

than in C_3 -plants, that is consistent with the data of a range of authors (Wrown R.H., 1978; Oaks A., 1994). It is known that more than half of the cell's soluble protein falls to ribulosebiphosphate carboxylase/oxygenase (RBPC/O), especially in C_3 -plants. Amaranth contains significantly less RBPC/O, therefore the nitrogen demands for basic enzymatic proteins synthesis are considerably decreased as well, and its main part is used to new cellular structures formation. So, in response to nitrogenous fertilizers application in amaranth a more intensive biomass growth, than that in C_3 -plants, takes place and less nitrates, than in the last ones, is accumulated in leaves. In all probability, it is it that explains a high NIPE level in amaranth. On the ground of the results obtained it is offered to divide mineral nitrogen in plants into "growth" nitrogen, which is higher in C_4 -plants, and homeostasis "maintenance" one, which is considerably prevalent in C_3 -plants.

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CLINICAL-LABORATORIAL FEATURES OF ORAL HEALTH STATUS IN DIABETES AND HYPERTENSIVE DISEASE PATIENTS

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An early detection of an attendant physical pathology in dental patients becomes more and more actual one year by year in connection with constant occurrence frequency increase of somatic diseases with modifications of their clinical implications and penetration beyond the framework of typical age range. First and foremost it concerns the nosologies, the intrapopulation expansion of which has acquired a pandemic character – diabetes (DB) and hypertensive disease (HD).

It goes without saying that in those cases, when the patient is aware of a somatic disease presence in him, the dentist will get the information content sufficient for the choice of further treatment at the beginning of attendance already, when the anamnesis is correct. However, the problem is that only about 40% of DB and HD patients are aware of their suffering from these diseases, as a result, the anamnestic information will be inauthentic – the patient will merely not be able to tell the doctor about what he doesn't know himself.

The information about the presence of an attendant physical pathology is able to influence to a great extent on the stomatological tactics. So, the HD presence is a contraindication to the administration of anesthetics combined with adrenalin. A stomatological surgical intervention in the DB patient will require

an antibacterial cover in most cases, but at the same time a "blind" prescription of antibiotics will not be useful at an analogous intervention into the patient not suffering from DB. The establishment of an interconnect system between the doctors of various specialties and operative corresponding of patients to a required specialist allows reducing the terms of patients' profile observance beginning and optimal medicamental correction of their state. It improves the health care delivery quality, reducing non-profile expenditures associated with redundant diagnostics and diminishing the resulting losses due to the quality retaining and such patients' longevity increase.

The **purpose of the study** is to prove the possibility to define hypertensive disease and diabetes presence risk persons at a dental attendance on the basis of clinical and laboratorial evaluation of their oral health status.

General characteristics of the study material

The clinical research of the study participants was carried out in accord with a specially developed card. The persons corresponding to the fitting criteria were included into the study. In all the examinees the index characteristic of their oral cavity organs and tissues, the composition and main physicochemical properties of oral liquid, the elemental composition of dental deposits were studied. The clinical study was carried out by the unified dental practice methods. The elemental composition of dental deposits was studied on the facilities accredited by the RAS for the performance of scientific research of biological profile.

After the preliminary stratification the set sample was distributed into five samples randomized in sex and age depending on the kind of physical pathology, the presence or absence of hard dental deposits. The factors supposedly confirming the risk of a concrete somatic pathology were studied. Their individual and resultant value was defined quantitatively. In all the stages of the research the statistical significance of intermediated and ultimate results and the authenticity of the advanced hypotheses were tested by nonparametric statistic methods.

The course of a series of somatic diseases is attended by the oral cavity organs' and tissues' alteration being manifested by a more active course of the carious disease, oral mucosa and parodontium damages. As a result of the present research the index evaluation of oral cavity state in HD, chronic pyelonephritis (CP) and 2 type diabetes patients was studied.

All the research participants were divided into main groups (HD, CP and DB patients) and comparison ones (persons without the studied somatic pathology with dental calculus presence – DCP and with no hard dental deposits – NDC). In all the research stages the statistical significance of the intermediated and ultimate results and the advanced hypotheses' authen-

ticity were tested by parametric and nonparametric methods of statistics.

For the clinical evaluation of the research examinees' oral cavity organs and tissues state the unified indexes possessing the maximal information capacity were used: CPF (the quantum index of carious, pulled out and filled teeth – the tooth decay intensity factor), PMA (papillary marginal alveolar index), OHI-V (oral health index according to Green-Vermillion) and DCI (dental calculus index). After obtaining absolute values all the studied clinical factors were classified. After their comparative estimation the following results were obtained.

Among the persons with somatic pathology the less CPF index values were registered at nephropathy, and the greatest ones – in HD patients. In DB patients the tooth decay intensity on the studied factor differed insignificantly from the analogous one in the persons with nephropathy. Comparing the caries intensity at the somatic pathology with the analogous factor in the persons thinking themselves to be healthy, it is established that in the last this factor was statistically significantly less (Wald-Wolfowitz runs test, $p < 0,05$) than in the HD patients.

The most negative parodontium state on the PMA index was registered in the patient groups of any age at DB and HD. The least values of the PMA index were in the nephropathy patients. Statistically significant differences (Wald-Wolfowitz runs test, $p < 0,001$) between the patient groups with somatic pathology and the patients with NDC were established.

At the comparative evaluation of the OHI-V values the worst oral health was in the DB patients, the OHI-V factors in the DB and HD patients' samples differing from the rest samples statistically significantly (Wald-Wolfowitz runs test, $p < 0,01$). The oral health state in the comparison group both with DCP and NDC turned out to be considerably better in all the age groups.

The DPI and DCI values appeared to be the highest in the DB and HD patients, and the least ones – in the nephropathy patients, the patient group with DC on the DPI factor being compared to the nephropathy patient group. At the same time the DCI was statistically significantly greater (Wald-Wolfowitz runs test, $p < 0,05$) in the DB and HD patients compared to the CP groups and the control.

For the somatic pathology screening possibility estimation the laboratory factors of oral liquid properties were also studied. All the participants of the research were divided into main groups (HD, CP and DB patients) and comparison groups (persons without the studied pathology with dental calculus presence – DCP and with no hard dental deposits - NDC). In all the research stages the statistical significance of intermediated and ultimate results and the authenticity of the advanced hypotheses were tested by parametric and non-parametric statistic methods.

At the comparative estimation of the studied laboratorial factors it was established that the oral liquid release rate in the DB and HD patients was considerably less than in the comparison groups (Wald-Wolfowitz runs test, $p < 0,05$). In the CP patients the release rate was decreased in the first age group only.

The oral liquid stickiness in the DB patients exceeded the factors marked in all the rest samples, both of the persons with somatic pathology and in the comparison groups, statistically significantly (Wald-Wolfowitz runs test, $p < 0,05$), in the sample of the NDC persons the spread of values proving to be minimal. The oral liquid surface strain factors didn't differ considerably both in the samples of patients with somatic pathology and comparison groups.

The oral liquid pH values were neutral in the NDC persons, shifted to the alkaline side in the HD patients with DCP and reached maximal values in the CP and DB patients. However, the depicted tendency didn't reach the values of statistical significance (in all the cases - Wald-Wolfowitz runs test, $p > 0,05$).

The concentration of phosphor in oral liquid exceeded the values of the NDC persons sample in the DB patients only significantly (Wald-Wolfowitz runs test, $p < 0,05$). In the rest cases there were no statistically significant differences registered, though a statistically insignificant tendency to the phosphor content increasing in the CP patients was marked.

Among the persons with somatic pathology the least total calcium concentration values corresponded to the HD patients, and the greatest ones – to the DB patients, statistically significant differences being registered (Wald-Wolfowitz runs test, $p < 0,05$). A considerable spread of values was registered in the CP patients and persons with DCP. The values of active calcium concentration factors in the group of persons with NDC proved to be statistically significantly less compared to all the other groups (Wald-Wolfowitz runs test, $p < 0,05$). The same tendencies were traced while studying the active calcium concentration in oral liquid.

The potassium concentration in oral liquid in all the samples of somatic patients exceeded the factors of NDC persons considerably (Wald-Wolfowitz runs test, $p < 0,05$). At the comparative estimation of the content of sodium in oral liquid its significant difference from the control was registered in the HD patients only (Wald-Wolfowitz runs test, $p < 0,01$).

The hydroxyapatite solubility product in all the samples exceeded the values of the NDC persons sample differing considerably from those of the DB (Wald-Wolfowitz runs test, $p < 0,01$), CP patients and persons with DCP (Wald-Wolfowitz runs test, $p < 0,05$).

At the comparative estimation of the total protein concentration it was found out that among all the samples there were no statistically significant differences registered (Wald-Wolfowitz runs test, $p > 0,05$).

Conclusions: 1. The clinical DPF, PMA, OHI-V and DCI indexes characterizing the oral health status differ statistically significantly in HD and DB patients from persons without the specified pathology. In CP patients and persons without this pathology there is no statistically significant differences of the given clinical indexes established.

2. Separate laboratorial characteristics of oral liquid (stickiness, phosphor, total and active calcium, sodium, potassium, hydroxyapatite solubility product) differ statistically significantly in HD and DB patients and persons without the specified somatic pathology.

3. A method of HD and DB screening at a stomatological attendance has been developed. On the basis of clinical indexes' values defining with their further ranging the persons with a significant or high risk of the presence of the studied pathology stand out. For the persons referred to a risk group by this method the total calcium and sodium (and sodium Na^{++}) content in the oral cavity are determined in the laboratory. The content of total calcium less than 0,06 g/l, and sodium – more than 0,2 g/l is typical for HD patients, while the content of total calcium more than 0,07 g/l is common for DB patients.

To the evidence based medicine opinion a clinical-laboratorial characteristic of oral cavity organs and tissues status in hypertensive disease, diabetes and chronic pyelonephritis patients has been given. It has been proved that in the patients with the studied pathology there are statistically significant differences of the oral cavity status index characteristic and physicochemical properties of oral liquid from analogous parameters of the research participants without the studied pathology. It has been proved that the clinical indexes characterizing the oral cavity health status are statistically significantly different in hypertensive disease and diabetes patients.

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MORBIDITY WITH TEMPORARY DISABILITY IN COAL AND CHEMICAL INDUSTRY WORKERS

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The Kemerovo Region – is the region with a developed coal mining and chemical industries, thus the problem of workers' health formation in these branches is a topical one for public health service of Kuzbass. The purpose of the research is to study morbidity with temporary disability (MTD) of coalminers and workers of chemical enterprises (WCE) (2000-2006). The information about the MTD was got by

the method of excerption from disability certificates. The statistical treatment was carried out with use of application program package STATISTICA 6.0. The highest MTD case rate ($1435,2 \pm 0,01\%$ against $915,8 \pm 5,0\%$; $P < 0,001$) and disease duration ($20,0 \pm 0,3$ days against $14,0 \pm 2,1$ days; $P < 0,001$) are registered in coal producers' workers. Respiratory diseases rank first within the MTD of coalminers and WCE structure ($31,1 \pm 1,4\%$ and $29,1 \pm 1,8\%$), the apparatus system and connective tissue diseases take the second place ($24,9 \pm 1,3\%$ и $19,4 \pm 1,6\%$). Within the coalminers' MTD structure the third place is taken by traumas, intoxications – $20,6 \pm 1,2\%$, at chemical productions – blood circulatory system diseases – $11,6 \pm 1,3\%$, that is connected with the specificity of the productions. The prophylaxis remains one of the priority principles of the National public health service, so, a special topicality is acquired by the development of prophylactic and rehabilitation programs for coalminers, which seems to be practical only after the in-depth study of health status and life quality of the given social group. A perspective direction is an individual integrated assessment of the disease rise risk depending on the affecting factors totality, that will allow forming groups of dispensary observation and carry out dedicated medical and preventive measures in them.

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CONDITION OF COAL INDUSTRY WORKERS' HEALTH

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The progressing RF population health deterioration is the fact of common knowledge, that is to the full extent referred also to coal enterprises workers. Taking into account the functioning Concept of the Presidential Program “Health of Working Population” the problems of coalminers' health preservation and promotion are gaining the priority-oriented value. The purpose of the given research has been the study of coal industry workers' total morbidity (TM). The data excerption from workers' disability certificates for the period from 1985 to 2006 was carried out. The ratings were processed using variance analysis methods on personal computer with MS EXCEL and STATISTICA 6.0 application program package. The authenticity of the got factors was estimated using the T-criterion of Student. The post-event analysis of the Kuzbass coalminers' health status testified that the TM had increased by 119,1%, from $1677,8 \pm 49,6\%$