EVALUATION OF MORBIDITY OF THE POPULATION, RESULTS OF MEDICAL AND BIOLOGICAL RESEARCH IN UST-KAMENOGORSK CITY

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The problem of adverse influence of factors of environment on a state of health gets every year the increasing urgency [1,2]. Health reflects an ecosystem condition as a whole, is the generalized indicator of quality of inhabitancy and its influence on ability to live of people [3–6]. Last decades the increase in prevalence of illnesses of separate nosological forms which is caused by environmental contamination is observed. As a subject of discussions among professionals the contribution of environmental contamination and its separate kinds to growth of disease and death rate of the population, in view of complexity of interaction of numerous factors of influence and difficulties of revealing of factors of diseases [7–9] serves.

Adaptable mechanisms of the person don't keep up with fast changes of environment. Negative factors of an urbanization have sharply increased in cities – noise, vibration, small mobility of the population, the accelerated rhythm of life, huge number of irritants. It involves infringement of natural biorhythms of a human body, increase in mental and emotional loading, stressful conditions [10].

The majority of diseases which are investigated in socially-hygienic monitoring are the ecologically dependent illnesses which communication with environment factors exists, but it isn't so strong to be obvious. Thereof, the proof of presence of communication between a state of health of the population and a state of environment is an uneasy problem.

Thus, environmental contamination by harmful substances and their influence on health of the person is one of the major problems for the today, demanding the immediate decision.

PURPOSE OF THE STUDY

To assess the morbidity of the population of Ust-Kamenogorsk city on the results of biomedical research.

MATERIALS AND METHODS

The object of the study was the adult population of two districts of the city of Ust-Kamenogorsk (region «CSM» and region «Zashita»), aged 18–59 years, living in the territory of at least 10 years old and not working in harmful working conditions, total surveyed 772 people. The control area is selected Shuchinsk city, located in the resort area, where 635 people were surveyed.

Surveyed individuals were questioning according to card medical examination, approved by the local Ethics Commission (№ 13 of 24.04.2010), have been examined by the therapist before inspection, it had been conducted laboratory researches (the general analysis of blood, the biochemical analysis of blood, immunological indicators, thyroid gland hormones), an electrocardiogram, function of external breath. Under indications, for final statement of the diagnosis, additional kliniko-functional researches (ultrasonic of a gastroduodenal zone and kidneys, a thyroid gland) were conducted.

Data were collected on the nature of the cohort, cross-sectional, double-blind studies. For qualitative variables and quantitative variables with abnormal distribution of the expected median and 25% and 75% quartiles. Assessment of relative risks was carried out on the value of χ^2. Risk assessment determined the odds ratio (OR) confidence interval (CI), the relative risk (OR), etiological fraction effects (EF), the absolute risk (AR), the percentage of associated risk (AKP) and the associated risk population (SPR).

RESULTS

In the area of "KSHT" Ust-Kamenogorsk city has been viewed 342 people. Among the surveyed residents of the area "KSHT" Ust-Kamenogorsk city, 35.9% of the cases were healthy, the other 64.1% of cases regarded as the sick, among them a group of people with newly diagnosed disease were 70.3% of cases, and persons with chronic disease – 29.7% of cases. On the basis of the district health center "Zashita", Ust-Kamenogorsk city was examined 430 people of which 45.6% cases were healthy, the rest 54.4% are regarded

as patients (54.7% – persons with newly diagnosed disease, 45.3 % – persons with chronic disease).

Among residents Shuchinsk city 32% of cases surveyed were healthy, the other 68% are regarded as patients, of whom 84% were individuals with newly diagnosed disease.

In the surveyed population area "KSHT" of Ust-Kamenogorsk city, the most frequent disease was first identified by the cardiovascular system – 47.4% (of which, 95.7% of the cases was hypertension), gastrointestinal tract – 39.6% (of which 24% of chronic holetsistopankreatit and 23% of chronic gastritis), urogenital system – 27.9% (of which, 95.4% of chronic pyelonephritis), the endocrine system – 28.6% (of which, 97.1% of hyperthyroidism) (Table 1).

endocrine (10.9% of cases, of which 78.6% represented hyperthyroidism). Diseases of the cardiovascular system in 72% of cases presented arterial hypertension, diseases of the gastrointestinal tract were recorded more often chronic holetsistopankreatit (33.3%) and chronic gastritis (30.9% of cases) (Table 2).

In the surveyed population Shuchinsk city most frequent first identified diseases of the urogenital system - 55.4% (including 52% – against a background of chronic pyelonephritis kidney stone disease, 33% – chronic pyelonephritis against a background of nephroptosis), the endocrine system – 43.2% (60% of them - hyperthyroidism), gastro-intestinal tract – 36.8% (including 42% – chronic cholecystitis, 23% – chronic gastritis) and cardiovascular system

Table 1. *Structure of the newly identified disease therapeutic profile for the systems surveyed in the residents' KSHT "Ust-Kamenogorsk city*

The classes of disease	Total number		Male		Female	
	Abs	%	Abs	%	Abs	%
Hematopoietic system	5	3,2±1,4 (2,9:3,4)	1	2,0±2,0 (1,5:2,6)	4	3,8±1,8 (3,4:4,2)
Endocrine System	44	28,6±3,6 (21,3:35,9)	2	4,1±2,8 (3,3:4,9)	42	40,0±4,8 (30,4:49,6)
Cardiovascular system	73	47,4±4,0 (39,3:55,4)	28	57,1±7,1 (42,9:71,2)	45	42,9±4,8 (33,2:52,6)
Respiratory System	23	14,9±2,8 (14,4:15,4)	8	16,3±5,3 (14,8:17,8)	15	14,3±3,4 (13,6:14,9)
Gastrointestinal tract	61	39,6±3,9 (31,7:47,5)	19	38,8±6,9 (24,9:52,7)	42	40,0±4,8 (30,4:49,6)
Urogenital System	43	27,9±3,6 (20,7:35,1)	11	22,4±5,9 (20,7:24,1)	32	30,5±4,5 (21,5:39,5)
Musculo-skeletal system	5	3,2±1,4 (2,9:3,4)	1	2,0±2,0 (2,6:1,5)	4	3,8±1,9 (3,4:4,2)

Note: *in parentheses are 95% confidence intervals*

Table 2. *Structure of the newly identified disease therapeutic profile for the systems surveyed in the residents 'protection', Ust-Kamenogorsk city*

The classes of disease	Total number		Male		Female	
	Abs	%	Abs	%	Abs	%
Hematopoietic system	4	3,1±1,48 (2,83:3,38)	-	0	4	5,9±2,01 (5,23:6,61)
Endocrine System	14	10,9±2,66 (10,4:11,39)	3	5,0±1,86 (4,29:5,75)	1	16,2±3,15 (15,13:17,3)
Cardiovascular system	53	41,4±4,2 (32,9:49,8)	4	40,0±4,18 (31,63:48,37)	9	42,6±4,22 (34,15:51,05)
Respiratory System	16	12,5±2,82 (12,0:13,02)	16	26,7±3,78 (19,14:34,26)	10	14,7±3,02 (13,67:15,76)
Gastrointestinal tract	46	35,9±4,09 (27,7:44,1)	21	35,0±4,07 (26,85:43,15)	25	36,8±4,12 (28,56:45,04)
Urogenital system	29	22,7±3,58 (22,0:23,36)	15	25,0±3,69 (17,6:32,;)	24	35,3±4,08 (27,13:43,47)
Musculo-skeletal system	5	3,9±1,65 (3,6:4,2)	3	5,0±1,86 (4,29:5,75)	2	2,9±1,43 (2,42:3,41)

Note: *in parentheses are 95% confidence intervals*

The structure of newly identified disease therapeutic profile of the surveyed systems, residents of the area "Zashita", the Ust-Kamenogorsk city were the most common diseases of the cardiovascular system (41.4%) and gastrointestinal (35.9% of cases). Several less frequent diseases of the urogenital (22.7% of cases, of which 94.5% were chronic pyelonephritis) and

– 31.6% (including 74% – high blood pressure) (Table 3).

In assessing the risk of morbidity, Ust-Kamenogorsk city, compared with the population Shuchinsk city a statistically significant difference by the value of χ^2 (31,5) with a high relative risk (2,07) and an odds ratio (2,36) (Table 4).

Table 3. *Structure of the newly identified disease therapeutic profile of the surveyed residents by systems Shuchinsk city*

The classes of disease	Total number		Male		Female	
	Abs	%	Abs	%	Abs	%
Hematopoietic system	51	14,13±1,83 (13,9:14,3)	4	5,4±2,63 (4,81:6,03)	47	16,4±2,19 (16,1:16,7)
Endocrine System	156	43,2±2,61 (37,9:48,4)	36	48,6±5,81 (36,9:60,2)	120	41,8±2,9 (35,9:47,6)
Cardiovascular system	115	31,85±2,45 (26,9:36,7)	19	25,7±5,1 (15,54:35,8)	96	33,4±2,78 (27,8:38,9)
Respiratory System	64	17,7±2,01 (17,5:17,9)	12	16,2±4,28 (15,2:17,2)	52	18,1±2,27 (17,8:18,4)
Gastrointestinal tract	133	36,8±2,54 (31,7:41,9)	25	33,8±5,5 (22,8:44,8)	108	37,6±2,86 (31,9:43,3)
Urogenital system	200	55,4±2,62 (50,17:60,6)	34	45,9±5,79 (34,4:57,5)	166	57,8±2,92 (51,9:63,6)
Musculo-skeletal system	30	8,31±1,45 (8,16:8,46)	5	6,7±2,9 (6,04:7,39)	25	8,7±1,66 (8,5:8,89)

Note: *in parentheses are 95% confidence intervals*

In this high risk due to cardiovascular diseases among the male population of Ust-Kamenogorsk city, g, which represented 72% of hypertension ($\chi^2 = 4,2$) (Table 5).

In such a way, during the medical examination of population of Ust-Kamenogorsk city, more than 60% of the surveyed people recognized by patients. In this case, a group of people with newly diagnosed disease were the most common diseases of the cardiovascular system, gastrointestinal tract and urogenital system. In the comparative assessment of the relative risk to residents of Ust-Kamenogorsk city, compared with Shuchinsk city found higher risk (1.45) by cardiovascular disease among men surveyed systems.

Table 4. *Risk assessment by diseases of various body systems, Ust-Kamenogorsk, compared with the morbidity of the population Shuchinsk city*

city	RC	CI	RR	EF	AR	PCR	CRP
Ust-Kamenogorsk*	2,36	1,75:3,21	2,07	51,6	10,5	99,5	30,4

Note: ** – statistically significant difference in the $\chi^2 > 3,84$*

Table 5. *Risk assessment by diseases of the cardiovascular system of the male population of Ust-Kamenogorsk city, compared with the male population Shuchinsk city*

system	RC	CI	RR	EF	AR	PCR	CRP
cardiovascular*	1,81	1,05:3,16	1,45	31,2	30,6	99,3	12,1

Note: ** – statistically significant difference in the $\chi^2 > 3,84$*