

the indicator at the patients with the CKD 1 Stage at the patients in this group.

**The Conclusions.** It is taken its place the TGF $\beta_1$ , VEGF-A, and IL-1 $\beta$  urinary excretion increase with the CKD progression at the patients with the gouty tubulo-interstitial nephritis.

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#### THE ANALYSIS OF THE LIVER TISSUE ROTARY PULSE TRAVELING AND MAGNETIC FIELDS

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«Golden Section», that is, division into shares of a 0,618 and 0,382, seen in many publications as normal in the body. Deviation from it as indicating the presence of disease.

This article analyzes the morphological changes in the liver of mice exposed to magnetic fields from the standpoint of the «golden section». The experimental data suggest that the law of the «golden section» is applicable not only in normal conditions, but under severe pathological processes. This indicates the tendency of a biological substance to equilibrium in mature irreversible pathological process.

The purpose of the study. The aim of the study was to analyze the severity of the morphological changes in the liver of mice exposed to magnetic fields of different modes from the standpoint of the «golden section». Reviewed the results of the study of the morphological effects of the control actions extremadamente low-frequency, rotating magnetic fields (EMF) and impulse traveling magnetic fields (IBMP) to mammalian tissue.

**Materials and Methods.** To verify compliance with the law «golden mean» for a number of indicators or deviation from it was carried out in five groups of laboratory animals:

Group 1 – control group of intact mice;

Group 2 – the experimental group of mice that were exposed to a traveling magnetic field pulse (IBMP) with a pulse duration of 0,5 seconds;

Group 3 – the experimental group of mice that were exposed to a rotating magnetic field (EMF) with a frequency of 6 Hz, the direction of rotation of the field to the right, the magnetic induction 4 mT, combined with an alternating magnetic field (VMF) at 8 Hz, at a value 4 mT magnetic induction;

Group 4 – experimental group of mice that were exposed to an alternating magnetic field (VMF) at 8 Hz when the magnetic induction 4 mT;

Group 5 – the experimental group of mice that were exposed to EMF with a frequency of 6 Hz, the direction of rotation of the field to the right, the

magnetic induction 0,4 mT, combined with an alternating magnetic field (VMF) with a frequency of 8 Hz, the magnetic induction 0,4 mT.

**The results of research.** Analyze from the standpoint of the «golden section» relations between some morphometric parameters of liver tissue. Analysis were the following parameters: the size of the central vein, the area of the cytoplasm in the area of necrosis and the area of the central vein, the area of necrosis and the area of the central vein as indicators, reflecting the state of hemodynamics at the microcirculatory level in the liver tissue. The values given in Table 1, show that the «golden section» is most characteristic of the fifth group, which has the greatest pathological changes.

The ratio between the area of the cytoplasm in the area of necrosis and the area of the central vein satisfies the law of «golden» for the second (0,410 and 0,590), fourth (0,397 and 0,603) and fifth groups (0,368 and 0,632). The same result is obtained for the ratio between the area of necrosis and the area of the central vein. For the second group, the ratio is 0,389 and 0,611 for the fourth – 0,359 and 0,631, for the fifth – 0,349 and 0,651. The relation between the size of the central veins close to the «golden» numbers for the fifth group (0,595 and 0,605).

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#### ORGANIZATION FORMS OF PREVENTATIVE WORK IN STOMATOLOGY

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Numerous studies that have been taken in Russia and abroad have proved convincingly that introduction of preventive methods into practice decreases levels of diseases' spread significantly.

Social questionings have shown that only 21,3% of the respondents had a partially correct opinion on methods and mean of oral cavity hygiene, and the rest 79,2% – incorrect. Majority of respondents (96,7%) have mentioned that before, while buying a toothpaste, they considered a lower price rather its characteristics. No one of the questioned used dental elixirs of gels.

65,0% of the questioned brushed their teeth regularly two times a day, however, only 81,3% of the total number of the questioned sent more than 1 minute brushing teeth, instead of recommended 2,5–3 minutes.

The objective of a dental hygienist is to develop and introduce individual programmes of hygienic training, instruction of population and taking actions to prevent dental diseases.

During the research process we have outlined three groups of major actions that are realized by a dental hygienist: preventative, training, and treating.

• **Preventative actions:**

- Inspect a patient and define his hygienic indexes.
- Take local applicative or injection anaesthetization.
- Remove accretions of dental tartar and thin raid with special equipment.
- Grind and polish necks and available areas of roots after the removal of dental tartar.
- Define hygienic indexes.
- Use fluorine preparations to improve the process of remineralization of enamel and dentine such as gels, lacquers, and rinsers. Deep fluoridation.

• **Training actions:**

1. Instruct a patient on methodics of individual hygiene of oral cavity and healthy way of life that includes:

- Information that a quality of care after oral cavity defines the success in treating parodontosis diseases, preservation of healthy teeth, fillings and restorations;
- Instructing a patient on anatomic structure of a tooth and gum, its physiology and functional peculiarities;
- Demonstrating sequence of moves with means of individual care and order of gum massage on a jaw phantom;
- Selecting means of individual care and recommendations on choosing a toothbrush, toothpaste, means for inter-teeth gaps and rinsers;
- Recommendations on healthy diet, usage of chewing gum to prevent caries;
- Providing a memo on care for teeth and oral cavity. At the end of the first visit a patient must discover a motivation to treat and keep individual hygiene of oral cavity.

2. Control of the efficiency of knowledge on problems of oral cavity hygiene and effectiveness of brushing teeth (with definition of hygienic indexes) takes place during the second and 9if necessary) further visits.

• **Treatment-preventative actions:**

- Anti-inflammatory treatment: applications, gum bands, films, etc.
- Physiotherapy treatment: hydric massage of gums, depoforesis, vacuum-therapy, etc.
- Filling immature fissures with temporal filling materials.
- Hermetization of fissures (invasive and non-invasive methods). All methods of fluoridation.
- Medical examination and rehabilitation of patients with decompensated form of caries, diseases of mucous tissue of oral cavity, parodontosis.

– Hygienic preparation for surgery on parodontosis, implantation, and taking rehabilitation measures during post-surgery period.

- Teeth whitening.
- Treating hyperesthesia of teeth.
- Examination of occlusion. Reveal of preliminary contacts. Selective re-polishing of teeth.

Dental hygienists are trained from dentists at the foundation of center of qualification increase for middle medical workers.

The cabinet is located in an adult dental polyclinic, and dental hygienists treat patients of all age groups, providing medical service for each member of a family. Apart from dental facility, the cabinet is equipped with 3 additional water sinks with mirrors, placed above, that is necessary to train patients to brush their teeth and take care after their oral cavity. A continuously active exhibition of objects and means of hygiene is located on the walls and in a special cupboard.

The analysis of visit rate of cabinet of prevention and hygiene of oral cavity has shown that 63,2% of visitors were women.

Besides, the part of female visitors in all age groups prevails over the part of men.

Of total number of visits initial ones has formed 60,5%, second – 39,5%, while 50,5% of visits were formed of preventive measures, 26,9% – treatment-preventive measures, 22,6% – training measures.

In the structure of treating-preventive measures the part of visits on fissures hermetization equaled 26,9%; on teeth whitening – 31,8%; control definition of hygienic indexes – 39,5%; other measures – 1,8%. Knowledge on methodics of individual hygiene of oral cavity (training measures) was given to all children and teenager visitors.

Availability of a dental hygienist, dynamic inspection, permanent correction of a prevention plan, individual approach towards each member of a family plays a favourable part in dental health of all family members.

Majority of patients (98%) have been satisfied with a dental hygienist's work. Besides, 59,5% have outlined that they learned something new about the condition of their dental health (presence of caries spots, gingivitis, parodontitis, etc.) and were sent to a dentist for treatment.

The received results testify the necessity to intensify preventive work in dentist's activity, increase people's motivation to preserve their dental health. These problems can be solved by a dental hygienist.

**Resume.** The article presents organization forms of a dental hygienist's work at basis of dental polyclinic, provides the volume of work, evaluates medical-social efficiency of such specialist's work.

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#### IMPACT OF THERAPY UPON CYTOKINE PROFILE AMONG PATIENTS WITH HYPERTENSIVE TYPE OF CHRONIC GLOMERULONEPHRITIS

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**The objective of this work** is to carry out a comparative estimation of an impact of anti-hypertension therapy upon the contents of anti-inflammatory cytokines (factor of tumour necrosis –  $\alpha$  – FTN- $\alpha$ , interleukin-1b, IL-1b, IL-6, soluble receptor of IL-6) in blood serum of patients with hypertensive type of chronic glomerulonephritis (CGN).

**Methods and materials.** 96 patients with hypertensive type of CGN with disease period of 1 to 10 years without disturbance of kidney function (GFR > 60 ml/min) have been under observation. The average age of patients equaled 44,3 ± 5,8 years. Diagnosis CGN was established according to anamnesis and clinical-laboratory research. On average, daily proteinuria did not exceed 0,5 ± 0,2 g/day among the studied patients. Average speed of glomerular filtering equaled 83,5 ± 2,2 ml/min. Arterial hypertension (AH) among patients with CGN was defined according to recommendations of Russian scientific society of cardiologists (2010). Control group was formed of 30 healthy donors aged from 35 to 50 years. Contents of FTN- $\alpha$ , IL-1b, IL-6, IL-6 were studied via method of immune-ferment analysis. Patients with nephrogenic arterial hypertension received zenophenol in dose of 15-30 mg/day, felodipine 10-20 mg/day, or combination of them, depending on a degree of arterial hypertension, as hypertensive therapy. According to recommendations of Worldwide organization of healthcare, the purpose of hypertensive therapy was to achieve target level of arterial pressure (systolic arterial pressure < 14 mm of mercury, diastolic arterial pressure < 90 mm of mercury). Evaluation of indexes of immune state was carried out two times: at the first visit and in 6 months after therapy. Statistic processing of the received data was carried out with programme complex Statistica 8,0 for Windows.

**Results and discussions.** Defining initial level of anti-inflammatory cytokines showed a reliably higher content of them among patients with CGN of the III degree of AH. Among patients of

this group serum concentration of FTN- $\alpha$  was 4,1 ± 0,3 times ( $p < 0,01$ ), IL-1b – 3,9 ± 0,5 times ( $p < 0,01$ ), IL-6 – 3,5 ± 0,4 times ( $p < 0,01$ ) higher than control indexes (FTN- $\alpha$  – 32,4 ± 3,6 pg/ml, IL-1b – 35,8 ± 4,1 pg/ml, IL-6 – 15,8 ± 3,9 pg/ml). Besides, among patients of this group level of FTN- $\alpha$  was 1,4 ± 0,2 times ( $p < 0,05$ ), IL-1b – 1,5 ± 1,2 times ( $p < 0,05$ ), and IL-6 – 1,4 ± 0,3 times ( $p < 0,05$ ) higher than those of patients with CGN of the II degree of AH. Lower serum concentration of the studied cytokines was revealed among patients with the I degree of AH (duration of CGN less than a year). The research results have revealed an increase in content of IL-6 in all analyzed groups of patients. Maximum level of IL-6 (1546,2 ± 11,4 mg/l) was found in blood serum of patients with CGN of the II degree of AH that was 1,5 ± 0,4 ( $p < 0,05$ ) times higher than this index of the control group (1008 ± 18,3 mg/l) and exceeded this index of patients with the I and II degree of AH by 36,5 ± 1,2% ( $p < 0,05$ ) and 22,4 ± 0,8% ( $p < 0,05$ ) correspondingly.

Defining serum concentration of anti-inflammatory cytokines among patients with nephrogenic arterial hypertension against the therapy has provided the following results. Among patients with CGN of the I degree of AH level of anti-inflammatory cytokinemia has decreased significantly. It is proved by the decrease in average concentration of FTN- $\alpha$  – 2,2 ± 0,1 times ( $p < 0,05$ ), IL-1 $\beta$  – 1,9 ± 0,2 times ( $p < 0,05$ ), IL-6 – 2,1 ± 0,2 times ( $p < 0,05$ ); IL-6 – 1,2 ± 0,2 times ( $p < 0,05$ ), compared to the initial data. A similar dynamics of the studied indications was achieved with usage of felodipine without any reliable differences between the compared groups: level of FTN- $\alpha$  decreased 2,1 ± 0,2 times ( $p < 0,05$ ), IL-1 $\beta$  – 1,7 ± 0,2 times ( $p < 0,05$ ), IL-6 – 2,3 ± 0,3 times ( $p < 0,05$ ); IL-6 1,4 ± 0,3 times ( $p < 0,05$ ). The results of therapy with felodipine (20 mg/day) under the II degree of AH showed a decrease in level of FTN- $\alpha$  by 29,5 ± 4,5% ( $p < 0,05$ ), IL-1 $\beta$  – by 30,2 ± 3,2% ( $p < 0,05$ ), IL-6 – by 12,6 ± 2,1% ( $p < 0,05$ ), IL-6 by 9,8 ± 1,2% ( $p < 0,05$ ), and did not have any statistic differences with the level of anti-inflammatory cytokinemia that was defined after using preparation zopfenopril (30 mg/day) among patients of a similar group. Prescribing combination of anti-hypertensive preparations felodipine + zopfenopril to patients with CGN of the II group of AH was attended by a significant decrease in anti-inflammatory cytokinemia: level of FTN- $\alpha$  decreased 2,6 ± 0,3 times ( $p < 0,05$ ), IL-1 $\beta$  – 2,3 ± 0,2 times ( $p < 0,05$ ), IL-6 – 2,6 ± 0,8 times ( $p < 0,05$ ), IL-6 – 1,6 times ( $p < 0,05$ ). Among patients with the II degree of AH in 6 months after using combination of zenophenopril (30 mg/day) and felodipine (20 mg/day) has shown a reliable decrease in serum concentration of anti-inflammatory cytokines: contents of FTN- $\alpha$  decreased 1,4 ± 0,5 times ( $p < 0,05$ ), IL-1 $\beta$  – 1,3 ± 0,3 times ( $p < 0,05$ ),