table# 2

The majority of compared electrocardiograms - criteria equally often meet in both groups of patients (table #2), and in particular: infringements of a rhythm of heart, changes of intraventricular conductivity, presence of a hypertrophy of myocardium LV. It is necessary to notice that localization postinfarction cardiosclerosis (PICS) in both groups had similar character: defeat of a forward wall (FW) LV and an interventricular partition (IVP) is in 8 (13,8 %) cases of IG against 6 (9,8 %) CG; changes on PS LV, IVP with involving of a top of heart (TH) and a lateral wall (LW) 20 (34,5 %) cases of IG against 25 (40,3 %) CG, a back wall (BW) has suffered at 30 (51,7 %) sick IG and at 31 (50 %) KG ($p < 0,10$). From all indicators in

investigated groups there is an authentic difference on frequency of supervision paroxysm fibrillations of auricles (FA) and presence of signs of an ischemia of myocardium LV.

At EhoCS research of IHD patients of young age some features have been revealed. Thus, estimated following parameters: the aorta basis - $33,5 \pm 3,8$ mm, an ascending aorta - $32,8 \pm 4,5$ mm, signs of fibrous change of shutters of the aortal valve (AV) 59 (62,1 %) cases, regurgitation I degrees AV 5 (5,3 %) supervision, a peak gradient on AV $5,2 \pm 2,6$ mm mercury. Diameter of a fibrous ring mitral the valve (MV) $30,1 \pm 4,5$ mm, signs of consolidation of shutters MV at 37 (38,9 %) patients, significant (above 2 degrees) regurgitation on MV at 2 (2,1 %) patients. In one case of morphological changes of shutters tricuspid the valve (TV) it is not revealed, significant (above 2 degrees) regurgitation on TV it is found out at 1 (1,05 %) patients. The sizes of the left auricle $39,1 \pm 4,0$ mm, the sizes of the right ventricle $25,5 \pm 2,8$ mm. According to given EhoCS condition LV looks as follows: The final diastolic size LV $57,8 \pm 8,8$ mm, final systolic size LV $40,4 \pm 10,8$ mm, a thickness IVP in diastolic $1,1 \pm 3,3$ mm, a thickness IVP in a systole $13,5 \pm 4,0$ mm, a thickness of ZS LV in diastolic $10,8 \pm 2,7$ mm, a thickness of ZS LV in a systole $13,6 \pm 4,1$ mm. Number of warm reductions during research $75,7 \pm 13,7$ blows in a minute. Final diastolic volume (FDV) LV $171,6 \pm 61,9$ ml, final systolic volume (FSV) LV $86,9 \pm 55,8$ ml, shock volume LV $80,2 \pm 20,6$ ml, minute volume LV $7,0 \pm 3,0$ l/mines, fraction of emission LV $52,0 \pm 11,7$ %. Diastolic dysfunction LV of I degree is revealed at 82 (86,4 %) the patient, II degree at 11 (11,6 %), III degree at 2 (2,1 %). Some indicators of EhoCS of research at sick KG are resulted more low: regurgitation on MV 2 degrees at 6 patients ($> 0,10$), KDR LV $53,8 \pm 7,5$ mm ($p < 0,05$), KDO LV $146,1 \pm 48,3$ ml ($> 0,05$), fraction of emission LV $54,1 \pm 9,2$ % ($p < 0,01$), diastolic dysfunction LV of III item 5 of cases ($> 0,10$).

Table# 3

In table #3 comparative characteristic AKG at studied patients is resulted. AKG - research is executed 74 (77,9 %) to young patients, and in 11 (14,9 %) cases at AV haven't been revealed haemodynamics significant (50 % and more) defeats CA. By results of AKG in both groups there are no distinctions in type of blood supply of heart. At studying of features of a coronary channel of patients of the senior age group changes TLCA, proximal departments FIVA and envelope branch left CA, and also systems OV left CA were more often observed. At young age atherosclerotic process was localized in FIVA left CA and right CA. All cases postinfarction aneurysm LV, considered in this research, were localized within PS LV, TH. At young age postinfarction LV aneurysms develops more often though according statistics to our research it is doubtful. Authentic is thrombus cavities postinfarction LV aneurysm of young patients. Considering postinfarction remodelling features in this category of the patients is possible to explain formation of more extensive LV aneurysm.

Table# 4

Key parameters about character of surgical treatment in both groups are presented in table #4. To twenty one (22,1 %) to the patient it is executed [angioplasty](#) and KS. In three (14,3 %) cases procedure is made under urgent indications, in 18 (85,7 %) at a stable condition of patients. Stent FIVA is executed 11 (52,3 %) by the patient, branches of stupid edge (BSE) 2 (9,5 %), the right coronary artery (RCA) 7 (33,3 %), FIVA in a combination with RCA 1 (4,8 %). Operation CS is executed 29 (30,5 %) by the patient. In 4 (13,8) cases operative intervention was carried out without ABC, access - a lobby sternotomy at the left in 4th intercostals space, was FIVA shunted in an average third, as a transplant was used left ICA. In 25 (86,2 %) cases operative intervention was carried out through full median sternotomy with ABC application. More often 29 (100 %) cases was shunted FIVA, as a transplant it is used left ICA 28 (96,6 %) interventions, in 1 (3,4 %) autovein; a diagonal branch (DB) shunting 3 (10,3 %) to patients, a transplant autovein; BSE 9 (31 %), the transplant autovein, at shunting BSE in 7 (24,1 %) cases is imposed sequential the shunt with formation anastomosis on type the end sideways; back branch 4 (13,8 %), a transplant autovein; BIVP16 (55,2 %), a transplant autovein 14 (48,3 %) operations and autoartery (beam) 2 (6,9 %).

LV reconstruction concerning its aneurysms is executed 12 (41,4 %) cases to patients, in 7 (58,3 %) aneurysm cases is regarded as extensive frontbarrier, the thrombosis of a cavity aneurysms has met at 11 (91,7 %) interventions. LV plasticity in all cases was carried out with the help of endoventricular patches.

In group of young patients «re-do» operation took place - to the patient is earlier shunted FIVA and diagonal branch. In 4 years owing to a thrombosis of shunts there were stenocardia phenomena that have demanded KSH FIVA and BIVP. In other case CS it has been added by prosthetics MV and plastic arts TV.

To CG of 13 patients myocardium revascularization was not carried out, in 8 cases coronary [angioplasty](#) is executed with stent and 79 patients are carried out CS. Operation is performed in ABC conditions. In all cases it is shunted FIVA - a transplant left ICA. Thees 4 surgical interventions on working heart of people young age are executed. It is necessary to pay attention that the quantity of coronary [angioplasty](#) with stent and CS is authentic more in investigated group of patients. Indicators: a postoperative bleeding, preoperative myocardial infarction, infringements wound process, stroke in the specified table are presented at patients after CS.

Conclusions

1. Increase of level of atherogenous lipids and triglycerides is observed in the geroup of IHD patients of young age in comparison with older age groups.

2. At ischemic remodelling of patients of young age, propensity to dilatation cavities LV and to decrease in the general reduction abilities of LV myocardium. Defeat of a proximal and average third of forward interventricular branch of the left coronary artery, and also the right coronary artery is observed. In large part cases there is an extensive development of postinfarction LV aneurysms grasping forward wall LV, an interventricular partition, a top of heart to formation of a thrombosis of a cavity aneurysms that further is reflected in the adverse forecast of disease.
3. The endovascular technique of a straight line myocardium revascularization of people of young age with IHD prevails in an arsenal of surgical possibilities of correction of infringements of a coronary blood-groove.

Table # 1

The clinic - demographic characteristic of compared groups of patients of ischemic heart disease

Indicator	IG	CG	p
Middle age, years	40,7±4,7	62,3±5,0	<0,001
Parity of men and women, n/n	94/1	85/15	<0,01
Average duration of the anamnesis, month	21,7±8,3	54,2±25,6	<0,001
Procedure revascularization in the anamnesis, n (%)	5 (5,3)	9 (9)	>0,10
Urgent hospitalization, n (%)	21 (22,1)	22 (22)	>0,10
Middle class of a stable stenocardia	2,4	3,0	-
Patients with CHI 2A, n (%)	25 (26,3)	36 (36)	>0,10
Presence of postinfarctioncardiosclerosis, n (%)	58 (61,1)	62 (62)	>0,10

Table #2

Features electrocardiography researches of patients of an ischemic heart trouble.

Indicator	IG	CG	p
Constant FA, n (%)	1 (1,05)	5 (5)	>0,10
Paroxysm FA, n (%)	1 (1,05)	9 (9)	<0,01
VEx III-IV class Lown, n (%)	3 (3,16)	6 (6)	>0,10
Infringement of intraventricular conductivity, n (%)	17 (17,9)	26 (26)	>0,10
Hypertrophy LV, n (%)	69 (72,6)	75 (75)	>0,10
Ischemia of myocardium LV, n (%)	14 (14,7)	28 (28)	<0,05
Postinfarktkardiosklerose, n (%)	58 (61,1)	62 (62)	>0,10

Table #3

Results angiocardiology researches of patients
Ischemic heart disease.

Indicator		Quantity, n (%)		p
		IG	CG	
Blood supply type	The balanced	61 (82,4)	81 (81)	>0,10
	The left	6 (8,1)	10 (10)	>0,10
	The right	7 (9,5)	9 (9)	>0,10
TLCA		2 (2,7)	21 (21)	<0,01
UGFIVA	Proximal third	33 (44,6)	82 (82)	<0,001
	Average third	16 (21,6)	17 (17)	>0,10
DB		10 (13,5)	17 (17)	>0,10
OV		18 (24,3)	51 (51)	<0,001
BSE		9 (12,2)	28 (28)	<0,01
ZBB		2 (2,7)	14 (14)	<0,01
RCA	Proximal third	24 (32,4)	40 (40)	>0,10
	Average third	21 (28,4)	29 (29)	>0,10
BIVP		2 (2,7)	7 (7)	>0,10
Aneurysm		9 (12,2)	4 (4)	>0,05
Thrombosis		9 (12,2)	3 (3)	<0,05

Table №4

The characteristic of results and complications of surgical treatment

Patients of an ischemic heart Disease.

Indicator	ИГ	КГ	p
Changes CA (indications to surgical treatment), n	63	100	-
Coronary angioplasty with stent, n	21	8	<0,001
CSh, n	29 (4)	79 (0)	<0,001
Successful coronary stent, n	21	8	-
Hospital lethality, n	0	0	-
Postoperative bleeding, n	1	3	-
The reoperational myocardium heart attack, n	0	1	-
Infringements wound process, n	0	3	-
Stroke, n	0	1	-

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Alekseeva L.L., Ignatyev P.M., Osakovsky V.L., Platonov F.A., Sambuugin H., Goldfarb L.G.

Association of polymorphic markers of adiponectine gene with diabetic retinopathy at 2 type diabetes mellitus in the Yakuts

Revealed genotype *H/ *H of polymorphic variant Y111H(ADIPOQ) of adiponectine gene is a marker of high risk of diabetic retinopathy in type2 sugar diabetes for ethnic group of the Yakuts.

The obtained results will assist duly prognosis and /or revealing of risk group of diabetic retinopathy among the Yakuts and will help to define the treatment tactics for patients predisposed to diabetic retinopathy with the use of individual complex of prophylactic and treatment activities.

Keywords: adiponectine, genetical polymorphism, type 2 diabetes mellitus, diabetic retinopathy.

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Study of Angiotensin Converting Enzyme (ACE I/D) Gene and Cholesteryl Ester Transfer Protein (CETP D442G) Gene Polymorphism in Elderly Patients with Coronary Heart Disease Living in Yakutia

*Yakut scientific centre on complex medical problems of Russian Academy of Medical Sciences,
Yakutsk*

Arkhipova Natalia Spartakovna – junior research associate YSC CMP RAMS, doctor-
cardiologist, nati8692@mail.ru,

Popova Elena Kapitonovna – candidate of medical sciences, associate professor of
Propaedeutic and Faculty Therapy, North-East Federal University,

Grigoriev Lena Valerevna – candidate of medical sciences, laboratory chief

Ar'ev Alexander Leonidovich – Doctor of Medicine, professor of Gerontology and Geriatrics,
St.Petersburg Medical Academy of Post-graduating Study

The authors have studied I/D polymorphism of ACE gene and CETP D442G gene in group of senior patients with coronary heart disease in regard to nationality, age, sex and coronary heart disease clinical manifestations. Having analyzed ACE I/D gene polymorphism the authors found out the association of genotype II with old myocardial infarction (OMI) (Q-negative), left ventricle hypertrophy (LVH) (with Sokolov-Lyon sign), sick sinus syndrome (SSS) and with a high angina functional class (AFC).

Keywords: coronary heart disease, elderly age, senile age, long-livers, polymorphism, angiotensin converting enzyme gene, cholesteryl ester transfer protein gene.

Introduction

As the population of our planet is getting older, the mode of cardiovascular pathology (in particular coronary heart disease, causing 75 % of death among persons aged 65 and older) is increasing. [2, 7]. Akberov R. F and co-workers [1] assume that genetic predisposition to atherosclerosis occurrence is shown only with aggravating influence of the environment. Coronary heart disease is genetically heterogeneous disease and in most cases is characterized by multifactorial inheritance [5]. To study genetic predisposition to atherosclerosis, in particular coronary heart diseases, the gene analysis is carried out. About 10 genes-candidates of

atherosclerosis and coronary heart disease are known. Among them ACE gene is studied the most. [10]. ACE is a leading factor of renin-angiotensin system. The rates of genotypes and alleles of ACE gene is considerably different in different populations. The lowest rate of D-allele and DD-genotype is in eastern countries such as Japan and China. The higher rate is in Western Europe and the USA [4]. It correlates with mode of atherosclerosis and coronary heart disease among the population in these countries. Thanks to studying CETP gene mutation we know about interrelation between its activity, HDL cholesterol presence and risk of cardiovascular diseases [6]. Mutations of CETP gene, which lead to its synthesis reduction, are well studied in Japanese population [8, 9]. One of CETP gene mutations is determined in the 15th exon. Its consequence is replacement in the 442nd position of amino-acid sequence of D-alanine on glycocoll (D442G).

Considering genetic predisposition to coronary heart disease, it is important to find out genetic associations: polymorphic variants of ACE I/D gene and CETP D442G gene in senior patients with coronary heart disease.

Material and Methods

272 patients with coronary heart disease aged 60 and older have been examined. Among them there were non-indigenous people (n=111) and Yakuts (n=161), men (n=151) and women (n=121). The average age of the patients was $77,2 \pm 0,5$ year. All the patients were examined and treated at the cardiological department of the Geriatric center, Yakutsk. To reveal age differences patients were divided into three age groups: 60–74 years (advanced age, n=115), 75–86 years (senile age, n=113) and 90 years and more (long-livers, n=44). All the patients signed informed consent. The research was approved by local committee on biomedical ethics at Yakut scientific centre on complex medical problems of Russian Academy of Medical Sciences. The coronary heart disease diagnosis was verified on the basis of complaints, anamnesis, examinations, electrocardiograms (ECG) and echocardiography (EchoCG) data, Holter ECG monitoring, and medical documentation study. Samples of DNA were received from peripheral blood lymphocytes using method of Phenolum-chloroformic extraction. The analysis of ACE I/D gene and CETP D442G gene polymorphism were carried out with polymerase chain reaction technique.

Statistical processing of the received results was obtained with use of methods of parametrical and nonparametric statistics. Average number (M), average error (m) – for the signs having continuous distribution; and also mode of occurrence of signs with discrete value were calculated.

Student criterion (t) was applied to estimate inter-group differences of signs having continuous distribution. To compare mode of χ^2 Pearson criterion was applied also. The analysis of signs relations was made by means of r -Pearson criterion, r_s - Spearman criterion and χ^2 Pearson criterion. Statistical processing of the material was carried out with the help of standard software package Statistica for Windows v. 6.0. Critical significance level of null hypothesis (on absence significant differences or factor influences) was considered to be 0,05.

Results and discussion

Analyzing I/D polymorphism of ACE gene, mode DD genotype occurrence was 18,8 % ($n=51$), DI - 43,0 % ($n=117$), II - 38,2 % ($n=104$). We have not revealed authentic differences in mode of distribution of genotypes DD, DI, II among non-indigenous persons ($n=111$) and Yakuts ($n=161$) ($\chi^2=4,00$; $p> 0,10$). Also we haven't detected authentic differences and in mode of distribution of genotypes DD, DI, II on age groups: advanced age ($n=115$), senile age ($n=113$) and long-livers ($n=44$) ($\chi^2=2,23$; $p> 0,10$); elderly, senile age ($n=228$) and long-livers ($n=44$) ($\chi^2=1,66$; $p> 0,10$). However it is noticed that mode of genotype II decreases with the years: at advanced age - 45,2 % ($n=47$), at senile age - 41,3 % ($n=43$) and at the age over 90 years - 13,5 % ($n=14$). Earlier it was stressed [3] that at senile age the risk of a lethality at carriers of a genotype II with an acute coronary syndrome is enlarged twice in comparison with carriers of genotype DD. Considering results of the research of aforementioned authors and ours, it is possible to assume that the genotype of ACE gene II at coronary heart disease patients over 75 years plays a role of the negative factor concerning the forecast of clinical course. Differences between men and women in mode of homozygous genotype comparing the carriers of homo - and heterozygotic genotypes DD, DI, II have been detected. Mode of genotype DD at men ($n=35$, or 23,2 %) is a little above than at women ($n=16$, or 13,2 %) ($\chi^2=5,23$; $p=0,072$). If to compare men and women-carriers of genotypes DD and DI it is possible to notice that there are more carriers among men ($n=35$, or 68,6 %), than among women ($n=16$, or 31,4 %) ($\chi^2=5,23$; $p=0,021$). Possibly, it can be explained by association of genotype DD with raised risk of cardiovascular diseases (CVD). Men are more often subjected to CVD than women [11] are subject. Relations between LVH and ACE gene polymorphism which is one of the genes-candidates promoting the process of myocardium hypertrophy are of particular interest.

We have found out a little stronger relation of Sokolov-Lyon sign with genotype II ($n=25$, or 24,0 %), than with genotype DD ($n=7$, or 13,7 %) and DI ($n=16$, or 13,7 %) ($\chi^2=4,73$; $p=0,092$).

Thus there was no association of other studied ECG-signs of LVH (Cornell-voltage and Huebner-Ungerleider) with homo - and heterozygotic genotypes of ACE gene. (tab. 1).

Statistically significant relation of genotype DD with complete left bundle branch block, genotype II with sick sinus syndrome and FC III is found out (tab. 2).

There is a difference in mode of ACE I/D gene polymorphism according to OMI (Q-negative) presence in anamnesis, FC III stenocardia and exertional angina FC II during examination.

Table 2 shows that genotype II-carriers more often have high FC stenocardia and more frequent mode of OMI (Q-negative) ($\chi^2=3,00$; $p=0,080$), in comparison with group of genotype DD-carriers.

In group of Yakuts unlike non-indigenous persons, there is a tendency to more frequent mode of genotypes II, than DI (tab. 3)

If in the common group of patients-carriers of a genotype II there is only a little predisposition to development LVH (judging by Sokolov-Layon sign), in group of Yakuts (but not in the group of non-indigenous patients) DI-genotype carriers more often have remodeling of myocardium. In both groups LVH was more accurately reflected by means of Sokolov-Layon sign, than using other two ECG-signs of LVH (tab. 4).

We have studied the mode of CETP D442G genotypes polymorphism in 288 (83,4 %) of 354 patients (aged 60 and older) with coronary heart disease. Authentic difference in mode of DG genotype distribution in groups of non-indigenous persons ($n=6$, or 5,2 %) and Yakuts ($n=28$, or 16,3 %) ($\chi^2=8,21$; $p=0,004$) is determined. Statistically significant difference according to mode of DD genotype distribution is not observed (tab. 5).

In 254 of 288 patients (88,2 %) homozygous genotype DD is revealed, the quantity of heterozygotes CETP D442G gene CETP is 11,8 %. Mode of DG genotype carriers among Yakuts is more frequent than in a group of non-indigenous persons (see tab. 5).

Authentic difference in mode of DD and DG genotypes distribution in age groups is not revealed ($\chi^2=1,79$; $p> 0,10$). Authentic differences in mode of DD and DG genotypes distribution in men ($n=159$) and women ($n=129$) ($\chi^2=1,41$; $p> 0,10$) is also unrevealed.

There is no statistically significant relation among D442G genotypes and ECG-signs of LVH: Sokolov-Layon ($\chi^2=0,02$; $p> 0,10$), Cornell-voltage ($\chi^2=0,09$; $p> 0,10$) and Huebner-Ungerleider ($\chi^2=0,01$; $p> 0,10$). In determining the relation between D442G CETP gene and myocardial infarction it is revealed that carriers of genotype DG in comparison with carriers of genotype DD have a tendency to larger predisposition to earlier transferred myocardial infarction

($\chi^2=3,66$; $p=0,053$) – in 2,1 times (12,6 % and 26,5 % accordingly) and to unstable angina ($\chi^2=3,21$; $p=0,070$).

Conclusions

1. The association of a genotype II with the age of the patients, with one of ECG-signs of LVH (Sokolov-Layon) (in group of non-indigenous patients and Yakuts), OMI (Q-negative), SSS and high FC angina is revealed.
2. In group of Yakuts there is a tendency to more frequent revealing of II genotype carriers and association of DI genotype with one of ECG-signs of LVH (Sokolov-Layon sign)
3. DD genotype carriers are revealed more frequently among men than among women.
4. The mode of DG genotype carriers among Yakuts is more frequent than among non-indigenous persons.
5. It is revealed that old myocardial infarction (without pathological Q on ECG) and unstable angina are being developed more often in DG-genotype carriers than in DD-genotype carriers.
6. Relation between D442G genotypes and ECG-signs of LVH is not revealed.

Thus, analysis of ACE I/D gene polymorphism shows that the carriage of genotype II plays an unfavorable role concerning prognosis for HVD in patients with coronary heart disease (senior age groups). To determine the role of CETP DG in prognosis for HVD it is necessary to make additional analysis of association with risk factor of coronary heart disease.

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Table 1

Mode of genotypes DD, I/D and II ACE gene in patients with coronary heart disease (senior age group) (n=272) and their relations with ECG-signs of left ventricle hypertrophy

Signs of left ventricle hypertrophy	Mode of genotypes						χ^2	p
	DD (n=51)		DI (n=117)		II (n=104)			
	abs	rel., %	abs.	rel., %	abs.	rel., %		
Sokolov-Lyon	7	13,7	16	13,7	25	24,0	4,73	=0,092
Cornell-voltage	18	20,5	37	42,0	33	37,5	0,25	>0,10
Huebner-Ungerleider	1	11,1	6	66,7	2	22,2	2,12	>0,10

Table 2

Mode of genotypes DD, I/D and II in patients with coronary heart disease (aged 60 years and older) (n=272) and their relations with complete left bundle branch block (CLBBB), sick sinus syndrome (SSS) and exertional angina FC III (EA FCIII)

Signs	Mode of genotypes						χ^2	p
	<i>DD</i> (n=51)		<i>DI</i> (n=117)		<i>II</i> (n=104)			
	abs.	rel.,%	abs.	rel.,%	abs.	rel.,%		
CLBBB	4	7,8	2	1,7	1	1,0	7,08	=0,029
SSS	0	0	2	1,7	7	6,7	6,49	=0,038
EA FC III	4	7,8	20	17,1	27	26,0	7,74	=0,021

Table 3

Frequency of ACE I/D and II genes revealing in Yakuts (aged 60 and more) with coronary heart disease (n=161)

Genotypes	n	Genotypes and <i>II</i>				χ^2	p
		absent		present			
		abs.	rel.,%	abs.	rel.,%	3,58	=0,056
<i>DI</i>	117	54	46,2	63	53,8		
<i>II</i>	104	35	33,7	69	66,3		

Note: $r_s = 0,13$; $p = 0,056$

Table 4

Mode of genotypes I/D, II and ACE gene in Yakuts (aged 60 and older) (n=161) and their relation with ECG-signs of left ventricle hypertrophy

ECG-signs of LVH	Mode of genotypes						χ^2	p
	DD (n=51)		DI (n=117)		II (n=104)			
	abs.	rel., %	abs.	rel., %	abs.	rel.,%		
Sokolov-Layon	0	0	101	86,3	79	76,0	3,91	=0,046
Cornell-voltage	0	0	37	31,6	33	31,7	0,01	>0,10
Huebner-Ungerleider	0	0	6	5,1	2	1,9	0,83	>0,10

Table 5

Frequency of homo - and heterozygotes CETP D442G gene revealing in Yakuts and non-indigenous patients (aged 60 and older) with coronary heart disease

Genotypes	Patients (n=288)				χ^2	p
	non-indigenous (n=116)		Yakuts (n=172)			
	abs.	rel.,%	abs.	rel.,%		
<i>DD</i>	110	94,8	144	83,7	8,21	=0,004
<i>DG</i>	6	5,2	28	16,3		

Note: $r_s = 0,17$; $p = 0,004$

UDC Subject Classification 616.127-005.8:616-002.4

A.I. Sivtseva, A.V. Pal'shina, A.N. Khorunov, M.E. Sannikova, M.Yu. Chibyeva
Cardiac remodeling in destructive pulmonary tuberculosis concurrent with chronic obstructive bronchitis

State Institution "Research-Practice Center 'Phthisiatry' ",
 Ministry of Health, Sakha Republic (Iakutiia)

The aim of the study was to explore cardiac remodeling in patients with pulmonary tuberculosis (PTB) associated with chronic obstructive bronchitis (COB). 28 patients with various clinical forms of PTB were examined using Doppler echocardiography technique. Anatomical characteristics and velocity rates for right (RV) and left ventricles (LV) were calculated. Our data showed that all patients had right ventricular dilatation (RVEDD; 24.27 ± 0.51 mm), right atrial dilatation (RAEED; 30.39 ± 0.47 mm), increased mean pulmonary artery pressure (mPAP; 25.68 ± 1.21 mmHg), reduced LV systolic function (EF; 54.22 ± 1.33 %), increased myocardial stress (MS; 157.11 ± 5.8 dyn/sm), and pseudonormal filling type (Peak E: 0.79 ± 0.01 m/s; Peak A: 0.41 ± 0.03 m/s.).

Keywords: heart remodelling, pulmonary destructive tuberculosis, Doppler echocardiography.

Recently an increase in number of patients with pulmonary tuberculosis concurrent with chronic obstructive bronchitis (COB) has been observed. COB occurs in all forms of pulmonary tuberculosis (PTB): focal (52.5 %), infiltrative (56.6 %), disseminated (88.2 %), fibrotic-cavitary (76.9 %), and other forms of tuberculosis. Smoking is a risk factor for development of COB in PTB. Among smoking and non-smoking PTB patients, COB is seen in 62.6 and 56.5 %, respectfully. Smoking duration and intensity have clearly traceable effects on the incidence of COB among smoking patients. For instance, COB incidence rate in persons smoking for more than 10 years is higher than that in persons smoking for 5 or less years, by a factor of 2.5 (73.0 and 30.4 %) [1,2].

Number of patients with pulmonary tuberculosis concurrent with COB tends to grow with aging. Most of them are men aged 40 and elder (74.9 %), with a history of alcohol abuse [3,4].

The term 'cardiac remodeling' was introduced to the literature in late 1970-ies, to tag the alterations in left-ventricular (LV) structure and geometry developing in patients with acute myocardial infarction. Remodeling is, as M. Pfeffer defined it, development of alterations in LV structure and geometry, which is associated with the processes of cardiomyocyte hypertrophy, chamber dilatation, and alterations in the shape of LV, leading to disordered systolic and diastolic function. Since then it has been shown that remodeling of cardiac structure and geometry is the process underlying the development of chronic heart failure (CHF) not only in patients with myocardial infarction, but also in patients with arterial hypertension (AH), chronic forms of ischemic heart disease (IHD), heart defects, chronic cor pulmonale and some other diseases. Hence, remodeling, seen as a universal process of adaptation (later turning into deadaptation) of the heart to hemodynamic overloads or primary myocardium injury, is expected to obey certain general principles, and knowledge of these principles may provide the clue to preventing emergence and progression of CHF [5,6,8].

The aim of the present study was to explore cardiac remodeling in patients with destructive PTB concurrent with COB, as far as the presence of COB in PTB favors deterioration of regional respiratory exchange and development of hypoxemia and hypercapnia, which eventually induces respiratory failure and chronic cor pulmonale.

Materials and methods. The diagnosis of COB was made using conventional criteria (Kokosov A.N.) [7] based on typical clinical picture (cough with sputum production for a long time; intermittent fever; persistence in non-exacerbated state and gradual worsening of dyspnea coupled with poor exercise tolerance; specific lung murmurs on auscultation), medical history data (presence of exacerbation episodes typical for COB), radiological picture (presence of

obstructive emphysema of the lung; pneumosclerosis; abnormal lung pattern; presence of infiltrating pulmonary alterations; and some other signs), and the results of respiratory function testing (obstructive or mixed type of respiratory failure in the presence of progressively declining FEV₁). Thus, all patients shared the distinctive coexistence of chronic obstructive bronchitis (COB) and disorder of the respiratory portion of the lungs presenting as centriacinar emphysema accompanied by progressive respiratory failure.

The diagnosis of PTB was made basing on medical history, chest X-ray picture, bacteriological data obtained by luminescence microscopy with cultures, and testing for presence of specific antibodies.

Echocardiography was performed using the Siemens Sonoline G50 system (USA) and Aloca 1700 scanner (Japan). Both systems support 2-D and M-modes for ultrasound examination of the heart, as well as pulse and continuous wave modes for Doppler ultrasound examination of the blood flow. The examinations were done according to a conventional procedure using left parasternal, apical and subcostal views.

An electrocardiogram was taken simultaneously with the echo-examination, for synchronization of the echo cardiac cycle phases with ECG data. Measurements of wall thickness and chamber dimensions at systole and diastole were made according to ASE guidelines. Left-ventricular end-systolic-and-diastolic volumes (ESV, EDV), stroke volume (SV), and ejection fraction (EF) were calculated using Simpson's method. Mean pulmonary artery pressure (mPAP) was determined according to A. Kitabatake (1983), by quantifying the parameters of systolic blood flow in outflow portion of RV and by calculating the ration of acceleration time to right ventricular ejection time (AcT/RVET).

RV and LV diastolic function was estimated basing on the results of pulsed, continuous and color Doppler examination of transtricuspid and transmitral diastolic flows, respectfully.

The following Doppler echocardiographic indices were calculated:

Right heart and pulmonary artery:

1. Mean pulmonary artery pressure (mPAP);
2. RV end-diastolic dimension (RVEDD);
3. RV end-systolic dimension (RVESD);
4. RV segmental contractility (fractional shortening): $FS \% = (RVEDD - RVESD)/RVEDD$;
5. Right ventricular anterior wall thickness (RVAWT);

6. Relative RV wall thickness index ($RV\ H/D = RVAWT/RVEDD$);
7. Right atrial end-diastolic size (RAEDD);
8. Right ventricular ejection time (RVET);
9. Maximum systolic flow velocity in pulmonary artery (PV Vmax);
10. RV deceleration time of early filling flow (TV DT);
11. RV isovolumic relaxation time (TV IVRT);
12. RV maximum early filling velocity (Peak E);
13. RV maximum late filling velocity (Peak A);
14. E/A ratio.

Left heart:

15. Left ventricular myocardial mass (LVMM) and LVMM index (LVMMI);
16. LV end-diastolic dimension (LVEDD);
17. LV end-systolic dimension (LVESD);
18. LV end-diastolic volume (LVEDV);
19. LV end-systolic volume (LVESV);
20. LVEDV index (LVEDVI) calculated as LVEDV to body surface area (BSA) ratio;
21. LVESV index (LVESVI) calculated as LVESV to body surface area (BSA) ratio;
22. Stroke volume (SV) calculated as: $LVEDV - LVESV/LVEDV$;
23. Stroke index (SI) calculated as SV to BSA ratio;
24. LV ejection fraction (EF) calculated as SV to LVEDV ratio in %;
25. Cardiac output (CO) calculated as $SV \times HR$ (heart rate);
26. Cardiac index (CI): CO to BSA ratio;
27. Antero-posterior LV dimension shortening (FS %) calculated as:

$$(LVEDD - LVESD)/LVEDD$$
;
28. Posterior LV wall thickness (PLVWT);
29. Interventricular septum thickness (IVST);
30. Left atrial size (LAS);
31. Sphericity index (SI) calculated as: $EDD/LV\ long-axis\ length\ during\ diastole$;
32. LV relative wall thickness index ($2H/D$) calculated as: $(PLVWT + IVST)/LVEDD$;
33. LV systolic myocardial stress (MS) calculated as:

$$0.334 \cdot SAP \cdot LVESD/PLVWT \cdot [1.0 + (PLVWT/LVESD)]$$
;
34. LV ejection time (LVET);

35. LV maximum systolic outflow velocity (Vmax);
36. LV early filling flow deceleration time (MV DT);
37. LV isovolumic relaxation time (MV IVRT);
38. LV early filling maximum velocity (Peak E);
39. LV late filling maximum velocity (Peak A);
40. E/A ratio.

Discussion. 28 patients with PTB were examined. All patients had destructions of lung tissue on chest X-ray pictures and CT scans, and were sputum-positive for multidrug-resistant bacteria.

Of them, 14 patients had fibrotic-cavitary PTB, 4 had bilateral infiltrating PTB, 6 had cirrhosis of lung, and 4 patients had disseminated PTB. Mean patient age was 50.82 ± 1.43 years. All patients had history of smoking and alcohol abuse. Spirometry was performed in all patients, with taking note of the presence of decreased FEV₁. Standard 12-lead ECG was taken in supine patient position using 6-channel ECG recorder CardiMax FX 7202 (Japan) by a conventional method.

12-lead ECG was performed. 14 patients underwent surgical treatment: thoracoplasty (42.86 %) or resections (57.14 %). Mean body surface area was 1.74 ± 0.04 m².

The examination findings are presented in Table 1.

Table 1

**Right-ventricular EchoCG and Doppler EchoCG indices
in patients with PTB concurrent with COB**

Indices	Control n=30		PTB with concurrent COB		t1-2
	M	m	M	m	
mPAP, mmHg	14.00	± 1.6	25.68	± 1.21	p<0.001
RVEDD, mm	18.90	± 0.8	24.27	± 0.51	p<0.001
RVESD, mm	12.90	± 0.6	18.31	± 0.55	p<0.001
RV FS%	0.32	± 2.5	0.24	± 0.02	–
RVAWT, mm	3.86	± 0.3	5.69	± 0.22	p<0.001
RV H/D	0.20	± 0.01	0.24	± 0.01	p<0.05
RAEDD, mm	25.60	± 1.3	30.39	± 0.47	p<0.01
RVET, ms	329.00	± 6.4	327.57	± 3.77	–
PV Vmax, m/s	0.73	± 0.02	0.81	± 0.02	p<0.05
TV DT, ms	178.00	± 3.6	204.36	± 1.77	p<0.001
TV IVRT, ms	62.30	± 2.5	88.39	± 1.30	p<0.001
TV Peak E, m/s	0.52	± 0.02	0.54	± 0.01	–
TV Peak A, m/s	0.34	± 0.01	0.41	± 0.01	p<0.001
TV E/A	1.53	± 0.03	1.33	± 0.02	p<0.001

As is seen from Table 1, mean pulmonary artery pressure was significantly higher in study group, then in controls ($p<0.001$). Pulmonary arterial hypertension is known to be one of the chief signs of chronic cor pulmonale (CCP). Control group comprised patients of the age group similar to study group, but without chronic obstructive pulmonary disease (COPD) or PTB. We observed right ventricular dilatation (to 24.3 ± 0.51 mm), in consistency with the Frank-Starling law. RV anterior wall was thickened to 5.69 ± 0.22 sm. Enlargement of end-diastolic dimension of left atrium reached 30.39 ± 0.47 mm. Relative anterior wall thickness indices (RV H/D) remained virtually unchanged, which points at the presence of predominantly concentric RV myocardial hypertrophy in these patients. Segmental RV contractility tended to decrease, compared to control group (RV FS%). However, the velocity rates remained within normal range. Atria, as is known, are no small matter to the heart's pumping ability. Thus, in patients with concurrent PTB and COB, right atrium was dilated to 30.39 ± 0.47 mm, which dilatation was apparently compensatory in nature and reflected an increased atrial pump function.

Table 2

**Left-ventricular EchoCG and Doppler EchoCG indices
in patients with PTB concurrent with COB**

Indices	Control n=30		PTB with concurrent COB		p1-2
	M	m	M	m	
BSA			1.74 ± 0.04		
with LVMM, g/m ²	62.60 ± 2.4		104.11 ± 4.08		p<0.001
EDV, mL	110.20 ± 3.3		98.21 ± 4.26		p<0.05
ESV, mL	42.10 ± 1.5		47.28 ± 3.10		–
EDVI, mL/m	62.80 ± 2.3		55.44 ± 2.01		p<0.05
ESVI, mL/m	22.90 ± 0.7		61.62 ± 2.83		p<0.001
EDD, mm	48.10 ± 1.4		45.03 ± 1.41		p<0.05
ESD, mm	29.30 ± 1.5		35.03 ± 1.04		p<0.01
SV, mL	72.70 ± 1.6		57.32 ± 2.95		p<0.001
SI, mL/m	38.20 ± 1.2		34.11 ± 2.08		p<0.05
EF, %	63.40 ± 2.3		54.22 ± 1.33		p<0.01
HR, beats per min.	68.20 ± 4		81.29 ± 1.47		p<0.01
CO, L	4.96 ± 0.3		4.70 ± 2.69		–
CI, L/(min·m ²)	2.70 ± 0.2		2.79 ± 1.79		–
LV FS%	39.10 ± 1.4		21.28 ± 1.32		p<0.001
PLVWT, mm	9.30 ± 0.2		11.68 ± 0.25		p<0.001
IVST, mm	8.70 ± 0.2		12.11 ± 0.59		p<0.001
LA, mm	25.20 ± 1.7		29.44 ± 0.87		p<0.05
SAP, mmHg	136.00 ± 2.80		116.29 ± 2.58		p<0.001
SI	0.57 ± 0.02		0.72 ± 0.02		p<0.001
2H/D	0.37 ± 0.02		0.54 ± 0.02		p<0.001
MS, dyn/sm	121.90 ± 2.6		157.11 ± 5.18		p<0.001
LVET, ms	316.00 ± 8.3		318.71 ± 2.68		–
Vmax, m/s	0.92 ± 0.02		0.85 ± 0.02		p<0.05
MV DT, ms	193.00 ± 6		179.86 ± 2.35		p<0.05
MV IVRT, ms	74.30 ± 1.6		76.37 ± 0.65		–
MV Peak E, m/s	0.71 ± 0.02		0.79 ± 0.01		p<0.01
MV Peak, m/s	0.44 ± 0.01		0.41 ± 0.03		–
MV E/A	1.61 ± 0.02		2.01 ± 0.07		p<0.001

As is seen from Table 2, ejection fraction significantly decreased in patients with COB ($54.2 \pm 1.33 \%$) compared to control group, which signalizes an insufficient LV systolic function. Systolic and diastolic LV dimensions (LVESV, LVESVI, LVESD, LVEDV, LVEDVI, LVEDD) remained nevertheless within the control range. Also there was an increase in stroke volume (SV; 57.32 ± 2.95 mL) and stroke index (SI).

Decreased arterial pressure (to 116 mmHg) along with increased heart rate was observed in all patients. Patients with concurrence of PTB and COB had increased cardiac sphericity index (2.79 ± 1.79 L/min·m²), suggesting hemodynamic overload. Dilatation of left atrium was mild (29.44 ± 0.87 mm). Mean values of PLVWT, IVST and LVMMI in patients from group 2 were increased, but did not exceed the threshold values (104 g/m² for women; 116 g/m² for men) used currently in echoCG diagnostics of LV hypertrophy [5].

A significant increase in the mean rates of systolic myocardial stress was seen in patients with PTB concurrent with COB: 157.11 ± 5.18 dyn/sm² vs. 121.90 ± 2.6 dyn/sm² in control group. This integral index is currently thought to indirectly reflect the intramyocardial tension, and hence the intensity of metabolic processes in myocardium [5,6].

Blood filling pattern was found to be restrictive (pseudonormal) [9]. In Doppler mode, transmitral diastolic blood flow appears as a double wave. When mitral valve opens, the velocity of flow through an atrioventricular orifice instantly jumps to a maximum and then abruptly falls to almost zero-line. This early diastolic peak (Peak E) corresponds to the rapid LV filling phase and anticipates the next-following interval of a variable length during which the flow velocity remains on zero-line (diastasis). Duration of diastasis depends on cardiac cycle length (diastasis reduces with the increase of heart rate). During the contraction of LA in late diastole the flow velocity increases, resulting in the second peak (Peak A), and then returns to zero-line with the mitral valve closure. LV isovolumic relaxation time (IVRT) is an index of ventricular relaxation, which stands for the interval between the flow cease in LV outflow tract and flow start through mitral valve. In our study, Peak E was 0.79 ± 0.01 m/s, Peak A was 0.41 ± 0.03 m/s, and IVRT was 76.37 ± 0.65 ms. Deceleration time DT was 179 ± 2.35 ms.

The study findings let us **conclude** that:

1. The process of cardiac remodeling in patients with PTB concurrent with COB is characterized by the development of structural and functional alterations of the heart. Our findings showed the presence of RV dilatation (RVEDD; 24.27 ± 0.51 mm), LA dilatation (RAEDD; 30.39 ± 0.47 mm), increased mean pulmonary arterial pressure (mPAP; 25.68 ± 1.21 mmHg), decreased LV systolic function (EF; $54.22 \pm 1.33 \%$), increased

myocardial stress (MS; $157.11 \pm 5.8 \text{ dyn/sm}^2$), pseudonormal filling type (Peak E: $0.79 \pm 0.01 \text{ m/s}$, Peak A: $0.41 \pm 0.03 \text{ m/s}$) in all patients.

2. Concurrent COB developed mostly in fibrotic-cavitary form of PTB. Smoking was shown to be one of the risk factors for COB development. Also COB developed predominantly in patients aged more than 50 years. Alteration of lung tissue architecture following surgical interventions deteriorated development of COB.

S.T. Kokhan, E.V. Namokonov, V.A. Astafev

**PATHOBIOCHEMICAL CRITERIA OF THE SUBSTANTIATION OF
SELENIUM-CONTAINING MEANS APPLICATION IN THE COMPLEX
TREATMENT OF COMMUNITY-ACQUIRED PNEUMONIA**

Chita State University, Chita

Summary. Including of selenium-containing preparations into the complex treatment of patients with community-acquired pneumonia allows normalizing balance of system «lipid peroxidation – antioxidatic protection», promotes cupping of inflammatory process in a pulmonary tissue.

Keywords: neoselenium, Astragal, community-acquired pneumonia, lipid peroxidation.

Community-acquired pneumonia is among the most acute problems of domestic public health services [4,12]. Now doesn't cause doubts that a series of forms of pulmonary pathologies including a pneumonia, is bound to development of oxidizing stress which being accompanied by destructive influence free radical oxidations can become the reason of synchronization of pathological process in lungs. As it is known, a major factor of regulation of processes free radical oxidations is the condition of antioxidatic system of organs and tissues [2,5]. It defines, the pathological changes caused by activation of processes the lipid peroxidation will be how much expressed. In turn activity of an enzymatic link of antiradical protection depends on the maintenance in an organism of selenium, a component glutathione peroxidase. Deficiency of this trace substance in Transbaikalia [8,13], the proved ability of selenium to provide the adequate answer from an enzymatic antioxidatic link [6,11], absence of researches on series application selenium-containing agents («Neoselenium», «Astragal») at community-acquired pneumonia, do actual studying of possibility of use of the last in its treatment.

The work purpose was the pathogenetic substantiation of application selenium-containing preparations in complex therapy community-acquired pneumonia.

Materials and methods. In the conditions of a hospital complex clinico-laboratorial investigation of 76 patients community-acquired pneumonia from number which have been generated three groups is carried. In the first group traditional antibacterial therapy was spent. In the second group, except base therapy the solution of neutral «Neoselenium» (300 mkg, per os, after meal unitary a day) was applied 0,05 %. In the third group the preparation of «Astragal» on 2 dragees 3 times a day after meal (in 1 dragee of selenium of 50 mkg) was used. The estimation of parameters of system is spent to the first days of hospitalization and in 9 days after the beginning of a course of therapy at all surveyed «the lipid peroxidation – antioxidants» in blood components. Defined the maintenance diene conjugates, ketodienes and interfaced Tryenums in isopropane phase of a lipide extract [3], intermediate free-radical lipid peroxidation [1], rate catalase reactions [7], activity superoxide dismutase, glutathione peroxidase, glutathione reductase [9]. Biochemical indicators of a blood, at almost healthy 25 men of corresponding age (control group) were studied. Researches on sick and healthy people were carried out from their informed consent (Helsinki 2000). The obtained data is processed with use of the standard criteria of mathematical statistics.

Results and discussion. The analysis of the data presented to table 1 testifies that prior to the beginning of treatment at all patients with an community-acquired pneumonia the maintenance of all products lipid peroxidation was statistically significant above in comparison with persons of control group. Raised was not only the maintenance initial, but also intermediate products the lipid peroxidation. The data obtained by us will be compounded with literary [6,10,12] and once again confirms an important role of processes lipid peroxidation in a pathogenesis of an community-acquired pneumonia.

It is taped that after treatment, in the first group of patients (traditional therapy) parameters lipid peroxidation essentially haven't changed. Absolute value primary and by-products the lipid peroxidation remained high. So, for example the maintenance of the decay product of lipid peroxidation material has decreased only for 6,8 % and remains statistically significantly above, than in control.

In the second group where patients in addition received «Neoselenium» more essential depression of products the lipid peroxidation was observed. At patients of the given group primary the relative maintenance has decreased for 16,0 % ($p < 0.001$) and secondary on 16,5 % ($p < 0.001$) products free radical oxidations of lipids in comparison with initial level. Concentration of intermediate products the lipid peroxidation has decreased on 17,6 % ($p < 0.001$). It is necessary to notice that the comparative analysis of results of patients of group № 2 with those at patients of the first group, has taped statistically significant differences almost for

all indicators the lipid peroxidation, towards their depression. So in the third group quantity ketodienes and interfaced tryenums was not only less on 15,5 % ($p < 0.001$), than before treatment, but also on 14,3 % ($p = 0.006$) more low than in the second group. Factors E232/220 and E278/220 have decreased on 27,2 % ($p < 0.001$) and 29,6 % ($p < 0.001$) in comparison with the initial data; have made 78,4 % ($p < 0.001$), 75,0 % ($p < 0.001$) from value of the first group both 86,7 % ($p = 0.006$) and 84,4 % ($p = 0.002$) – from value of the second group accordingly. Level of the decay product of lipid peroxidation products was statistically significantly more low, than in the first and second groups of observation.

Changes from factors of antiradical protection looked as follows. Prior to the beginning of treatment at the surveyed the neutralizations lowered rate superoxide an anion-radical on 33,7 % ($p < 0.001$) and catalase activity on 24,3 % ($p < 0.001$) in erythrocytes in comparison with norm (tab. 1 see) were registered. Below control there was an activity of other pair enzymes: glutathione peroxidase – on 64,8 % ($p < 0.001$), and glutathione reductase – on 50,5 % ($p < 0.001$). It is possible to consider the received results quite natural as the raised background of free radicals and high intensity of processes lipid peroxidation leads to attrition of antioxidatic resources of an organism. However the fact of essential depression of neutralization of organic hydroperoxides with participation glutathione peroxidase is the extremely adverse as these unstable molecules, including hydroperoxides of polynonsaturated fat acids, serve as precursors of free radicals and other cytotoxic bonds which generation else in a greater degree leads to an intensification the lipid peroxidation.

Results of the inspection spent in 9 days after an initiation of treatment have shown that in the first group of patients antiradical security remained low. Activity of all enzymes was statistically significantly less control and didn't differ from initial level.

In the second group where the patient had been prescribed «Neoselenium» from the antioxidatic status there were favorable changes. Were enlarged rate of neutralization superoxide an anion-radical and a hydrogen peroxide with catalase participation by 18,3 % ($p = 0.008$) and 8,5 % ($p < 0.001$) accordingly. Activity glutathione peroxidase has increased on 43,1 % ($p < 0.001$), and glutathione peroxidase - on 44,8 % ($p < 0.001$) in comparison with results before treatment. Value of two last enzymes statistically significantly were above those patients of the first group. Thus, use of a preparation «Neoselenium» along with basic therapy has led to the mediated activation of enzymes of antioxidatic action, and first of all glutathione peroxidase, the structure of the active center apoenzyme and includes selenium. Thus at patients reduction of products lipid peroxidation in a blood was observed.

In group of the patients receiving against traditional therapy a preparation of «Astragal», also a containing trace substance selenium, positive changes looked more essential. Rate superoxide dismutase reactions has made 130,9 % ($p < 0.001$) from reference values, rate catalase reactions – 116,8 % ($p < 0.001$). Enzymatic activity glutathione peroxidase and glutathione reductase have made 173,7 ($p < 0.001$) and 153,9 ($p < 0.001$) accordingly from the digits received before treatment. The comparative analysis of results between groups has shown that activity of all enzymes at patients of the third group was authentically above, than at patients of the first group. Besides, activity of a catalase and glutathione peroxidase in the third group were above, than in the second on 8,1 % ($p < 0.001$) and 21,9 % ($p < 0.001$) accordingly.

Conclusions. Thus, the received results once again confirm an important pathogenetic role of disbalance in system «the lipid peroxidation - antioxidants» at a pneumonia. Use in therapy of the preparations containing selenium, leads to mobilization of antioxidatic resources of an organism, a consequence of that is normalization of sizes of lipid peroxidation products. The greatest efficiency medicinal preparations on the basis of the plants, containing natural bonds of selenium possess, their chemical nature is close to a human body, they easily join in biochemical processes of the patient, render multilateral, soft, regulating and safe action at long use.

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Table 1

Indicators lipid peroxidations and antioxidant protection of blood at patients with an
community-acquired pneumonia (M±SD)

Indicator	Control (n=25)	Before treatment (n=76)	Group 1 Base therapy (n=26)	Group 2 The base Therapy + «Neoselenium» (n=25)	Group 2 The base Therapy + «Astragal» (n=25)
Diene conjugates (ΔE_{232} /mg of lipids)	0,50±0,12	0,77±0,23 p<0,001	0,75±0,19 p<0,001	0,70±0,17 p<0,001	0,67±0,20 p<0,001 p ₁ =0,048
Ketodienes and interfaced Tryenums (ΔE_{278} /mg of lipids)	0,44±0,07	0,71±0,13 p<0,001	0,70±0,10 p<0,001	0,64±0,19 p<0,001 p ₁ =0,030	0,60±0,14 p<0,001 p ₁ <0,001 p ₂ =0,006
E_{232}/E_{220}	1,13±0,26	1,25±0,23 P=0,024	1,16±0,21	1,05±0,20 p ₁ <0,001	0,91±0,14 p<0,001; p ₁ <0,001 p ₂ <0,001; p ₃ =0,006
E_{278}/E_{220}	0,99±0,22	1,15±0,29 P=0,011	1,08±0,23	0,96±0,18 p ₁ =0,002 p ₂ =0,045	0,81±0,15 p=0,001; p ₁ <0,001 p ₂ <0,001; p ₃ =0,002
Decay product of lipid peroxidation material of serum, Mkmol/mg of lipids	1,32±0,18	2,22±0,21 p<0,001	2,07±0,11 p<0,001 p ₁ <0,001	1,83±0,15 p<0,001; p ₁ <0,001 p ₂ <0,001	1,71±0,17 p<0,001; p ₁ <0,001 p ₂ <0,001; p ₃ =0,011
Activity superoxide dismutase erythrocytes, activity %	47,9±7,6	31,79±9,47 p<0,001	32,60±10,66 p<0,001	37,60±10,96 p<0,001 p ₁ =0,008	40,60±9,52 p=0,004 p ₁ <0,001 p ₂ =0,007
Activity of a catalase of erythrocytes, nmol/s*mg the squirrel	14,7±0,3	11,14±0,50 p<0,001	11,06±0,41 p<0,001	12,09±0,39 p<0,001 p ₁ <0,001 p ₂ <0,001	13,08±0,35 p<0,001; p ₁ <0,001 p ₂ <0,001; p ₃ <0,001
Activity glutathione peroxidase erythrocytes, mkmol/s*mg the squirrel	183,8±24,5	64,70±19,57 p<0,001	72,56±10,60 p<0,001	92,16±11,65 p<0,001 p ₁ <0,001 p ₂ <0,001	112,36±14,30 p<0,001; p ₁ <0,001 p ₂ <0,001 p ₃ <0,001
Activity	78,7±16,7	38,98±11,72	39,45±10,95	55,65±9,57	61,28±11,25

glutathione reductase erythrocytes, mkmol/s*mg the squirrel		p<0,001	p<0,001	p<0,001 p ₁ <0,001 p ₂ <0,001	p<0,001 p ₁ <0,001 p ₂ <0,001
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The note: n - number surveyed; p - a significance value of authentic distinctions in comparison with control; p₁ - a significance value of authentic distinctions in comparison with indicators before treatment; p₂ - a significance value of authentic distinctions in comparison with indicators of group 1; p₃ - a significance value of authentic distinctions between indicators of groups 2 and 3.

Data on the author responsible for contacts to edition.

Kokhan Sergey Tihonovich – manager chair of bases of medicine of Managing chair of bases of medicine of Chita State University, Candidate of Medical Science, assistant professor, Honoured Doctor of the Russian Federation.

The address: 672039, Chita, street Babushkin, 34, sq. 32.

Phone: the house: 35-07-72, the office number: 355875, mobile phone: 8-914-456-24-54.

e-mail: SKokhan@yandex.ru

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Main principles of appointment to surgical treatment for patients with pulmonary tuberculomas in an Extreme-North region.

**I.I. Vinokurov, State Institution “Research-Practice Center ‘Phthisiatry’ ”,
Ministry of Health, Sakha Republic (Yakutia)**

Based on analysis of features seen in development variants of different types of tuberculomas in 302 patients living in the Extreme North, differential approach to surgical treatment has been formulated. Using clinically and morphologically grounded treatment approach, which allows for development variants in different clinical anatomical types of tuberculomas, not only helps to conduct an adequate chemotherapy regime, but also enables to perform surgical interventions at early stages during clinical follow-up. Implemented to medical practice, this differential approach to chemotherapy and surgical treatment of patients with pulmonary tuberculomas based on main features in development variants and clinical course of tuberculomas remarkably decreases the probability of tuberculosis relapse.

Keywords: morphogenesis, surgery, pulmonary tuberculoma, Extreme North.

Author: Vinokurov Innokentii Innokentievich, Candidate of Medical Science, Senior researcher, Head of the Pulmonary Surgical Department, State Institution "Research-Practice Center 'Phthisiatry'", Ministry of Health, Sakha Republic (Yakutia).

Introduction. Until now there is no universally accepted approach to treatment of patients with pulmonary tuberculomas. Some authors state, that tuberculomas are a form of tuberculosis that do not require active medical intervention, as long as tuberculomas usually have favorable prognosis with a tendency towards clinical resolution and long-term stabilization. [3]. Other researchers point out the potential threat to patient's health due to a strong probability that tuberculoma will progress to a disease in future, and hence conclude the necessity of surgical resection. [2, 4].

One of the reasons for inconsistency in approaches to treatment of patients with tuberculomas is that the decisions made in this question do not always account for existing pathogenesis and morphogenesis variants of development seen in different types of tuberculomas. In this respect, study of pathogenesis variant features of tuberculoma development under environmental and socio-epidemiological conditions of the Extreme North appears to be an interesting contribution to development of novel approaches to treatment of tuberculosis.

The aim of the study was to define the criteria for appointment of patients to surgical treatment, based on variant development features of the different types of pulmonary tuberculomas under conditions of the Extreme North.

Materials and methods. Morphological variants of tuberculomas were studied by clinical radiological observation of the causes of tuberculomas and histological examination of resected material, in 302 patients. Pulmonary tuberculomas were classified to anatomical types by the classification of M.M. Averbakh (1969). There were 213 (70.5%) men and 89 (29.5%) women. Persons of middle age (53.3%) and young persons (31.1%) predominated. The proportion of the elderly-aged patients (60 years and elder) was 15.6%.

Results and discussion. Based on analysis of development variants for different types of tuberculomas in 302 patients, clinically and morphologically grounded treatment approach has been formulated. We proceeded from the principle of differential approach to predicting the primary form and the clinical manifestation features of the tuberculoma later on.

The major criteria for determining treatment approach were the size of tuberculoma, the presence of destruction areas, and primarily, distinctive features characterizing the development variants of tuberculomas. Tuberculomas that developed as a result of infiltrative, disseminated or cavitary tuberculosis, became active or progressive more often, and melting of tuberculoma in the course of treatment was not unusual, in which cases development of a cavity with tuberculous seeding foci followed.

To our knowledge, this is the first time, when, based on the observed features in the development variants and clinical course variants of the different types of pulmonary tuberculomas, **clinically and morphologically grounded indications to surgery** have been formulated and applied to medical practice:

1. Tuberculomas (manifested as either homogeneous mass, or a filled cavity) that developed due to infiltrative, disseminated or cavitary tuberculosis, by nature of their morphological features, often cause progressive tuberculous process with high incidence of drug resistant *M.tuberculosis*. This dramatically reduces chances for healing by conservative treatment and calls for early surgical treatment by absolute indications, irrespective of the size or activity of such tuberculomas.

2. Tuberculomas (there are 2 types of these: laminated and infiltrative-pneumonic) that had formed as a result of focal tuberculosis or rounded pneumonic focus, by nature of their anatomical structure, can persist for a long time without transforming to progressive tuberculous process and without emergence of drug resistant *M.tuberculosis*. For tuberculomas that developed from focal tuberculosis or rounded pneumonic focus, a large size alone or medium

size with presence of necrotic debris is an **absolute indication** for surgical treatment. Medium size without necrotic debris and small size are considered as **semi-elective indications**.

Implementation of clinically and morphologically grounded indications for surgery of pulmonary tuberculomas required adjustments to organization of patient waiting list in the surgical department. Depending on features seen in tuberculoma formation variants, and chemotherapy intensity and duration, the patients with indications to surgery should be divided into **2 groups**:

Group 1 includes patients with newly identified lung tuberculomas that had evolved as an outcome of tuberculosis therapy. These patients are referred to surgical department after chemotherapy course and after determination of indications for operative intervention, unless a patient has pulmonary hemorrhage or haemoptysis, both of which are salvage indications for surgery.

Group 2 includes newly identified patients with fully formed pulmonary tuberculoma without signs of active tuberculosis. Patients from this group can be referred to surgical department immediately after detection of their disease.

The proposed approach to patient treatment maximally reduces the time from disease detection to scheduling of surgery. Furthermore, elective surgical interventions are performed in due time, not when all possibilities of anti-tuberculosis therapy have been exhausted and the patient has started to experience serious reduction of bodily compensational and functional abilities.

Let us stress, that in active detection of patients, the affordance of identifying main features in formation variants of the different types of tuberculomas, and predicting their clinical course, was as important as preventive measures. Thorough study and description of main features in clinical and morphological manifestations of different types of tuberculomas enabled finally to formulate **the principles for detecting and appointing patients to surgical treatment**:

1. Newly identified patients with fully formed pulmonary tuberculomas without clinical or radiological signs of active tuberculous process can be appointed for surgery, skipping the preliminary anti-tuberculosis therapy. This patient group is mostly ($79.5 \pm 2.8\%$; $p < 0.01$) comprised of patients with laminated or infiltrative-pneumonic type of tuberculomas associated with predominantly productive course of disease.

2. Patients with infiltrative, disseminated and cavitary forms of tuberculosis must be followed-up by surgeons and tuberculosis specialists (phthisiatrists) as the group of most likely potential source of tuberculomas of a homogeneous type or a “filled cavity”-type. In this patients group, elective surgical consultations must be conducted at certain stages of intensive chemotherapy, depending on an extensiveness and clinical course of the specific pathological process. The initial surgeon consultation takes place during the first months after tuberculosis detection, when the surgeon, in collaboration with the district tuberculosis specialist (phthisiatrist), plans the treatment approach. Next consultation with the surgeon should be taken at the third or fourth month during intensive phase of chemotherapy, because tuberculomas mostly form at this phase of therapy.

To conclude, the formulated criteria for appointing patients to surgical treatment depending on clinical and morphological development conditions for different types of tuberculomas, required in the end not only rearrangements in hospitalization wait list of the surgical department, but also timely performance of appropriate elective surgical interventions, in order to avoid the situation of resorting to surgery only after all possibilities of anti-tuberculosis therapy had been exhausted.

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Author: Vinokurov Innokentii Innokentievich, Candidate of Medical Science, Senior researcher, Head of the Pulmonary Surgical Department, State Institution "Research-Practice Center 'Phthisiatry' ", Ministry of Health, Sakha Republic (Yakutia).

Optimization of endovascular treatment tactics of patients with large and giant cerebral arteriovascular malformations

R.R. Bayramov, P.I. Nikitin, V.S. Panuncev, K.Yu. Orlov

Urgency. Arteriovenous malformations (AVM) - are shown in 0.06 %-0.11 % of observations among brain vascular diseases. Diagnostic possibilities define frequency of diffusion of disease [1]. Large and giant AVM affect 16 to 35 % of all patients with this pathology. Their main clinical symptoms are intracranial bleedings (52-71 %), epileptic seizures (23-40 %), headaches and progressive neurological deficit (12%) [6, 7]. The lethality and rasping invalidism caused by large and giant ABM makes up 1 % and 1.5 % accordingly. The main objective of surgical treatment is excluding AVM from blood circulation, in connection with high risk of a repeated hemorrhage [3, 4, 5].

The majority of presented AVM classifications can be divided into 3 categories considering morphological characteristics, features of hemodynamic and parameters important for surgical treatment cerebral AVM. Medvedeva J.A., Matsko D.E. (1993) describe

angiomatous (cavernous, intermediate, racemose, admixed), non angiomatous (varices, fistulas and anastomoses, persistent embryonal vessels) and unclassifiable developmental anomalies.

In classification by Hassler (1986) reflects the characteristics of blood flow of resulting AVM vessels on which 4 groups are allocated: the main vessels, minor vessels, partial vessels, and also vessels with "normal" indicators of blood flow according to transcranial doplex scanning, without taking into account volume and localisation of AVM.

Classification by A. Pasqualin (1991) offered considers AVM volume and localisation, the type of feeding vessels, the character of a drainage vein and linear blood flow rate in resulting vessels on angio - and TCDS criteria, without the morphological data.

Localizations, volume and type of feeding define surgical tactics. One of classifications considering diameter, venous drainage, the relation to functionally significant zones is gradation published in 1986 R.F. Spetzler, N.A. Martin on which AVM is classified into 5 groups.

MR-angiography, selective angiography, PET allow to receive full understanding of malformations angioarchitecture and functional brain zones close to AVM. It is important for planning endovascular, a microsurgical intervention and/or radiosurgery [17, 18].

The basic methods of AVMs treatment are microsurgical excision, endovascular embolization by means of different embolic agents or their combinations and radiosurgery [10, 11, 12, 13, 14, 15, 16]. For today the question on interventions on ABM 1-3 stages on Spetzler-Martin in the world literature is covered completely enough and treatment tactics are conventional.

Most frequently the topic of giant and large malformations are located in functional zones and are fed from several arteries. Poor results of one stage extractions of those AVM promoted of new multistage treatments such AVMs: it contains preliminary embolizations for vast feeding and size with subsequent use of microsurgery for total removal [2, 16, 19].

The new conception of multistage treatment leads to decrease of risk of ischemic complications arising at step by step AVM obliterations [23]. For today superselective embolizations with an obligatory estimation of the functional importance of feeding arteries are considered to be the most adequate way of their obliterations [21].

By this time at endovascular treatment as an independent method, as well as for the purpose of preliminary embolization the most modern embolic agents are applied to extirpation – NBCA, ONYX, Glubran. There is only individual data about practice use of a single-step combination of two embolic agents; however results of application of such tactics in the literature are not covered completely.

The radiosurgery in relation to ABM IV and V gradation by Spetzler-Martin with application of equipment available now is not acceptable in cases of comprehensible in connection with the big area of an irradiation. In according to previous research, it can be used as a technique of treatment with preliminary endovascular embolization [15]. In Polenovs institute we operate on the patients who have transferred intracranial hemorrhage after one or several courses of proton therapy.

However there are also adherents of conservative treatment at patients with big and huge ABM who consider inexpedient interventions to the first manifestation of disease as intracranial hemorrhages and-or increase of generalized epileptic seizers to some times in a month/day [21, 22].

Thus, by this time definitive representation of the tactics of treatment of patients with large and giant AVM remains is subject to discuss. It can be explained by the absence of a uniform point of view on a problem among representatives of microneurosurgery, endovascular, radiosurgeries, conservative therapy. Today considerable quantities of new, improved embolic agents are applied in endovascular treatment of cerebral AVM, their quality being constantly improved. Thus accurately formulated intraoperations tactics of their application have not been found in the accessible literature to us. Rational use of this or that embolic agents depending on angioarchitecture AVM in a combination to application of a principle of step-by-step decrease of a blood flow in it still remains unknown. It also has served as the reason of carrying out of the present research.

Aim: The purpose of our research consisted in optimizing the tactics of endovascular treatment of patients with large and giant AVMs.

Materials and methods.

From 2006 to 2010, 37 consecutive patients with intracranial IV V graduates AVM were treated with Onyx and hystoacryl embolization at Russian Polenovs Neurosurgical Institute. The mean age of these patients was 57 ± 12 years. There were 18 men and 19 women. Clinical presentation included ICH in 9 patients (24,3%), seizer in 17 patients (46%), hemorrhage and epilepsy was in 10 patients (27%), and sudden ischemic disturbances in 1 patient (2,7%). In 18 patients nidus of AVM was racemose, and in 19 patients was racemose-fistulous angiographies sings. On gradation Spetzler-Martin IV stage was at 32, V – at 5 patients. All patients underwent multistage intravascular interventions: in 13 patients - 2 stages, in 9 – 3 stages, in 8 – 4 stages, in 7 patients 5 and more stages of embolizations were executed. The general condition of patients was stable, compensated on vital functions.

All the patients were subject to a standard complex of neurosurgical diagnostic. For carrying out of the comparative analysis they are parted on two groups: the basic group included 13 patients who have been operated with application of principles of stage-by-stage AVM embolization taking into account its angioarchitectonics and uses of the most modern embolic agents. The control group included other 24 patients in whom AVM embolization was carried out with the account of only 1-2 principles.

Panangiography with the angiographies catheters was made by a standard technique of Seldinger; chose priority feeding artery, a microcatheter established in a nidus of malformations and embolized of a fistulous compartment by means of admixture NBCA with Lipiodol in various parities depending on a blood flow rate. Onyx was used to embolization of racemose nidus of AVM. Volume of AVM calculated with Kandelja E.I.'s formula (1985r.).

Radicality of endovascular obliterations allocated like total – 95-100%, subtotal – 75-94%, partial – 50-74% and obliteration of compartments less than 50% of AVMs volume.

Long term results of treatments estimated on index of Bartel, OGS and volume of obliterations (table 1).

Table 1.

Estimated to endovascular embolisations

Excellent	<ul style="list-style-type: none"> - total obliteration not neurologist deficits - subtotal obliteration not neurologist deficits
Good	<ul style="list-style-type: none"> - total obliteration with moderately expressed neurologist symptoms - subtotal obliteration with moderately expressed neurologist symptoms - partial obliteration not neurologist deficits
satisfactory	<ul style="list-style-type: none"> - total obliteration neurologist ; - subtotal with rasping neurologic deficiency; - partial obliteration with moderately expressed neurologist symptoms; - obliteration less than 50% V of AVM not neurologist deficits
Bad	<ul style="list-style-type: none"> - partial obliterations with rasping neurologic deficiency; - obliteration less than 50% V of AVM with moderately expressed neurologist symptoms; - obliteration less than 50% V of AVM with rasping neurologic deficiency

Results: 37 operated patients with large and giant cerebral ABM are executed 122 embolizations (26 ONYX, 96 – admixture NBCA with Lipiodol).

In tab. 2 degree of radicalism of AVM obliterations depending on number of the spent stages is given at use of this or that composition and their combination.

Table 2.

Number of stage radicality	2	3	4	5 and more	Total	
ONYX (n=4)						Control group
Total	2		1		3(75%)	
Subtotal	1				1(25%)	
NBCA (n=20)						
Total		1		1	2(10%)	
Subtotal	3	2			5(25%)	
Partial	1	2	2		5(25%)	
Less than 50%	3	2	2	1	8(40%)	
ONYX+ NBCA (n=13)						Basic group
Total	1	2		2	5(38.5%)	
Subtotal	2	2	3	1	8(61.5%)	
					37(100%)	

Apparently from the table, application of not adhesive composition ONYX allows to reach larger radicalism for smaller number of stages.

At carrying out of the analysis taking into account radicalism, a kind embolic agents and neurologic semiology in the postoperative period the following data has been obtained.

In 24 patients has been used one of embolic agent. In 4 patients are executed 10 embolizations by means of not adhesive composition ONYX. From them at 1 (25 %) the patient is received excellent, at 2 (50 %) – good, at 1 (25 %) – satisfactory result. In 20 patients are executed 65 embolizations by means of admixture NBCA with Lipiodolum. From them at 3 (15 %) patients results was excellent, at 12 (60 %) – good and at 5 (25 %) - satisfactory.

In 13 patients the combination of both embolic agents is used at 47 intravascular operations (31 by means of NBCA and 16 by means of ONYX). From them at 9 (69 %) patients it is received excellent, at 3 (23 %) – good and at 1 (8 %) – satisfactory results.

Thus, the best results have been received at use of combination of both embolic agents (excellent result in 69 % of cases) in some stages.

We carry out the comparative analysis of radicalism depending on tactics of carrying out of embolization in two groups (picture 1).

In the basic group at 5 (38.5 %) patients total embolization is reached, at 8 (61.5 %) subtotal embolization is reached. In control group total embolization is reached at 5 (20.8 %) patients, subtotal embolization - at 6 (25 %), to 13 patients are executed partial and embolization less than 50 % from volume ABM (5 (20.8 %) and 8 (33.4 %) accordingly).

Results of application of offered tactics of embolization are presented in a picture 2.

In the basic group in 9 patients (69 %) the excellent result (a clinical example 1) is received, in 3 (23 %) patients the good result, in 1 (8 %) patient – satisfactory result is received. In control group only in 4 patients (17 %) the excellent result, in 14 (58 %) - good, and in 6 (25 %) – satisfactory (a clinical example 2) is received.

Discussion: On a wave of development of modern medical technologies, such as endovascular neurosurgery, microsurgery, and in radio surgeries, a choice of tactics of treatment large and giant AVMs remains need to discuss. After long years of discussions, the general opinion of the western school of neurosurgery is the multidisciplinary (combined) approach to treatment of the given pathology: preliminary embolization AVM, with the subsequent its microsurgical excision. However, despite application of new embolic agents (ONYX, Glubran), microsurgical toolkit and microscopes, the invalidism and a lethality remain impressing in comparison with results of treatment of patients with ABM I-III gradation on Spetzler-Martin. In connection with high risk of repeated hemorrhages, and also absence of the data about catamnesis of patients with AVM, received radial therapy (Gamma-knife, proton therapy), efficiency of the given technique remains disputable. The problem of our research consisted in search of the technique, allowing to improve efficiency of treatment of such patients, having raised radicalism, having lowered an invalidism and a lethality. Being based on morphological classification AVM offered by Medvedev and Matsko (1993), criterion of a choice of tactics was angioarchitectors nidus of AVM. For the purpose of decreasing the risk of the repeated hemorrhage, the first stage included the embolization of a fistulous portion AVM by means of an admixture histoacryl with lipiodolum depending on a blood flow rate.

In view of ability intranidal diffusions and easy controllability, for embolization of a racemose portion of AVM non-adhesive composition ONYX was used and promoted achievement of larger radicalism for smaller number of stages.

Considering small quantity of patients in investigated groups, to speak about statistical reliability of a technique it is not necessary, whereas there is an accurate tendency in improvement of efficiency of intravascular embolization of large and giant AVMs at the technique offered above.

Conclusions:

1. Application of a principle of step-by-step depression of a blood flow remains invariable at embolization AVM IV-V of gradation on Spetzler-Martin.
2. At embolization such AVM it is necessary to consider angioarchitecture with allocation fistulous, and racemose. Application histoacryl is the most convenient at embolization fistulous, and ONYX – a racemose compartments of AVM.
3. Application of offered tactics of embolizations has allowed to improve efficiency of intravascular embolization large and giant AVM: 1) to raise radicalism of operation from 37,5 % to 53,8 % with simultaneous reduction of number of stages with 4-5 to 2-3; 2) to enlarge number of excellent and good results from 75 % to 92 %, in control and basic groups accordingly.

Clinical example 1:

The patient S. 30 years, epileptic type of current AVM of the left temporal share, Spetzler-Martin V, a racemos-fistulose structure of malformations nidus, 1 stage – embolization of a fistulose portion by means of NBCA (fig. 3), 2 subsequent stages – embolization of a racemose portion by means of ONYX (fig. 4-5).

Outcome: subtotal embolization AVM, after operation became perceptible moderately expressed neurologic semiology which regressed completely within several days. In the remote period (through 12month) the neurologic semiology is presented moderated pyramid by insufficiency. An index of Bartela of 100 points. OGS – 5. Result excellent.

Clinical example 2.

The patient S. 56 years, with AVM areas of the central gyruses at the left, feeding from left MCA and ACA, with a drainage both in superficial, and in deep veins of a brain. Epileptic type of a current, Spetzler-Martin IV, a ratsemo-fistulose structure of a malformations nidus. The first

stage executes subtotal embolization by means of ONYX (fig. 6), the second stage reaches total obliteration AVM (fig. 7). In the remote period (in 12 months) the rasping neurologic semiology in the form of a hemiparesis is observed, a partial motor aphasia becomes perceptible, and epileptic attacks demand intensifying antiepileptic therapy. An outcome: the total embolization AVM, proof neurologic deficiency of ischemic character. The result is satisfactory.

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Zharnikova T.N., Ivanov P. M., Ignatyev V.G.

Forecasting of disease current and lethal outcomes at complicated colorectal cancer

Results of surgical treatment of patients with complicated colon cancer, operated urgently, are analyzed. Thanks to a mathematical model of the forecast of treatment outcomes of patients with complicated colorectal cancer the optimal variant of surgical tactics is available.

Keywords: colorectal cancer, forecasting, lethality.

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FACTORS OF DIFFERENCES IN REMOTE CATAMNESIS OF PATIENTS WITH PARANOID SCHIZOPHRENIA

S.N. Oskolkova, S.V. Lvova

**Serbsky National Research Center for Social and Forensic Psychiatry,
Moscow**

Sophia Natanovna Oskolkova, Doctor of Medical Science, leading research scientist of the Serbsky National Research Center for Social and Forensic Psychiatry, Moscow, judicial-psychiatric doctor expert. e-mail: petroskolkov@yandex.ru.

Address: 23, Kropotkinsky pereulok, Moscow, 119034, Russia.

Svetlana Vladimirovna Lvova, extramural Ph. D. candidate of the Serbsky National Research Center for Social and Forensic Psychiatry, Moscow; head of department of psychiatry, Neuropsychiatric Hostel #12, Moscow,

e-mail: lvova_svetlana@mail.ru;

Address: 47-89, Vernadskogo prospect, Moscow, 119526, Russia

Summary

Clinical-dynamic, social-adaptive characteristics of schizophrenia patients with law-abiding and criminal behavior in later life were analyzed on the basis of examining their long-term catamnesis; comparative system analysis (taking into account the dynamics of the leading syndrome, personal and situational characteristics) of remote catamnesis of the specified contingent was carried out. Two opposing trends in the course of the disease were revealed: the tendency to weakening or to the stop of the progredience with stabilization of condition and reduction of psychopathological symptoms and the tendency to preservation the activity and progredience of schizophrenic process. The obtained results of the research may contribute to perfecting the prognostic criteria of the dynamics of the disease and preventive health and social activities.

Key words: paranoid [schizophrenia](#), elder age group, socially positive and asocial criminal behaviour.

Relevance of research basing on various aspects of mental pathology in later life is conditioned by a number of reasons: the tendency in the recent 30 years to a steady increase in the proportion of older and elderly persons in the population of economically developed countries, including Russia [1, 6, 8]. Aging of population inevitably extends to the population of mental patients, in particular those ill with schizophrenia. "Accumulation" of patients ill with schizophrenia of the age 50 and older has been happening for more than 20 years [5, 11, 13]. According to the data of WHO, during 15 years the number of patients ill with schizophrenia in the world increased by 30% and makes 45 million people (or 0,8-1%), the number of new cases per year is 4,5 million people. According to the data of A.A. Churkin, N.A. Tvorogova (2009), the incidence of schizophrenia in Russia in 2008 made 404,2 per 100 thousand of population.

Clinical features of paranoid schizophrenia at remote stages were studied by many psychiatrists [5, 9, 13]. However, domestic clinical and epidemiological studies in gerontopsychiatry [3, 15], in addition to obvious rarity, were carried out during a period of relative socio-economic stability. Epidemiological studies of M.E. Kuznets [9] showed an increase in frequency of committing socially dangerous acts by mental patients over 50 years. According to research findings of B.V. Shostakovich [12], socio-economic changes in Russia over the recent 15 years have led to a marked increase in crime among mental patients, which further underlines the relevance of the work.

However, most clinical follow-up studies do not cover the entire life of patients ill with schizophrenia, they were performed on relatively small samples, and mainly reflected the

patterns of clinical course of the disease in the mid-twentieth century, i.e. before the advent of a new generation of antipsychotics, which significantly increased therapeutic options and changed the quality of patients' life.

Pathomorphosis of mental illnesses [16] also determines the informativeness of a long-term catamnesis in the study of schizophrenia, including old age. Recently, the long-term catamnesis of patients with paranoid schizophrenia has almost never been studied. In a single study of J. Modestin et al. (2003) it was established that grave finite states are formed only in 1/3 of schizophrenic patients with a confirmed follow-up diagnosis; in 50% of cases observed the course of the disease was remitting and in 15% there was a practical recovery. Such conditions were defined by F.V. Kondratiev as "new health".

A preliminary review of the literature showed that the system analysis of data about the long-term catamnesis of patients with paranoid schizophrenia was not conducted. Therefore, it seems urgent to study predictors of favorable and unfavorable outcomes of the disease, the dynamics of productive and negative disturbances at a late stage of the disease, their effects on social functioning, as well as the public danger of schizophrenic patients of older age groups, which may contribute to the improvement of prognostic criteria and preventive medical and social activities.

Research aimed at the selection of the complex of factors contributing to the criminal activity of paranoid schizophrenia patients of the older age groups, as well as at the optimization possibilities of forensic psychiatric assessment are single [1, 2, 11]. At the same time, as it is known, psychogenic disorders (forensic investigatory situation) in elderly psychiatric patients, including those ill with schizophrenia, can significantly complicate the diagnostic and expert decision.

The purpose of this study is comparative system analysis of remote catamnesis (20-30 years) of paranoid schizophrenia patients of the older age groups who committed and did not commit socially dangerous acts (SDA) as the basis for improving the forensic psychiatric assessment and prevention of wrongful conduct in a specified contingent.

Material (object) of research

58 men of older age groups (50 years and older) with a diagnosis of « a continuously flowing paranoid schizophrenia ». The average duration of catamnesis was 37,7 years and more. All the examined were divided into two groups: Group 1 - patients who committed socially dangerous acts (SDA) at the age of more than 50 years and who passed an in-patient forensic psychiatric examination in the State Research Center of Judiciary and Social Psychiatry named after V.P. Serbsky in the period from 2005 to 2010 (28 persons; 48,3%) Group 2 - patients who did not commit crimes and who reside in psychoneurological nursing home (PNI) № 12 of the city of Moscow (30 persons; 51.7%). The age of patients in both groups at the time of the examination ranged from 50 to 73 years (the average age was 58, 9 years).

In both groups the main clinical and social parameters for the period attributable to the onset of the disease, the ones during the first 10 years of schizophrenic process course and the ones to the period of follow-up study in 2005-2010 were compared. For standardization of the data received, a card- questionnaire was drawn up in which signs including passport data, clinical and dynamic characteristics, personality-adaptive characteristics and social-situational characteristics were recorded. In the analysis of the material the concept of system interrelation of the syndrome - the personality - the situation, developed F.V. Kondratiev (1984-1996) was used.

Methods of research

Clinico-psychopathological method, clinical catamnesis method, clinical-dynamic method, clinical and statistical method.

Research results

In both groups the patients were brought up mostly in two-parent families. In Group 1 hereditary load of different types of psychopathologies and alcoholism (55% of patients) was

observed more frequently, which affected the nature of intra-family atmosphere, life and upbringing of the patient. Upbringing in these families was carried out in the environment of constant psychologic traumatic experience, which contributed to the formation of misconception of the norm of interpersonal communication, to easiness of aggression induction in conflict situations, to antisocial social circle. In about 80% of patients of the group a pathologic character of premorbid personality structure dominated by emotionally unstable, antisocial, and schizoid types was identified. In Group 2, the structure of premorbid personality of schizoid type dominated or accentuation of personality was lacking. Later under the influence of the painful process there happened intensification and distortion of existing characterological features, development of features that earlier were not inherent. In both groups the patients had predominantly secondary and specialized secondary education (Group 1 - 86.6%; Group 2 - 60%). However, in Group 2, 30% of patients had undergraduate and higher education. More often the patients of Group 2 (70%) didn't serve in the Army, they were either given an early discharge from military service (10%) in connection with psychopathology detection (50%), somatic pathology detection (25%), studying in institutions of higher education (25%). Patients in Group 1 were mainly engaged in unskilled labor (73.3%), many of them experienced decrease in labor adaptation. In most cases material problems (66,7%) and average material well-being were noted. In Group 2, patients whose main source of livelihood before entering the psychoneurological nursing home (PNH) was a disability pension, mainly of mental illness pension of the 2 group (70%), prevailed. Most of the patients in Group 1 had no disability (64,3%), 26,8% of patients were given the second group of disability and 7.1% - the third group of disability. The average age of disability registration was the age of 33 years, but even after that many of the patients continued to make some money working as unskilled laborers or as casual workers. The average age of labour activity discontinuance was 39.4 years (in Group 1 – 42, 2 years). 80% of Group 2 patients were found to be legally incapable (the average age – 53,3 years). Family and living conditions of patients in both groups were relatively satisfactory. Most of the patients in Group 2 lived with relatives (60%). Only part of patients were married and lived with their families (Group 1 - 26,7%, Group 2 - 20%). However, relations with relatives and spouses often had a hostile character, mutual understanding was lacking, the family atmosphere was characterized by tension and conflict relations, violence, alienation. In Group 1 patients were more often single (40%), persons without fixed place of residence made 20%. Most of those in Group 1 in their past had several convictions (40%), served their term or were held criminally liable. It is noteworthy that during forensic psychiatric examinations 42,9% of patients were recognized as "sane" and an approximately equal number of patients were sent for compulsory medical treatment with the diagnosis of schizophrenia (45,5%). Patients of Group 1 led more often an anti-social lifestyle, abused alcohol (66,7%), abused psychoactive substances (33,3%), they had a psychiatrist record due to dependency syndrome, they were treated in addiction clinics.

Duration of the endogenous process on the average in Group 1 made 32,8 years, which is significantly smaller than in Group 2 – 42,5 years. The onset of the disease in patients of Group 2 more often referred to puberty (70%), whereas in Group 1 it happened more frequently at the age of 19-25 (46,7%). All patients of Group 2 were registered previously by a psychiatrist (the average age of putting on record was 21,8 years), but they attended a psychoneurological nursing home mostly under compulsion of relatives, they received irregularly maintenance therapy with the formation of short, unstable remission. In Group 1 only 33,3% of examined patients were observed by psychiatrists, 13% were on the books of a narcologist, of whom 28,6% attended a psychoneurological nursing home. The main reason for registration in psychoneurological nursing home in both groups was acute psychotic state.

All patients of Group 2 were previously admitted to psychiatric hospitals, while in Group 1 only half of the patients (52,3%) were previously treated. The average age at the moment of the first hospitalization in Group 1 was slightly higher – 28,3 years. At this, the leading syndrome in

patients of Group 2 was hallucinatory-paranoid syndrome (40%), in Group 1 psychopathy-like syndrome, paranoid-hallucinatory syndrome and the syndrome of mental automatism (each made 20%) were detected with the same frequency. During the first 10 years the examined patients of Group 2 were hospitalized each year in psychiatric hospitals (70%), while patients of Group 1 – only 1-3 times. The hallucinatory-paranoid syndrome with varying degrees of intensity (70%) prevailed in the clinical picture in most patients of Group 2 during this period. In Group 1 the same syndrome (40%), and the expanded Kandinsky - Clerambault syndrome were revealed (33,3%). Hallucinatory-paranoid syndrome in both groups was characterized by various delusions and auditory hallucinations, accompanied by emotional depletion, typical for schizophrenia thinking disorders, decrease in motivation to work.

The average age of patients in Group 1 at the time of wrong-doing was 56,4 years. By the character of socially dangerous act crimes against persons (50%) (murders, infliction of bodily harm of varying severity) ($p < 0,05$), of which 80% was directed at persons of the nearest neighborhood and relatives, statistically dominated. Most often the offenses were committed by negative personal mechanisms and were situationally provoked (46,4%), rarer by productive-psychotic mechanisms with delusional motivation (21,4%), with paraphrenic delusion – in 33,3% of cases. In 53,3% of the patients signs of an active process, a psychotic stage of the disease were noted which determined specific criminality of the patients. However in 33,3% of the examined patients we revealed reduction of productive symptomatology with delirium fragmentation, directed at specific individuals, the loss of affective saturation, disactualization, delusional ideas encapsulation, manifestations of schizophrenic defect highlighted in the clinical presentation. All the examined were recognized insane by the court in relation to their alleged acts and they were administered a compulsory treatment in a specialized mental hospital (60%) and in a general type mental hospital (20%).

The average age of Group 2 patients at registration in the psychoneurological nursing home (PNHI) was 51,8 years, more often the patients were placed into a nursing home because of unwillingness of relatives and friends to exercise proper care and supervision of patients, because of contentious relations between them (40%); 30% of patients, living alone, ran into difficulties in household use and needed help. 10% of patients were registered in the psychoneurological nursing home (PNH) by their own free will, “not to disturb close people”. The average length of stay in a psychoneurological nursing home (PNI) was 10.9 years. During the stay in the psychoneurological nursing home (PNI) in most patients older than 50 years exacerbations of schizophrenic process were not noted. Their mental state was characterized by the manifestation of mental automatism syndrome (40%), affective-delusional syndrome (20%), and asthenic-depressive syndrome (20%). In 60% of cases reduction of productive symptomatology with the absence of further complications was noted, age-specific themes of psychopathological symptoms appeared (ideas of material and moral damage, jealousy, petty sabotage), which were aimed at individuals of immediate environment; fragmentary, lacking in affective saturation delusions of grandeur, of a particular value with hyperthymic background mood were revealed. In general delusions determined the patients' behavior to a lesser extent. The majority of the patients (60%) did not seek any activity; in 20% of the examined patients the state of deep defect was noted. However in 30% of patients their behavior became more organized, they became more active, more sociable, part of the patients began to get involved in work processes within the psychoneurological nursing home (PNH), to participate in public events (in sports competitions, lessons with a teacher, psychologist, to attend cultural events).

The results obtained comparing the clinical and social characteristics of two groups of schizophrenic patients with long-term catamnesis largely coincide with those of other studies cited in justifying the actuality of the work [1, 4, 5, 9, 10, 13]. The behavior of elderly patients with the selected psychopathology, as decades ago, mainly depends on a complex of factors: clinical dynamics and phenomenological registration of the condition, on the response to therapy, its adequacy as well as microsocial situation. In a number of cases staying at

psychoneurological nursing home (PNH) eliminates a number of conflicts that are meaningful to patients and ensures optimal monitoring and treatment. With continued research material processing using the Fisher test and Spearman's rank correlation is planned.

Conclusions:

1. In later life schizophrenia does not in all cases take unfavorable course - along with the processes of malignant course, with rapid onset of hallucinatory-paranoid syndromes and paraphrenia, cases with relatively slow progredience of the process, with long-term neurosis-like or psychopathy-like stage with a relatively shallow positive and negative disorders are observed.

2. Paranoid schizophrenia in later life with a relatively favorable course is characterized by a rare hereditary load of ascent and in the generation of patients, by the prevalence in the premorbid of schizoid and hysterical character traits with hypersthenicity, monotonous activity, narrow-mindedness, but also with productive and even creative activity in one-way direction, as well as by relatively scarce productive symptomatology (more often in the form of reduced paranoid syndrome), with minor perceptual disturbances.

3. In later life, after a long-term course of paranoid schizophrenia subjective and objective amelioration of the condition is possible with objective and subjective improvement of life quality, with a decrease in the relevance of productive symptomatology, but with no involution of schizophrenic defect symptoms.

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Manifestation of HRT on the Holter ECG monitoring

L. V. Tarabukina, T.A. Romanova, S.G. Abrosimova

The aim of the research is to investigate the manifestation of heart rate turbulence on the Holter ECG monitoring.

The patients with different diagnoses who were directed to the Holter ECG monitoring at the department of functional diagnosis by the doctors of cardiology clinical advisory department of RH № 1-NCM were examined.

During the Holter ECG monitoring the heart rate turbulence was registered among the patients with cardiovascular diseases, type 2 diabetes. It was registered more often among men, non-indigenous residents of Yakutia.

Keywords: heart rate turbulence.

The method of electrocardiography over the years is a universal way to analyze the electrical activity of the heart. Surface ECG in 12 conventional leads, the Holter ECG monitoring are noninvasive techniques that can provide data on the presence of myocardial electrical instability, including the frequency and types of arrhythmias, conduction of heart, alternation of T wave, dispersion QT interval, late ventricular potentials, as well as the imbalance in the autonomic nervous system, revealed by heart rate variability.

The evaluation of turbulence of the heart contractions frequency is another method in variability and baroreflex sensitivity.

Heart rate turbulence is an important predictor of mortality among the patients with myocardial infarction [3], within one year of polycoronary bypass surgery [6], patients with nonischemic cardiomyopathy with an increase in the phenomena of heart failure [7].

The aim of the research is to investigate the manifestations of HRT on the Holter ECG monitoring.

Materials and methods. 140 patients with different diagnoses were involved in the research, 60 women (42,9%), 80 men (57,1%), who were directed to the Holter ECG monitoring at the department of functional diagnosis by the doctors of cardiology clinical advisory department of RH № 1-NCM were examined.

The average is $52, 2 \pm 0,8$ years. 66,4% are the indigenous people of Yakutia of total number of patients. 68 (48,6%) patients have strong family history of diseases of the cardiovascular system (coronary artery disease, hypertension), 13 (9,3%) patients have type 2 diabetes. 55 (39,3%) patients have the diagnosis of CHD, also stable effort angina of I-III FC (Canadian Cardiovascular Society classification), CHF of FC I-II (NYHA) post infarction cardio sclerosis. 88 (62,8%) patients have the diagnosis of hypertension I-III degree. 15 (10,7%) patients have coronary artery revascularization (stenting, heart bypass). According to echocardiogram of left ventricular hypertrophy (LVH) were detected in 41 (29,3%) patients, left ventricular ejection fraction (LVEF) was $66,7 \pm 0,66\%$ (Table 1). The Holter ECG monitoring was held on a system of «Mars II» (Germany) with modified bipolar recording of three ECG which reflects the potentials of the front, side walls of the left ventricle of heart. The average daily, average daytime, nighttime heart rate, circadian rhythm index (CI), cardiac arrhythmias and conduction, disturbances detected circadian rhythm of heart rate turbulence parameters (TCP), segment ischemic changes ST were determined.

Depending on the manifestations of the phenomenon of HRT (event triggers), patients were divided into 2 groups. 1 group consisted of 73 patients with the manifestation of the turbulence, 2 group - 67 patients who has no the occurrence of the turbulence during the monitoring, i.e. the system has not registered event triggers, possibly due to mismatch characteristics of RR intervals analysis criteria of HRT.

In the statistical analysis the I – criterion by Student was used at a value of $p \leq 0,05$ (confidence level for the median 95%).

Results and discussion. During the analysis of data it was found (Table 2) that in I group there were 48 men (65,8%), 25 (34,2%) women, among them natives of Yakutia - 42 (57,5%), non-indigenous - 31 (46,6%). In II group - 32 (47,8%) and 35 (52,2%), 51 (76,1%) and 16 (23,9%). 39 (54,4%) patients with CHD diagnosis in I group, 16 (23,9%) in II group.

Including in I group was 24 (32,9%) patients with post infarction cardio sclerosis, II group - 8 (11,9%). Among the patients without CHD the turbulence detected in 34 (46.6%) patients, 51 (76,1%) - not recorded. 52 (71.2%) patients in I group have hypertension of I, II, III degree and 21 (28,8%) in II group. Patients without hypertension turbulence detected in 21 (28,8%), 31 (46,3%) - not recorded. In I group 11 (15.1%) patients suffered with type 2 diabetes, in II group - 2 (3,0%). In the analysis of heart rate in groups - an average daily rates, the daytime average, nighttime heart rate did not differ significantly. The data of circadian rhythm index (CI) had much difference: I group recorded rigid circadian rhythm profile, in II group - the indicators of CI were within normal limits ($1,21 \pm 0,15$ and $1,29 \pm 0,01$). Ventricular ectopic activity was recorded in 72 (98,6%) patients of I group and 18 (26,9%) patients of II group. In particular in I group ventricular ectopy (VE) of 1-2 class gradations (M. Rayn, W. McKenn) was detected in 28 (38.4%) patients, high grade - in 44 (60,3%). In II group - in 1 (1.5%) and 17 (25,4%). In I group PVCs often had a mixed type of circadian, in II group – day type. Supraventricular ectopic activity (SVE) was recorded in 50 (68%) patients of I group and 37 (55,2%) II group ($p = 0,024$). The episodes of ischemic ST-segment deviation detected in 12 (16.4%) patients of I group, 3 (4.5%) patients of II group. Revascularization of coronary arteries was performed to 10 (13.7%) patients of I group, 3 (4,5%) - II group. According to ECHO CG LVH was among 22 (30.1%) patients of I group, 19 (28,4%) patients of II group, LVEF was $65,38 \pm 0,95\%$ and $68,21 \pm 1,90\%$.

In a number of publications it was noted that there were age and gender characteristics of TCP [1]. In 2 large clinical trials and EMIAT MPIP [9] it was identified TCP values among the patients in post infarction period. In work of other authors is show [5] recovery parameter of TCP – TO after 12 months after acute myocardial infarction, and keeping constant of another parameter the TCP - TS during the entire period of observation. At patients undergoing coronary artery bypass surgery due to the weakening of TCP damage autonomous nerve fibers in the course of aortic clamping [2]. After a number of researches were revealed that TCP correlates with such clinical data as age, LVEF, type 2 diabetes, and ECG indices (heart rate, heart rate variability) [8]. The parameters of TCP correlates with the average heart rate and the number of VE [4].

Conclusion

52% of examined patients have the heart rate turbulence. TCP was registered more often among men, non-indigenous residents of Yakutia, in patients with coronary heart disease, hypertension, type 2 diabetes, patients with a rigid circadian rhythm profile with supraventricular

ectopy, ventricular ectopy of high grade, the ischemic changes of ST segment, after coronary revascularization with low fraction LVEF.

(Table 1)

№	Indices	n-140
1.	Age	52,19±0,77
2.	Men	80 (57,1%)
3.	Women	60 (42,9%)
4.	The indigenous residents of Yakutia	93 (66,4%)
5.	Non-indigenous residents of Yakutia	47 (33,6%)
6.	Residents of ulus	91 (65,0%)
7.	Residents of Yakutsk	49 (35%)
8.	Have a strong family history	68 (48,6%)
9.	Patients with coronary artery disease	55 (39,3%)
10.	Patients with hypertension	88 (62,8%)
11.	Patients with type 2 diabetes	13 (9,3%)
12.	Revascularization of coronary arteries	15 (10,7%)

(Table 2)

№	Indices	I group n=73	II group n=67
1.	Age	53,81±1,02	50,42±1,15*
2.	Men	48 (65,8%)	32 (47,8%)*
3.	Women	25 (34,2%)	35 (52,2%)
4.	The indigenous residents of Yakutia	42 (57,5%)	51 (76,1%)
5.	Non-indigenous residents of Yakutia	31 (42,5%)	16 (23,9%)*
6.	Have a strong family history	34 (46,6%)	34 (50,7%)
7.	Patients with coronary artery disease	39 (53,4%)	16 (23,9%)**
8.	Patients with hypertension	52 (71,2%)	36 (53,7%)**
9.	Patients with type 2 diabetes	11 (15,1%)	2 (3,0)**
10.	Revascularization of coronary arteries	12 (16,4%)	3 (4,5%)*
11.	Average daily HR	72,67±1,14	72,58±1,27
12.	Average daytime heart rate	77,44±1,29	78,78±1,41
13.	Nighttime heart rate	64,10±1,11	61,15±1,11
14.	Circadian index	1,21±0,15	1,29±0,01***
15.	Supraventricular ectopy	50 (68,5%)	37 (55,2%)*
16.	Including Steam NZHE + SVT	23 (46%)	24 (64,9%)
17.	Ventricular ectopy	72 (98,6%)	18 (26,9%)
18.	Including VE 1-2 classes	28 (38,9%)	1 (5,6%)
19.	Including PVC high grade	44 (61,1%)	17 (94,4%)
20.	Daytime circadian VE	29 (40,3%)	10 (55,5%)
21.	Night circadian VE	6 (8,3%)	-
22.	Mixed circadian VE	37 (51,4%)	8 (44,5)
23.	Ischemic ST segment changes	12 (16,4%)	3 (4,5%)*
24.	LVH	22 (30,1%)	19 (28,4%)
25.	LVEF	65,38±0,95	68,21±0,90



$p \leq 0,05^*$; $p \leq 0,01^{**}$; $p \leq 0,001$

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Nikolaeva T.I., Ivanov P. M., Migalkina T.A., Ivanova F.G.

Early diagnostics of a breast cancer

The analysis of the primary medical documentation and the questioning data of women with breast cancer are carried out. It is found out that patients with a disease incipient stage (I-IIA) regularly passed professional surveys and consultations of the gynecologist. With augmentation of a cancer stage (IIB-III A) the quantity of women, to whom preventive examinations were not made or were made formally, increases.

Keywords: breast cancer, preventive examinations, early diagnostics.

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Surgical anatomy of extrahepatic bile ducts

V. Petrov, V. Argunov

Resume. Anatomic peculiarities of extrahepatic bile ducts were examined on 50 cadavers who died from different diseases at age between 40 to 60 years without pathologies in abdominal cavity.

In most cases (98%) bifurcation and lobar hepatic bile ducts located out of hepatic tissue with length domination in left side, that allows to conduct reconstructive operations of injures and strictures of extrhepatic bile ducts.

Keywords: lobar hepatic bile duct, anatomy

Introduction. Lately, biliary passages diseases take one of the leading positions in abdominal surgery and are followed by the steady growth of extrahepatic bile ducts surgery.

Despite of long-established and ever-improving technology of cholecystectomy, bile ducts injuries rate have no tendency to decline. Moreover, implementation of laparoscopic cholecystectomy increased the frequency of iatrogenic bile ducts injures by 2-4 times and composes 0, 1-3%. Many authors consider faulty interpretation of topographic anatomy and

anatomic peculiarities of extrahepatic bile ducts as one of the causes leading to extrahepatic bile ducts injuries, during both traditional and laparoscopic cholecystectomy [1, 3, 4, 5, 6].

The consequences of iatrogenic bile ducts injuries can be catastrophic for patient's health. To treat bile ducts injuries, as well as their consequences in form of strictures, it is necessary to conduct reparative operations on the level of lobar hepatic bile ducts and their bifurcation. Therefore, the study of extrahepatic bile ducts anatomy and knowledge of their peculiarities is important during operations, especially, during commonly used nowadays different kinds of minimally invasive approaches.

Thus, the aim of this research was to prove optimal methods for reparative operations of bile passages injuries and strictures by studying anatomic peculiarities of extrahepatic bile ducts on autopsy material.

Materials and methods. The study of extrahepatic bile ducts anatomic peculiarities was conducted on 50 corpses, who died from different diseases at the age between 40 and 60 years with no pathologies in abdominal cavity. After extracting organocomplex and opening porta hepatis, lengths of right and left bile ducts, as well as the length of common hepatic duct, were measured. Separate form was filled out for each case and gross specimen photography was taken with Canon camera.

Results and discussions. In most cases (98%) lobar hepatic bile ducts located extrahepatic and their length varied from 0.5 to 3.0 cm. One case of intrahepatic lobar bile ducts, including their bifurcation, was found out (Table1).

Table 1

Length of right (RBD) and left (LBD) hepatic bile ducts

	Intrahepatic location	Less than 1,0 cm	1-1,5 cm	1,5-2 cm	2-2,5 cm	2,5-3 cm	More than 3,0 cm
RBD	1(2%)	3(6%)	15(30%)	18(36%)	11(22%)	2(4%)	-
LBD	1(2%)	3(6%)	14(28%)	12(24%)	9(18%)	7(14%)	4(8%)

It is clear from the Table, that the left hepatic duct was usually longer than the right one. For instance, the right hepatic duct was longer than 2 cm in 26% cases, whereas left one - in 40% respectively. While right hepatic duct was 3 cm or less, left one in 8% cases was longer than 3 cm. (Figure 1). Average length of the left hepatic duct (1.63 cm.) was longer than same of the right one (1.44 cm.). As S.Koposova describes in her research [2], the left lobe of the liver differed with constancy of bile passages, so variations of left hepatic duct formation were much rare than those of the right one and mainly were caused by the order segmental canals entered

into left hepatic duct. According to the author, the left hepatic duct was longer than the right one, led to the left side of liver, situated anteriorly and higher than all elements of portal trilogy [2]. Anatomic peculiarities (topography and relatively long length) of left hepatic duct appear to be more profitable for reparative operations and application of gastrointestinal anastomosis. This corresponds to studies of foreign authors, which, in case of II, III and IV stricture types, recommend to apply longitudinal dissection in order to expand gastrointestinal anastomosis [7]. In case of short left hepatic duct, dissection of duct can be extended to the field of bifurcation (Figure 2) in order to form sufficiently wide anastomosis.

Common hepatic duct formed extrahepatic in 98% cases by confluence of right and left hepatic ducts. Its length before cystic duct confluence varied from 1 to 5 cm. In 74% cases the length of common hepatic duct was longer than 3cm, that is of great importance during surgery in the this field.

Conclusions. The results of investigation show that in most cases (98%) bifurcation and lobar hepatic bile ducts located out of liver tissue with length domination on the left side, that allows to conduct reparative operations under conditions of extrahepatic bile ducts injures and strictures.

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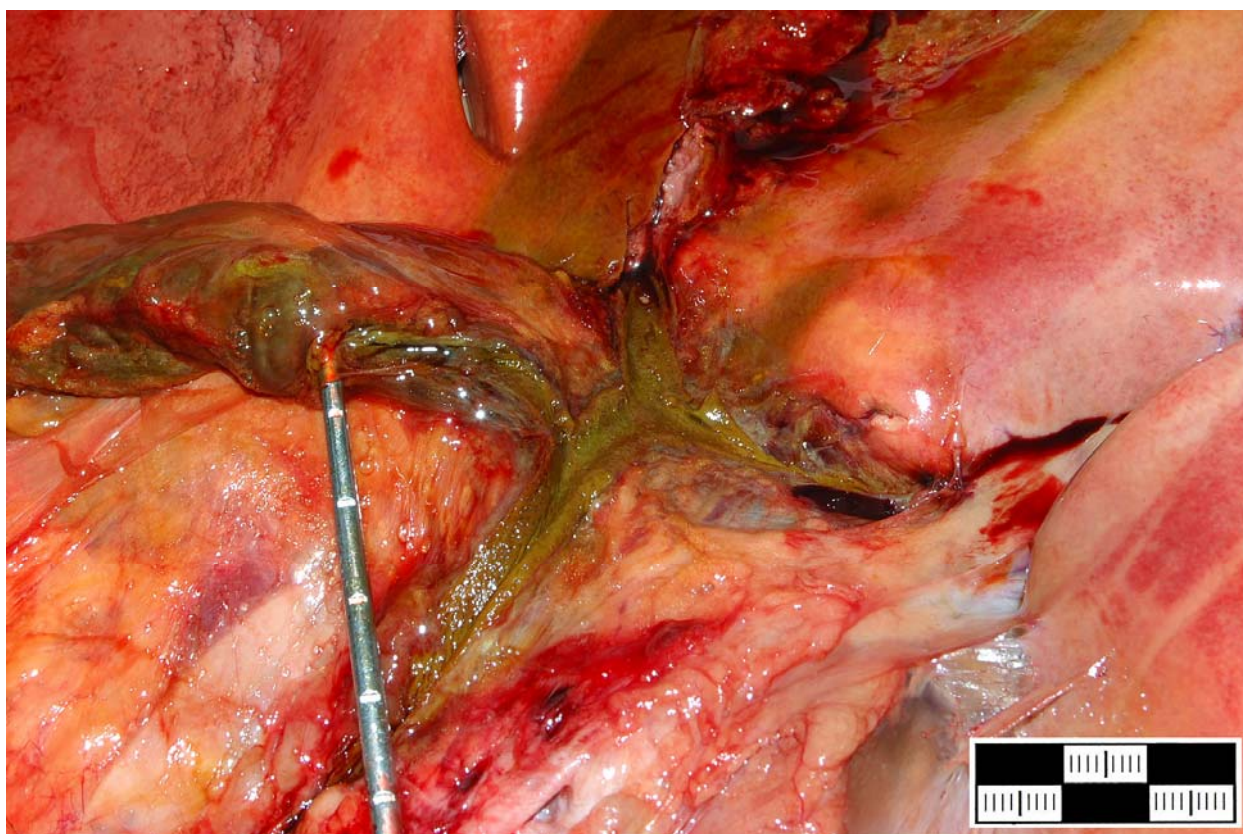


Figure1. Anatomic peculiarities of extrahepatic bile ducts. Left hepatic bile duct is longer than right one.

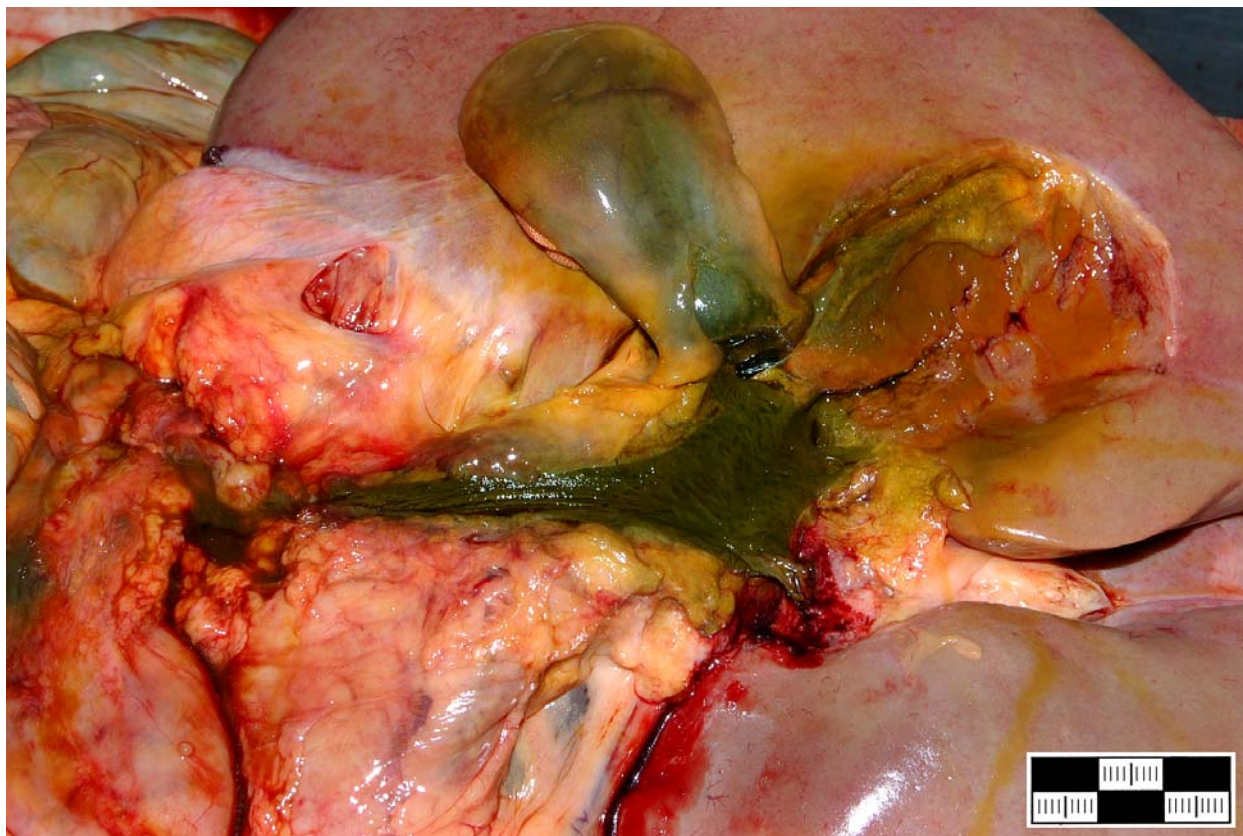


Figure 2. Anatomic peculiarities of extrahepatic bile ducts. Short left hepatic bile duct and wide bifurcation.

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Distinctive features in morphogenesis of pulmonary tuberculomas in patients from non-aboriginal population of the Extreme North

I.I. Vinokurov, State Institution “Research-Practice Center ‘Phthisiatry’ ”,
Ministry of Health, Sakha Republic (Yakutia)

For a decade (1997-2007), morphogenesis features of different types of tuberculomas were studied in 125 non-aboriginal patients living in the environmental conditions of the Extreme North. The study showed that morphogenesis of tuberculoma in non-aboriginal patients started more often as a result of specific alterations following lymphohematogenous tuberculosis ($72.9 \pm 3.2\%$; $p < 0.01$). Interestingly, tuberculous alterations in the lungs developed amid unaltered lung tissue. As a rule, formation of tuberculomas in patients from non-aboriginal population is not associated with the development of marked fibrosis of lung tissue. These distinctive features of tuberculoma formation were determined by predomination of the processes of healing and alveolar epithelium renewal over inflammatory changes, thanks to which a better repair of the structure of lung parenchyma could be attained in the end.

Keywords: morphogenesis, clinical course, pulmonary tuberculoma, Extreme North.

Introduction. One of the reasons for contradictory opinions concerning approaches to treatment of patients with tuberculomas is that decisions in deciding this question are made with the lack of attention to existing individual variants of pathogenesis and morphology seen in tuberculoma development. But in fact, different pathogenesis variants of tuberculomas remain complex and poorly explored forms of pulmonary tuberculosis. In particular, it still remains undetermined how changes in epidemiological situation and distinct features of the tuberculosis clinical course influence the eventual morphogenesis variants in different types of pulmonary tuberculomas [1].

Since the publication of a classic work by Professor M.M. Aberbakh (1969) published more than 40 years ago, fundamental studies on pulmonary tuberculomas have seldom been reported in the literature [5]. This and the motives explained above are one of the reasons to study the distinctive features observed in pathogenesis variants of tuberculoma development under environmental and socioepidemiological conditions of an Extreme-North region, which has already become a recognized problem area in phthisiatry with important consequences to the ongoing quest for novel approaches to treatment of patients.

The aim of the study was to explore morphogenesis features of different types of lung tuberculomas in non-aboriginal population living in the environmental conditions of the Extreme North.

Materials and methods. For a decade (1997-2007), morphogenesis features of different types of tuberculomas were studied by analyzing trends in clinical and radiological data coupled with morphological confirmation of distal caseous foci, in 125 non-aboriginal patients living in the environmental conditions of the Extreme North. There were 90 men (72.0%) and 35 women (28.0%), with a predomination of middle-aged (62.0%) and young (34.0%) patients.

Results and discussion. 177 caseous foci were resected in 125 non-aboriginal patients. Of these 125, in 108 patients ($86.4 \pm 3.1\%$; $p < 0.01$) tuberculoma formed originating from a tuberculous infiltrate, that often occupied an entire lung lobe. The inflammatory process was mostly characterized by exudation with a tendency towards progression of tuberculosis. On the other hand, exudative course of tuberculosis in non-aboriginal patients relatively quickly transformed to productive inflammation accompanied by the repair of anatomic and functional structure of lung tissue, which eventually favored the formation of a tuberculoma without markedly expressed fibrosis.

Clinical and morphological examinations showed that in 119 non-aboriginal patients (75.3%), morphogenesis of a homogeneous type of tuberculoma unfolded via resorption, encapsulation and consolidation of the infiltrate that previously developed as a result of lymphohematogenous tuberculosis (Table 1).

Morphogenesis of a homogeneous type of tuberculoma was preceded by recurrence of fresh confluent tuberculous infiltrates amid unaffected lung. The infiltrates were predominantly ($95.2 \pm 3.2\%$; $p < 0.001$) multiple bilateral, and located in the upper parts of the lung. Along with gradual increase of inflammatory process, extensive specific alterations with caseous necrotic foci developed on site of small infiltrates. Tuberculomas formed as a result of resorption of the infiltrate and a reparatory process around caseous necrosis. In most cases (75.2 ± 2.9 ; $p < 0.01$), no marked concurrent fibrosis of lung tissue or pleura was observed during formation of homogeneous tuberculomas.

Morphological examinations have shown, that in 112 patients ($89.6 \pm 3.2\%$; $p < 0.001$), formation of tuberculomas was accompanied by predomination of processes of healing and alveolar epithelium renewal, resulting from reduced necrobiotic events, edema, and fibrin exudation in tuberculous inflammation foci, which favored the complete repair of lung parenchyma structure.

Summing up, morphogenesis of a homogeneous type of tuberculoma in non-aboriginal patients starts more often from the development of an extensive infiltrate following

lymphohematogenous tuberculosis. Interestingly, the specific alterations in the lungs developed amid unaltered lung tissue. Formation of tuberculomas in most patients from non-aboriginal population is not associated with the development of markedly expressed fibrosis of lung tissue. These distinct tuberculoma features were determined by predomination of the processes of healing and alveolar epithelium renewal over inflammatory alterations, which in the end favored a better repair of the structure of lung parenchyma.

Clinical examinations showed, that morphogenesis of a laminated type of pulmonary tuberculoma among non-aboriginal population started from lymphohematogenous spread of tuberculosis in 10 (58.8%) patients. Fresh dissemination foci developed amid unaffected lung tissue, and located mainly ($70.0 \pm 3.5\%$; $p < 0.01$) in the upper and mid lung lobes.

Notably, morphogenesis of laminated tuberculomas in non-aboriginal patients in most cases ($60.0 \pm 2.5\%$; $p < 0.01$) started from repeated episodes of acute aggravation of the specific pathological process around fresh conglomerate foci. Soon after the development of infiltrative-pneumonic inflammation around small conglomerate foci, they became gradually affected by caseous necrosis and then transformed to an encapsulated caseous-pneumonic focus. Later, as the perifocal exudation gradually resolved, each of the foci became encapsulated by capsules that were shared between neighboring foci. Tuberculoma then grew concentrically around this encapsulated caseous-pneumonic focus, as the result of interchanging waves of perifocal necrosis and encapsulation. Later a laminated structure of tuberculoma formed, as an outcome of periodical exacerbations of tuberculosis and appositional growth around the encapsulated caseous-pneumonic focus.

We noted that bronchopulmonary lymph nodes and perihilum tissue remained intact in all of the patients. Tuberculoma formation was not associated with development of fibrotic alterations of the lung tissue and pleura. However, in patients from non-aboriginal population the formation of a laminated type of tuberculoma from out of a tuberculous focus took longer time, compared to patients from aboriginal population, with the difference between them ranging from 1.5 months to 2 months.

In conclusion, the formulation of criteria that clinically and morphologically define the development conditions for caseous foci became the groundwork for a detailed study of the most frequently occurring morphogenesis patterns for different types of lung tuberculomas found in patients living in the Extreme North with its harsh environmental and social conditions. Definition of distinctive features of the morphogenesis and clinical course of different types of pulmonary tuberculomas will make it possible to give grounds for and to shape individualized chemotherapy regimes and approaches to surgical treatment of patients.

Table 1

Effect of tuberculosis genesis on morphogenesis variants of pulmonary tuberculomas in patients from non-aboriginal population, in an Extreme-North region

Sites of morphogenesis of tuberculomas	Number of foci	Way of tuberculosis genesis					
		Lymphogenous		Hematogenous		Lymphohematogenous	
	Absolute number	Absolute number	%	Absolute number	%	Absolute number	%
Focus	17	7	$41.2 \pm 1.3^*$	-	-	10	58.8 ± 1.9
Infiltrate	158	10	6.3 ± 0.6	29	18.4 ± 1.1	119	$75.3 \pm 2.1^*$
Cavity	2	2	100.0	-	-	-	-
Total	177	19	10.7 ± 1.1	29	16.4 ± 2.2	129	72.9 ± 3.2

*- differences are valid ($p < 0.05$) between morphogenesis variants

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Author: Vinokurov Innokentii Innokentievich, Candidate of Medical Science, Senior researcher, Head of the Pulmonary Surgical Department, State Institution "Research-Practice Center 'Phthisiatry' ", Ministry of Health, Sakha Republic (Yakutia).

I.N. Sekov¹, E.A. Igotti², D.N. Afanasyeva³.

**Neuropsychological study of children with attention deficit disorder
in the process of beta-stimulating biofeedback.**

¹ Sekov Ivan N. - researcher, Laboratory monitoring of children's health and medical-ecological studies of the Yakut Scientific Center, RAMS. Cont.: tel: 9142855267, E-mail: ivansekov@gmail.com

² Igotti Elena A. - head of the division number 1 of the Yakut Republic Drug Dispensary.

³ Afanasyeva Daria N. - neurologist department of Rehabilitation Branch polyclinic № 1, Yakutsk.

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This article analyzes the clinical and electroencephalographic effects of EEG beta training in treating children with attention deficit disorder.

Presents the results of neuropsychological examination of 68 children diagnosed with attention deficit / hyperactivity (ADHD) by the method of Luria's in the rehabilitation course of EEG beta training. Analysis of the results suggests that in the most children with ADHD, the primary cause of the characteristic symptom is a dysfunction of subcortical-stem structures of the brain, but there are children with clear symptoms of ADHD, but no signs of dysfunction of subcortical structures.

Key words: Attention Deficit Disorder, neurobiofeedback, neuropsychological tests.

1. Introduction.

Complex demographic situation in Russia currently is compounded by the deterioration of physical and mental health of children of all ages - from infants to teens. Of particular concern is the increase in the incidence of prenatal pathology and birth injury, which will inevitably have a negative impact on the development of the nervous system. Normally flowing pregnancy and childbirth, the last with no abnormalities, are no exception. This leads to an increase in the prevalence of abnormalities of the morph functional development of all parts of the nervous system. At the same time affected sections of brain, whose sensitive period of development falls on prenatal and early postnatal periods - sub cortical-stem structures of the brain.

Dysfunction of these parts not only by themselves in a specific way affect the course of mental ontogenesis, but also lead to further modifications maturation of the cerebral cortex and, consequently, the subsequent development of higher mental functions.

Attention deficit hyperactivity disorder (ADHD) in 1987 is regarded as an independent nosological unit. The frequency of attention deficit disorder with hyperactivity (ADHD), but varies according to different authors from 5 to 20% of children in the general population (Badalian LO, Zavadenko NN, Assumption TY, 1993, Kuchma, VG, Platonova AG, 1997; Mickle, NV, 2001), and the boys this syndrome occurs 2-3 times more often than girls (Trzhesoglava 3. 1986; Bryazgunov IG, 1994). Abroad, the prevalence of ADHD is 2-20% (Hensen CR, Cohen DJ, 1984; Augusst GJ, Brasvvell L., Thuras P., 1998). The attitude of some doctors and psychologists to the problem of ADHD is controversial. Some researchers deny the existence of such a diagnosis. According to the American Psychiatric Association, attention deficit hyperactivity disorder affects about 5% of school-age children. (Dixit SP, Pandey MN, Dubey GP, 2002) [1, 4].

The presence of ADHD is a risk factor for school maladjustment, violation of child-parent relations, and proved that children with ADHD are predisposed to the emergence of addictive disorders (alcoholism, drug abuse, antisocial behavior, etc.) [1].

The **study aims** to refine the stages formation of syndrome (accordance with Luria's terminology).

2. Materials and methods.

The work was done on the basis of the branch clinic number 1 of Yakutsk. Examined 68 children aged 7 to 11 years with a diagnosis of ADHD (ICD-10), right-handers, the ratio of girls to boys about 1:1. All were surveyed as part of the rehabilitation of the complex course of neurobiofeedback by "stimulation of beta / theta suppression" protocol, developed by the Institute of MBB (Novosibirsk) on the software and hardware complex BOSLAB-012 [9], sports and wellness facilities (gym, massage, bath), vitamins.

The study used the following standard procedures:

- questioning the parents and class teachers in all subjects,
- EEG - research (diagram 10-20, 21 channel monopole montage) [7]

- Tests on the parameters of attention - a proof test (test Burden) and Schulte's tables [3]
- neuropsychological testing by the method of Luria (a modification for child's age) [2,6].

Neuropsychological test system "Battery of Luria" is a standardized version of the complex psychological techniques developed by the Russian neuropsychologist Alexander Luria, and subsequently reorganized, C. Golden and his colleagues in a standardized battery, designed for clinical neuro diagnostics. Luria, AR examined the behavior as a result of the interaction of all regions of the brain, and preferred to use simple test methods that reflect the relatively simple patterns of brain interactions that can more accurately examine the functional brain systems.

This system tests covered the major areas of neuropsychological functioning:

1. Motor function
2. Rhythm (acoustic-motor) functions
3. Tactile (higher tactile and kinesthetic) function
4. Visual (spatial) functions
5. Understanding speech
6. Expressive speech
7. Function letter
8. Reading skills
9. Arithmetic skills
10. Memory
11. Intellectual processes.

It was found that this test system can be an effective tool for the diagnosis and lateralization and localization of brain disorders. Luria test data are also extremely useful in planning the rehabilitation of patients with brain injuries [5,6].

It should be noted that the controversy over the inability to quantify the test battery Luria, as well as the appropriateness of discriminant analysis are to this day [2]. Because we also did not carry out accurate statistical calculations, and limited joint general description of the results.

3. Results and discussion.

Conducted starting sessions of neurobiofeedback allowed to allocate a special group of children which have a high theta / beta ratio (greater than 5) due to the dominance of the EEG slow

oscillations of theta range (4-7Hz) and deficiency of beta range (subrange beta-1 [18-20 Hz]). Otherwise, this parameter is quite variable, but we can say that the beta rhythm in the majority of subjects have low values of power level.

Test on the parameters of attention - the volume, concentration, stability, switchable (selectivity) - have shown a considerable amount of memory at very low indicators of stability of attention in all subjects. Boys showed higher results for switchable attention than girls (**). The curve of fatigue of attention and analysis of two-minute EEG epochs with eyes closed showed a weak correlation with the initial power level of the beta rhythm (*).

Analysis completed by researchers protocols of tests from the battery Luria, allowed us to divide examinees into two groups.

The first group of 68,3% were children, who clearly had signs of functional impairment of subcortical-stem structures of the brain symptoms of prefrontal units, weighed down by the perinatal history. The children in this group had a history of birth trauma (90.1%), 84.3% of mothers say the priority development.

In the second group were children with unstable or to a lesser extent, signs of dysfunction of subcortical-stem structures, there are signs of disorders of the prefrontal regions of the brain, is not burdened by the prenatal history, and easier to overcome the **game**-based forms of biofeedback.

Neuroscientists have identified the first group of children as a group whose primary violated subcortical and brainstem structures of the brain, and dysfunction of the cerebral cortex are secondary. A second group as a group whose primary dysfunction of the cerebral cortex, namely the prefrontal of the frontal lobes.

That is, surveyed **the first** group can be attributed to children with a primary violation of the I-th functional unit of the brain, subsequently led to the dysfunction of higher mental functions.

They are characterized by a very strong attention to exhaustion, lack of voluntary control of attention, volume, concentration, stability of attention also greatly reduced. After 5-6 sessions of biofeedback they have a complete denial of focus, even refusing to play forms of aggression. All parents in this group was especially burdened by pregnancy, severe birth, large fetus.

Also, these children were observed somatic or psychosomatic disorders. The EEG was attended predictors of violations of subcortical-stem structures (flash slow waves "stem-type", etc.), although in fairness it should be noted that this type of EEG may occur in healthy children.

Typical symptoms:

- Sleep Disorders: 100% of the parents of this group reported that the child is very difficult to fall asleep, the evening very tired, "his eyes closed, yet cannot concentrate and sleep",
- Emotional lability,
- Tics. Most often in the eyes and face,
- Muscular hypertonicity,
- Speech disorders
- Aggressiveness.

The following tests provoked most difficulty:

1. Dynamic movement, hardly, but performed by children in both groups equally. Marks the transition to synkineses, big pauses between movements. This is attributed to the delay in the development of the premotor area. Test was carried out "FIST-EDGE-PALM".
2. Test for kinesthetic praxis: when performing even the simplest of species as a sequential scan finger-type "OK" - "GOAT" - "PALM" shows a completely different order, and helped the other hand, laughed and turned your attention. However, children of the second group, though heavily concentrated sometimes missed a show and memorize the order. These violations relate to dysfunction of the parietal regions of the brain.
3. Violations of the tactile and visual-spatial gnosis in the 2 groups to exercise more frequently (98.1%) than in the first. Localization of touch of a finger could not identify 99.0% of children. Test of Luria's "noisy image" on the computer the children of the second group performed at 100%. In general, children receive 6-7 points. This symptom indicates inadequate development of the occipital and occipital-parietal regions.
4. Oral-aural memory. Laboratory tests for "Remembering the 2-groups of 3 words." The restriction of the volume, breaking the order, paraphrases, defects in the regulation and control in general were more common in the second group of subjects (48.7%). However, parental encouragement (like "last job") and the simplification of the semantic level of the material rather markedly improved performance. This is caused by a deficit of goal-setting and regulation, voluntary control, ie, the insufficiency of the prefrontal regions of the brain.
5. Speech. Laboratory tests for sensory, motor and speech function nominative. In the second group caused the most difficulty. For example, a paraphrase of the text, writing, repetition did not work out in 99% of children. Agrammatism, errors in articulation, dialogue, speaking generally absent in 78%. In children, the first group with repeated visits and addiction researcher reproduction of letters, words, phrases, succeeded in 50%, appeared dialogic speech. These functions are provided by the premotor, prefrontal divisions and "area TRO" of the left hemisphere.

All these data indicate disorder of subcortical-stem structures during the period of active maturation. With further ontogeny as a consequence there is dysfunction and II blocks, which characterizes the clinical picture of ADHD, then, with a deficit of activating influences of subcortical structures in the cerebral cortex, as a compensatory mechanism appears hyperactivity. As well as multiple symptoms of dysfunction of the prefrontal cortex of the brain. Later hyperactive behavior, antisocial disorders, impaired adaptation come to the fore. Manifested all the clinical signs of ADHD. But with detailed diagnosis of the presence of symptoms such as severe illness neurodynamics, burdened by pregnancy, low levels of power of beta-rhythm EEG analysis suggests that "the prefrontal symptoms" of higher mental functions (HMF) by primary dysfunction of subcortical-stem structures of the brain of the child.

In children, **the second** group, such characteristic features of dysfunction I-th block were absent or occurred less pronounced. However, these common symptoms of ADHD as a violation of attention (all 4 parameters, to a greater or lesser degree each), lack of voluntary control, motor disinhibition, restlessness, motor hyperactivity, inappropriate situations were recorded. Emotional and behavioral disorders and psychosocial dis-adaptation prevalent among children in this group. More noticeable are expressed in this group of *speech disorders*. You should also note the big "trainability" of the group, less exhaustion. In promoting or more

hard controlling their level of beta rhythm grew, and the child was quite capable of performing tests or cognitive tasks, which children first group was not observed.

4. Conclusion.

Proceeding from the above we can conclude: violation of subcortical-brainstem structures **is a primary mechanism** of clinical picture of ADHD for most children with this disease.

However, also possible to say: there are children (18-20%), and theirs "prefrontal symptoms" are primary. And development of ADHD **is not associated** with early damage of subcortical-stem structures..

Thus, for the diagnosis of ADHD is appropriate use of neuropsychological techniques that will allow children to **differentiate by the nature of the primary defect** for **optimal selection** of therapeutic and rehabilitative tactics.

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Development of data base`s structure for biobanks.

Buikin S.V., Bragina E.Y., Koneva L.A.

Institute of Medical genetics Siberian Branch of Russian Academy of Medical Sciences, Tomsk, 634050 fax:(3822)51-37-44; e-mail:*

stepan.buikin@medgenetics.ru

Summary: Collection, preprocessing and use of biological samples cause many organizational problems, which are successfully resolved with help of biobanks. Among the components of successful work of biobank is a practical, functional and reliable database for storage of information. In the paper, principals and problems of database development for biobanks are considered, taking example the biobank of the Institute of Medical genetics SB RAMS.

Keywords: biobank, database, multifactorial diseases, genes.

Introduction: The intensification of genetic studies of the basis of complex diseases has allowed to formulate basic propositions concerning study design, and also concerning qualitative and quantitative composition of the groups under investigation [8, 10, 12, 13]. Requirements to the size, uniformity and description of the samples become more strict [1, 7], and this leads to

substantial growth of time and fund expenses on registration, standardization and preservation of biological samples and the accompanying information. Biobanks can be optimal decision of the given problem because they consolidate large arrays of biological samples and the accompanying information [2]. One of the basic components of successful work of biobanks is the practic, functional and reliable databases (DB) for storage of the accompanying information. In the article, main principles and problems of database development for biocollection resources are considered, taking as an example the DB for the Biobank of the Institute of Medical Genetics of Russian Academy of Medical Science.

DB Designing is one of the most difficult and important tasks in the process of creation of an information system. As a result of the designing, the content of the DB, data structure and management tools should be established. Process of a DB designing includes the following stages: (1) conceptual or information-logical designing; (2) logic designing; (3) physical designing [4]. The information-logical model represents the description of structure and dynamics of a subject domain, information requirements of the system users given in terms which are clear to the user and independent of realization of the system. Thus, at this stage are determined: the basic objects of a subject domain (objects about which the information should be kept in a DB), attributes of objects, connections between objects, typical queries to the DB. Logic designing means the decision on and optimum representation of objects from subject domain in abstract objects of the data model given that this representation does not contradict semantics of the subject domain. Physical designing should ensure efficiency of performance of queries to the DB [5]. All stages should consider specific character of a DB under development.

Biobank of the Institute of Medical Genetics of Siberian Branch of Russian Academy of Medical Sciences is designed to store unique biological material with a detailed description of the genetic, demographic and clinical information. The Biobank contains several thousands of DNA samples and blood samples of individuals with various pathologies, including cardiovascular, immune, infectious, monogenic and other diseases as well as DNA of individuals from different populations of Eastern and Western Siberia and Central Asia [2]. Related information on the samples include: (1) description of medical history; (2) the results of physical and laboratory examination of individuals; (3) data on large number of genetic markers (the results of genotyping, sequencing, karyotyping, etc.); (4) ethical issues on use of the samples for various studies (individual informed consent, date and number of the conclusion of the Ethics Committee); (5) Lab working details (a method of DNA extraction, concentration, quality, sample volume, etc.). Thus, the accompanying information for the biological material includes

diverse data for different pathologies, and is stored in the form of Excel tables, text and graphic files.

Formalization of biomedical information that characterizes the biological samples is a complex task. There are strict requirements to the collecting and storing of the information which allow to minimize errors and inaccuracies because such information is crucial for assessing the association of the particular genotype (polymorphic variant of a gene) with the development of the disease [9].

The aim of developing a database for the Biobank RIMG is to ensure data integrity and efficiency of scientific research. The entire data set was structured according the goals and objectives of the Biobank RIMG. It should be noted that not only the current needs of researchers have been taken into account but also the possibility of using the biological material and information for biomedical studies in future. In addition, we take into account the ethics issues, and protecting of intellectual property associated with the storage and presentation of the results for the biological samples from the biobanks [11].

Database of the Biobank of Research Institute of Medical Genetics (RIMG), Siberian Branch of the Russian Academy of Medical Sciences is a relational database, i.e. it is organized in the form of related tables, where rows correspond to records, and columns of the tables are the attributes of relations. Wide spreading of the relational data model is primarily due to ease of presentation and the formation of the database, universality and usability of processing. [3, 5].

Database of the Biobank of RIMG consists of four main interrelated modules: 1) basic information; (2) biological samples; (3) the results of molecular genetic analysis; (4) user database (Figure 1). **Basic information** includes a description of personal data about the subject of research, health status, living and working conditions; the results of laboratory examinations; the relationship with other individuals in the database of the Biobank of RIMG and additional reference tables.

Samples of the biological material - contains information about the DNA samples, blood, cells, tissues, etc. The module includes information about the place and date of sampling of biological material, the method of DNA extraction, storage conditions and location of the sample. Also in this section the using of the samples is recorded.

The results of molecular genetic analysis represent reference table of names and descriptions of the investigated genes; a reference sequence in the SNP database (www.ncbi.nlm.nih.gov); variants of genotypes; type of polymorphism (SNP, VNTP, del, ins, etc.); photos of gels and the genome sequences in the text format. The results are presented as

summary tables, which combine following units: "individual", "biological sample", "variants of genotypes".

Users This module stores information about users of the database with an indication of the level of access, history of queries, transaction history (entering, editing, deleting data, etc.) and the list of allowed IP addresses.

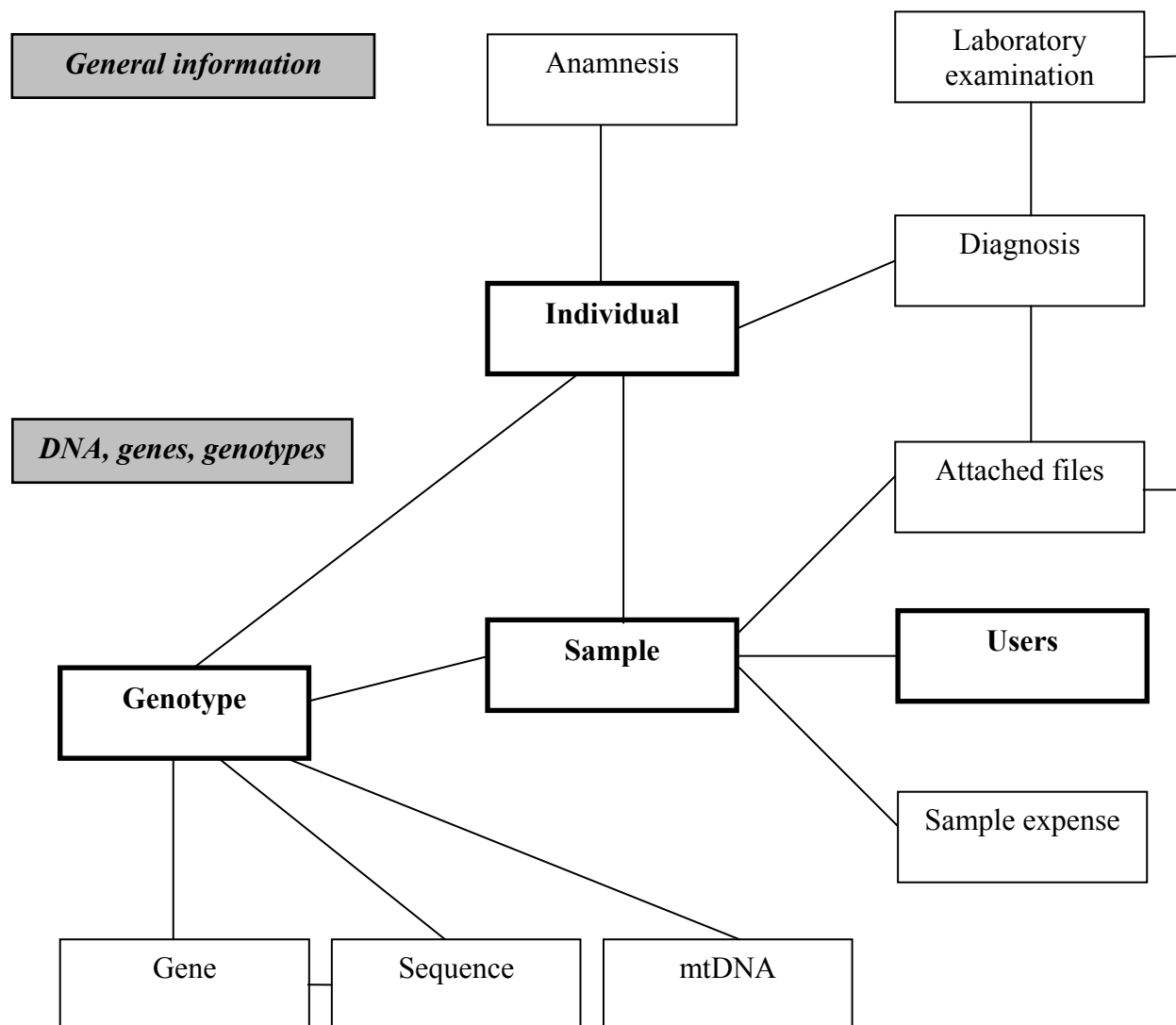
For the designing of the DB of Biobank of Institute of medical genetics of Russian Academy of Medical Science, requirements to the interface are developed which reflect specifics of the Biobank function. The interface of a DB is organized in the form of two basic levels - User and Administrator. The Administrator level is necessary for entering and editing the information in the DB by the users having corresponding access rights, and it contains the basic (entering of data into a DB) and auxiliary (editing of reference tables) interface. The administrator has rights to enter, edit and remove data in all mainframes, to set access rights to other users, and he has also an opportunity of creation of a backup copy of the DB. The User level is necessary for access to available data, formation of sample sets according the set parameters, display of results of import or export of data. It contains: The form of authorization, the form of query creation, the form of the results presentation, the form of last user queries, the form of data entering/editing, the form of viewing of user activity. To date, the designing stage for the DB of Biobank of Institute of medical genetics of Russian Academy of Medical Science is completed. For good data safety at a level of information system, it is planned to provide authorized access to the DB, restriction of access for users (only with specified IP addresses), protection against automatic selection of the password (with blocking of attacking IP addresses), access to personal data, restricted access to entering and editing of data (limited by several persons). Also storage of history of user authorization, user queries and editing history is stipulated. For the DB of Biobank of Institute of medical genetics of Russian Academy of Medical Science, operating in a local computer network is planned, with an opportunity of the protected access from external network.

Thus, in the Biobank of Institute of medical genetics of Russian Academy of Medical Science, the structure of a unique, functional, specialized electronic resource (DB) is developed which meets the requirements of experts working in various areas of medical genetics and corresponding requirements of the federal law on personal data safety [6]. This DB can be used in the medical and biological research centers, for maintenance of safety of biological collections and to increase of efficiency of scientific research.

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Pic.1 Structure of organization DB of Biobank of institute of medical genetics of Russian Academy of Medical Sciences

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Dynamics of the basic indexes of medical security of the population in areas of the native small in numbers people of the North residing

Uvarova T.E., Burtseva T.E.
YAKUT RESEACH CENTER CMP SB RAMS

The analysis of the basic indexes of health care system of the population in residence of the native small in numbers people of the North of Republic Sakha (Yakutia) for 1990, 1995, 1999-2003 is carried out. The basic tendencies such as decrease of number of medical institutions, feldsher's-obstetrical stations, bed complement and number of personnel resources are detected.

Keywords: medical institutions, hospital beds, medical out-patient-polyclinic institutions, feldsher's-obstetrical stations.

The basis problem of the health care system in Russia is a optimization and medical effectiveness. The development of the health care system includes decrease hospitals bad, centralization, and reorganization hospitals. In republic of Sakha Yakutia for 1990-2005 is decrease number of hospitals for 20%, hospitals bed – for 31%, ambulances – for 25%. For this periods is increase number of the doctors for 2,6%, nurses for 2,0% [3]. The subjects of this article is index of the health care systems and medical providing on region of small in number people of the north residence for 1990, 1995, 1999-2003 on the officials materials.

For 1990-2003 is decrease number of the hospitals on region of small in number people of the north residence from 51 to 48 (for 5,9%). The percentage of total of the republic hospitals is decrease from 16,8% on 1990 to 16,6% on 2003 г. (table. 1). The number of the hospitals beds decrease from 1009 on 1990 to 852 on 2003 (for 15,6%). But the providing of the hospitals beds is increase from 139 to 151 on 10000 population (for 8,6%) (table. 2). Therefore, this date is presents that the decrease hospitals and hospitals beds on region of small in number people of the north residence and in republic. Increase the providing of the hospitals beds on region of small in number people of the north residence is result of the migration processes on Far North.

The number of the polyclinics is increase on region of small in number people of the north residence from 48 on 1990 to 55 on 2003 г. (for 14,6%). But the percentage of the number of the polyclinics id decrease from 11,9% on 1990 to 9,1% on 2003 (table. 3). Number of the ambulance is decrease from 35 on 1990 to 28 on 2003 (на 20,0%) (table. 4). The detail analysis presented that the increase of the hospitals is results building 1 hospital in Aldansky, Oymyakonsky, Olekminsky, Oleneksky, Srednekolimsky, Tomponsky, Uatmaysky regions, and a 2 hospitals – in Bulunsky

region. And the decrease ambulance is detected in this region. Therefore, increase number of the polyclinics and decrease of the hospitals is results of the processes of centralization.

The big change is detected for medical staff. On region of small in number people of the north residence the number of the doctors is decrease from 190 on 1990 to 138 on 2003. The tendency is 27,4% (in republic of Sakha Yakutia – 0,6%). The percentage of the doctors is decrease from 4,0% to 3,0% (table. 5). From 1990-2003 the number of the nurses decrease on 13,6%. The tendency of the decrease number of nurses on region of small in number people of the north residence is higher than on republic. The index of the providing of doctors is decrease from 26 to 24 for 10000 population (for 7,7%). This index is low on region of small in number people of the north residence than in republic on 2003 (24 against 49 on 10000) (table. 5). The index of the providing of nurses is decreases on 10,2% but this incidence is low than in republic (table. 6).

Therefore, the providing of medical staff on region of small in number people of the north residence is bad and is characterized backward this regions. From 1990-2003 the number of the hospitals decreases for 5,9%, ambulances – for 20,0%, hospitals beds - for 15,6%. For this periods is detected decreases medical staffs: doctors - for 27,4%, nurses – for 13,6%. On region of small in number people of the north residence the index of providing of doctors low for 1,2 % than in republic. This data is describes big problems of the medical staff on northern regions. And this problem is intensify by extremely climate and socio-economic conditions.

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Table 1

The number of the hospitals in region living a small number people of the north

	1990	1995	2002	2003	Tendency, %
Republic of Sakha Yakutia	303	365	291	290	- 4,3
region living a small number people of the north	51	58	55	48	- 5,9
%	16,8	15,9	18,9	16,6	

Table 2

The number of the hospitals beds in region living a small number people of the north

	Total					For 10000 population				
	1990	1995	2002	2003	Tendency, %	1990	1995	2002	2003	Tendency, %
Republic of Sakha Yakutia	17471	16080	14349	14213	- 18,6	156	155	151,3	150	- 3,8
region living a small number people of the north	1009	1029	894	852	- 15,6	139	151	158	151	+ 8,6

Table 3

The number of the polyclinics in region living a small number people of the north

	1990	1995	1999	2000	2001	2002	2003	Tendency, %
Republic of Sakha Yakutia	402	665	707	630	612	597	602	+ 49,8
region living a small number people of the north	48	63	56	50	49	49	55	+ 14,6
%	11,9	9,5	7,9	7,9	8,0	8,2	9,1	

Table 4

The number of the ambulances in region living a small number people of the north

	1990	1995	2000	2002	2003	Tendency, %
Republic of Sakha Yakutia	306	250	255	234	236	- 22,9
region living a small number people of the north	35	28	29	27	28	- 20,0
%	11,4	11,2	11,4	11,5	11,9	

Table 5

The all of doctor's number in region living a small number people of the north

	1990	1995	1999	2000	2001	2002	2003	Tendency, %
Republic of Sakha Yakutia	4695	4555	4328	4412	4449	4579	4669	- 0,6
region living a small number people of the north	190	163	144	140	130	132	138	- 27,4
%	4,0	3,6	3,3	3,2	2,9	2,9	3,0	

(for 10000 population)

Republic of Sakha Yakutia	42	44	44	45	45	48	49	+ 16,7
region living a small number people of the north	26	24	23	22	21	23	24	- 7,7

Table 6

The nurses number in region living a small number people of the north

	1990	1995	1999	2000	2001	2002	2003	Tendency, %
Republic of Sakha Yakutia	13193	13460	12624	12688	12668	12887	13154	- 0,3
region living a small number people of the north	780	727	654	658	641	651	674	- 13,6

north								
%	5,9	5,4	5,2	5,1	5,1	5,0	5,1	
(for 10000 population)								
Republic of Sakha Yakutia	118	130	128	129	129	136	139	+ 17,8
region living a small number people of the north	108	106	103	105	105	115	119	+ 10,2

Autors:

12. Burtseva Tatiana Egorovna- PhD, research director of the Yakut research center KMP SB RAM,

13. Uvarova Tatyana Egorovna- PhD, scientific of the Yakut research center KMP SB RAM,

Address: bourtsevat@rambler.ru

A.I. Rumjantseva, L.F. Timofeev

The economic analysis of morbidity with temporary disability in the Republic Sakha (Yakutia) Arctic areas

In article the analysis of payments of the temporary disablement allowances made in the Arctic group of areas of republic for 2005-2009 is presented. Indicators среднегодового the size of the grant, days of payments are presented, to average duration of 1 case on time invalidity.

Keywords: disease with time disability, time disability, payments of temporary disablement allowances.

Introduction. Changes in conceptual basis of healthcare financing contributed to considerable shift of emphasis in the approaches to the general or social estimation of various arrangements held. In these conditions one of the main criteria is economical effectiveness and retrenchment as its constituent.

Economical efficiency issues in public health service are considered at many seminars of WHO (World Health Organization) which witnesses the fact that the problem has not been solved determinately yet. The importance of this problem from the medical, social and organizational point of view is determined by the constant growth of general sickness and mortality rates, invalidism of people (more often employable), difficulties of technical support of modern methods of diagnostics and treatment [4]. Nowadays this problem is becoming especially topical in connection with the current demographic situation which is going to result in the reduction of labour reserve [6]. In this connection it is very important to determine the economic damage conditioned by invalidity, disease with time disability (TD) and precocious mortality caused by one or another disease.

Considering the problem of sickness rate with TD, the expert evaluation of time disability (EETD) in the activity of public health service facilities takes an important place. Firstly, this work has important clinical, legal, social and economic meaning: it contributes to the preservation and recovery of employability of the employed after sickness and injuries, has a positive influence on the reduce of sickness rate with time disability and invalidism of people and therefore contributes to the preservation of labour force, raise of labour productivity, economical spending of national insurance funds. Secondly, the certificates given on EETD have much importance for the employed, as on the basis of these the issues of providing the disabled with pensions, allowances, various benefits and privileges provided by the social insurance and security legislation are decided [1]. It is clear that the high sickness rates of the employable people stipulate the high figures of sickness rate with time disability, initial invalidity and irretrievable loss of labour force respectively. In this respect, huge sums of state and municipal institutions (organizations), industrial enterprises of different forms of ownership, other employers' funds are spent. One of the essential components of the social policy of the market economies is compulsory social insurance the techniques of which allow accumulate effectively and distribute purposefully the financial resources providing financial support medical aid and social security to the employed and member of their families in the cases of corresponding risks. The function of management of the funds of compulsory social insurance in case of time disability under the legislation is put on the Fund of social insurance of the Russian Federation (the Fund). Thereby, the Fund is authorized to pay out the allowances, in particular, on time disability, and to control the Russian Federation law observation by the insurants while paying out the stated allowances, and also to control the validity of drawing the certificates of incapacity of work verifying the people's time disability in public health service facilities.

Work content. The Funds joint integrated information system (JIIS) allows monitoring and analyzing efficiently the data on paying the time disability allowances in the republic under such criteria as average-list number of the employed, the number of the days of payments of temporary disablement allowances, the number of cases of temporary disablement allowances payments, the general length of 1 case of time disability and the expenditures on payment on TD. In this paper the stated criteria are analyzed in the profile of the arctic group of regions where belong the following uluses (regions) of the republic: Abyiskiy, Allaikhovskiy, Anabarskiy, Bulunskiy, Verkhoyanskiy, Zhiganskiy, Momskiy, Nizhnekolymskiy, Olyenekskiy, Srednekolymskiy, Ust-Yanskiy, Eveno-Bytantaitskiy. Approximately 6% of the republic's employed population live in the arctic group of regions. Moreover, during the recent years the tendency of the reduction of the employed in the specified regions remains in a greater level than in the republic in general (chart 1).

The largest reduction in the number of the employed in 2009 to compare with 2005 is viewed in Anabarskiy (by 32,2%), Zhiganskiy (32,0%), Allaikhovskiy (25,6%), Olyenekskiy (22,9%) regions. The quotient of initial and general sickness rate during the stated period in the given group are increasing, and in 2009 the initial sickness rate approached the republic's quotients [2, 5] (chart 2).

Thereat, to compare with 2005, in 2009 the quotients of general and initial sickness rate increased in Zhiganskiy region by 51,3% and 34,7% respectively; in Bulunskiy region – by 40,2% and 48,8%; in Momskiy region – by 37,6% and 59,5 %; in Olyenekskiy region – by 27,7% and 17,5%. The analysis showed that the tendency of raise of the general quotients of sickness rate led to the rise of the days of payments on temporary disability (chart 3). Compared with 2005, the rise of the days of payments on temporary disability is viewed in Zhiganskiy (by 55,2%), Momskiy (45,8%), Olyenekskiy (43,2%), Bulunskiy (41,3%), Srednekolymskiy (41,2%) regions. Entirely reasonable and accountable is the fact that the data on general sickness rate and disease with time disability stated above lead to the high quotients of the TD allowances size overall in the arctic group of regions, which in 2009 are equitable to the data in RS(Y) (chart 4).

To compare with 2005, the largest average-day size of the allowance is observed in the following regions: Momskiy – rise by 80,7%; Zhiganskiy – by 65,6%; Allaikhovskiy – by 58,0%; Bulunskiy – by 56,0%; Verkhoyanskiy – by 50,5%. When compared with the average data in the republic, the percentage of change of the average-day size of the allowance in the arctic group becomes higher by 2009. According to the JIIS Fund data three regions having the lowest quotients of the number of the employed were selected, and structural analysis of payments of temporary disablement allowances in 2005-2009 was done (chart 5). This analysis

shows that in Zhiganskiy region as compared to 2005 the number of the employed decreased by 32,0%, while the number of cases of TD increased by 37,4%, the number of the days of payment on TD increased by 55,2%, the average-day allowance size increased by 65,6%. The same tendency is observed in Olyenekskiy and Allaikhovskiy regions.

Summary. 1. During the compared period there is a tendency of decrease in the number of the employed in the arctic group of regions by 17,6%, which exceeds the data in the republic in the same period by 2,5 times. 2. With the decrease in the number of the employed in the arctic group of regions the number of days of payment in 2009 compared with 2005 increased by 27,4 %. 3. The average-day allowance size in the arctic group of regions since 2005 increased by 44,9 %, which is higher than the republic's quotients during the same period by 1,2 times.

Conclusion. On the basis of the undertaken analysis it is possible to conclude that the quotients of disease with time disability remain high, in particular, in the arctic group of regions. These results require the improvement of the whole system of the expert evaluation of temporary disablement including the organization of work on EETD in public health service facilities, staff training at the universities, organization of work of the controlling unit of the Fund of social insurance and Federal service on supervision in the sphere of public health service and social development. Also it is possible to conclude that one of the reasons of the increase in the expenditure of compulsory social insurance on payments of temporary disablement allowances is unsatisfactory state of the expert evaluation of disablement in the number of regions of the arctic group, insufficient training of doctors concerning the expert evaluation of disablement, unsatisfactory control of their work by the heads of public health service facilities. In these conditions the research in the sphere of EETD acquires emphasis. Accumulated theoretical data and large practical experience in the sphere of organizational and methodical basis of expert evaluation of TD and medical and social expert evaluation indicate the necessity of changing the ideology, tasks and functions of the specified services.

Chart 1. **Average-list number of the employed (peop.), 2005-2009.**

		2005	2006	2007	2008	2009
1	Average-list number of the employed:					
	- in arctic group	31747	32174	28986	27226	26173
	- in RS(Y)	449595	446753	441691	428272	419508
2	The percentage of change by 2005:					
	- in arctic group	-	101,3	91,3	85,8	82,4
	- in RS(Y)	-	99,4	98,2	95,3	93,3

Chart 2. Quotients of general and initial sickness rate in arctic group of the regions of RS(Y) (for 1000 of population), 2005-2009.

		2005	2006	2007	2008	2009
1	General sickness rate (for 1000):	1543,5	1691,1	1650,8	1731,2	1838,6
	- in arctic group	1591,4	1722,8	1710,2	1759,2	1844,2
	- in RS(Y)					
2	Initial sickness rate (for 1000):					
	- in arctic group	851,7	930,4	893,2	961,0	977,9
	- in RS(Y)	885,4	956,8	940,5	987,0	1014,8

Chart 3. The analysis of the days of payments of temporary disablement allowances in arctic group of regions of RS(Y) (for 100 employed, in 2005-2009)

		2005	2006	2007	2008	2009
1	The number of the days of payments of temporary disablement allowances (for 100 employed):					
	- in arctic group	567,2	528,3	662,8	730,1	722,7
	- in RS(Y)	612,7	606,9	813,2	882,9	865,1
2	The percentage of change by 2005:	-	93,1	116,9	128,7	127,4
	- in arctic group	-	99,1	132,7	144,1	141,2
	- in RS(Y)					

Chart 4. The analysis of the size of payments of temporary disablement allowances in the arctic group of regions of RS(Y) in 2005-2009.

		2005	2006	2007	2008	2009
1	Expenditures on payments of temporary disablement allowances (thous. rub.):					
	- in arctic group	66168,7	74062,9	75525,1	86868,5	100700,4
	- in RS(Y)	1106933,9	1260290,6	1474832,8	1781367,0	1962794,2
2	Average day size of payments of temporary disablement allowances (rub.):					
	- in arctic group	367,5	435,7	393,1	437,0	532,3
	- in RS(Y)	401,8	464,8	410,6	471,1	540,8
3	The percentage of change in average day size of payments of temporary disablement allowances by 2005:					
	- in arctic group	-	118,6	107,0	118,9	144,9
	- in RS(Y)	-	115,7	102,2	117,2	134,6

Chart 5. Structural analysis of payments of temporary disablement allowances in Allaikhovskiy, Zhiganskiy and Olyenekskiy regions in 2005-2009.

№	Regions	The percentage of change by 2005					
		average-list number of the employed in 2009	cases of time disability in 2009 r. (for 100 employed)	days of payments of temporary disablement allowances in 2009 r. (for 100 employed)	average day size of temporary disablement allowances in 2009	general sickness rate in 2008 (for 1000 of population)	initial sickness rate in 2008 (for 1000 of population)
1	Allaikhovskiy	74,4	94,4	125,8	158,0	104,6	94,8
2	Zhiganskiy	68,0	137,4	155,2	165,6	147,2	127,8
3	Olyenekskiy	77,1	113,3	143,2	144,0	125,6	128,0

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Data on authors:

Rumjantseva Anna Ivanovna: The leading expert of Regional branch of Fund of social insurance of the Russian Federation on RS (Ya). 677000 Yakutsk, street October 15. Ph. 42-85-71. An E-mail: a.rumyantseva@yandex.ru.

Timofeev Leonid Fedorovich: Deputy director FSSI Health institute, the professor IPTD NEFU of M.K. Ammosov, d.m.s. 677010 Yakutsk, Sergeljahsky highway, 4, case S-2. Ph. 36-15-36. An E-mail: TLFnauka@mail.ru.

Grigorieva V. K., Varfolomeyeva G. D.

Protection of the rights of citizens and non-departmental control over quality of medical aid in OAO GSMK "Sakhamedstrakh" for 2007-2009

Ключевые слова: экспертиза, качество медицинской помощи, страхование граждан.
Keywords: examination, quality of medical aid, insurance of citizens.

A.N. Grigorieva, N.V. Savvina, G.I. Grigoriev

Effectiveness of supplementary prophylactic medical examination and recovery measures among municipal medical workers of Yakutsk city

Indicators of general, primary disease and temporary disability of medical workers of Yakutsk are noted to be higher as compared with those indicators of the whole population of the Republic Sakha (Y), Yakutsk city as well as of Russia, and even of medical workers of Russia as a whole. The clinical picture of medical workers of Yakutsk city strategically does not differ from the all-Russian one. The conducted supplementary prophylactic medical examination and recovery measures for municipal medical workers of Yakutsk have caused the reduction in indicators.

Keywords: medical workers, supplementary prophylactic medical examination, disease, recovery measures, temporary disability.

Introduction. Conditions and type of work of public health workers should be paid steadfast attention, taking into account the influence of various adverse factors of industrial

environment on their health (biological and chemical substances, ionizing and laser radiation, ultrasonic effect, compelled labour position, voltage of analyzers and others).

Medical workers work in conditions of high emotional stress that result in rapid nervous breakdown, development of a syndrome of "professional emaciation».

The salary of public health workers in the Russian Federation is much lower than of industrial workers' that does not correspond to educational level and high public importance of their activity. [1, 5]. Alongside, the most part of doctors and staff nurses consider that can make nothing for improvement of their health [2].

Such complex of adverse factors of industrial environment, inadequate performance of obligations on labour protection, lack of medical aid service lead to the growth of general and professional disease of public health workers (G.M.Vjalkova, 2002; O.N.Taenkova, 2002). Besides, till now for prophylactic medical examination of medical workers there is no uniform information database, there is no system approach and continuity in actions at all stages dispensary supervision, the amount of prophylactic activities is rather limited, and prophylactic medical examination has formal character, there is no control system of risk factors [3].

Scientifically well-founded approach is necessary for decision-making on preservation and strengthening of health of medical workers on the basis of the complex socially-hygienic analysis of the factors influencing the quality of life and state of health according to conditions of life's work in a residential area.

In treatment-and-prophylactic establishments of the City district "City of Yakutsk" there are 2480 medical employees, including 996 doctors (40,16 %) and the rest of them are average medical personnel 1484 (59,84 %). The amount of the served population exceeds 254 000 persons.

The ratio «doctor vs average medical personnel» is 1:1,49. This result is considered to be adverse. According to the authors, appropriate medical support of the population would be possible, in case if the given ratio is nearer to 1:2 (Hodakova O. V, 2005; Steshenko G. V, 2002). For comparison the given ratio in Russia is 1:2,7, in Moscow being 1:3,5.

Based on the literary data in Russia the frequency of general diseases at medical workers has been increased for the last ten years [2, 3, 6]. The first stage of implementing the supplementary prophylactic medical examination has allowed to reveal unfortunate trends in state of health of the medical workers, living and working in the Far North in Yakutsk city. By

2006 1722 (69,29%) persons from 2480 medical workers had been registered in "D" list. The overwhelming majority of medical employees due to the prophylactic medical examination have been referred to III group of health (60 %) and 55 % of medical workers had chronic diseases. The general disease has been noted in 2311 of 1000, exceeding that over the population of Yakutsk city (1778 per 1000) on 23,1 % ($p < 0,05$). Primary disease has amounted 898 of 1000 personnel and has exceeded this indicator among the population (719,1 on 1000) ($p < 0,05$). Pathological disease of medical employees has been in 2048 cases of 1000 surveyed as compared with the lower indices of budgetary workers of the Republics Sakha (Yakutia) amounting 1366 of 1000 and the population of Yakutsk (1900 of 1000). However, it is comparable to results of other authors as regards the prevalence of this indicator among medical workers of the Russian Federation. The rate of diseases with time disability of medical workers were approximately twice higher than the population of Yakutsk and exceeded those in 2005 over medical workers of the Russian Federation [4].

Aim: Estimation of efficiency of the conducted supplementary prophylactic medical examination and recovery measures of municipal medical workers of Yakutsk city within the Priority National Project "Health".

Materials and methods. The method of retrospective analysis of registration forms of the Public Health Management of the Municipal formation "Yakutsk city" (№17, №131, №16, №12, №4, etc.) was used including the data of Territorial fund of obligatory medical insurance (TFOMI) as well. 300 medical workers underwent the sociological survey based on the international standardized questionnaire SF - 36. Statistical data processing was carried out by means of the standard package SPSS (version 17,0) Intergroup distinctions were estimated by means of nonparametric criteria. Basic statutory acts at carrying out of prophylactic medical examination of medical workers were: 1. Appendix № 3 to the Order № 90 on preliminary and periodic medical inspections. 2. The Order MH and SR PΦ№188 on «supplementary medical surveys of budgetary workers of the population». 3. The Order MH SR of the Russian Federation № 83 on «Profound medical inspections of the workers occupying harmful and (or) dangerous production jobs».

Results: According to the data of the supplementary prophylactic medical examination conducted in treatment-and-prophylactic establishments in 2006-2009, the pathological illness of medical employees has occurred in 2048 cases of 1000 surveyed and there was a twice higher rate of budgetary workers of the Republics Sakha (Yakutia), it being comparable to results of other authors due to the prevalence of the given indicator among medical workers of the Russian Federation. Pathological diseases of doctors was at 1,2 times higher than at AMW.

Only 13,7 % of physicians have been diagnosed to be healthy and have been included in I group of health: 8 % healthy persons in group of doctors and 4 % in group of AMW. The overwhelming majority of medical employees due to the results of prophylactic medical examination have been referred to III group of health (60 %), they requiring out-patient pre-examination and treatment. Relative indices of doctors ($p < 0,05$) exceed significantly the similar results of AMW amounting 34 % and 26 %. About 55 % of municipal medical workers of Yakutsk city suffer from chronic diseases. 40 % of medical workers of Yakutsk have one chronic disease. The quantity of the doctors having one chronic disease is much higher in similar group of AMW. Two or three chronic diseases have 16,6 % of the surveyed. And the quantity of doctors is more than the number of AMW, having 2-3 diseases. Almost each 8th MW has four and more diseases (13,4 %). The amount of AMW exceeds the doctors in this group (8 vs 5,4 %).

After the prophylactic medical examinations were conducted, the medical workers were divided into groups of health and pathological diseases were detected, the second stage of the supplementary prophylactic medical examination called as "recovery stage" has been carried out. The recovery measures included all traditional arsenal of the out-patient and stationary treatment.

The recover measures having been conducted, the clinical picture has changed. The first place was given to vascular diseases amounting 18,7 %. Patients with arterial hypertension predominated in this group. The frequency rate of infectious diseases was on the second place being 10 % (there is no big dynamics as representatives of this group are with chronic hepatitis), thirdly, the illness of digestive organs of 8 % was noted. Fourthly, the illness of urethral system was detected 7,9 %. On the 5th place 7% of patients were diagnosed with endocrine systems. The ratio displacement in the structure of disease was naturally as a result of the shift of persons III, IV and V groups to I and in II groups. The defining indicators of diseases have decreased such as: 1. Primary disease decreased from 898,0 in 2005 to 801,0 in 2009. 2. The general disease decreased from 2311 in 2007 to 1943 in 2009. 3. Indicators of temporary disability of medical workers (TDMW) have decreased (Table 1).

Table 1

Sickness Rate with Temporary Disability of Medical Workers of Yakutsk

Year	Cases (absolute)	Days (absolute)	Cases on 100 working people.	Days on 100 working people
2005	3138	47944	92,2	1389
2006	2608	39090	75,8	1107
2007	2815	43144	79,7	1222
2008	2647	41475	77,1	1209
2009	2365	39133	72,5	1200
M±m	2714,6±127,96	42157,2±1635,23	79,4±3,39	1225,4±45,67

As a result of improvement the absolute values of cases TDMW have decreased from 3138 to 2365 ($p < 0,05$). In absolute values of days there was decrease from 47944 to 39133 ($p < 0,05$). In cases on 100 working people from 92,2 to 72,5. ($p < 0,05$). In days on 100 working ones there was decrease from 1389 to 1200 ($p < 0,05$).

4. Dynamics of medical workers' state in health groups (Table 2) was positive.

Table 2

The positive dynamics in health groups before and after the recovery by late 2009 and an increase in amount of people discharged from «D».

	Supplementary Medical Prophylactic Examination		Extended Medical Examination		Groups 3,4,5 after recovery in 2009	
	%	Abs	%	Abs	%	abs
Group 1	13,2	328	25	279	18,0	446
Group 2	17,3	430	26	290	24,6	610
Group 3	61,4	1523	49	548	55,4	1373
Group 4	7,7	192	0	0	2,1	51
Group 5	0,28	7	0	0	0	0
Sum	100	2480	100	1119	100	2480
“D” registered	69,29	1722	-	-	57,5	1424

6. The number of relapses has decreased from 1,8 % to 1,2 %, while relative density of the medical workers who did not have disabilities has increased from 81 % up to 86 %.

Table 3.

The comparative table of economic prejudice for all diagnosed municipal medical workers of Yakutsk in a year (in roubles).

	2005	2006	2007	2008	2009
No stationary treatment conducted	80 932 158	67 262 928	72 601 665	68 268 777	60 995 715
Stationary treatment conducted	137 353 398	114 154 768	123 215 365	115 861 837	103 518 415

According to L.F.Timofeeva [8] in 2010 the economic prejudice from TD (**P TD**) per 1 patient (on 1 case) with stationary treatment in RS(Y) accounted for 43771 roubles. While the economic prejudice without stationary treatment was 25791 roubles. The economic prejudice was accounted by the author by means of the formula such as:

P TD=D+K+A+C, where P TD is the economic prejudice per 1 patient in average; D is the cost of non-performed production; K is the payments for sick-list per 1 person; A is the average price of out-patient treatment; C is the average price of hospitalisation.

According to the data obtained it was found out that recovery measures which were applied to medical workers, have led to positive economic benefit. Comparing the data of the economic prejudice for 2005 and 2010 in the case of stationary treatment the economy has been in **33 834 983** roubles reversing the index of out-patient treatment, where the economy has made **19 936 443** roubles (Table 3).

Conclusions. 1. The indicators of the general disease, primary disease, disease with temporary disability at the medical workers of Yakutsk city actually exceed the same ones of the population of Yakutsk city.

2. The conducted supplementary prophylactic medical examination and recovery measures among municipal medical workers of Yakutsk city have led to the positive result and regular economic benefit.

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Grigorieva Ajtaly Nikolaevna - the Deputy Head Doctor of Clinical and Expert Work ME YCH №4 aita-23@rambler.ru

Savvina Nadezhda Valerevna – D.M.S., the Prof., the Head of Department of Institute of Post-Diploma Education HPE NEFU,

Grigoriev Gennady Ivanovich - the Physician of Clinical Centre RH №1 NCM

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A.I. Obutova, N.G. Pavlov, A.F. Kravchenko

**ASSESSMENT OF THE EFFICACY OF STANDARD DISINFECTION REGIMES USED
IN TUBERCULOSIS CLINIC**

State Institution «Research-Practical Center «Phthisiatry»,
Health Ministry of the Sakha Republic (Yakutia)

We assessed the efficacy of several disinfectants accepted for use in tuberculosis institutions, by activity against *M.tuberculosis* cultures. Disinfectant test procedure is based on procedures adopted from a well-known method commonly used in disinfectant testing practice, which consists in submerging coarse calico test-objects contaminated with the test-microbes into a disinfectant. Analysis of the study results showed that both museum and clinical test-strains of *M.bovis* and *M.tuberculosis* are more pertinent to real tuberculosis causative microorganisms in terms of resistance to disinfectants. The study findings support the feasibility of using a number of various test-strains in the development of national tuberculocidal disinfectant regimens instead of “*Mycobacterium B-5*” alone. The study results testify that, it is necessary to use *M.tuberculosis* isolated from the patients of the institution, to conduct disinfectant testing in TB institutions.

Keywords: tuberculosis, *Mycobacterium tuberculosis*, test-strains, disinfectants, disinfectant neutralizers.

In the adverse epidemiological situation with tuberculosis and mycobacterioses existing at the present time, the role of anti-epidemic strategies of a nonspecific character, practiced in medical-prophylactic institutions (MPI), becomes increasingly important, and decontamination of objects using various disinfectants is the crucial component of these strategies [6,7,5]. It is commonly known, that even provided the guidelines on disinfectant use are adhered to properly, effective disinfection will be achieved only if a test-microbe with resistance comparable to virulent hospital strains, has been used during the tryout of disinfection regimes [3,4].

In Russian Federation, “*Mycobacterium B-5*” strain is used as the test-microbe for determination of tuberculocidal activity of new disinfectants. Still, a possibility is never excluded that disinfection might prove to be inefficient, leading to the spread of tuberculosis and mycobacterioses causative organisms, especially in the in-patient tuberculosis clinics – the

places, accumulating infected persons with the most active disease form who expectorate bacteria [8]. The most reasonable way out of this situation is to test the disinfectants in bacteriologic laboratory department of tuberculosis (TB) clinic, for tuberculocidal activity against mycobacterial cultures, isolated from the patients of the clinic.

The aim of the study was to determine the efficacy of recommended disinfectant use regimes against *M.tuberculosis* cultures isolated from the patients.

Materials and methods. This work deals with the chemical way of disinfection, i.e. disinfection using various chemical substances that destroy the causative organisms of infectious diseases. These substances include chlorine compounds (haloids), phenols, aldehydes, surfactants, gaseous disinfectants, etc.

We tried the disinfectant test procedure, intended for examining tuberculocidal properties of disinfectants accepted for use in TB institutions, and was designed by the Federal State Institution “Ural Research Institute of Phthisiopulmonology” of the Federal Agency for High-Tech Medical Care of the Russian Federation (Improved medical procedure: “*The method of assessing the efficacy of disinfectants accepted for use in tuberculosis institutions*”, 2008).

The test procedure studied is to be incorporated then to accepted MPI practice, and is based on procedures adopted from a well-known method commonly used in disinfectant testing practice, which consists in submerging coarse calico test-objects contaminated with the test-microbes into a disinfectant.

The new features introduced to accepted national disinfectant test practice are: an experimentally approved use of mycobacterial isolates from patients as the test-microbes; adoption of ready-made Dey-Engley medium as a universal disinfectant neutralizer; and use of Lowenstein-Jensen medium in tubes instead of Petri dish.

Using this test procedure, we assessed tuberculocidal and mycobactericidal efficacy of various disinfectants accepted for use in TB institutions: 1. “Chloramine B”; 2. “Sulphochlorantine D”; 3. “Chlormisept-R”; 4. “Slavin”; 5. “Mirodez-univer”; 6. “Ecobriz”; 7. “Brilliant”; 8. “Aqua-chlor”; 9. “Alphadez”.

The following test-strains were used to assess disinfectant efficacy: 1. Museum strain “*Mycobacterium B-5*”; 2. Museum strain *M.bovis* (strain 14, All-Russian Research Institute on Brucellosis and Tuberculosis in Animals); 3. Clinical strain *M.tuberculosis* № 255, resistant to

streptomycin at 10 mcg/mL MIC, to isoniazid at 1 mcg/mL MIC, to rifampicin at 40 mcg/mL, and to capreomycin at 30 mcg/mL; 4. Drug-susceptible clinical strain of *M. tuberculosis* № 258.

Results and discussion. Tuberculocidal efficacy of disinfectant use was assessed by the following reactions:

A. Presence of colony growth of the test-microbe both on test-object and on medium indicates that the disinfectant under test does not provide reliable tuberculocidal (mycobactericidal) effect in the given concentration and exposure time.

B. Absence of colony growth of the test-microbe neither on test-object, nor on medium indicates that the disinfectant's tuberculocidal and mycobactericidal properties are efficient enough to meet the requirements to disinfectants (ensure reduction of the seeding count of an object by 10^5 CFU·sm⁻²), that allow them to be used in practice.

More than 500 control samples were collected and tested, to assess the efficacy of 9 disinfectants, belonging to the following groups of chemical compounds:

I. Chlorine compounds: 1. "Chloramine B" (in the concentration 0.5 %); 2. "Sulphochlorantine D" (1.0 %); 3. "Chlormisept-R" (0.2 %); 4. "Slavin" – (1.2 %); 5. "Brilliant" – (2.0 %); 6. "Aqua-chlor" (0.1 %).

II. Q.A.C. (quaternary ammonium compounds): 1. "Mirodez-univer" (1.0 %); 2. "Ecobriz" (2.0 %); 3. "Alphadez" (1.0 %).

Monitoring of viable bacterial cell numbers on the contaminated test-object was carried out at relevant phases of test procedure. Monitoring results are presented in *Table 1*.

Concentration of live mycobacteria on the test-object was calculated by the formula:

$$X = A \times 1000, \text{ where}$$

X – concentration of live mycobacteria on the test-object;

A – mean number of colony-forming units (CFU) across 5 tubes;

1000 – coefficient, resulting from the relation of 100 mL (total water volume inside a flask) to 0.1 mL (the suspension volume utilized for inoculation).

For example: Let "*Mycobacterium B-5*" strain show the following growth counts: 1st sample – 122 CFUs, 2nd sample – 102 CFUs, 3rd sample – 120 CFUs, 4th sample – 92 CFUs, 5th sample – 105 CFUs, then:

mean number of CFUs across 5 tubes would equal:

$$A = (122+102+120+92+105) : 5 = 108$$

$X = 108 \times 1000 = 1080000$, which corresponds to 1 mln. microbial bodies being present on the test-object.

From the *Table 1*, it is apparent that, according to calculations by formula, the number of viable bacterial cells on contaminated test-objects corresponds to 10^6 microbial bodies per 1 mL.

Then, in order to monitor neutralizer efficacy and neutralization rate, a suspension method was utilized, which involves carrying-out of an experiment described in *Table 2*, showing main operations and their purpose.

The results of disinfectant efficacy assessment are presented in *Table 3*. All disinfectants tested, although they are widely accepted in health care practice, showed a bactericidal effect on “*Mycobacterium B-5*” alone, in 78% of cases. This supports the findings made by other authors before, who pointed at low resistance of “*Mycobacterium B-5*” strain to disinfectants, compared to museum and clinical strains [1].

Most Q.A.C.-based disinfectant solutions, even in the regimes recommended for accepted practice, failed to demonstrate 100% tuberculocidal or mycobacteriocidal effect on the following museum and clinical test-strains: “*Mycobacterium B-5*”, *M.bovis*, multidrug-resistant *M.tuberculosis* No. 255, drug-susceptible *M.tuberculosis* No. 258.

Efficacy of chlorine disinfectants in recommended regimes was: 100% (i.e. no viable microbes present on test-object) – against “*Mycobacterium B-5*” test-strain, 50% – against *M.bovis*, 33% – against clinical multidrug-resistant *M.tuberculosis* No. 255 strain, and 67% – against clinical drug-susceptible *M.tuberculosis* No. 258 strain. Thus, on average, only 60.0% of the chlorine solutions tested had a destructive effect on causative organisms or tuberculosis.

Analysis of the study results showed that both museum and clinical test-strains of *M.bovis* and *M.tuberculosis* are more pertinent to real tuberculosis causative microorganisms in terms of resistance to disinfectants. The study findings support the feasibility of using a number of various test-strains instead of “*Mycobacterium B-5*” alone, in the development of national tuberculocidal disinfectant procedures.

The study results testify that, it is necessary to use *M.tuberculosis* isolated from the patients of the institution, to conduct disinfectant testing in TB institutions.

Conclusions:

1. All disinfectants accepted for use against tuberculosis infection belong to toxicity class 3 or 4, and should be applied in high concentrations and with longer exposure time.

2. On average, only 60.0% of the chlorine disinfectants solutions had a destructive effect on causative organisms of tuberculosis, isolated from patients.

3. Disinfectants must be adopted for use in TB institution strictly after susceptibility testing against mycobacteria, prevailing inside that institution.

Table 1

Monitoring of bacterial cell count on contaminated test-objects

No.	Museum and clinical test-strains of mycobacteria tuberculosis	Growth rates of mycobacteria contaminating test-objects, on solid nutrient medium (CFU*)				
		Sample No. 1	Sample No. 2	Sample No. 3	Sample No. 4	Sample No. 5
1.	" <i>Mycobacterium B-5</i> "	122	102	120	92	105
2.	<i>M. bovis</i> (strain 14, All-Russian Research Institute on Brucellosis and Tuberculosis in Animals)	87	120	95	102	98
3.	<i>M. tuberculosis</i> No. 255, multidrug-resistant	95	98	103	108	96
4.	<i>M. tuberculosis</i> No. 258, drug-susceptible	75	93	132	103	102

* CFU – colony-forming units

Table 2

Assignment of operations during experiment, checking the efficacy of neutralization of the residual disinfectant activity

Sample No.	Operation purpose	Operation procedure	Expected result
1.	Monitoring of the destructive activity of disinfectant	9 mL of test-strain (10^3 CFU/mL) suspension in distilled water + 1 mL of disinfectant solution	Microbial growth must be absent

2.	Monitoring of the efficacy of disinfectant neutralization	9 mL of test-strain (10^3 CFU/mL) suspension in neutralizer + 1 mL of disinfectant solution	Approximately similar colony counts in culture samples (0.1 mL each), on solid nutrient medium
3.	Monitoring of the absence of antimicrobial activity of neutralizer	9 mL of test-strain (10^3 CFU/mL) suspension in neutralizer + 1 mL of neutralizer	
4.	Reference-control of mycobacteria count	9 mL of test-strain (10^3 CFU/mL) suspension in distilled water + 1 mL of distilled water	
NOTE: 5 min after setting-up of the experiment, 0.1 mL of mixture from each 4 samples are harvested to at least 3 sloped tubes, containing nutrient medium, which are then incubated at 37°C. Reading of the results was done 5-7 days later.			

Table 3

Assessment of disinfectant efficacy against mycobacterial test-strains

No.	Disinfectants	Efficacy of disinfectants in recommended regimes of application*			
		Museum strains		Clinical strains	
		<i>B-5</i>	<i>M. bovis</i>	<i>M. tuberculosis</i> No. 258, drug-susceptible	<i>M. tuberculosis</i> No. 255, MDR
1.	“Slavin”**	No growth	Growth	Growth	Growth
2.	“Sulphochlorantine D”****	No growth	Growth	No growth	No growth
3.	“Chlormisept-R”****	No growth	Growth	Growth	Growth
4.	“Ecobriz”****	No growth	No growth	Growth	Growth
5.	“Alphadez”****	Growth	Growth	Growth	Growth
6.	“Chloramine B”*****	No growth	No growth	No growth	Growth
7.	“Mirodez-univer”***	Growth	No growth	No growth	Growth
8.	“Brilliant”**	No growth	No growth	No growth	Growth
9.	“Aqua-chlor”***	No growth	No growth	No growth	No growth

Notes: * – in the disinfectant instructions for use, the regime is recommended for disinfection of linen, dishes, medical products, janitorial supplies etc.; ** - exposure 15 min; *** - exposure 30 min; **** - exposure 60 min; ***** - 120 min.

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Obutova Alexandra Innokentievna – Deputy Chief Doctor on Nursing Care Management, State Institution “Research-Practical Center “Phthisiatry”, Health Ministry of the Sakha Republic (Yakutia), Holder of the Title of Honor in Healthcare of Sakha Republic (Yakutia) and Russian Federation.

Phone: 39-03-30 (office);

Pavlov Nikolay Gerasimovich – Candidate of Veterinary Science, senior researcher, State Institution “Research-Practical Center “Phthisiatry”, Health Ministry of the Sakha Republic (Yakutia)

Phone: 44-83-83 (office); 43-19-31 (home).

E-mail: png_74@mail.ru

Kravchenko Alexander Fedorovich – Doctor of Medical Science, Professor, Chief Doctor, State Institution “Research-Practical Center “Phthisiatry”, Health Ministry of the Sakha Republic (Yakutia), Holder of the Title of Honor in Healthcare of Russian Federation.

Phone: 47-51-59 (office);

Ivanova O. N., Ivanova R. N., Argunova E.F.

The analysis of acute pneumonia morbidity in Republic Sakha (Yakutia) children

Morbidity statistic indexes and prophylactic medical examination of children with acute pneumonia in the Republic Sakha (Yakutia) was analyzed. In the group of children with acute pneumonia concomitant pathology, disease current features and treatment efficacy was studied.

Keywords: acute pneumonia, morbidity, children population, treatment efficacy.

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**MORBIDITY OF POPULATION OF REPUBLIC OF SAKHA (YAKUTIA)
BY PRIMARY CANCER OF LIVER**

**T.T. Bugaeva, P.M. Ivanov, M.N. Alekseeva,
P.D. Karataev, V.D. Smetanina**

**Yakut scientific center of complex medical problems SB RAMS
Medical institute of M.K. Ammosov North-eastern federal university, Yakut republican
oncologic dispensary
Yakutsk**

The analysis of the primary cancer of liver morbidity (1658 cases) for 1996-2007 in Republic Sakha is conducted. A retrospective analysis allowed to mark more than 4th multiple exceeding of indexes of morbidity of primary cancer of liver of yakutian population by comparison to indexes on Russia. The exposed distinctive information on prevalence of morbidity in the different medical geographic areas of republic can be used for development of measures of prophylaxis of this pathology.

Keywords: primary liver cancer, prevalence, structure, dynamics, prognosis.

Introduction. Actuality of problem of primary liver cancer (PCL) in the conditions of Yakutia is conditioned by high-frequency of distribution of morbidity, unsatisfactory organization of prophylactic work, difficulties of active exposure of disease on the early stage. In Yakutia the study of different aspects of problem of this pathology was conducted it is not enough. Meantime the detailed study of features of distribution of primary cancer of liver with the estimation of possible etiologic factors and reasons of unsatisfactory organizational measures would allow to perfect methods of primary prophylaxis and diagnostics of PCL in Republic

Sakha [1, 3, 4, 5]. On the regions of Russia prevalence of malignant new formations of liver and intrahepatic biliary channels is very heterogeneous [2, 6, 7, 8]. Index of morbidity at both population of Republic Sakha (Yakutia) it remains the primary cancer of liver (PCL) the greatest not only on territory of the Far-Eastern Federal district (FEFD) but also in Russia on the whole, that is presented in a table 1.

Table 1

Morbidity of PRP on territory of Far-Eastern Federal district (FEFD) in 1996, 2005
(world standard, on 100 000 population)*

Republic, area, edge	Men		Women	
	1996	2005	1996	2005
Republic of Sakha	26,41	22,10	13,30	10,20
Seashore edge	6,08	5,27	3,25	2,31
Khabarovsk edge	5,76	6,21	2,85	2,18
Evreyskaya autonomous region	-	4,44	3,38	1,37
Amur	3,54	5,92	2,10	1,55
Kamchatka	5,21	8,70	3,96	1,23
Magadanskaya region	13,52	8,24	6,99	2,05
Chukotskiy autonomous region	-	5,17	1,23	-
Sakhalinskaya region	10,38	14,46	2,92	3,84
Russia	5,88	4,38	2,63	1,98

*А.Е. Чиссов with coauthor. (1997, 2007)

Research purpose. To study prevalence of morbidity the primary cancer of liver for period from 1996 to 2007 in Republic Sakha.

Materials and research methods. Long-term morbidity of yakutian population PCL is studied for 1996-2007 Over the years 1 658 cases of morbidity of PRP were incorporated in a republic. From them men – 944 (56,9%) persons, women – 714 (43,1%), at correlation of men and women – 1,3:1,0. Treatment of material and calculations was carried out on the personal computer of IBM RS with the use of the application programs of MS Office. At the decision of statistical tasks the level of meaningfulness of $p < 0,05$ was accepted.

Results and discussion. At comparison of indexes of morbidity by the cancer of liver of population of Republic Sakha (Yakutia) and Russia for period with 1996 for 2007, exposed their exceeding in 4-5 times on Yakutia by comparison to the proper indexes on territory of Russian Federation (fig.1).

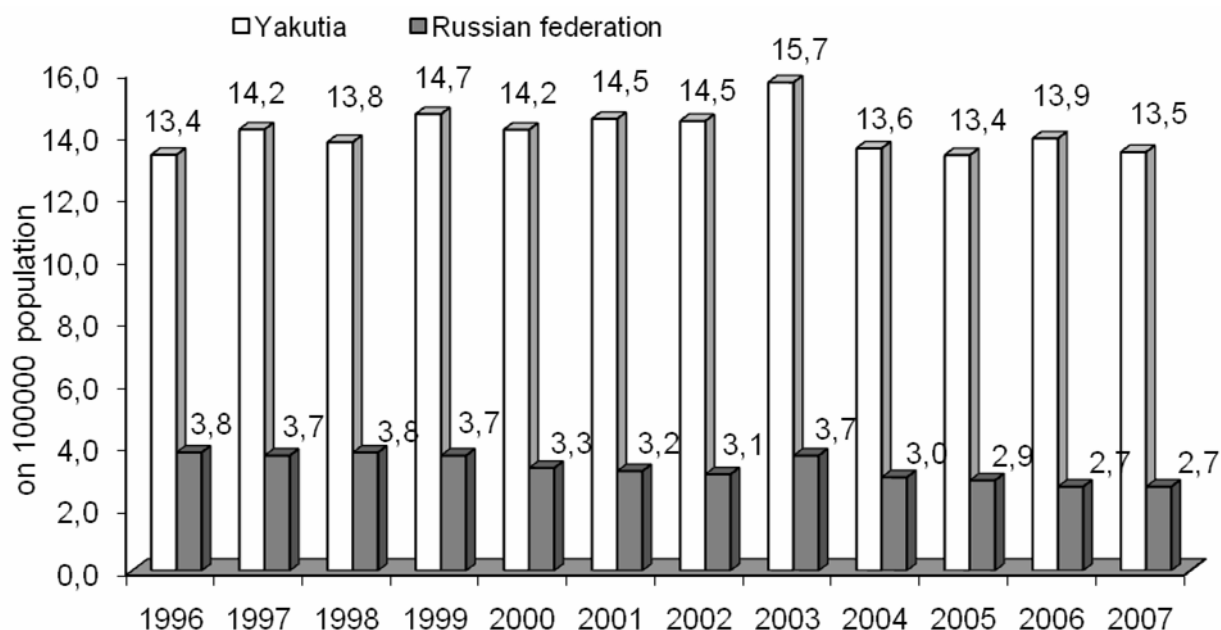


Fig. 1. Indexes of morbidity by the primary cancer of liver of population of Yakutia by comparison to Russian Federation in a period with 1996 2007 to (on 100 thousands of population).

In the dynamics of morbidity in Republic Sakha the greatest index $15,7^{0}_{0000}$ registered in 2003, with stabilizing of indexes in subsequent years, both in Yakutia and on territory of Russian Federation.

In 2007 in the structure of malignant new formations at a masculine population the cancer of liver occupied the third place ($7,4 \pm 0,9\%$). The first two places reserved the cancer of lung ($21,7 \pm 1,4\%$) and stomach ($12,4 \pm 1,1\%$). At a womanish population the cancer of liver went out into sixth place ($5,3 \pm 0,7\%$), the first two places unchanging occupied the cancer of suckling gland ($18,0 \pm 1,7\%$) and lung ($10,6 \pm 0,3\%$).

For probed period with 1996 for 2007 the primary cancer of liver met practically in all of age-dependent groups, regardless of floor. The analysis of age-dependent structure of morbidity of PCL retuned that most often this disease met at persons in age 70 years and more senior (fig.2).

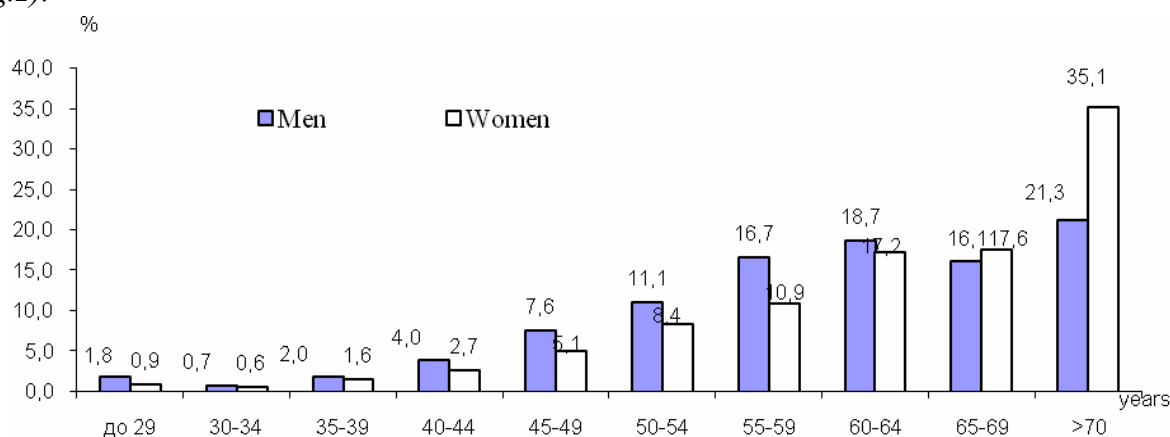


Fig.2. Specific gravity of PCL is in the different age-dependent groups of yakutian population for 1996-2007

Thus specific gravity of disease for women in 1,5 time was higher, than for men (35,1% and 21,3% accordingly). Such tendency is explained predominance of womanish population in this age-dependent group. High was specific gravity of PCL among men and women in age 60-64 (18,7 and 17,2% accordingly) and in 65-69 years (16,1 and 17,6%). However, and among a

young able to work population (to 39 years) the cases of disease the cancer of liver were diagnosed (4,0%).

For the exposure of features of distribution of this pathology on territory of Yakutia the analysis of morbidity of PCL was conducted depending on the socio-economic terms of life and ethnic composition of population, resident in medical geographic areas. The dynamics of morbidity is presented in a table 2.

Table 2

Dynamics of morbidity by the primary cancer of liver depending on the place of residence and ethnic belonging of yakutian population for 1996-2007

Year	Morbidity on 100 000 population			
	Urban population	Rural population	Unnative population	Native population
1996	12,9±1,4	27,4±2,8*	12,1±1,4	26,7±2,5**
1997	14,5±1,5	24,1±2,6*	10,1±1,3	28,9±2,6**
1998	13,5±1,4	20,3±2,4*	12,0±1,5	23,0±2,3**
1999	12,5±1,4	26,0±2,7*	7,5±1,1	30,7±2,6**
2000	12,6±1,4	21,7±2,5*	9,2±1,3	25,3±2,4**
2001	12,7±1,4	23,3±2,6*	7,9±1,2	27,0±2,4**
2002	11,6±1,4	22,9±2,5*	6,0±1,1	29,2±2,5**
2003	15,5±1,6	23,8±2,7*	9,3±1,4	28,4±2,5**
2004	11,9±1,4	22,6±2,7*	7,3±1,3	25,3±2,3**
2005	13,8±1,5	17,6±2,2*	8,3±1,4	23,6±2,3**
2006	12,5±1,4	22,1±2,6*	9,6±1,4	23,5±2,2**
2007	12,9±1,4	18,9±2,4*	8,4±1,4	22,2±2,1**
Prognosis on 2012	12,7	17,4	6,3	22,1

* difference statistically meaningfully as compared to the urban population of $p < 0,05$; ** difference statistically meaningfully as compared to unnative $p < 0,05$;

As be obvious from a table, during all of period of supervision (1996-2007) indexes of morbidity by the cancer of liver for villagers were higher in relation to the level of morbidity of townsmen. Correlation of indexes of PCL in 1996 among townspeople and countrymen was 1,0:2,0 (12,9±1,4 and 27,4±2,8⁰/₀₀₀₀, accordingly), and in 2007 1,0:1,5 made (12,9±1,4 and 18,9±2,4⁰/₀₀₀₀, accordingly).

Probably, the decline of indexes is conditioned migration of rural population in a city. On the average for this period morbidity at a native population met the cancer of liver in 2,0 time more

frequent, than at unnative. In obedience to an analysis to 2012 relatively the high rate of decline of morbidity will be marked at persons, resident in rural locality (-36,5%) and mainly for the representatives of unnative nationality (-47,9%).

In obedience to findings, for period with 1996 for 2005 morbidity of PCL on separate 35 administrative territories (to the districts) varies in enough wide limits. Research results for evidentness were drawn a map (fig. 3). On the level of the standartized indexes of morbidity selected 4 groups of districts:

*1) **with the low level** of morbidity of PCL (to $10,0^0/0000$) – Aldanskiy, Lenskiy, Mirninskiy, Neryungrinskiy, Nizhnekolymskiy, Oymyakonskiy, Srednekolymskiy, Tomponskiy, Evenobyntantayskiy;*

*2) **with the low level** of morbidity ($10,1 - 18,1^0/0000$) – Amginskiy, Verkhnekolymskiy, Mountain, Nyurbinskiy, Khangalasskiy, Olekminskiy, Ust'-Mayskiy, Ust'-Yanskiy, Yakutsk;*

*3) **with the middle level of morbidity** ($18,2 - 27,8^0/0000$) – Abyyskiy, Anabarskiy, Vilyuyskiy, Zhiganskiy, Kobyayskiy, Megino-Kangalasskiy, Momskiy, Namskiy, Olenekskiy, Suntarskiy, Tattinskiy;*

*4) **with high morbidity** ($27,9 - 42,1^0/0000$) – Allaikhovskiyy, Bulunskiy, Verkhnevilyuyskiy, Verkhoyanskiy, Ust'-Aldanskiy, Churapchinskiy.*

Results of comparative analysis of morbidity of PCL on selected medical geographic areas of republic showed (tab.3) that the high indexes of morbidity in population had been registered in the area of central Yakutia, which exceeded a mean republican value substantially (in 1,7 times) ($24,9 \pm 1,6$ against $14,9 \pm 1,3^0/0000$, at $p < 0,05$). Statistically meaningful high morbidity was observed the cancer of liver in the areas of polar ($20,9 \pm 1,5$) and western ($19,2 \pm 1,4^0/0000$) Yakutia. The low indexes of morbidity are incorporated the cancer of liver in an east ($14,4 \pm 1,2$) area and for the habitants of large cities ($10,1 \pm 1,0$), South Yakutia ($9,9 \pm 1,0^0/0000$, $p < 0,05$).

Table 3

Indexes of morbidity by the primary cancer of liver
Yakutian population for 1996-2005

Medical geographic areas	On 100 000 population (M±m%)
Zapolyarnaya	20,9±1,5*
East	14,4±1,2
Western	19,2±1,4*
Central	24,9±1,6*
South	9,9±1,0*
Large cities	10,1±1,0*
Yakutia	14,9±1,3

* distinction statistically meaningfully as compared to to the middle republican indexes, $p < 0,05$;

Conclusion. Thus, morbidity of primary cancer of liver (PCL) on territory of Yakutia substantially differed in medical geographic areas. The most high and statistically meaningful indexes were exposed in districts, mainly natives (central, zapolyarnaya areas) and representatives of unnative population, which experience of stay in Yakutia is great at, live in which (Western area). The low indexes of morbidity registered in large cities, where majority a population is presented unnative habitants, busy on the enterprises of extractive industry, with the developed infrastructure, sufficiently with the high level of sanitary culture of population and treatment and prophylaxis help. The exposed information on prevalence of PCL in the different medical geographic areas of republic can be used for development of scientifically founded measures of prophylaxis of this disease.

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Authors:

BUGAEVA Tat'yana Timofeevna is doctor-infectious diseases specialist Yakut region clinic;

IVANOV Piotr Mikhaylovich – doctor of medical scientific, prof., chief by the course of oncology of MI North-Eastern federal university;

ALEKSEEVA Martha Nikolaevna – doctor of medical scientific, prof., MI North-Eastern federal university;

KARATAEV Piotr Dmitrievich - is doctor, chief of Yakut republican oncologic dispensary;

SMETANINA Valentina Dmitrievna – scient. coll. Yakut National center KMP With North department of Russian medical scientific Academy, chief of method departement of GU Yakut republican oncologic dispensary.

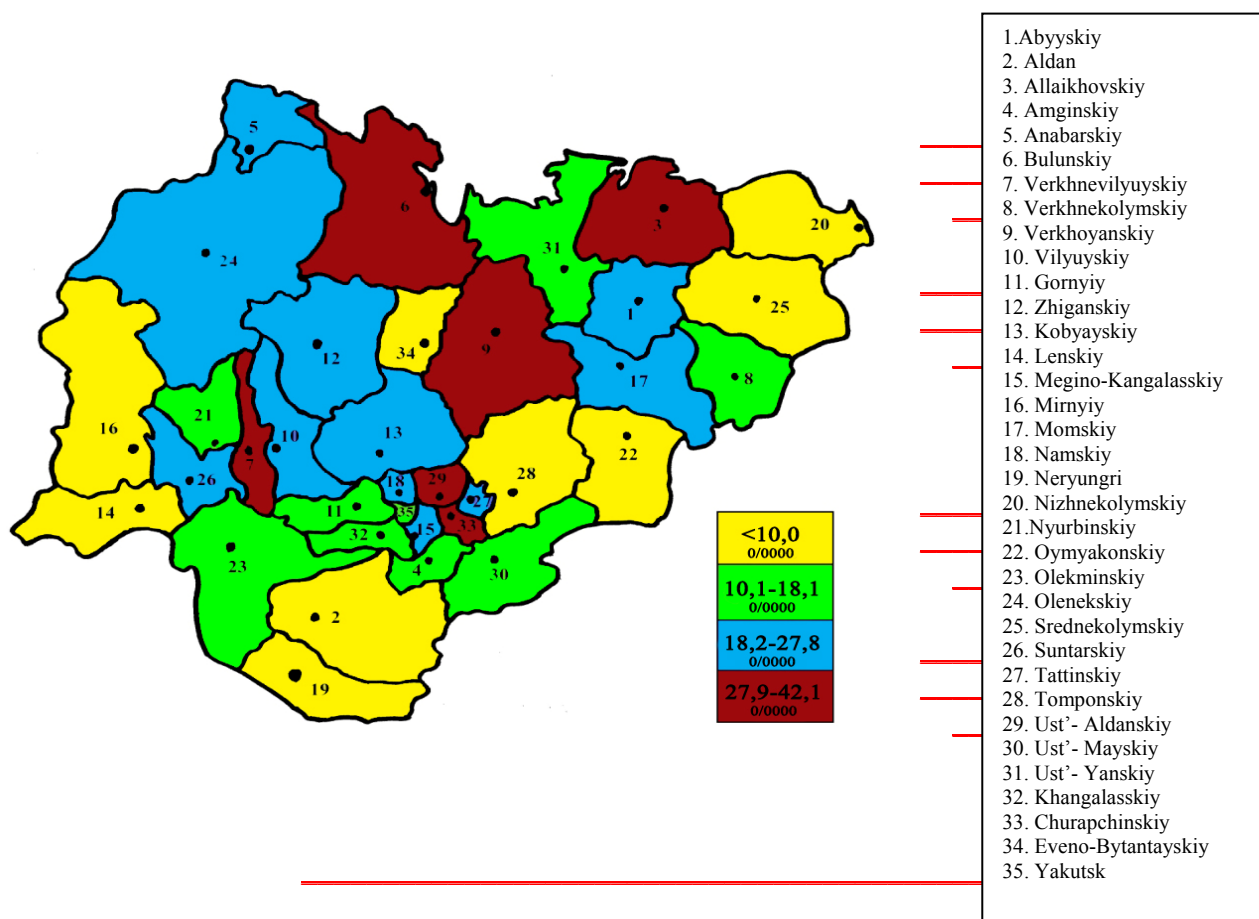


Fig.3. Standartized indexes of the PCL morbidity of yakutian population
(scale 1:4 000 000)

FREQUENCY AND STRUCTURE OF THE BASIC STOMATOLOGIC DISEASES AT THE CHILDREN'S POPULATION OF YAKUTSK CITY

Cheryomkina A.S., Ushnitskij I.D.

«North eastern federal university named after M.K.Ammosov»

The resume

Prevalence and intensity of dental caries, paradontitis at children of preschool and school age, and also teenagers of Yakutsk educational institutions have been studied. The indicators of necessity and the dental care rendering level are defined on the basis of received data. Ways of the specialized help optimization and the increase of hygiene level at children and the teenagers' living under the conditions of the North large units are proved.

Keywords: dental caries, gingivitis, paradontitis, index of hygiene, level and necessity of dental care, children and teenagers hygiene

Introduction

Actual problems of dentistry and medicine are dental caries and pathological processes of tissues paradontitis of inflammatory-destructive and exchange-dystrophic types. [Ivanov V. S, 1998; Bezrukov A.N., 1999; Petzold M., 2001]. It is connected with their prevalence among the population and peculiarities of clinical course leading to a functional defect of dentoalveolar system, and also to the pathologies of GI tract etc. [Devjatкова M. A, 2005; Kutusheva D.R., 2010]. Somatic diseases promote the change of structure and characteristics of mixed saliva where preconditions for structure's weakening and teeth's composition, developments of paradontitis illnesses, pathologies of a temporomandibular joint are formed. [Maksimovsky J., 2006]. Besides, dental diseases in an oral cavity form the chronic centre of an infection and can promote the development of the focal-caused diseases (rheumatism, rheumatic endocarditis etc.). [Bolatova L.H., 2010].

Nowadays there is some data about hygiene's low level and the population's knowledge about individual hygiene of an oral cavity and also preventive measures of dental diseases. [Ovodova G. F, 2009; Alekseeva N.A., 2010]. In this connection, it is necessary to consider the given aspects during researches and rendering a prophylactic help and no doubt it will have a positive effect on preservation and strengthening the population's health.

Optimization of rendering a dental help is based on the knowledge of disease's level and the features of its clinical course. The reasons of pathological processes' development in an oral cavity are both local and general factors. Besides, it is proved that geographical, ecological, social and economic factors have an influence on disease level. [Zenovsky V.P., 1991; Ivanova E.N., 1997; Belousov A.V., 2001; Kuzmina E.M., 2001; Ushnitskij I.D., 2008; Janushevich O. O, 2009]. It is necessary to stress that such researches in the Republic Sakha (Yakutia) were conducted in the end of 20th century and in the beginning a new millennium. It shows the necessity of complex researches among preschool and school age children to improve the system of rendering a specialized dental care.

Research objective: To reveal prevalence, intensity of the basic dental diseases on the basis of complex research and to define the level of rendering and the requirement of preschool, school age children of Yakutsk city in a dental service.

Materials and methods: For achievement of the given object and the decision of tasks a complex dental investigation of 151 preschool and school age children from 6 till 15 years old constantly living in Yakutsk has been done. A cohort of children was formed by casual sample's methods. A special card for an estimation of dental status, recommended by WHO (1995) has been used for inspection. Examined children have been subdivided into following key age groups: 6 years (a condition of the first second teeth); 12 years (a condition of second teeth); 15 years (a clinical condition of tissues paradontitis).

Affection of teeth's firm tissues by caries was graded by prevalence and intensity indicators. The intensity was determined by the indexes of cs, CSE+cf, in CSE (caries-stopped-extracted) all stopped, extracted and affected with caries teeth were considered. Also the definition of a cavity hygienic condition was held with the application of hygiene's indexes by Fedorova-Volodkina (1971) and J.C. Greene, J.R. Vermillion (1964). The intensity of inflammatory process of tissues paradontitis was determined with the help of index PMA on C.Parma's method. (1960).

A special questionnaires worked out by a nursery therapeutic dentistry of «Moscow state medical dental university» (2009) have been used for the definition of hygiene's level of junior, secondary and higher secondary school age children.

Statistical polishing of a clinical material was done by the standard methods of variation statistics.

Results of research. The analysis of the received results of clinical-epidemiological research of children testifies the presence of some features. So, the prevalence of time teeth's caries during the replaceable bite among 6-9 years old children is 93,02±0,24 %. In the structure

of forming components of cs index the indicator of time teeth's caries which was at level of $76,96 \pm 0,27$ % considerably prevails. The component «s» - the stopped teeth was only $18,19 \pm 0,13$ %. It is necessary to underline that early removal of time teeth before their physiological change have been revealed during research and their indicator was at the level of $4,85 \pm 0,10$ %. It is the initiating moment promoting the development of dentoalveolar anomalies during the formation of children's constant bite.

There were some distinguishing features in the indicators of constant teeth's caries affection. They characterize the frequency of pathological processes of teeth's firm tissues of demineralizational type (tab. 1). So, the caries prevalence among 10-14 years old children is 83,58 %. 6-year-old children have caries of the first constant tricuspid of the bottom jaw after their teething. The carious teeth prevail in the structure of CSE index and stopped teeth are only 1/10. There were certain features in the structure of CSE components among 12 years old children. They characterize an insufficient level of rendering a dental care (the carious and extracted teeth - $58,17 \pm 0,23$ % , stopped teeth - $41,83 \pm 0,32$ %). But at the same time this data allow to confirm about their necessity in a dental care. The intensity of teeth caries affection among 12 -years- old children is interpreted as a middle level. According to E.M. Kuzmina (2001) the similar indicator at 12-years-old children in Chita region is 1,7 (a low level), Primorsk Territory is 3,5 (a middle level), Khabarovsk territory is 4,6 (a high level). In some way, an insufficient level of rendering and a high level of requirement in a specialized medical help for children are connected with insufficiency of preschool and school dentistry system.

It is known that a dental tartar occupies a basic place in the development of teeth caries. It led us to make an estimation of cavity hygiene by Fedorova-Volodkina. So, the average indicator by hygiene index in the age groups of 7-9 and 10-14 years old children was 2,5 and it is characterized as an unsatisfactory hygiene of an oral cavity.

Table1

Indicators of second teeth caries at the preschool and school age children of Yakutsk

Age	Prevalence (%)	Intensity	C(%)	S (%)	E (%)
6 years old n=26	$11,54 \pm 4,47$	$0,30 \pm 0,05$	$87,52 \pm 0,63$	$12,48 \pm 4,41$	-
12 years old n=30	$76,6 \pm 1,06$	$3,2 \pm 0,41$	$55,10 \pm 2,04$	$41,83 \pm 2,19$	$3,07 \pm 2,36$

According to The World Health Organization teenagers of 15 years are key and informative age during complex clinical -statistical researches of paradontitis illnesses. In this connection, we carried out the analysis of prevalence and intensity of paradontitis illnesses at the given category of schoolchildren (tab. 2). The frequency of revealing pathological processes of tissues paradontitis is interpreted as a high level. Gingivitis is often revealed in the structure of paradontitis illnesses (91,15 %). Basically it is a catarrhal form and in one clinical case a hypertrophic gingivitis has been revealed. A chronic localized paradontitis of a light form was diagnosed in three percent cases. It is necessary to notice that the received data are characterized as a middle level of prevalence by such indicators as “Bleeding” and “Dental tartar”.

Table 2

**Frequency and expressiveness of paradontitis illnesses among 15-years-old teenagers
living in Yakutsk**

CPI (%)				
Prevalence	Healthy	Bleeding	Dental tartar	Intrabory paradontitis pocket
94,11%±0,24	5,89%±3,61	70,57%±0,96	20,58%±2,99	2,96%±2,76
CPI (sextants)				
Healthy	Bleeding	Dental tartar	Intrabory paradontitis pocket	Unconsidered sextants
2,85±0,16	2,44±0,12	0,48±0,08	0,05±0,03	0,18±0,04

The evidence of paradontitis illnesses among teenagers characterizes its some features. It is necessary to notice that the indicators of healthy sextants prevail in the sextants' structure. On the other hand it shows the presence of localized pathological processes of tissues paradontitis of inflammatory character at the surveyed. But at the same time, the indicator of gums bleeding, occupies an important place, and it was at level of 40,67 % in the structure of intensity indicators of inflammatory process. Revealed chronic localized paradontitis of a middle level causes the presence of such components as «Dental tartar » and « Intrabory Paradontitis pocket ». A supragingival dental tartar came out on an oral surface of the bottom incisors, and the depth of paradontitis pocket was 2-3 mm. As the part of examined didn't have teeth (they were removed earlier) the indicator of unconsidered sextants in the structure of forming components was 3 %.

The analysis of the received data of paradontitis illnesses among teenagers allows asserting that they are interpreted as a middle level by the indicators of gums bleeding and dental tartar

and by the intensity as high and low levels. In this connection, we were interested by the question of oral cavity hygienic condition estimation at the given age group because dental plaque in pathogenesis of paradontitis illnesses takes a significant place. So, the data of OHI-S by Green – Vermillion's index (dental plaque and dental tartar) were 3,12. It is defined as a bad level of an oral cavity hygienic condition. Thus the intensity of inflammatory process of gum tissues among 15-year-old teenagers was 27,08 % . It is defined as a light level.

The conclusion

Thus, the carried out clinical-epidemiological analysis of the basic dental diseases at children and teenagers has revealed a high level of teeth caries prevalence and pathological processes of tissues paradontitis. The prevalence of indicators of carious and extracted teeth at examined in the structure of CSE index, and also the frequency of paradontitis illnesses testifies their necessity in a specialized dental care. And an unsatisfactory hygienic condition of children and teenagers' cavity dictates the necessity of measures' activation directed on the increasing the level of their hygiene. The optimization of rendering a dental care to preschool and school age children in some way provides the development of dental offices in the system of educational institutions of Yakutsk city.

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Enikeeva A.H., Balashov P.P.

Elderly and senile age people's primary consulting a doctor for a mental health care

In the social status before receipt in a hospital pensioners on age prevailed, the contingent part had disablement owing to somatic diseases. The analysis of structure of physical inability at persons of elderly and senile age (n=136), for the first time addressed for the psychiatric help has shown, that for the first time recognized disablement owing to mental frustration met more often in age categories from 70-79 years and is more senior 80 years, on weight of frustration first group of disablement is defined. In structure of disorders forms a leading place occupied dementia.

Keywords: first disablement, elderly and senile age, dementia.

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Sidorov A.S.

Current state of the organization of the medico-social help to elderly and senile age people

Keywords: advanced age, living conditions, medico-social help.

УДК: 579. 61. 264. 844. 845

FUNGUS *TRICHODERMA*: ANTIBIOTIC ACTIVITY OF METABOLITES

Sharikov AM, Novitsky, IA, Mantchuk VT

Summary: The problem of search and selection of new antibiotics of the metabolites of imperfect fungi is particularly relevant in our time. The effect of metabolites of fungi of the genus *Trichoderma* in a number of gram-negative and gram-positive microorganisms is studied. Antibiotic effect of the studied metabolites is shown.

Keywords: bactericidal effect, the imperfect fungi, metabolites, gram-negative and gram-positive bacteria, method of the holes.

Introduction

The interest in the imperfect fungi and their metabolites in the latter time increases. Metabolites and extracts isolated from a number of imperfect fungi are often the producers of many biologically active compounds, in particular, new antibiotics [2, 4, 7]. These metabolites are primarily characterized by an important property - the bactericidal [1, 3]. It is known that the fungi of the genus *Trichoderma* are the producers of metabolites having high antibiotic activity against fungi and bacteria.

Extremely promising in this respect fungi *T. citrinoviride*, *T. asperellum*, *T. hamatum*, *T. harzianum*. Describes the preparation of the culture fluid of fungi antibiotics - pentaibolov. Shown that these antibiotics are highly active against fungi, gram-positive bacteria and mycobacteria [6]. Despite the relatively long period of research data fungi isolates in central Siberia, and their metabolites are not sufficiently studied [5, 8]. The purpose of this study was to investigate antibiotic activity metabolites of fungi of the genus *Trichoderma* against a number of opportunistic strains of microorganisms.

Materials and methods

The objects of study were sterile metabolites derived from the species *T. citrinoviride* - strains MC, TN4; species *T. asperellum* - strains 01-00, K12, 30, of *T. hamatum* - MO strain, the species *T. harzianum* - strains M 99 / 5, 0-97 and from netipirovannogo strain 119/85 *Trichoderma sp.* Fungi were cultured on Czapek broth; term cultivation for metabolites accounted for ten days. To study the bactericidal activity of metabolites in the experiment were taken opportunistic bacteria: two strains of *Acinetobacter baumannii* gramnegativnogo and one strain grampozitivnogo *Staphilococcus haemoliticus*, isolated from patients pankreanekrozom patients Clinical Hospital № 7 City of Krasnoyarsk. For pre-culturing isolated strains were plated on nutrient agar (RM-agar), produced by Federal State Unitary Enterprise; State Scientific Center of Applied Microbiology and Biotechnology, and then incubated in an incubator for three days at 37 ° C. Received isolated typical colonies of each species were selected loops and suspended in test tubes with sterile saline, according to the standard turbidity. Sown dose suspensions of microorganisms was 1.5 $\times 10^8$ CFU / ml (0.5 turbidity standard McFarland). Sowing prepared suspensions was performed pressed with a cotton swab in three directions at the plate dried Mueller-Hinton agar, poured thick. Determination of bactericidal activity of the investigated extracts was performed by the wells. In the hole made with a sterile cork borer in a newly seeded plates, sterile, replaceable spouts studied metabolite was added in an amount of 0.1 ml. Control was saline. The experiments were conducted in five replicates. After entering into the wells of metabolites sown cup without turning transferred to a thermostat and incubated at 37 ° C for ten days. Observations on the growth of test cultures started after days of incubation. Statistical analysis was performed using software package STATISTICA v.6.0. Calculated the mean and standard deviation. Significant differences were determined by nonparametric Mann-Whitney test.

Results and discussion

In the course of this work it was found that part of the studied metabolites have a marked antibiotic activity against the test bacteria (Tables 1 and 2):

Table 1

Table 2

Thus, the most pronounced effect of the antibiotic was found in metabolites of the fungus *Trichoderma* strain 119-85 and strain M 99 / 5: First inhibited *A. baumannii* strain 40 with a maximum area of growth inhibition on the tenth day 16 ± 3 mm, and *S. haemoliticus* strain 3 with a maximum area of suppression on the tenth day 16 ± 1 mm, the second suppressed similar to strains with a maximum area of growth inhibition on the tenth day 17 ± 2 mm, and *S. haemoliticus* 3 with a maximum area of suppression on the tenth day 14 ± 3 mm. Antibiotic effect on the studied strains of bacteria was observed in TN 4, MC, MO, and strain 30.

Conclusion

It is shown that the diameter of the inhibition of growth with increasing duration of the experiment increases, but only slightly. Studies have shown that the investigated strains 119-85 and M 99 / 5 *Trichoderma* fungi can be considered as promising producers of new biologically active substances.

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Table 1

Antibiotic activity of metabolites of fungal strains of *Trichoderma* species against opportunistic microorganisms

Strains of opportuni stic microorg anisms	Growth inhibition zone diameter ($M \pm m$), mm; 5 days cultivation									
	Studied strains of fungi of the genus <i>Trichoderma</i>									
	MK	119-85	97/6	M 99/5	K-12	TH4	01-00	MO	0-97	30
<i>A. baumannii</i> i 30	-	-	-	-	-	17,0 ± 1	-	12,0 ± 1	-	16,0 ± 1
<i>A. baumannii</i> i 40	12,0 \pm 1	12,0 \pm 2	-	15,0 \pm 2	-	-	-	-	-	-
<i>St. haemoliticus</i> 3	-	14,0 \pm 2	-	13,0 \pm 3	-	-	-	-	-	-

Note: «-» – antibiotic activity was not detected.

Table 2

Antibiotic activity of metabolites of fungal strains of *Trichoderma* species against opportunistic microorganisms.

Strains of opportunistic microorganisms	Growth inhibition zone diameter ($M \pm m$), mm; 10 days cultivation									
	Studied strains of fungi of the genus <i>Trichoderma</i>									
	MK	119-85	97/6	M 99/5	K-12	TH4	01-00	MO	0-97	30
<i>A. baumannii</i> 30	-	-	-	-	-	20,0 ± 4	-	17,0 ± 2	-	19,0 ± 2
<i>A. baumannii</i> 40	12,0 ± 3	16,0 ± 3	-	17,0 ± 2	-	-	-	-	-	-
<i>St. haemolyticus</i> 3	-	16,0 ± 1	-	14,0 ± 3	-	-	-	-	-	-

Note: «-» – antibiotic activity was not detected.

Sharikov Andrew M., Researcher, Laboratory of cellular and molecular physiology and pathology union medical problems of the North Medical Sciences, tel. sl. (391) 228-06-83; the institute: 660022, Krasnoyarsk, ul. Partizan Zheleznyaka, 3, block «G»; tel. house (391) 268-37-99; house address: 660061, city of Krasnoyarsk, ul. Kalinina, d. 70, building «B», kv. 5, e-mail:

loengrinionessi@bk.ru Institute of medical problems of the North regions, Krasnoyarsk;

Novitsky Ivan A, MD, Professor, Senior Researcher, Laboratory of cellular and molecular physiology and pathology union medical problems of the North Medical Sciences, tel. sl. (391) 228-06-83; the institute: 660022, Krasnoyarsk, ul. Partizan Zheleznyaka, 3, block «G»;

Mantchuk Valery T, MD, professor, corresponding member of RAMS, Director of the Medical Research Institute for Northern Problems of Medical Sciences, Krasnoyarsk. tel. sl. (391) 228-06-83; the institute: 660022, Krasnoyarsk, ul. Partizan Zheleznyaka, 3, block «G».

A.A. Sergievich, M.K. Grachev, G.I. Kurochkina,

T.A. Batalova, M.L. Plastinin

CONTENT OF CALCIUM AND PHOSPHORUS IN THE BLOOD PLASMA UNDER INFLUENCE BY DERIVATIVES OF β -CYCLODEXTRIN

In the present work the maintenance of the element maintenance of calcium and phosphorus in plasma of blood at laboratory animals is investigated at application of the new derivative connections which are being clathrate and conjugate of β -cyclodextrin with acid paraaminobenzoic were used. Positive dynamics of the maintenance of defined elements under influence of the synthesized substances is revealed. The most positive tendency is found out in the skilled group received conjugate of β -cyclodextrin with acid paraaminobenzoic.

Keywords: acid paraaminobenzoic, β -cyclodextrin, phosphorus, calcium

Maintenance phosphorus-calcium a homeostasis - a necessary condition for normal ability to live of an organism.

About 99 % of all quantity of calcium and 85 % of phosphorus are in the bone fabric, being the core of depot in an organism. Allocate the various mechanisms which are taking part mastering of given minerals in an organism. Recently a greater role in a phosphorus-calcium exchange give kidney y to the device [5].

There is a set of various factors capable to influence mechanisms всасывания the given elements. One of such is paraaminobenzoic the acid which physiological role up to the end is not investigated yet. It is known, that as chemical compound acid paraaminobenzoic (PABA) it is known with 1863, with 1939 as the substance possessing properties of vitamin, and with 1940 is established its antibacterial property in relation to сульфаниламидам and it sulfonamide has been allocated from yeast then its necessity for synthesis of a folic acid [13]. Besides by researchers it is noted, that PABA it is capable to stimulate physical endurance and working capacity [7], and also positively to influence a condition of the central nervous system [4, 6]

Alongside with it is known, that β -cyclodextrin (I) and its numerous derivatives have found wide application in physiology and pharmacology, mainly as "containers" of medical products, owing to the unique opportunity to encapsulation various waterproof connections (formation of connections of inclusion of type "visitor-owner") [8, 11]. Encapsulation protects the included medicinal substance from biodecomposition, promotes increase of its solubility and promotes its selective delivery in a necessary place for the demanded period of time [9,10,12]. In previous our works high physiological and pharmacological activity of similar connections, in

particular conjugates and clathrates β -cyclodextrin with acetylsalicylic acid, Ibuprofen, PABA for their anti-inflammatory, aktoprotektnoy other kinds of physiological activity [1]. In this connection represents the certain interest studying of the given substances on other biological models.

The purpose of the present research was studying the element maintenance in plasma of blood of calcium and phosphorus at laboratory animals under influence of three new synthesized connections β -cyclodextrin with PABA in comparison is direct with PABA.

In experiment the following new synthesized connections (fig. 1) have been used: clathrates silyl derivative β -cyclodextrin (II) with PABA (Compound III), representing connection of inclusion in the ratio "visitor-owner" 1:1; conjugates β -cyclodextrin (I), containing covalently attached PABA through carboxyl group with a degree of replacement hydroxyl groups in β -cyclodextrin equal 1 (Compound IV); conjugates β -cyclodextrin (I), containing two rests covalently attached PABA through an amino group (Compound V). In the given connection in a molecule β -cyclodextrin a little hydroxyl groups are replaced on bromide, a degree of replacement 2, and it represents cation (secondary ammonium) derivative β -cyclodextrin.

Organic connections I and II are predecessors on stages of organic synthesis for connections III, IV, V. Use I and II in experiment proves, that their physiological activity is shown in a greater degree due to conjugation or inclusions PABA.

Experiment is lead on 48 white not purebred male rats. Animals contained in standard conditions vivarium in cages on 4-5 individuals, at natural illumination and an easy approach to water and food. In work principles of the Helsinki declaration on the humane attitude to animals were observed. In experiment all individuals have been divided into five groups: intact ($n=8$), receiving placebo; control group ($n=8$), received PABA (10 mg/kg); experimental group ($n=6$), received connection III (150 mg/kg); experimental group ($n=8$), received connection IV (100 mg/kg); experimental group ($n=8$), received connection V (60 mg/kg). For definition of the maintenance of calcium and phosphorus in plasma used spent kompleksonometrichesky a method.

All investigated substances were entered perorales for 3 hours prior to the beginning of experiment. Research was spent within 3 days.

Statistical processing of results of research spent by means of the program «Biostat» [2] on methods of variational statistics with an estimation of the statistical importance of parameters and distinctions considered samples by t-criterion Student. Distinctions in compared groups considered authentic at a significance value of 95 % ($p < 0,05$). Definition normality distributions

of an investigated attribute in compared groups that has given the basis to a choice of the given criterion has preliminary been made.

Analyzing the received results (are presented in tab. 1), it is necessary to note, that the element maintenance of calcium in control group has increased in 1,08 times with authentically significant difference ($p < 0,05$). Yielded results will be coordinated with the received conclusions of other group of the researchers studied a calcium-phosphorus exchange at experimental animals in age dynamics under influence PABA [3]. At application of the synthesized connection III maintenance of calcium in plasma has increased in 1,05 times in comparative aspect with result intact groups (without an authentic difference, 0,05). The Most maximal difference between the quantitative maintenance of calcium was marked in the experimental group received derivative IV, where quantit of the defined element has increased in 1,23 times and in 1,13 times in comparison with intact and control groups accordingly. In experimental sample of the animals received connection V, practically it was not found out differences of the given parameter with similar in groups of comparison.

The defined element maintenance of phosphorus in all experimental groups tended to increase though thus of authentically significant difference it was not found out anywhere. In experimental group of the laboratory animals received connection IV, the maximal increase in the quantitative maintenance of phosphorus (in 1,2 times) was marked.

From the received data it is visible, that the optimal change of element structure of calcium and phosphorus is fixed at the experimental animals received connection IV. The observable phenomenon, most likely, can be connected with feature of a structure of this synthesized complex. Despite lacking in some above-stated results of authentically significant difference with groups of comparison, presence of the tendency to increase in the element maintenance of calcium and phosphorus (at introduction of all new connections) can render powerful influence on a calcium-phosphorus homeostasis of an organism. Calcium acts as the activator of many fermental processes, participating in the mechanism of regulation of a cellular exchange and excitability of alive structures, affect on intimate activity, plays the important role in processes of curtailing of blood, etc. Phosphorus is one of the important components of macropower phosphates, phosphorylated sugars, is a part phospholipids, forming cellular membranes, and also in structure of nucleinic acids, that having the direct attitude to genome of the person [5]. In this connection, even the insignificant increase in the given elements, finally can render positive physiological effect in an organism.

The executed experimental work gives the precondition to further deeper studying biological activity at given new (and similar) complex connections, reflecting initial approbation a stage of their complex research.

1. Positive influence of derivatives β -cyclodextrin on the element maintenance of calcium and phosphorus in plasma is experimentally established.
2. The most positive results are established at the new connection which are being conjugates β -cyclodextrin, containing covalently attached through карбоксильную group paraaminobenzoic an acid with a degree of replacement hydroxyl groups β -cyclodextrin equal 1.
3. An Increasing physiological activity paraaminobenzoic in our case concerning an element exchange can be connected acids with positive influence β -cyclodextrin on process of redistribution of new connections in an organism.

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¹N.V. Makharova, ²M.I.Voevoda, ²F.F.Lutova

HIGH PREVALENCE OF ARTERIAL HYPERTENSION AND THE AFFECTION OF TARGET ORGANS IN THE NATIVES OF YAKUTIA WITH VERIFIED CORONARY ATHEROSCLEROSIS - POSSIBLE LINKS WITH INSULIN RESISTANCE

¹Yakut Research Centre of complex medical problems of the Siberian Branch of the Russian Academy of Medical Sciences, Republic Sakha (Yakutia), Russia

²Scientific-Research Therapy Institute of the Siberian Branch of the Russian Academy of Medical Sciences, Novosibirsk, Russia

Summary

A comparison of the data of selective angiography, computed tomography and risk factors in patients with coronary atherosclerosis is carried out. Analysis of risk factors in patients revealed that among indigenous men at less severity of coronary artery atherosclerosis, low values of atherogenic lipids, less frequency of obesity (by BMI criterion) a high frequency of hypertension and myocardial hypertrophy was revealed.

Keywords: atherosclerosis of coronary arteries, risk factor, arterial hypertension, myocardial hypertrophy, indigenous and non-indigenous population of Yakutia.

According to population-based study conducted in Yakutia, hypertension in patients with coronary artery disease detected in 74,7% cases. However, effectively treated, only 14% of men and 28,8% of women - patients with hypertension. According to statistic (Yakutia) in the past 5 years has been an increase incidence of primary diseases of the circulatory system in 1,9 times, including hypertension - a 127%, angina - 75%, cerebrovascular disease - by 106%.

One should pay attention to the growth and death rate of the myocardial infarction and the stroke among indigenous population with the obvious tendency of "rejuvenation" of the given pathology.

It is known that hypertension is the main target of the myocardium, which develops hypertrophy of the left ventricular (HLV) and represents an important cardiovascular risk factor, along with hypertension, diabetes mellitus, hypercholesterolemia and smoking.

Objective: To study of risk factors and myocardial hypertrophy in patients with verified coronary atherosclerosis among indigenous **population** of Yakutia.

Materials and methods

The analysis of patients' clinical-tool indicators was done at cardiology and cardiosurgery republic hospital №1 - NCM, Yakutsk. Patients were made SCAG during the period 2004-2007 (n=1233). Patients arrived from the central regional hospitals from all 35 regions of Yakutia. We didn't analyze patients with atherosclerosis of coronary arteries in the combination of heart defect. SCAG was not done when the patient had unstable stenocardia presence, characteristic dynamics of cardiospecific enzymes in peripheral blood (Creatinine-kinase-MB, troponine) in the combination with typical electrocardiographic changes and status anginosus. Our work results present the analysis of 568 patients with the verified atherosclerosis of coronary arteries (CA). The examined patients have been divided into two groups for the comparative analysis:

1st – representatives of indigenous population (n=286), males – 266 (middle age $54,2 \pm 0,5$ years); females – 20 (middle age $55,0 \pm 1,6$ years);

2nd – representatives of non-indigenous population (n=282), males – 234 (middle age $52,6 \pm 0,6$ years); females – 48 (middle age $55,3 \pm 1,1$ years).

Indigenous population are Yakuts, Evenks, Chukchis and other minorities of Yakutia, non-indigenous – Russians, Ukrainians, Byelorussians and other nationalities constantly living in Yakutia.

Arterial hypertension (AH) was accepted at blood pressure $> 140/90$ mmHg level during several years, on the anamnesis base and its documentary increase and taking of hypertension drugs within several years.

Diabetes 2 type was diagnosed on documentary data at the endocrinology clinic. All patients with type 2 diabetes in the anamnesis received hypoglycemia therapy.

Anthropometrical examination provided measurement of patients' height and weight by a standard technique. The body weight was estimated on the basis of calculation of Kettle II index by formula: $\text{weight (kg)} / \text{growth (m}^2\text{)}$. For body's

overweight was accepted the MBI value ≥ 25 and < 30 kg/m², obesity was registered at MBI ≥ 30 kg/m².

The regular smoker was considered a man smoking at least 1 cigarette a day within 12 months. Family predisposition to cardiovascular disease (CVD) included the information about AH, MI and brain stroke presence the relatives' of the 1st line relationship.

Selective Coronary angiography (SCAG) was done by standard Judkins technique on the device «Axiom. Artis BA» (Siemens, Germany). Coronary atriographic classification of atherosclerotic arteries defects was used for determining the stenosis degree: 1 – 50 % gleam area of stenosis, 2 – stenosis from 50 to 75 %, 3-stenosis from 75 to 90 %, 4 – stenosis over 90 % (subclusion or occlusion).

Multispiral Computer Tomography (MCT) was done on the tomograph Somaton Sensation-4 (Siemens), determining the total calcium index (TCI) which was calculated by the integrated computer system of the quantitative automatic analysis by standard Agatston A.S. technique according to which coronary calcification was defined as the site size with maximum density more than 130 Haunsphilds units (HU).

Echocardiography was carried out by standard methods. All parameters were indexed to body surface area. The hypertrophy of the accepted value of LVMM ≥ 125 g/m² - for men, ≥ 110 g/m² - for women.

Statistical processing was done by standard package of SPSS program (version 13.0). Results were presented in the form of $M \pm m$, where M – a mean, m – a standard error of the mean. The basic studied indicators had abnormal character of distribution of studied indicators values that has allowed to check up distinctions reliability of average quantity indicators between two ethnic groups by nonparametric Mann-Whitney test. Quality indicators were checked by Student's t-test.

Results

Table 1. Frequency and degree of stenosis of coronary arteries among inhabitants of Yakutia, (%)

Degree of stenosis of coronary arteries	Frequency of defects with various degree of stenosis					
	Males		p_{I-NI}	Females		p_{I-NI}
	I (n=266)	NI (n=234)		I (n=20)	NI (n=48)	
Degree of stenosis <50 %	33 (12,5)	28 (12)	0,880	2 (10,0)	6 (12,5)	0,771
Degree of stenosis 50-75 %	48 (18,0)	27 (11,5)	0,042	7 (35,0)	8 (16,7)	0,101
Degree of stenosis 75 - 90 %	76 (28,6)	52 (22,2)	0,105	4 (20,0)	14 (29,2)	0,437
Degree of stenosis > 90 %	109 (40,9)	127 (54,3)	0,003	7 (35,0)	20 (41,6)	0,610

Note: p_{I-NI} – the comparison between native and non-native patients

The frequency and degree analysis (Table 1) of stenosis of CA has shown that indigenous males had stenosis - 50-75 % (18 % vs 12 % ; $p=0,042$), while non-indigenous – more often stenosis - 90 % (41 % vs 54 %; $p=0,003$). Significant distinctions have not been revealed among females. Among women, significant differences were detected. The quantity analysis of the affected arteries has shown, that one-vascular defects are met more among indigenous males (32 vs 12 %; $p=0,001$), three-vascular and more – in non-indigenous (55 vs 40 %; $p=0,001$). The average quantity of the affected arteries was $2,1 \pm 0,1$ and $2,4 \pm 0,1$ and was significantly less in natives ($p=0,001$). Significant distinctions has not been revealed among women, probably it was connected with the small quantity of the examined patients.

In the study of the total calcium level of the index according to its average level of MCT was significantly lower among indigenous males than non-indigenous and has made $349,1 \pm 129,8$ vs $621,8 \pm 115,2$ units. respectively ($p = 0.011$) among women significant differences were revealed - $179,0 \pm 48,1$ vs $255,2 \pm 98,6$ units, $p = 0.465$, respectively, and are consistent with studies that showed a high correlation index of calcium in the coronary arteries with the degree of atherosclerotic lesions [12].

Thus, the results SCAG and MCT for Indigenous more likely than non-indigenous ethnic groups are identified lighter coronary arteries and is consistent with conducted in Yakutia pathomorphological studies [2]. It is believed that a lesser degree of atherosclerosis in the indigenous population is the result of centuries of selection, which they have formed a special, optimal for local conditions, the genotype of the cardiovascular system, which has close links with historical traditions, lifestyle and food does not predispose to the development of atherosclerosis.

Table 2. Risk factors of cardiovascular diseases among patients with atherosclerosis of coronary arteries in Yakutia

Risk factor	Males			Females		
	I (n=266)	NI (n=234)	p _{I-NI}	I (n=20)	NI (n=48)	p _{I-NI}
Arterial hypertension, %	245 (92,1)	187 (79,9)	0,001	20(100,0)	48(100,0)	
Number of patients with blood pressure levels \geq 140 mm Hg on admission,%	207(77,8)	174(74,4)	0,365	13(65,0)	30(62,5)	0,846
Type 2 diabetes, %	51 (19,2)	53 (22,6)	0,360	5 (25,0)	13 (27,1)	0,860
Overweight,%	123 (46,1)	102 (43,6)	0,552	14 (70,0)	10 (20,8)	0,000
Obesity,%	82 (30,8)	92 (39,3)	0,047	4 (20,0)	32 (66,7)	0,000
Smoking,%	109 (41,0)	98 (41,9)	0,777	10 (50,0)	18 (37,5)	0,412
Burdened by history of cardiovascular disease,%	94 (35,3)	92 (39,3)	0,333	18 (90,0)	26 (54,2)	0,005

Note: p_{I-NI} – the comparison between native and non-native patients

The analysis (Table. 2) of risk factors has shown that AH is more often met among indigenous males than non-indigenous ($p = 0,001$).

Obesity was significantly less encountered among the indigenous than non-indigenous as among men ($p = 0,047$), and among women ($p = 0,001$). At the same time, indigenous women were significantly more frequently encountered overweight ($p = 0.000$), respectively. Indigenous females had more often the burdened CVD anamnesis, than non-indigenous ones (90 % vs 54,2 %; $p=0,005$). Both ethnic groups of males and females smoked equally often.

Table 3. Average levels of laboratory indicators at patients with atherosclerosis of coronary arteries in Yakutia

Indicator	Males, M±m			Females, M±m		
	I (n=266)	NI (n=234)	PI-NI	I (n=20)	NI (n=48)	PI-NI
TC, mmol/L	4,8±0,1	4,9±0,1	0,910	5,2±0,3	5,5±0,2	0,169
HDL, mmol/L	0,97±0,03	0,90±0,03	0,323	0,95±0,01	0,90±0,02	0,358
LDL, mmol/L	3,12±0,06	3,22±0,09	0,572	3,32±0,26	3,55±0,12	0,178
TG, mmol/L	1,45±0,03	1,56±0,04	0,030	1,53±0,08	1,64±0,06	0,106
Fasting glucose, mmol/L	5,82±0,14	5,81±0,13	0,198	5,6±0,4	6,4±0,5	0,575
Fibrinogen, g/L	3,45±0,09	3,56±0,11	0,214	4,02±0,52	3,9±0,29	0,770

Abbreviation: TC- total cholesterol; HDL- high-density lipoproteins; LDL- low-density lipoproteins; TG-triglycerides

Comparative analysis results of lipid profile indicators established (Table 3) that TC, LDL levels were lower among indigenous population, HDL – higher. However TG level was significantly lower, than among non-indigenous (1,45±0,03 mmol/L vs 1,56±0,04 mmol/L; p=0,030), respectively.

Both ethnic groups of males and females glucose and fibrinogen levels men and women did not differ.

Table 4. Average levels of structural-functional cardiac parameters at patients with atherosclerosis of coronary arteries in Yakutia, M±m

Parameters	Indigenous		Non-indigenous		PI-NI
	M±m	95% CI	M±m	95%CI	
Males					
	n=236		n=214		
LA index,sm/m ²	2,05±0,03	1,99-2,09	1,93±0,02	1,89-1,97	0,002
IST index, sm/m ²	0,62±0,01	0,59-0,64	0,57±0,01	0,56-0,59	0,002
PLVT index, sm/m ²	0,64±0,01	0,63-0,66	0,59±0,01	0,58-0,61	0,001
LVESD index, sm/m ²	2,03±0,03	1,97-2,09	1,88±0,29	1,82-1,94	0,001
LVEDD index, sm/m ²	3,01±0,03	2,95-3,07	2,79±0,29	2,73-2,85	0,001
LVMM index, g/m ²	141,0±2,4	136,2-145,8	132,6±2,8	127,1-138,0	0,003
LVESV index,ml/m ²	82,2±1,7	78,7-85,6	76,7±1,7	73,3-80,1	0,015
LVEDD index, ml/m ²	34,2±1,3	31,6-36,7	31,8±1,2	29,4-34,2	0,113
SV, ml/m ²	47,1±0,8	45,5-48,7	43,8±0,6	42,6-44,9	0,002
CO, l/min/m ²	3,0±0,1	2,9-3,2	3,0±0,1	2,9-3,2	0,147
EF, %	59,7±0,7	58,3-61,1	59,4±0,8	57,8-61,1	0,723
Females					
	n=20		n=48		PI-NI

LA index, sm/m ²	2,34±0,09	2,11-2,38	2,26±0,08	2,11-2,30	0,443
IST index, sm/m ²	0,65±0,21	0,62-0,72	0,59±0,28	0,61-0,69	0,360
PLVT index, sm/m ²	0,63±0,02	0,60-0,71	0,58±0,04	0,60-0,67	0,706
LVESD index, sm/m ²	2,09±0,10	1,97-2,36	2,09±0,09	1,88-2,29	0,178
LVEDD index, sm/m ²	3,05±0,11	2,93-3,32	3,05±0,08	2,81-3,06	0,106
LVMM index, g/m ²	130,6±7,5	113,8-145,8	110,3±8,7	113,1-140,7	0,459
LVESV index, ml/m ²	72,5±1,4	69,5-75,6	66,7±2,8	61,1-72,4	0,187
LVEDV index, ml/m ²	32,8±2,4	27,7-37,9	31,5±2,7	26,1-36,8	0,225
SV, ml/m ²	44,4±1,8	40,7-48,2	42,8±1,2	40,4-45,1	0,757
CO, l/min/m ²	2,7±0,1	2,5-2,9	2,6±0,1	2,4-2,9	0,240
EF, %	61,5±2,3	56,9-66,3	59,8±1,4	56,9-62,5	0,492

Abbreviation:

LA - left atrial

IST – the interventricular septum thickness

PLVT – the posterior septum thickness

LVESD – the left ventricular end-systolic diameter

LVEDD – the left ventricular end-diastolic diameter

LVMM - left ventricular myocardial mass

LVESV – the left ventricular end- systolic volume

LVEDV – the left ventricular end-diastolic volume

SV – the stroke volume

CO – cardiac volume

EF – the ejection fraction

CI – confidence interval

Indexed indicators were significantly higher among indigenous men than non-indigenous (Table 4). The mean value of EF did not differ. HLIV by echocardiographic criteria of LVMM found more commonly in indigenous than non-indigenous ($p = 0,001$).

Discussion

We examined patients among the indigenous, particularly among men, with less severity of coronary artery atherosclerosis, low values of atherogenic lipids, lower incidence of obesity have a high incidence of hypertension.

Considering the given fact it is possible to speak about low adherence of native population treatment. Transport inaccessibility, far distances from the central regional hospitals, lack of highly qualified doctors, and social -cultural level of patients can be the cause. Low adherence to treatment is associated with poor prognosis. On the other - transportation inaccessibility, remoteness from the central district hospitals, shortages of qualified doctors, as well as social and cultural level of patients.

At the same time, it should be noted that hypertension - one of the most common diseases of adaptation [1], particularly, during which depend on many factors, including psychosocial [3] and heliophysical factors [8, 11]. Studies in recent years on human adaptation in the North have convincingly shown that biosocial fee for adaptation to the indigenous population in the North no less, and sometimes significantly greater than for non-indigenous population [6, 7, 10].

Last epidemiological researches in Yakutia show that the metabolic syndrome (MetS) is becoming the widespread phenomenon among indigenous population of Yakutia and the most frequent variant is a combination AO+AH+dislipidemia (48,8 %) and AO+AH+hyperglycemia/diabetes 2 types (37,9 %) and less often there is variant MetS without AH (4,5 %) [9].

Hypertrophy of the left atrium (HLA) and HLV have surveyed our patients demonstrated significantly more frequently among men in the indigenous as the ECG, and echocardiographic criteria. High AH prevalence among natives in Yakutia has been noted in other researches [13]. Initially, HLV and LLA of in

patients with hypertension is a compensatory reaction. Myocardial hypertrophy - is the first step in the development of congestive heart failure, cardiac arrhythmias, and coronary heart disease. In patients with atrial fibrillation, the main and sometimes only finding may be hypertrophy and dilatation of the atria.

Thus, the patients examined among men in the indigenous detected more frequently hypertensive and HLV, HLA with less severity of their coronary artery atherosclerosis, low values of atherogenic lipids and lower incidence of obesity. In the development of this phenomenon is a possible pathogenetic role played by insulin resistance (IR).

Insulin resistance (IR) - a deterioration of the hormone insulin in the cells to insulin-sensitive tissues (skeletal muscle, liver and adipose tissue), the severity of which may be different - from the slight decline in the effect of insulin on target cells to an almost complete lack thereof. IR is a common pathogenetic factor development of clinical and laboratory disorders such as impaired glucose tolerance, hyperinsulinemia, elevated levels of triglycerides and VLDL (very low density lipoprotein), reduced HDL cholesterol in the blood plasma, arterial hypertension.

State IR and compensatory hyperinsulinemia may occur for a very long period of time, while blood glucose levels remain normal. However, many persons who have insulin resistance, especially against the presence of certain genetic factors over time is the depletion of the function β -insular apparatus of the pancreas and developing so-called relative deficiency of insulin. Hyperinsulinemia, which performs a compensatory function and aims to maintain normoglycemia, while at the same time, and is damaging in nature. So, we have shown that elevated levels of insulin leads to increased concentrations of sodium in the blood and the activity of the sympathetic nervous system, which in turn predisposes to increased blood pressure and the development of hypertension. Indeed, the relationship between IR and high blood pressure found in many studies [4,5].

The obtained data testify the mechanism specificity development of coronary atherosclerosis complications among native nationalities of Yakutia. Of particular practical importance is his association with a large indigenous population with hypertension, hypertrophy

of the left atrium and left ventricle. Perhaps a pathogenic role in this matter a high prevalence of insulin resistance among the indigenous population of Yakutia.

Conclusions

1. Analysis of risk factors in patients with verified coronary atherosclerosis revealed that among indigenous men at lower severity of coronary artery atherosclerosis, low values of atherogenic lipids, a lower frequency of obesity (BMI criterion) a high prevalence of hypertension and associated hypertrophy of the left heart was revealed.
2. In the development of this phenomenon in the indigenous population of Yakutia the high prevalence of insulin resistance in them may be important.

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