

which are the most expressed among the population, where the high degree of the air pollution is observed. The lowered city's areas are the most polluted territories, where the considerable rates of the designated pollutants are concentrated. By the results of the statistical parameters generalization, the primary sick rate frequency by the respiratory organs diseases of Kazan for 22,2% is more, than, in average, by the Republic of Tatarstan, and this magnitude is, approximately, constant for the last 10 years of the observation. For all this, the districts with the high degree of the atmospheric air pollution (e.g. the Moskovsky, Novo-Savinovsky, Sovetsky, Kirovsky ones) are distinguished by, where there are the large transport thoroughfares and the lowered landforms areas. The difference by the sick rate frequency is considerably expressed among the children (e.g. 34,3%). In comparison the respiratory organs diseases spreading of the whole city's population with the republican ones, the exceeding portion is made up 36,3%, but it is 33,8% among the children population. The sick rate frequency of the children is more, for certain, on the territory of the Moskovsky district (e.g. 460,8 cases) against 358,7 cases for 1,000 children [1].

We have taken the character and structure study of the frequency changes of the sick rate with the temporary loss of the ability of work (SRTLAW) from the otorhinolaryngologic pathology (ORLP) among the economically active population (EAP) in the Republic of Tatarstan (RT). The official data have been appeared as the researches object on ORLP in RT for 1996-2006-es by the 16 – TI form «The Data on the Temporary Invalidity Reasons».

ORLP has been presented by three groups in the SRTLAW structure: the ear diseases (ED), the acute respiratory infections (ARI), and the acute pharyngitis and tonsillitis (APT).

The temporary series analysis with the changes intensity estimate in the dynamics by means of the corresponding parameters has been used as the epidemiological research methods. The tendency of many years calculation by means of the leveling by the method of the least squares has permitted to eliminate from the periodical and random vibrations, however, the peak values (e.g. the maximum and minimum ones) of the SRTLAW frequency have been studied separately for the whole period, and the changes have been estimated in the separate sexual and age-related groups.

By the final results for 2006, ORLP is made up almost a quarter (24,3%) of all the registered SRTLAW cases in RT. For the part of the first group – ED is found only 1,3% SRTLAW, but the rise frequency of the given diseases among EAP is fixed at the level of $0,70 \pm 0,12$ cases (here and further – the arithmetical mean value \pm the error of mean) for 100 working people. For the part of the second group of ORLP – ARI is practically fallen up to 20% in the SRTLAW structure, but in calculation for 100 work-

ing people, in average, is made up $9,23 \pm 0,90$ cases. It has been mentioned the total SRTLAW frequency decrease on ARI for the registered period, in spite of the dynamics undulation, when the rise periods (e.g. 1997, 1999-2000-es, 2002) have been changed by the decrease periods (e.g. 1998, 2001, 2003-2006-es). At the leveled dynamical series, the descent velocity of the intensive indicator for 11 years was quite small – in average, 0,8% per a year. The most descent is found for 1998 (e.g. – 12,1%), but the increase – for 2002 (e.g. + 8,6%) at the year-on – year rate of changes of the ED indicator. The last, the third group, the diseases – APT is made up to 3% SRTLAW, but by the frequency level – $1,40 \pm 0,17$ cases for 100 working people.

Thus, the frequency and the spreading of the respiratory organs diseases, especially of the upper sections, are found in the direct dependence from the designated pollutants concentration in the atmospheric air of the urban and rural populations. The highest levels of the designated pollutants are observed on the highways and the lowering sections of the territory, where the high frequency and the diseases spreading are observed. The upper respiratory tracts pathology is mentioned by the significant group of the EAP diseases, as it is made up 23% of all the registered SRTLAW cases.

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AgNORs IN THE KUZBASS INHABITANTS (THE WESTERN SIBERIA)

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The nucleolar organizer regions (NORs) – these are the chromosomes' sites, having contained the ribosomal genes. The NORs are able to be visual-

ized, having used the staining by the silver nitrate. The silver ions are capable to be connected with the sour non – histone proteins, having presented in the NORs. The AgNORs – proteins are being detected, as the clearly outlined black zones, which are localized inside the nuclei in the light microscope [1]. The interest to the AgNORs – proteins investigation has been increased, having begun since the 80 – es of the XX century, when the facts of the sharply increase of their sizes have become known in the cancer cells in comparison with the normal ones [2]. The blood donors with the Alzheimer's disease [3], the Down's syndrome [4], and the patients with the human immunodeficiency virus [5] have been further investigated. It has been determined, that the AgNOR size is the rate marker of the cellular cycle [6], and it is reflected the degree of activity of the ribosomal genes. The AgNORs changes under the exposure of the unfavorable chemical factors and the radiation are actively being investigated [7, 8]. The significant role of the NORs, as the adaptive element has been shown, and it also has been determined, that the biggest degree of development of the nucleolar organizer system of species has been connected with the extreme conditions of its existence [9].

In this connection, the AgNORs study in the blood lymphocytes of the indigenous and newly come population of the Western Siberian industrial region has been become the aim of our investigation.

Materials & Methods

290 inhabitants of the Kemerovo region, having lived in the Tashtagolsky (121 people), the Belovsky (79 people) regions, and in the city of Kemerovo (90 people) have been examined. The Tashtagolsky region – this is a place, where the representatives of the indigenous and smaller Siberian people – shorczes are compactly living. The inhabitants of the Bekovo village – are the representatives of the other smaller people – teleuts have been examined in the Belovsky region. The Siberian newly come population is predominated among the city's inhabitants of Kemerovo, in connection with this, the Caucasoids have been examined. The blood lymphocytes cultivation, the handling of the specimens, their staining, and the AgNORs sizes analysis have been conducted, in accordance with the earlier – described methods by us [10]. And, at last, the AgNOR area/Total Nuclear area (NORa/ TNa) in 50 cells from each blood donor have been estimated.

Results & Discussion

The NORa/TNa average size in the lymphocytes, having stimulated PHA has been made up $17,61 \pm 0,34\%$ at the inhabitants of the Tashtagolsky region, $13,33 \pm 0,27\%$ – at the inhabitants of the Belovsky region, but at the city's population of Kemerovo – $11,83 \pm 0,18\%$. It is quite known, that the studied value is depended, in the first place, on the stimulation level one or another type of the cells in the cellular culture. The nucleus diameter of the stimulated cells, in accor-

dance with the literary data, is being varied from 7 up to 30 microns [11]. In our investigation, the cells' nucleus diameter has been made up, in average, at the inhabitants of the Tashtagolsky region – 14 microns, at the city's inhabitants of Kemerovo – 12,8 microns, at the inhabitants of the Belovsky region – 13,1 microns. All these differences are, statistically, reliable (e.g. $p < 0,01$). Then, the NORa/TNa comparison in the cells with same nucleus diameter has been conducted. In the big cells, with the nucleus diameter 14 and more microns, the NORa/TNa has been made up 16,56% in the group of shorczes, and 10,57% – in the group of Caucasians. In the small cells, with the nucleus diameter less, than 10 microns, the NORa/TNa has been made up 19,2% at shorczes, and 11,78% – at Caucasoids. Thus, the differences in NORa/TNa could be observed, even in the comparison with the cells, having the similar size.

This parameter may be changed also by the other factors, such as the measured cells number, cases number and ages of the studied individuals. As you know, this parameter (NORa/TNa) is related directly to the metabolic state (e.g. mostly, anabolism) of the cells, and, not or less, it is related with the ethnicity; per consequent, it is largely used in the *in vivo* evaluation of the cancerous cells [12].

So, it is quite impossible to exclude also, that the discovered difference in the NOR expression at the inhabitants of the Kuzbass different regions is connected with the adaptation peculiarities to the unfavorable conditions of the inhabitation, as, it is quite known, that the shorczes' residence territory (e.g. the Tashtagolsky region) is characterized by the unfavorable radio – ecological situation (e.g. the high level content of radon in the living accommodation).

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THE WOMEN'S INHIBIN – A LEVEL WORKING AT THE ASTRAKHAN AS CONDENSATE COMPLEX

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The environmental factors are capable to exert various and often unfavorable influence upon the human organism's health state [Isaev, 1997, Evdokimov V.V., 1998, Kurilo L.F., 2003]. And this is clearly being observed also in the Astrakhan region [Ushakov M.V. 2002]. In the Lower Volga, the «Astrakhan-GasProm» LTD is one of the main sources of the anthropogenic impact upon the human organism, having included in itself the enterprises' complex, which are making the reservoir engineering of the Astrakhan gas condensate deposit and the produced gas condensate processing.

The natural gas of the Astrakhan gas condensate deposit (AGCD), its different components, and

their derivatives occupy ones of the central positions in the aggressive ecological factors complex and exert reliable influence upon the peculiarities of the morbidity structure in the Astrakhan region [Nikolayev A. A., 1999].

Therefore, the systematic influence study of the natural gas upon the various organs and the human organism's functional systems, and also the experimental animals is being carried out. At the same time, the natural gas impact upon the reproductive function has not sufficiently been studied.

It is quite known, that the premature ovaries' insufficiency (POI) is one of the least studied and the predictable ones in an aspect of the diagnostics and the medical treatment among the infertility reasons. So, the POI's nature is not quite clear in the majority of the cases [Marchenko L.A., Alexandrova N.V., 2006]. The supply depletion of the primordial follicles up to its the complete exhaustion and the atfollicular type of the POI's formation, which is not peculiar to this age – related period, is the POI's basis, independently from the aetiological factor. At present, it has been determined, that the methods, having based on the peptide level definition, and having generated in the ovary (e.g. the inhibin – A), possess the high level definition of the ovarian reserve. It is supposed, that the difference in the expression of the inhibin's isoforms is depended from the follicle's size.

The aim of our work has been the investigation of the women's inhibin – A level, having worked at the AGCD, as the ovarian reserve indicator, depending on the length of working service at the given enterprise.

The ovarian reserve state has been estimated at 168 women from at the age of 22 up to 40 years (e.g. the average age has been 34,8±3,25 years). 22 healthy women have made the control group of the analogous age – related structure with the preserved menstruations period, at whom the blood samples have been taken on the third day of the menstrual cycle. The ovarian reserve estimation (e.g. the inhibin – A level definition) has been carried out by means of the two – centered immune – enzyme test – system of the DSL firm (the USA).

The statistical data processing has been made at the PC IBM computer by means of the Microsoft Excel electronic worksheets and the application package of the Statistica for Windows v. 7.0, StatSoft Inc. (the USA). The connection between the studied indications has been estimated by the results of the correlation analysis with the calculation of the Pearson correlation coefficient (r) or the Spearman correlation coefficient (R) with the following definition of its significance by the t criterion.

The average inhibin – A level in the blood serum on the 3-rd – 5-th day of the menstrual cycle has been made up 15,2±2,4 pg/ml (10,8 – 19,2 pg/ml) in the control group of the healthy fertile women.