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DENTISTRY

USING OF WETTING AGENT FOR PREVENTION OF POST-RESTORATION HYPERESTHESIA

Lubchenko O.V., Ivanov A.E.

Key words: dental caries, post restoration hyperesthesia, moisturizing agent.

Aesthetic restoration plays an indispensable part in the treatment of dental caries. Optimal materials for restorations are photopolymer composites of different groups. It is connected both with functional properties of materials, their usability, possibility of full recovery of the anatomical shape of a tooth, and with the grown of aesthetic requirements of the patients. Preparation of dental tissues for the adhesive system occupies a special place. Their condition determines the penetration depth of an adhesive and the probability of stress appearance in dentinal tubules that subsequently leads to the development of post-restoration pain. Carrying out the steps for using a particular adhesive system dentists determine the dentin moisture by visual indicators, that is subjective, which in turn is one of the reasons of incorrect assessment of the dental tissues and may cause treatment failure and development of post-filling pain.

Demineralized dentine matrix after etching is easily broken when it is air dried. In the process of air drying, the moisture filling intertubular space is lost due to evaporation, which leads to the collapse of the collagen fibers. This is manifested in the appearance of postoperative sensitivity and increased reaction to acid, thermal and mechanical stimuli. To preserve the physiological state of the dentin collagen fibers it is advisable to apply additional moisturizing agents in dentin processing during preparation of carious cavities for restoration.

A study of clinical efficiency of the wetting agent "Dent Light-aqua" to prevent the development of post restoration pain was conducted.

The study covered 161 restoration works in 84 patients of different age. All patients were divided into 4 groups depending on the restorative material and the use of the wetting agent "Dent Light-aqua": Group 1 - restoration with a composite "DentLight"; Group 2 - restoration with a composite "DentLight" in combination with the dentin treatment by "Dent Light-aqua"; group 3 - restoration with “Filtek Supreme XT”; group 4 – restoration with “Filtek Supreme XT” in combination with the dentin treatment "Dent Light-aqua".

Evaluation of restorations was carried out the next day and 3 days after the works in accordance with the verbal rating scale of pain, which allows to estimate the intensity of pain by qualitative verbal assessment.

As a result of the clinical studies and comparative analysis of the data obtained after 1 day it was ascertained that in groups 1 and 3, the number of patients complain about post restoration pain was significantly higher than in the second and fourth study groups. In addition, it was noted that the complaints of the second and fourth groups match the characteristics of the low level of pain, and there were cases of complaints about "moderate pain" and "strong pain" respectively in the first and third groups.

After 3 days there were no complaints in the second and fourth groups, while in the first and third groups post-restoration pain occurred.

The obtained results showed that the use of the wetting agent "Dent Light-aqua" makes it possible to prevent the occurrence of post-restoration pain in the treatment of average caries.

A promising direction is to explore the possibility of using wetting agents in the treatment of other forms of caries with different process activity, as well as to study morphological features of the material and tooth dentin interaction.
References


Clinical Evaluation of Effectiveness Produced by Therapy Including Sorbitol and Xylitol in Complex Treatment of Patients with Maxillofacial Phlegmons

Medvid Yu. O.

Key words: maxillofacial phlegmons, diagnosis, detoxification therapy.

Despite the growing improvement of the diagnosis and treatment methods, the number of patients with odontogenic phlegmon varies from 40% to 83% of all surgical dental patients, according to reports of different scientists. The searching for new approaches to increase the effectiveness of treatment this condition is still urgent nowadays. Our study involved 100 patients with diffuse maxillary-facial phlegmons whose complex therapy included sorbitol and xylitol with intratissual electrophoresis. Subjective, objective, general and local conditions of patients have been estimated both on the day of performing surgery and on the 1st, 3rd and 5th postoperative days. The results of the clinical studies suggest a strong positive dynamics of general and local states (index of symptoms complex at the time of hospitalization was 2,41 points, on the 5th day of observation - 0,38 points in the patients to whom the proposed method of treatment had been applied, 1,22; 0,75; 0,73 points – in the patients of the other groups) proven by the normalization of white blood cells and LII index in short period, accelerated regeneration in postsurgical wounds, decrease of endogenous intoxication symptoms.

References

EVALUATION OF DENTAL STATUS IN CHILDREN WITH DISEASES OF GASTROINTESTINAL TRACT

Melnyk V.S., Horzov L.F.

Key words: dental status, periodontitis, gastro-intestinal diseases.

The aim of the study is to evaluate dental status and to find out whether there is correlation between oral diseases in children and conditions of gastrointestinal tract.

Materials and methods. Dental status was studied in 55 patients who were hospitalized at Uzhhorod City Pediatric Hospital. Control group was made up of patients from UzhNU University dental clinic. Our study involved 55 pediatric patients with gastrointestinal diseases. Patients were examined by the same methods, which generally covered the clinical trials of the oral cavity.

Condition of the oral mucosa, tongue and red border of lips were evaluated visually.

To verify the diagnosis we base on microbiological studies of material scraped off the affected area of the mucosa and periodontal tissues. Oral hygienic condition of all patients was evaluated by means of Green-Vermilion index.

The patients including 22 girls and 33 boys aged 12 – 15 were divided into two groups: the group with chronic gastritis (61.8%), and the group with chronic gastroduodenitis (38.2%). The age distribution was the following: 12 year children – 29 (52.7%) and 15 year children – 26 (47.3%).

The control group of patients included 18 girls (68.42%) and 11 boys (31.57%) aged 12 to 15 years. Significant portion of the children (79.4%) demonstrated appropriate level of oral hygiene. Satisfactory hygiene was observed in 20.6% of the patients.

The average of Green-Vermilion index in the control group was 0.09 ± 0.05 points. Average CPI index for the group was 0.01 ± 0.008 points, which corresponded to healthy periodontal tissue.

The assessment of dental status of the patients with gastrointestinal diseases demonstrated that a large part of children had insufficient oral hygiene. Good hygiene was observed only in 3.1 ± 0.7% of the patients. Satisfactory hygiene was 14.9 ± 3.5% of patients. Most of the surveyed patients (70.5 ± 5.88%) had unsatisfactory oral hygiene. Poor oral hygiene was observed in 11.5 ± 3.2% of the surveyed patients.

The average Green-Vermilion index in the group was 3.5 ± 1.33 points.

The assessment of CPI index demonstrated the patients with gastrointestinal diseases formed a group of children who needed better hygiene. Thus, an average CPI index for the group was 1.13 ± 0.28 points, that was accompanied with the following clinical manifestations: slight bleeding and gingivitis, soft plaque.

Analysis the prevalence and intensity of dental caries in 12-year-old patients with gastrointestinal diseases showed a high prevalence of caries among the studied groups. The intensity of decay was above average in Ukraine. In the group of 12 year old children caries intensity was 6.4, which is high. The prevalence of caries in this group reached 72%. The intensity and incidence of tooth decay among 15-year-old patient was 3.5 and 86.6% respectively. Comparative analysis of caries prevalence among the patients pointed out its significant prevalence.

Chronic somatic pathology in 34.5% of cases was accompanied with deterioration of oral microbiota.

Conclusions. The results showed the most frequent pathogens in children with oral inflammation
in the periodontal tissues of somatic pathology were Streptococcus pyogenes, Staphylococcus haemolyticus, and Candida albicans. Representatives of the family of Candida were isolated in 93.3% of cases. Studying the performance of oral hygiene, it can be argued that dental status and oral hygiene play key role, but somatic status of patients potentiates the diseases of periodontal tissues.

References

STUDY OF BIOPHYSICAL INDICATORS OF SALIVA IN CHILDREN WITH DENTAL CARIES WHO ARE RESIDENTS OF DIFFERENT CLIMATE GEOGRAPHICAL ZONES OF IVANO-FRANKIVSK REGION

Oktysiuk Yu.V., Rozhko M.M.

Key words: children, saliva, dental caries, climatic and geographical zones.

Oral fluid plays a key role in maintenance of oral homoeostasis. By performing mineralizing, protective, cleansing functions saliva creates an optimum environment for functioning of hard dental teeth. A study of biophysical parameters of oral fluid in children is an important constituent in prenosological diagnostics of this disease.

The purpose of research is to study salivation rate, and acidity of oral fluid in children with dental caries who live in different climatic and geographical zones of Ivano-Frankivsk region.

Dental examination involved 188 children aged 12 who had dental caries but no general pathology and lived in different climatic and geographical zones, 69 schoolchildren lived in the flat area, 66 in the piedmont area and 53 in the mountainous area of the Ivano-Frankivsk region. A control group was made up of 46 children of the same age with intact dentitions. We calculated the percentage of the prevalence and intensity of dental caries, and assessed the state of the hard tissues by the index DMF and its components. Caries activity was determined by T.F. Vynogradova's method. Oral liquid sampling was taking in the morning on an empty stomach, without stimulation, by spitting into the measured sterile containers for 5 minutes. Indicators of oral fluid wettability were defined using the biophysical test of saliva cariogenicity with A.I. Miller's method (1991).

Analysis of findings obtained indicated the proportion of children with the compensated degree of caries activity prevailed in the children residing in flat and piedmont areas, and was 33,33% and 42,42% respectively. In the mountainous area the percentage of children with subcompensated caries was the high and reached 38,1%.
Mean values of salivation rate indices in the children from the flat and the piedmont areas were (0.39±0.01) ml/min., and in the children from the mountainous area those were (0.38±0.01) ml/min, but not significantly different among themselves (p>0.05).

The analysis of data of salivation rate testifies a decrease in value of this index with increasing degree of caries intensity in the children of all climatic and geographical zones.

Rheological properties of oral fluid were estimated also after the index of wettability, value of which was inversely proportional to the level of viscosity. Analysis of research findings shows that wettability of oral fluid in children living in flat areas makes up an average (14.26±0.37) mm/2 min. and it is higher than the indices of children from the mountainous areas, (13.94±0.51) mm/2 min., but in the piedmont area it is (13.55±0.56) mm/2 min., but this difference was not reliable (p>0.05).

Comparison of wettability indices of oral fluid in children with different caries activity demonstrates the reliable (p<0.05) increase of indices of oral fluid viscosity in children with increasing degree of activity of dental caries.

An important role in the de- and remineralisation of hard dental tissues belongs to pH of oral fluid that determines the degree of its enrichment with the ions of calcium and phosphorus. Analysis of research results points out that oral fluid acidity of schoolchildren living in the flat country is (6.93±0.05) and is authentically higher than the same index of children of the piedmont area with the value (6.79±0.03) and the mountainous area – (6.77±0.04) (p<0.05).

The research found out the presence of reliable shift of reaction in oral fluid towards the acid side with increasing degree of activity of dental caries. The lowest pH value of oral fluid was found in the group of children with decompensated caries and was registered in the residents of flat area (6.52±0.07), in the piedmont area – (6.55±0.09) and in the mountainous country – (6.53±0.03).

For the schoolchildren from the flat country, free of dental caries, measuring pH-value was (7.09±0.08), from the piedmont area – (7.01±0.06) and from the mountainous country – (7.05±0.09), that accordingly 8.04 %, 6.27 % and 7.38 % higher than indexes of children with decompensated course of dental caries (p<0.05).

References

DYNAMICS OF LOCAL ORAL IMMUNITY IN PATIENTS WITH GINGIVAL INFLAMMATION AND RECESSION AGAINST THE BACKGROUND OF NOVEL PROSTHODONTIC CORRECTION

Petrushanko A. M.

Key words: dynamics of local immunity, oral liquid, lysozyme, mucosal gel, inflammation of periodontal tissues.

This article describes the dynamics of local oral immunity in patients with inflammation and gingival recession against the background of novel prosthodontic correction we developed.

One of key mechanisms of body resistance to pathological conditions is the functioning of humoral immunity, and some nonspecific protection factors. The suppression of local oral immunity affects both the occurrence of inflammatory diseases of periodontal tissues and the development and course of the process of gum inflammation and recession. Studying humoral immunity of the mouth is generally based on accepted assessment of sIgA content in oral fluid as an important indicator. A key role in the antimicrobial protection of oral enzyme is played by lysozyme that destroys bacteria and viruses. Therefore, to assess the relationship of local factors and nonspecific immune defence in the mouth, we should get an idea of the nature of changes in local immunity for the sIgA content and non-specific protection in terms of lysozyme in oral fluid in different groups of patients at the stages of prosthetic correction we developed.

The present study determined the sIgA and lysozyme levels in oral fluid in patients aged 25 – 55, who underwent orthopedic correction and in follow-up period were observed to develop gingivitis caused by the correction.

The study of local immunity factors showed low indicators of lysozymes and sIgA in oral fluid in patients aged 25 – 34 that explained the breach of oral antimicrobial protection. Low output level of nonspecific resistance indicators was detected in the patients with oral inflammation and gingival recession against the background of orthopedic correction in other age groups (35-44 years and 45-55 years).

The use of dental hygiene elixir «Lizomukoyid» contributed to increasing indicators of local oral immunity in all patients in the control regardless their age. A month later lysozyme level rose by 25-29%, and the sIgA by 17-19% in all groups that can be due to the mouth rinse providing anti-inflammatory action.

However, the study of oral fluid of the patients of control group in a year demonstrated the values of these parameters in most cases were closer to the initial level and significantly lower against the test groups (p> 0,05).

At the same time, the treatment of inflammation in periodontal tissues in the patients aged 25-34 years, which arose due to prosthodontic correction, by mucosal applications of the gel and the use of appropriate hygiene (mouthwash «Lizomukoyid») led to increased levels of lysozymes and SlgA in oral fluid and after months of treatment numerical values of these parameters were increased almost in 2.4 times and in 1.3 times respectively. The values of these indicators remained fairly stable and high, significantly different from those in the control group by the end of observation (p <0.05).

However, the second method of treatment, which included «Yodditseryn» in addition to mucosal gel «Flavohel» showed increased parameters characterizing the nonspecific resistance of the mouth.

Thus, a month observation of lysozyme values showed the exceeding the original data at the beginning of treatment almost 3 times, and at the end of the study in 2,4 times, and secretory immunoglobulin A nearly doubled and in 1.7 times respectively.

Based on the research we can suggest the stimulating effect of preventive measures described for natural antimicrobial protection of the mouth in the patients of the test groups, and in the control group. This phenomenon should be considered as a positive process that improves the oral resistance during and after orthopedic and prosthetic corrections.
EVALUATION OF DENTOFACIAL COMPLEX IN PATIENTS WITH TEMPOROMANDIBULAR MUSCLE DISORDERS AND APPROACHES IN THEIR TREATMENT

Rybert Yu. O.

Key words: muscle dysfunction of TMJ, pathology of dentofacial complex, treatment approaches.

Nowadays researchers believe that the dentofacial deformations, abnormalities, deviations in occlusal relations and functional occlusion, parafunctions of masticatory muscles affect the...
pathogenesis of diseases of temporomandibular joint (TMJ)

Preliminary analysis of the state of dentofacial complex was conducted on 44 patients who had only disorders of temporomandibular muscles. We also considered the methods of their treatment.

It was revealed that disorders of temporomandibular muscles in all examined patients were connected with different clinical entity of dental pathology with the predominance of orthodontic pathology (54.5%) and abnormal eruption of third molars (20.4%) at the age of 23 to 30. Other pathologies of these patients were typical for older age and included 9.1% of patients who had iatrogenic pathology as a result of inappropriate dental care.

Signs of myofascial pathology associated with chewing muscles were found in 97.7% of the patients, with the neck muscles were detected in 60.8% and 15.9% the pathology was associated with the muscles of the shoulders indicating involvement of the complex of muscles in pain syndrome.

Dentofacial pathology (pathological occlusion) and muscle disorders involving different muscles occurred in various combinations require the patient-centred approach to diagnosis and treatment. We tried to apply different treatment approaches in our practice, namely occlusal therapy with occlusal splints of different types of action, splint line therapy using original device acting as both occlusal splint and orthodontic appliance. Orthopaedic therapy of patients with various types of orthopaedic restorations including telescopic crown overdentures were performed upon completion of the functional treatment stage to maintain achieved results and restore functional occlusion after its reconstruction.

References
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Summary

EXPERIMENTAL ASSESSMENT OF QUALITY OF ROOT CANAL SEALING FOLLOWING DIFFERENT TYPES OF CANAL PROCESSING

Ryabokon Ye. M., Dnistranskiy V.I.

Key words: chronic destructive apical periodontitis, deep fluoridation, microbial leakage, electron microscopy.

The aim of the study was a quantitative and qualitative assessment of the quality of root canal obturation by the sealer on the basis of zinc oxide eugenol following the endofluoridation and ultrasonic activation. To determine the quality of sealing, root canal techniques of raster scanning electron microscopy (RSEM) and the evaluation of coronary apical microbial leakage (CAMP) were used. Processing and filling of root canal of single rooted and single-channel teeth, extracted for orthodontic and periodontal reasons, were carried out by different methods: by the method of Central pin; by additional deep fluoridation of the walls of the root canal solutions; with deep fluoridation, with the additional ultrasonic activation of the sealer directly in the root canal in different modes. Based on the assessment of the quality of root canal filling by the RSEM method, no significant differences between samples processed in different ways were revealed. The results of quantitative evaluation of the quality of root canal filling method RSEM showed that the best sealing was achieved when the fluorination took place with deep ultrasonic treatment sealer directly in the root canal. In this approach, the average size of a microcrack between the filling and the root canal wall was 1.4 nm, whereas in conventional processing the average size of a microcrack was 10.8 nm.

References

Актуальні проблеми сучасної медицини


**CLINICAL GROUNDS FOR OPTIMAL DESIGN OF ADHESIVE BRIDGES**

**Udod A. A., Dramaretskaya S. I.**

**Key words:** adhesive bridges, design, clinical evaluation.

This article puts forward the results of clinical studies aimed to evaluate the effectiveness of prosthetic correction of small defects in the lateral dentition area with adhesive bridges made by the direct method. The patients of the first and second groups had their supporting teeth prepared that corresponded to the level of cavities class II by E. Black; the patients of the third and fourth groups had cavities made with converging walls. Denture reinforcing was performed with three glass fibre strips stacked horizontally (in patients first and third groups) and on different planes at an angle to each other (in the patients second and fourth groups). Clinical evaluation of prosthesis was performed in 6, 12 and 24 months on the developed system. The greatest number of defects by all the criteria of clinical evaluation of adhesive bridges was detected in the patients who had in the supporting teeth with cavity made and three Black fibreglass tapes stacked horizontally. The patients who had cavities with converging walls, and the reinforcement with strips arranged in
different planes to reinforce carcass deviation, demonstrated defects lower in several times. This optimized design allows us to reach high anatomic and functional and aesthetics and functional effectiveness of prosthetic correction.

References

CLINICAL-ORIENTED TECHNOLOGIES IN ENSURING QUALITY CARE FOR PROSTHETIC CORRECTION WITH PLASTIC BRIDGE DENTURES

Yanishen I. V.

Key words: plastic bridge dentures, compliant materials, impression material, disbiosis, oral fluid.

Bridge dentures are often used for dental restoration of small dentition defects. Firstly, it is a fixed structure, and secondly, bridge dentures, having a small size, and being almost deprived of contact with the mucous membrane, except for the gingival margin, are well tolerated by patients, and adaptation to them is quick. Thirdly, bridge dentures maximally restore functional properties. The purpose of the research was to study the efficiency of advanced treatment of patients with bridge dentures, supplemented with compliant complexes of the “material-design” type.
Objects and methods. Two groups of patients with plastic bridge dentures were formed according to the applied innovations at the clinical laboratory stage. In this case, the alternative compliant complexes of dental materials were applied for each of the groups. To evaluate the clinical efficacy, we defined the evident effects of the changes of rates of homeostasis and oral microenvironment, which differs in the effect of the treatment with the use of materials with different levels of compliant systems.

Results and Discussion. Importantly, positive changes in oral hygiene can be achieved only by application of dental materials with enhanced compliancy, used for plastic bridge denture making, revealed by the increasing capacity of bicarbonate buffer and lowering of oral fluid viscosity. A comparative analysis of changes in oral hygiene, gums and periodontal tissue of patients with plastic bridge dentures from comparison groups before and after the treatment showed a reliable ($p < 0.05$) improvement of patients oral biotope after the treatment with high-compliant dental material, used for plastic crowns making. In this way, the relative level of activity of microbial enzyme urease decreased in Group AB$_1$ from $(3.348 \pm 0.113)$ units to $(2.253 \pm 0.119)$ units, whereas in the comparison group no significant changes were registered. The analysis of the oral disbiosis index revealed the absence of influence of the compliancy level onto the oral microbiocenosis in plastic bridges prosthodontics. This can be explained, on the one hand, by the absence of the reliable increase of the lysozyme level in Group AB$_2$ (before: $(81.89 \pm 1.18)$ mkg/cm$^3$, after: $(81.91 \pm 1.85)$ mkg/cm$^3$μμ), and on the other hand by the significant number of dental elements, being restored among patients from Group AA1. Notably, the reliable and significant changes in improvement of state of oral hygiene have been detected among patients from Group AB$_1$ after treatment (before: $(1.143 \pm 0.068)$ uts; after: $(0.669 \pm 0.057)$ uts), whereas in patients from Group AB$_2$ no changes have been registered before: $(1.097 \pm 0.071)$ uts; after: $(0.967 \pm 0.072)$ uts). Furthermore, a reliable ($p < 0.05$) improvement of periodontal tissues state has been registered with lowering of P. Silness – H. Loe index from $(0.455 \pm 0.023)$ uts to $(0.384 \pm 0.031)$ uts, in contrast to the group of comparison, where no significant changes were noted during the stages of treatment (before: $(10.382 \pm 0.058)$ uts, after: $(0.386 \pm 0.051)$ uts), $> 0.05$).

Conclusions. Consequently, it is obvious that the study of the efficiency of the advanced treatment of patients with plastic bridge dentures, supplemented with compliant complexes of the “material-design” type significantly improves the working quality of a prosthetist, revealed by the achievement of positive changes in the oral hygiene.

Perspectives of further research will encompass the follow selection of dental materials with high compliancy of the “material-design” type. The analysis of such materials is crucial for a prosthetist, since it enhances the quality of service provided, positively influencing the patient’s quality of life.

References

1. Aksenov Ye.V. The study of endothelial function in patients with coronary heart disease during interventional procedures

Key words: coronary heart disease, interventional procedures complication, endothelial dysfunction.

The work is aimed to the study of endothelial function in patients with coronary heart disease (CHD) during interventional procedures. The study included 100 patients (test group – 78 patients, the control group – 22 patients).

The test group included patients with coronary heart disease aged 58 to 72 years (52 men and 26 women) who underwent diagnostic and therapeutic interventional procedures due to this pathology. The control group was represented by apparently healthy blood donors between the ages of 25 to 37 years (12 men and 10 women).

At the admission to the hospital all patients of the main group had III - IV fc by NYHA: 46 patients (58.97%) – III fc by NYHA, 32 patients (41.03%) – IV fc of NYHA. Canadian angina classification of these patients were distributed as follows: II fc – 43 patients (55.1%), fc III – 35 patients (44.9%)

Besides routine clinical indicators at admission, the patients’ target examination included determining endothelial function (nitrate levels in plasma and red blood cells, the L-arginine, the number of desquamated endothelial (DE) in the blood plasma).
The findings suggest that the patients with CHD demonstrated severe endothelial dysfunction that was proven by the low indicators of NO\textsubscript{3} and L-arginine on the background of a higher number of ED compared with the control group. In patients with unstable angina the level of endothelial dysfunction was more pronounced compared to patients with stable angina, which was reflected in the reduction of NO\textsubscript{3}, indicators of L-arginine and increasing the number of ED. Changes in the above indicators of endothelial dysfunction as a directly dependent on the number of diseased coronary arteries, and the degree of the identified stenosis.

References
dyspepsia (90%), and astenia (100%). The therapy with «Chophytol» provided positive clinical effect manifested by the normalization of liver functioning and functioning of biliary system in pregnant women with chronic cholecystitis.

References


LEVEL OF OXYGENATION IN PRETERM INFANTS SUPPORTED WITH EARLY NASAL CPAP AND SURFACTANT

Asadova S. I.

Key words: premature newborn, respiratory distress syndrome, saturation, oxygenation index, CPAP, surfactant.

Purposes: to determine the oxygenation index and its dynamics against the background of complex therapy of preterm infants with respiratory distress syndrome.

Object and methods. The study involved 90 preterm infants with RDS (boys made up 64.44% (58), girls made up 35.56% (32)). In most cases, children were admitted to the ICU for the first 24-72 hours of their life. Depending on the gestational age newborns were divided into 3 groups: I group - 30 infants aged 28-30 weeks of gestation; group II - 30 newborns aged 31-33 weeks of gestation, and group III - 30 infants aged 34-36 weeks of gestation. The control group includes 30 premature infants without RDS born by somatically healthy women. We determined the rate of SpO2 indicating the oxygen saturation of blood. The measurement was performed by the method of pulse oxymetry with pulse oximeter MD300 B (Russia). As intensive care measure we used nasal CPAP (continuous positive airway pressure) machine on the "Infant Flow", which was performed with a flow of 6-8 l/min, reaching the average airway pressure of 3.2-5 cm water. Preterms started the therapy with FiO2 concentration about 30-60% with a gradual decrease to 21%
within 12-24 hours. Curosurf (Nycomed, Austria) was used for surfactant therapy.

Results and discussion. 35.55% of neonates evaluated by Apgar scale in the first minute scored less than 4 sco, reduced in the, 52.22% of neonates had 4-6 scores, 12.22% of neonates had 7-8 scores. Assessment by the Apgar scale at the 5th minute showed the following results: 28.89% of newborns with SDR had less than 4 scores, 60.0% of neonates had 4-6 points, 33.33% of neonates had 7-8. Rating on a Silverman scale (from the birth through 2, 6, 12 and 24 hours) allowed to determine the mild degree of respiratory disorders among 90 examined preterm infants (28.9%), moderate and severe disorders were observed in 61.1 (10.0%), respectively. 90 neonatal RDS were accompanied with hypoxic CNS damage of various severity, and the main clinical syndromes were the syndrome of depression and excitation. Out of 90 preterm infants excitation syndrome was diagnosed in 37 (41.1 %), the syndrome of depression was detected in 42 (46.7%) and hypertensive syndrome was in 11 (12.2%) children. At the 5th and 10th minutes of life of newborns with RDS and the control groups demonstrated no significant difference in the change in the blood oxygenation. However, in the control group, SpO2 reached to normal values, but in the main group this changes was not observed. On the 5th day in the control group the trend continued, but in the main group the average oxygenation decreased. Comparative analysis showed that the SpO2 value in the main group at the 5th and 10th minutes of life was lower respectively by 15% and 15.2%, and on the 1st, 3rd, and 5th days by 13.8%, 12.9% and 16.8 percent respectively. The minimum level of oxygen in the blood when compared with the control was observed in preterm infants with RDS and CNS on the 5th day. After the therapy with nasal CPAP and early introduction of surfactant, the oxygenation index decreased twice (p<0.05), after nasal CPAP with the late introduction of surfactant in 1.7 times (p<0.05) after mechanical ventilation in combination with surfactant and without surfactant in 1.7 times (p<0.05), respectively. Thus a significant reduction in the oxygenation index was noted due to early nasal CPAP and surfactant administration.

Conclusion. The data obtained show the effectiveness of the respiratory support CPAP nasal with the early introduction of surfactant.

References

CAUDA EQUINA EPENDYMOMA
Key words: ependymoma, cauda equina, spinal cord, diagnostics.

A cauda equina ependymoma of the spinal cord is a neuroectodermal tumor. Its incidence is 50-60% of the spinal cord tumors, and 90% - in the structure of the cauda equina tumors of the spinal cord. The aim was to conduct clinical and morphological analysis of the case of cauda equina mixopapillary ependymoma of the spinal cord in a 14-year-old boy, who was treated at the Clinic of Neurosurgery and Neurology Military Medical Center of the Western Region. We describe a typical form of cauda equina tumor of the spinal cord. Despite the fact that the cauda equina ependymoma is the most common type of tumors of the spinal cord, it is rare in neurosurgical, neurological, and especially in pathological practice. The mean age of patients is 35 years, but the tumor may also occur in younger patients, as in this case. According to E.I. Slynko, O.G. Karliichuk (2008), conducted an analysis of 74 cases of ependymomas of the cauda equina, the youngest patient was 7, the oldest – 68 years old. In the cauda equina area mixopapillary ependymoma occur most frequently. They are found in 45% of patients, the degree of anaplasia is classified as Grade 1.

References

HYPERTENSION AND METABOLIC SYNDROME: PECULIARITIES OF LEFT VENTRICULAR REMODELLING AND DIASTOLIC DYSFUNCTION
Bondar V. M.
Key words: hypertension, metabolic syndrome, left ventricular remodeling, diastolic dysfunction

Left ventricular myocardial hypertrophy is the most characteristic cardiac impairment associated with arterial hypertension that significantly influences the course and prognosis of the disease and is a separate risk factor for cardiovascular complications. The aim of this study was to investigate the
features of cardio-remodelling processes in patients with hypertension in the presence and absence of metabolic syndrome. The study involved 128 patients with hypertension and metabolic syndrome, who formed the test group, and 112 patients with hypertension without metabolic syndrome, who formed the control group. The patients of both groups were performed echocardiography, according to which we found out the key indices and type of remodelling. The findings showed more pronounced signs of left ventricular hypertrophy in the patients of the test group, which often demonstrated equally eccentric and concentric left ventricular hypertrophy type. In addition, the control group showed more pronounced diastolic dysfunction. Hypertension combined with metabolic syndrome demonstrated by more severe myocardial cardio-remodelling processes.

References

CHARACTERISTICS OF WEIGHT GAIN RATES IN PREMATURE INFANTS FOR FIRST TWO YEARS OF LIFE
Gordienko I.V.

Key words: preterm infants, early age, body weight.

The study involved 172 premature infants, 73 of them had birth function deficiencies, 71 were at the risks to develop perinatal pathology, and 28 healthy children. We measured their body weight determined the frequency of slow weigh gain, delayed weight gain, rapid weight gain, excessive weight gain. The dynamics of the body weight in premature infants suggests that even healthy children may have delayed weight gain, but it occurs in the first year of life with intense dynamics of body weight gaining in the second year of life. Every third out of four children, who had perinatal pathology and function deficiency from the birth up to two years demonstrates delayed or slow weight gain. The highest incidence of delayed body weight for 24 months of age was registered in boys (42%) and girls (60%) of the group of children who had perinatal pathology and risk of delayed development. That is, even without severe perinatal pathology, which is characterized by severe function deficiencies, there are some factors that affect the weigh gain in premature infants, and this requires further in-depth study.

References
PECULIARITIES OF APELIN-12 LEVELS IN PATIENTS WITH GASTROESOPHAGEAL REFLUX DISEASE and ARTERIAL HYPERTENSION AND IN ITS COMORBIDITY

Gridnyev O. Ye.

Key words: gastroesophageal reflux disease, arterial hypertension, apelin, comorbidity.

Aim: to study the characteristics of apelin-12 levels in patients with comorbid gastroesophageal reflux disease (GERD) and arterial hypertension (AH), and in cases of isolated GERD. Methods and results. The evaluation of nitrite and nitrate in plasma and their daily excretion with urine, blood serum malonic dialdehyde and SH-groups in hemolysate blood glutathione peroxidase were performed by standard techniques. Content of apelin-12 in blood plasma was detected by ELISA. It was established that the level apelin-12 blood in the patients with isolated GERD (863,40±19,87 pg/ml) was higher than in the patients with comorbid GERD and AH (755,15±15,46 pg/ml) and in both group of the patients it was significantly (p<0.001) lower than in the control group. Level apelin-12 in males with combined GERD and AH (792,55±21,29 pg/ml) was significantly (p<0.01) higher than that of females (710,41±21,15 pg/ml), whereas patients with isolated GERD showed gender differences in levels apelin-12. Apelin-12 levels in the patients of both groups varied significantly with increasing duration of GERD. In patients with isolated GERD revealed significant inverse correlation between the level apelin-12 and age of patients (r=-0.46, p<0.001), and between the level apelin-12 and malondialdehyde (r=-0.22, p<0.05) as well as the concentration of plasma nitrite (r=-0.26, p<0.05) and nitrite excretion in the urine: daily (r=-0.28, p<0.01), day (r=-0.26, p<0.05), night (r=-0.28, p<0.01). The patients with GERD and comorbid AH showed association between the levels of apelin-12, lipid peroxidation, nitric oxide metabolism and age of the patients. Conclusion. The results suggest a more pronounced reduction of the apelin-12 level in the patient with comorbid GERD and AH (compared with isolated GERD) and consequent reduction of its antioxidant, vasodilatation and protective properties, especially in females. We found apelin-12 antioxidant properties in the patients with isolated GERD, while the patients with comorbidity pathology GERD and AH demonstrated no or significantly weakened correlation.

References


CHANGES OF BLOOD FLOW IN GREAT VESSELS OF ABDOMEN DEPENDING ON TYPE OF ANAESTHESIA IN EARLY POSTOPERATIVE PERIOD UNDER INTRA-ABDOMINAL HYPERTENSION SYNDROME IN CHILDREN

Dmytrіieva K.Yu.

Key words: ultrasound examination, intra-abdominal hypertension, resistance index.

The study involved 32 children operated on for tumours of the abdominal cavity. The study of blood circulation in the superior mesenteric and renal arteries showed a high index of resistance to anaesthesia in the group anesthetized with fentanyl, 0,99 ± 0,02 and 0,93 ± 0,05, respectively, and in the group 0,72 ± 0,04 and 0,68 ± 0,04 that reflected the pathogenesis of blockade of microvascular bed and resulted in less effective pain relief. The using of EA scheme with bupivacaine by a continuous infusion of drugs for prolonged postoperative analgesia reduces the syndrome of intra-abdominal hypertension and improves blood flow in the great vessels of the

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abdomen.

References


EFFECT OF METFORMIN HYDROCHLORIDE ON INDICES OF SYSTEMIC INFLAMMATION IN PATIENTS WITH PSORIASIS AND CONCOMITANT METABOLIC SYNDROME

Yemchenko Ya.A.

Key words: psoriasis, metabolic syndrome, systemic inflammation, treatment.

The article shows the effectiveness of metformin hydrochloride as a part of standard therapy in patients with psoriasis and concomitant metabolic syndrome that was evaluated by the key indicators of systemic inflammation.

References


RELATIONSHIPS BETWEEN STRUCTURAL AND FUNCTIONAL CHANGES IN LEFT VENTRICLE WITH DIFFERENT PHENOTYPES OF Gln27Glu POLYMORPHISM IN β2-ADRENORECEPTOR GENE IN PATIENTS WITH CORONARY HEART DISEASE AND OBESITY

Kadykova O.

Key words: ischemic heart disease, obesity, Gln27Glu polymorphisms of β2-adrenergic receptor gene, cardiohaemodynamics.

The prevalence of coronary heart disease has been steadily increasing. One of the probable risk factors for coronary heart disease is Gln27Glu polymorphism of β2-adrenergic receptor gene. Today the data on this polymorphism remain controversial and there are no data on the relationship between Gln27Glu polymorphism types of β2-adrenoceptor gene and cardiohaemodynamic parameters. The literature demonstrates only that patients with Gln27Glu polymorphism of β2-adrenoceptor gene had significant improvement of the left ventricular ejection fraction after resynchronizing therapy compared with Gln7 homozygous persons. Therefore, this issue needs further studies.

The aim of the research was to estimate the relationships between left ventricular structural and functional parameters with different types of Gln27Glu polymorphism of β2-adrenoceptor gene in patients with coronary heart disease and obesity.

Materials and methods. We performed complex examination of 222 patients with ischemic heart disease and obesity who took the course of treatment at the cardiological department of the Kharkiv City Clinical Hospital №27 (clinical base of the Department of Internal Medicine №2 and Clinical Immunology and Allergology of Kharkiv National Medical University). All patients with ischemic heart disease were divided into three groups depending on Gln27Glu polymorphism types of β2-adrenoreceptors gene: the first subgroup included patients with C/C genotype (n=73), the second subgroups included patients with C/G genotype (n=72) and the third one – patients with the G/G genotype (n=77). 35 healthy persons saved as the control group.

All the patients had general clinical and instrumental examination. Echocardiographic investigation was performed by the standard H. Feigenbaum method on RADMR ultrasound machine. The statistical analysis of the results was carried out by using software program
«Statistica» (StaSoftInc, USA). The values calculated were the mean, the standard deviation and the significance level by Pearson at p<0.05.

Results and discussion. The comparison of cardiohaemodynamic parameters of patients with coronary heart disease and concomitant obesity with different types of Gln27Glu polymorphism of β2-adrenergic receptor gene showed no differences. The investigation of diastolic function of patients with coronary heart disease and obesity depending on the different types of Gln27Glu polymorphism of β2-adrenoreceptor gene has not shown any consistent patterns either (p>0.05).

Conclusions. The study showed no association between left ventricular structural and functional changes and different types of Gln27Glu polymorphism of β2-adrenoreceptor gene in patients with coronary heart disease and obesity.

References
PHYSICAL DEVELOPMENT OF PREMATURE INFANTS WITH BRONCHOCAPULMONARY
DYSPLASIA AND DETERMINANTS THAT PREDISPOSE TO THIS CONDITION
Kozakevich O.B., Pokhyilo V.I., Kozakevich V.K., Goncharova Yu.A.

Key words: morbidity, bronchopulmonary dysplasia, physical development, GSTT1, GSTM1, GSTR1 genes.

The purpose of the present paper was to study the morbidity and the development of premature infants with BPD in the first two years of life. Materials and methods. A cohort prospective study included 33 children with BPD who were discharged from Poltava children hospitals during 2010-2013. Their physical development at the intervals of 6, 12, 18 and 24 months of life were studied. The rate of polymorphism GSTT1, GSTM1 and GSTR1 genes detection was also considered. Results. In the 24 months chronological age revealed that 36.9% of infants have a weight below the 10th percentile. Conclusions. There was no significant effect produced by genetic factors on the development of premature infants with BPD. Further studies on larger cohort of patients are needed to find clinical and genetic factors that influence on adverse developmental and clinical outcomes in children with BPD.

References

INFLUENCE OF CARDIOVASCULAR RISK FACTORS ON PERIMENOPAUSAL COURSE IN WOMEN

Kolesnikova Ye. V., Iaresko M. V.

Key words: perimenopause, risk factor, hypertension, obesity, VEGA.

Purpose: To determine the effect produced by cardiovascular risk factors on the structural and functional characteristics of myocardium in women during perimenopausal period.

Materials and methods: 114 women aged from 45 to 60 years with arterial hypertension stage II disease 1 - 2 degrees and obesity I-II, depending on menopausal status was divided into groups. The 1 group consisted of 45 premenopausal women, the 2 group involved 49 women in menopausal period which did not exceed 3 years, and the 3 control group included 20 healthy women of comparable age. Anthropometric parameters, menopausal index, lipids, glucose, echocardiography features, VEGF levels in serum were evaluated.

Results: There were significant differences in indicators of total cholesterol, 1 (premenopausal) and 2 (menopause) groups. The patients of the 1st group showed differences in unreliable indicators as EDV, ESV and EF based on body mass index, while in the 2 group; these differences were found in terms of ESV and EF. Factor VEGF affected the rate of HDL cholesterol in both premenopausal (p = 0.026) and in the early menopausal (p = 0.032) periods. Lipid metabolism, body mass index and myocardial remodelling in premenopausal women and early menopause VEGF had no effect. Shifts in metabolic indicators led to changes in structural and functional characteristics of myocardium in the patients of both groups.
Conclusions. The development of menopause is associated with hormonal and metabolic shifts. During perimenopausal period obesity and hyperglycemia significantly alter the structural and functional features of myocardium that can also be regarded as the trigger risk factor for cardiovascular events in women. Factor VEGF produces significant effect on the HDL cholesterol level in perimenopause (p <0.05) that enables to consider VEGF as the additional risk factor for cardiovascular events in women during perimenopausal period.

References
PULMONARY SARCOIDOSIS IN EMPLOYEES UNDER DUST OCCUPATIONAL EXPOSURE IN MACHINE BUILDING INDUSTRY

Kostyuk I. F., Melnik O. G., Steblina N. P., Byazrova V. V.

Key words: sarcoidosis, machine-building industry, dust, pneumoconiosis, diagnosis.

This review article presents the data described in relevant literature and our own findings on pulmonary sarcoidosis in employees exposed to occupational dust in machine-building enterprises. Pulmonary sarcoidosis may develop either as an independent disease or against the background of silicosis. Latent clinical course and minor X-ray changes in pulmonary sarcoidosis are very alike those in silicosis, this significantly complicate the differential diagnosis of these diseases. It is essential to pay attention to peculiarities of the course of the disease with its possible regression, spontaneous or under the influence of corticosteroid therapy. The main and most reliable X-ray signs of silicosis are fibrous changes in lung parenchyma with reticularity and deformation of lung pattern, presence of nodular opacities, pertificates in lung roots, especially the symptom of “egg shell”, which is never met in sarcoidosis. Revealing of extrapulmonary signs of the disease as affection of skin, lymphatic nodes, locomotor apparatus, eyes, nervous system, heart, liver, kidneys and other organs is important in diagnosis of sarcoidosis. In patients with sarcoidosis, as opposite to silicosis, leucopenia, monocytosis, eosinophilia, hypercalciemia, calciuria, rise of alkaline phosphatase may be revealed.

References
INFLUENCE OF EXTRACELLULAR MATRIX ON CORONARY ARTERIES IN PATIENTS WITH ACUTE MYOCARDIAL INFARCTION AND DIABETES TYPE 2
Kotelyukh M. Yu.

Key words: atherosclerosis, acute myocardial infarction, extracellular matrix, lipid metabolism, diabetes mellitus type 2.

The study involved 60 patients with acute myocardial infarction and type 2 diabetes, 40 patients with acute myocardial infarction without type 2 diabetes, and 20 healthy individuals. Coronary angiography was used to evaluate the state of the coronary arteries. There was correlation between the components of the extracellular matrix, lipid metabolism and the severity of coronary lesions in patients with acute myocardial infarction with and without type 2 diabetes. The patients with acute myocardial infarction and type 2 diabetes demonstrated correlations between total cholesterol $r = 0.54$ (p <0.05); triglycerides $r = 0.57$ (p <0.05) and the severity of coronary lesions. There was a correlation between high density lipoproteins $r = -0.31$, atherogenic factor $r = 0.31$ and matrix metalloproteinase-13 (p <0.05); between tissue inhibitor of metalloproteinase-4 and very low density lipoproteins $r = 0.59$ (p <0.05), which may indicate an imbalance in the system of the extracellular matrix and lipid metabolism.

References


CLINICAL CASE OF OLLIER'S DISEASE WITH PAIN SYNDROME
Molotyagin D. H, Pashtian R. V., Kudryk O. A., Kravchun P. G.

Key words: chondromatosis, Ollier's disease, clinical case.

This article describes a clinical case of Ollier's disease, which was diagnosed in a 36 year old woman. This case was paid attention to because the middle-aged female patient was first diagnosed to have d femoral enchondroma accompanied with severe pain syndrome.
PECULIARITIES OF MRI CHANGES IN BOXERS WITH CRANIOCEREBRAL INJURIES IN PAST HISTORY
Muravsky A.V., Zemskova O.V.

Key words: traumatic brain injury, boxer, MRI.

To date neuroimaging changes in boxers with traumatic cerebral injury (TCI) are still insufficiently studied and analyzed. Magnetic resonance imaging (MRI) is the most informative technique to detect these changes. The aim of the study was to explore the features of MRI changes in boxers with TCI in past history. Materials and methods. 174 amateur boxers aged 16 to 42 years who have had repeated mild TCI in past history passed through a procedure of MRI of the brain. The control group included 30 healthy people of similar age. Patients were distributed according to sex, age, weight categories, the number of matches held. Results. There was a significant increase in the width of the lateral ventricles (LV) astride, III ventricle and cavity of the septum pellucidum (CSP) in boxers, predominantly in men. There was increase in the width of LV bilaterally, III ventricle and CSP associated with the increase of age, weight category, the number of matches. Normal MRI of the brain occurred more frequently in boxers-women, the youngest age group. There was significant increase in the frequency expansion of the CSP with increasing age, the number of matches. There was increased incidence of foci of altered MR signal (subcortical, periventricular) associated with increasing age. The frequency of arachnoid cysts increased with increasing weight category, and the frequency of diffuse extension subarachnoid spaces increased with the growth of number of matches. Conclusions. The boxers, who have had a history of repeated mild TCI, demonstrated the changes in brain MRI bilateral changes in cerebrospinal fluid and brain substance. The study of the peculiarities of the MRI pictures in the boxers will give the opportunity to forecast their competitive activity to diagnose abnormalities of the brain, to develop the necessary treatment and preventive measures to avoid possible long-term traumatic complications.

References
EVALUATION OF HORMONAL STATUS OF FETOPLACENTAL COMPLEX IN PREGNANT WOMEN WITH EPSTEIN-BARR VIRAL INFECTIONS

Pekar A. Yu., Mitsoda R. M.

Key words: hormones, fetoplacental complex, pregnancy, Epstein-Barr virus infection.

Epstein-Barr virus (EBV) is distributed everywhere, antibodies to the virus are found in all populations studied, the virus infections about 90% of the world population. Epstein-Barr virus (EBV) infection can cause a variety of pathological conditions; it has a high share in the structure of intrauterine infections. In order to assess the hormonal state of the fetoplacental complex in 106 pregnant women with EBV infection we studied endocrinological indicators. It was found that pregnant women with reactivation of EBV infection during gestation demonstrated probable dyshormonal impairment: a progressive decrease in the estriol level to 23.8 ± 1.6 nmol / L, placental lactogen to 299.5 ± 16.2 nmol / L and progesterone to 348.6 ± 12.5 nmol / L in the simultaneous increase in cortisol 989.3 ± 15.6 nmol / L. It shows the development of placental dysfunction.

References

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COMPARATIVE ANALYSIS OF METASTATIC BRAIN TUMOUR OUTCOMES ACHIEVED BY RADIOTHERAPY SEPARATELY AND IN COMBINATION WITH NEUROSURGERY
Pyatikop V. O., Al-Trawneh M. A, Starenkiy V.P., Karvasarskaya V. V., Kotlyarevskiy Yu. O.

Key words: metastatic brain tumour, treatment, radiotherapy, neurosurgery, efficacy.

In order to improve the results of treatment of metastatic brain tumours we carried out comparative analysis of outcomes of metastatic brain tumours (34 patients) treated by radiotherapy separately and in combination with neurosurgery. They were subdivided into two cohorts: those who have got only distant radiation therapy performed by the Clinac 600C equipment, and those who had undergone neurosurgical treatment (osteoplastic skull trepanation, elimination of intracerebral formation) before. Both groups demonstrated the improvement of life quality manifested by decreased neurological deficiency (diminishing of headaches, cognitive disturbances, vestibular-atactic changes). It was established that either the use of combined treatment of brain metastasis or application of radiation therapy separately led to stabilization or partial regression of metastatic brain process according to evaluation of immediate results in six months after the end of treatment by magnetic resonance tomography with intravenous contrasting. Combined treatment of solitary metastatic affection of brain, including surgical stage in form of metastasis elimination and further course of radiotherapy, is more effective comparing with the course of radiotherapy by one-year survival evaluation (65 % and 47 % accordingly), duration of survival (15 and 9 months accordingly). Tolerance to the treatment in both groups is satisfactory: no gross reactions of nervous system were observed; radiation reactions of skin of 1st degree and neutropenia of 1st degree did not form the contraindication for the treatment and allowed us to complete the treatment. The perspective of further research is to carry comparative analysis of metastatic brain tumours treatment taking into account histological structure of metastasis.

References
ENVIRONMENTAL FACTORS RESULTING IN URINARY BLADDER PATHOLOGY
Romaniuk A.M., Sikora V.V., Lyndin M.S., Sikora V.V., Piddubniy A.M.

Key words: urinary bladder, heavy metal salts, cancer, environmental pollution, oncologic morbidity.

Urinary bladder cancer (UBC) ranks the leading position among malignant tumours, in Ukraine and worldwide. This is possible due to the prevalence and distribution of toxic and harmful elements in environmental, whose number progressively increases due to chemical emissions, increase of heavy metal salts (HMS) in soil and water after anthropogenic catastrophes and etc. The purpose of this study was to investigate possible environmental factors affecting population morbidity in various districts of Sumy region and the development of urinary bladder cancer. Screening analysis of urinary bladder oncologic morbidity among the Sumy region population in 2014-2015 was carried out. We also assessed environmental situation in the Sumy region. Sumy region is one of the 7 Ukrainian regions with the highest number of urinary bladder malignant tumours on 100000 of population. It is in third place in oncologic morbidity of urogenital system. Given the number of all malignant tumours, the region ranks the second position among the adult population of Ukraine. In the analysis of the ecological situation in the Sumy region found that the region is undergoing constant anthropogenic influence, which in turn leads to environmental pollution. Heavy metals and other chemical compounds, fertilizers, pesticides and radioactive elements are the main contaminants of soil. Thus, the results of our research show that the UBC incidence in Sumy region is relevant because there are many exogenous factors that lead to the development of the disease.

References
Актуальні проблеми сучасної медицини


ANTIOXIDANT SYSTEM AND LEVEL OF MALONIC DIALDEHYDE IN PATIENTS WITH ISCHEMIC HEART DISEASE AND TYPE 2 DIABETES
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Key words: antioxidant system, malonic dialdehyde, coronary heart disease, diabetes mellitus.

Pathogenetic mechanisms that cause the early development and aggressive progress of coronary heart disease, in patients with diabetes mellitus are not completely clear. Oxidative stress occupies the significant place among them. Information about the antioxidant system in diabetes is contradictory. Therefore, we analyzed dependence of the antioxidant system state on the degree of impairment in carbohydrate metabolism in patients with coronary heart disease and type 2 diabetes mellitus. We examined 163 patients with stable coronary heart disease, and 88 of them were diagnosed to have type 2 diabetes mellitus. Patients with concomitant type 2 diabetes mellitus were divided into two groups depending on the level of glycosylated haemoglobin, there were 42 patients with glycosylated hemoglobin ≥ 7,00 % levels and 46 individuals with glycosylated hemoglobin < 7,00 %. We evaluated sulfhydryl groups and malonic dialdehyde indicators in blood serum, and glutathione peroxidase activity in blood hemolysate. It was established that in coronary heart disease without diabetes mellitus various compartments of the antioxidant system were changed in different directions: glutathione peroxidase activity increased, and the levels of sulfhydryl groups decreased relative to the control data. In coronary heart disease with diabetes mellitus...
mellitus the antioxidant system activity was closely correlated with hyperglycaemia. The level of the glutathione peroxidase and sulfhydryl groups with glycosylated haemoglobin ≥ 7.00 % was significantly lower than with glycosylated haemoglobin < 7.00 % and in coronary heart disease without diabetes group. Glutathione peroxidase and sulfhydryl group reducing at the level of glycosylated hemoglobin < 7,00 % on the indicators of coronary heart disease without diabetes group were not significant. The level of malonic dialdehyde was the highest in coronary heart disease with type 2 diabetes mellitus and independently of glycemic index was significantly higher than in coronary heart disease without diabetes mellitus.

References


ATYPICAL COURSE OF DISSECTING AORTIC ANEURYSM (clinical case)
Skibchik V.A., Onischuk Y.I., Omelyash U.V. Beljusova V.M., Budzinska O.L.

Key words: aneurysm, the aorta, media necrosis, atherosclerosis.

Dissecting aneurysm of the thoracic aorta (DAA) is a type of aneurysms characterized by dissection of the aortic wall resulting in formation of diffuse aneurysms. The most common cause of aortic aneurysm rupture is atherosclerotic affection of the aortic wall in the presence of concomitant hypertension. DAA problem still remains relevant due to the complexity of its early diagnosis and poor prognosis. Although the current abilities to detect DAA have become considerably improved by the application of non-invasive methods, but routine medical practice still shows high percentage of diagnostic errors. Our analysis points out that DAA is a complex and polymorphic disease with the variety of clinical manifestations. Improved diagnosis depends on how well healthcare professionals know about basic variants of the complex of symptoms, time limits to start treatment, thus saving patients' lives.

References


CHANGES IN SECRETION OF PRO-INFLAMMATORY AND ANTI-INFLAMMATORY CYTOKINES DURING TARGETED THERAPY OF CHRONIC MYELOID LEUKAEMIA

Key words: chronic myeloid leukaemia, cytokines, interleukins, immune response, targeted therapy.

The impairment of balance in cytokine system is considered to be an important mechanism in the development of chronic myeloid leukaemia (CML) as most timorous haematological processes are known to result from immunocompetent cells and their predecessors. Tumour growth leads to the violation in the functioning of cytokine system followed by the imbalance in their regulation and production. Cytokines are able to stimulate the growth of neoplastic cells by paracrine way, to activate anti-apoptotic factors, to impair the regulation of immune system functions. Tumour transformation of hematopoietic cells can also be related to autocrine production of cytokines in tumour cells that stimulates proliferation as well as the expression of their receptors. Determining the peculiarities of pro-inflammatory and anti-inflammatory cytokines secretion by immunocompetent cells during the target therapy for CML patients can extend the understanding of the contribution of immune components in the formation of resistance to imatinib therapy and improve range of diagnostic and prognostic criteria of the disease and treatment effectiveness.

References

EFFECT PRODUCED BY POLIPLATILLEN ON PAIN SYNDROME AND TOXICITY IN PATIENTS WITH UTERINE CARCINOMA.

Yatsenko L.D.

Key words: uterine carcinoma, poliplatillen.

The most effective anti-cancer medicines used in the therapy of uterine carcinoma are those, which have their own spectrum of toxicity, which worsen life quality of patience during the treatment course. Palliative support of the patients with poliplatillen provides more effective control of pain syndrome and improves the quality of life.

References

EXPERIMENTAL MEDICINE AND MORPHOLOGY

FUNCTIONING OF ARGINASE AND NO-SYNTHASE DEPENDENT METABOLISM OF L-ARGININE UNDER EXCESSIVE SODIUM NITRATE AND FLUORIDE INTAKE AND APPLICATION OF NANOSIZED SILICA SOLUTION

Akimov O. O., Kovaliova I.O., Kostenko V.O.

Key words: sodium nitrate, sodium fluoride, L-arginine, arginase, NO-synthase, nanosized silica

The article describes changes in functioning of arginase dependent and NO-synthase (NOS) dependent pathways of L-arginine metabolism under conditions of chronic excessive intake of sodium nitrate and sodium fluoride, chronic excessive intake of sodium nitrate and sodium fluoride and usage of nanosized silica solution, separate intake of sodium nitrate and sodium fluoride for 30 days. It was estimated that Excessive intake of sodium fluoride increases the general activity of NOS dependent pathway and decreases activity of arginase dependent pathway. Excessive intake of sodium nitrate also decreases arginase dependent pathway. Combined excessive intake of sodium nitrate and sodium fluoride decreases general activity of NOS dependent pathway. The application of nanosized silica solution during the course of chronic excessive intake of both sodium nitrate and fluoride increases general NOS activity and decreases general arginase activity.
References


CHARACTERISTICS OF DISTRIBUTION OF FREE FRACTIONS OF BIOGENIC AMINES (HISTAMINE AND SEROTONIN) IN HUMAN PULMONARY TISSUE
Artemenko O.I.

Key words: biogenic amines, histamine, serotonin, human pulmonary tissue.

The findings obtained have shown statistically significant difference between the content of free fractions of biogenic amines (histamine and serotonin) in different section of human lung tissue. Introduction. Biogenic amines play a key role in a number of physiological and pathological body processes. Histamine and serotonin are tissue hormones, neurotransmitters, stimulators and inhibitors of intra-cellular, tissue and organ transformations. Reactions caused by biogenic amines are often excessive and lead to the development of pathological disorders and injuries in particular organs and the whole body.

The aim of the study. Taking into account the metabolic activity of lung and the role of biological amines histamine and serotonin in many physiological and pathological processes, the aim was to clarify the content of their free fractions in lung tissue.

Materials and methods. We have studied the content of histamine and serotonin in the lung tissue from various parts of both lungs of 15 people who died suddenly from chronic coronary heart disease in the absence of pulmonary oedema. Tissue samples were taken from upper, central and lower parts of the left and right lung. The content of biogenic amines was determined by Fluorometric method that included: cleaning of samples from proteins and lipids (deproteinisation), liquid-liquid extraction of biogenic amines with organic solvents and quantitative determination of biogenic amines level on fluorimetry.

Results. Statistical analysis showed that mean levels of biogenic amines in the lung tissue were: histamine - $171.16 \pm 1.683$ mg/g of dry tissue, serotonin $78.53 \pm 0.873$ mg/g of dry tissue. Since the coefficient of variation is 10%, we investigated the cause of variations in the content of biogenic amines in different parts of lung. For this aim we analyzed the content of free fraction of histamine and serotonin in the right and left lungs. It was proved that the content of biogenic amines in the right and left lungs were not significantly different $P>0.05$, i.e. the concentration of biogenic amines in lung tissue is independent of the body side. The coefficient of variation, which is $9.2$ and $9.4\%$ of histamine content in the right and left lung, and $10.7\%$ and $11.7\%$ for free serotonin respectively, still points to the existence of singularity in the distribution of biogenic amines in lung tissue. Analysis of content of free histamine depending on the part of the lung shows that it is the smallest in the peripheral regions of the lungs - the top and bottom parts - $159.21$ mg/g and $166.9$ mg/g, and the highest in the middle ones – $187.37$ mg/g. The difference is reliable ($P<0.001$). The content of free serotonin demonstrated a similar trend; concentration in the upper part is $74.16 \pm 1.67$ mg/g, in the middle – $79.47 \pm 1.52$ mg/g, in the lower - $75.06 \pm 1.53$ mg/g. The difference between peripheral and central parts is reliable ($P<0.05$), and between the top and bottom parts is unreliable ($P>0.05$). The highest concentration is found in central parts of both lungs. Thus, the content of free fractions of histamine and serotonin in different parts of the lungs has significant fluctuations. At the same time the difference in content of biogenic amines between the symmetric parts of the left and right lungs is insignificant.

Conclusions. The study shows that the content of free fractions of biogenic amines – histamine and serotonin in lung tissue has a mosaic-symmetrical type of distribution. Moreover, the highest level is determined in the central parts, probable due to the specificity of blood supply of these areas of the lung, which appears in more intense blood flow compared to other areas of the lungs. Thus, for quantitative evaluation of biogenic amines level in lung tissue samples should be taken from central part of the lungs.
THE CHARACTERISTICS OF HISTOLOGICAL CHANGES OF THE COLON OF MECHANICAL TRAUMA IF ABSENTS ALCOHOL INTOXICATION

Babkina O.P., Stogniev J.A., Gladar V.J., Korobko I.S.

Key words: damage, colon, mechanical injury, histological parameters.

Introduction. This research was carried out to exclude or confirm the terms and conditions causing abdominal trauma, especially under mysterious circumstances, especially associated with occurrence of repeated traumas in the region of the small intestine.

Material and methods. Research was based on materials of human cadavers, expert and sectional material (87 males and 33 females, aged 20 to 60 in the presence and absence of alcohol in the blood), the Lugansk and Donetsk regional bureau of forensic examination, 2010-2013. The studies was based on using: histological and histological methods, statistical processing of the data obtained.

Results and discussion. According to our data abdominal trauma with damaged colon demonstrated, the following histological findings in a 1 hour since the trauma as small hemorrhages in the form of clusters of red blood cells with indistinct contours, spasmotic arteries with walls of blood vessels full-blooded. The adjacent mesentery of the colon presented loose fibrous tissue infiltrated with erythrocytes mixed with rare leukocytes, spasmotic vessel. In 2-3 hours the mucous membrane became swollen. In foci of hemorrhagic submucosal layer there was a large number of white blood cells. IOn the periphery of the cell layers we observed bleeding, swollen, plethoric vessels, leukocytes, lymphocytes, macrophages, mast cells. On the surface layers of the serous membrane foreign particles were black. In the period 4-5 hours after injury a number of epithelial cells became increased, with fuzzy contours of nuclei, mucosa swollen, infiltrated leukocytes. ISerous membrane became swollen and moderately infiltrated with leukocytes. Around extensive vascular inflammatory infiltrates were observed. In the next 6-7 hours the mucosa was almost of all epithelial cells with indistinct contours. In the submucosal layer there are signs of the hemorrhage, red blood cells, particularly in the center of hemorrhage, with fuzzy contours, and mixed grain brown pigment. On the periphery there were many pigmented macrophages. Thus, as a result of the research we found regular histological changes may indicate causes of injurie, possibility to develop a set of criteria for assessing the occurrence of damage limitation in gastrointestinal tract.
CONDITION OF ANTIOXIDANT HOMEOSTASIS IN RATS WITH ALLERGIC DERMATITIS

Bereznyakova A.I., Zhemela O. D., Cheremisina V. F.

Key words: superoxide dismutase (SOD), catalase (CAT), ceruloplasmin (CP), vitamins, SH-groups, 0,5 % dimecynic ointment.

The article presents the study of the status of non-enzymatic and enzymatic antioxidant homeostasis in rats with allergic dermatitis. It has been shown that rats with allergic dermatitis showed deep remodelling of oxidative antioxidant homeostasis by reduced levels of non-enzymatic antioxidant homeostasis. Changes of homeostasis should be considered as protective and adaptive body reaction in response to the formation of structural and metabolic mechanisms of atopic dermatitis. 0.5% dimecynic ointment applied in cases of modelled allergic dermatitis demonstrates marked antioxidant properties, promotes the normalization of antioxidant system, restoration of optimal enzyme activity and antiradical protection. Dysregulation of intracellular redox status by antioxidant system, which includes SOD, catalase, can be considered as one of the key factors in the pathogenesis of allergic diseases.

References
CHANGES THAT OCCUR IN INDICES OF BLOOD IRON METABOLISM IN RATS FOLLOWING THE ADMINISTRATION OF BLOOD SERUM OBTAINED FROM ANIMALS WITH MODELLED EXPERIMENTAL HAEMOLYTIC ANAEMIA

Burega I. Yu.

Key words: phenyl hydrazine, anaemia, blood, iron, rats.

Haemolytic anemias are the group of diseases characterized by pathologically intensive destruction of erythrocytes, increased formation of their decomposition products, as well as reactive enhancement of erythropoiesis. In recent decades one of the key problems of current medicine is the high prevalence of congenital and acquired hemolytic conditions that appears due to acute infectious diseases, impairment of blood transfusion protocol, formation of the autoimmune reaction in response to some antibodies, increased use of pesticides, colorants, substances and toxicants of vegetables or artificial nature, which composed of highly reactive hydrazines. Despite the existing variety of medicines, the protocols of treatment and correction of the conditions caused by haemolysis the iron metabolism does not always depend on the nutritional component. There are numerous factors that affect the metabolism, transport and provide the required amount of iron for saturation of erythrocytes and correspondingly realize the blood main function – the gas exchange. They include the hepcidin system, chalone - anti-cholone factor, influence of erythroferrone. In the experiment we studied the influence of thin humoral factors of iron metabolism in the blood serum obtained after phenyl hydrazine-induced anaemia. The research was aimed to determine the changes in indicators of blood iron metabolism in rats after
administration of blood serum obtained following the simulation of experimental haemolytic anaemia. Studies were conducted on white laboratory male rats. Animals were divided into the 5 groups: the 1st group involved intact rats (I); the 2nd group included rats – donors of blood serum (D), which were subjected to a single dose of 2% phenyl hydrazine solution (150 mg/kg) intraperitoneally; the 3rd group involved rats-recipients of blood serum (R1), which were intramuscularly given 2 ml of blood serum taken from the animals of the 2nd group; the 4th group was made up of rats-recipients 2 (R2), which were given intramuscularly 2 ml of blood serum taken from the animals of the 3rd group; the 5th group involved control (C) animals, which were administrated 2 ml of physiological solution intramuscularly. The killing of the animals and taking the material from the 2nd experimental group were done on the 3rd and 21st day, and in the 3rd experimental group this was done on the 1st day; and in the 4th and 5th groups on the 1st, 3rd, 5th day after injection. The studied indicators including the reticulocytes quantity (%), the red blood cells quantity (x 10^{12}/L), haemoglobin quantity (g/L) and hematocrit (%)assayed by haematology analyzer MYTHIC 18 (France); iron serum (µM/L) total iron binding capacity (TIBC) (µM/L), unsaturated iron binding capacity (UIBC) (µM/L), a percent of transferrin saturation (%) were determined by an automatic biochemical analyzer PRESTIGE 24i (Japan) at the clinical diagnostic laboratory of Sciially-Educational Medical Center “University clinic” Zaporozhye state medical university. After administration to animals of When blood serum taken from the animals of group R2, which did not contain erythropoietin (elimination half-life of erythropoietin was 1, 5 – 2 hours) at the background of unaltered quantity of reticulocytes was administered to the animals, we detected the significant growth of blood serum iron content, TIBC, UIBC and percentage of transferrin saturation since the 1st to the 3rd day after administration. From the 3rd to the 5th day we observed the tendency to decreasing in indicators of the total iron, TIBC, UIBC and percentage of transferrin saturation. Analysis of the findings can assume with high probability that the serum of animals, which were administrated the serum from the group with modelled haemolytic anaemia contains humoral factor of mediated action, that affects the system of blood iron transport and does not affects the activity of erythropoiesis.

References


STUDY OF PERIPHERAL VASCULAR STATUS IN ADOLESCENT BOYS DEPENDING ON FUNCTIONAL STATE OF AUTONOMIC NERVOUS SYSTEM.
Gavreljuk S. V.

Key words: adolescence, the autonomic nervous system, the initial vegetative tone, vegetative reactivity and vegetative support of the diameter of the brachial artery, endothelium-dependent dilation.

The circulatory system has the key role in providing the adaptation to external and internal environmental factors. Resistance to stress, maintaining a constant internal environment considerably depend on the state of the regulatory mechanisms of the autonomic nervous system, the interaction between its sympathetic and parasympathetic divisions. The study of endothelium-dependent dilatation of the brachial artery depending on the functional state of the autonomic nervous system in adolescent boys was carried out. No significant fluctuations in the initial diameter of the brachial artery and absolute values of brachial artery diameter after occlusive dilatation depending on the functional state of the autonomic nervous system were identified. We revealed some changes in the diameter of the brachial artery depending on the functional state of the autonomic nervous system. The highest coefficient of dilatation was observed in the group of boys with vegetative balance, normal autonomic reactivity and vegetative support activities inadequate, and the lowest coefficient of dilatation was detected in the group of teenage boys with vagotonia, hypersympathicotonic autonomic reactivity and vegetative support activities redundant. It characterizes the resistance of vegetative balance of adolescent boys. Identifying the adverse effects of increased sympathetic tone on the function of the vascular wall may reveal mechanisms of negative influence of stress on the condition of the vessels. The data give an idea about the possibilities of adaptation in adolescents depending on the functional state of the vegetative nervous system that requires further in-depth study.

References
5. Ivanova O. V., Balahonova T. V., Soboleva G. N. I dr. Sustojanie jendotelijavizisimoj dilatacji plechevoj arterii u bol'nyh gipertonicheskoi bolez'nju, ocenivaemoe s pomoshh'ju ul'trazvuka
DYNAMICS OF IMMUNOLOGICAL INDICATORS AND WAYS OF THEIR CORRECTION IN ANIMALS WITH SIMULATED PERIODONTITIS BY ORAL AND INHALATION LOAD WITH PESTICIDES

Dyryk V. T., Dyryk O.-O. T.

Key words: periodontitis, pesticides, leukocytes, immunoglobulins.

People working in greenhouses demonstrate especially high prevalence of periodontal diseases. In Lviv region the frequency of periodontal diseases reaches up to 80–92%, and is particularly higher in workers of agroindustrial enterprises running up to 85–96%.

The immunological pathogenesis of the inflammatory and dystrophic-inflammatory periodontal diseases is triggered by the factors of cellular and humoral resistance. It has been established that generalized periodontitis is a pathological process resulted from both systemic and local impairment.
of immune mechanisms that in turn increases the influence of negative environmental factors.

The purpose of this work was to investigate the state of some indices of immunity in animals with experimental periodontitis under the influence of peroral and inhalation loading with pesticides.

Materials and methods. The experiments were conducted on white outbred rats-males weighing 160–180 g. During the experiment they were kept on the standard ration of vivarium. The study involved 120 animals. All animals were divided into 6 groups. All stages of the experiments were approved by the Bioethics Commission of Danylo Halytskyi Lviv National Medical University and carried out in accordance with the rules of the humane attitude to the experimental animals and International standards on the humane treatment of animals in accordance with the European Convention for the protection of vertebrate animals used for research and other scientific purposes (Strasbourg, 2005).

All experimental animals were divided into 6 groups, 20 rats in each of them. We evaluated white blood count of the experimental animals and IgA and IgG concentrations.

The treatment and preventive complex designed for the experimental animals of V and VI groups consisted of local and general treatment. The local treatment included irrigation of the oral cavity with 0.1% solution of chlorhexidine digluconate for 2 weeks, and gum appliques of "Solcoseryl–dental adhesive" once a day for 2 weeks. In turn, the general treatment included the administration of the diet supplement "Chlorella" (0.25 g per day) and "Succinic acid" (0.5 g per day) for 2 weeks; 0.05% solution of lysozyme hydrochloride in 0.3 ml for 2 weeks was added into drinking water.

To estimate the degree of reliability of our results the statistical processing of the findings obtained was conducted with methods of variation statistics.

Results and their discussion. The use of therapeutic and preventive complex (TPC) resulted in the decrease of quantitative content of leukocytes (8.13±0.27 x 10^9/l) in the experimental animals of V. However, the obtained data by 9.42% exceeded the value in animals of I group, p<0.01, but was by 37.85% lower than in animals with simulated periodontitis of II group, p<0.01.

The experimental animals of VI group demonstrated the decrease of leukocytes in the blood to 11.42±0.28 x 10^9/l. In this case, the obtained data were lower by 53.70% than in the intact animals of I group, p<0.01, but by 12.70% less than in rats with simulated periodontitis of II group, p<0.01.

As a result of the use of therapeutic and preventive complex, the animals of V group, the level of IgA in the blood was 1.23±0.05 g/l, which was by 13.99% lower than in rats with simulated periodontitis of II group, p<0.05, still remaining by 4.23% higher relative to the values in intact animals of I group, p>0.05. The level of IgG in the experimental animals of V group decreased to 3.36±0.04 g/l and was by 14.07% less than in rats of II group, p<0.01, but was by 5.0% higher compared to the values in the intact animals of I group, p>0.05.

In animals of VI group, as a result of the use of TPC, the level of IgG amounted 3.40±0.03 g/l, which was by 13.08% lower relative to the data in rats with simulated periodontitis of II group, p<0.05, but by 6.25% higher compared to the data in intact animals of I group, p>0.05. After the use of TPC, the level of IgA in the serum of the animals of VI group decreased to 1.47±0.03 g/l, and the obtained values were by 24.57% higher than in the intact animals of I group, p<0.01 and were equal to the indices in rats with simulated periodontitis of II group, p>0.05.

Conclusions. Thus, the use of the treatment and preventive complex we designed can lead to more pronounced positive effect in the animals of V experimental group, where periodontopathogenic phenomena were combined with oral influence of pesticides. This was confirmed by the improvement of immunological status and compared with the data in the animals of II group with simulated periodontitis and was not significantly different from data in the intact rats. In the animals with simulated periodontitis subjected to inhalation influence of pesticides (VI group), the values of immunological parameters equal data in the rats with simulated periodontitis and do not reached the reference values that, probably, requires additional corrective measures.
MORPHOLOGICAL SUBSTANTIATION OF FIELD BLOCK ANALGESIA IN HYPERALGESIA TREATMENT

Dmytriiev D.V.

Key words: hyperalgesia, carrageenan, edema, regional analgesia.

The study involved 40 non-linear rats. As a model of hyperalgesia we used carrageenan-induced edema (0.1 ml, 1% sol.). Carrageenan edema was modelled by sublantal injection of 0.05 ml of 1% carrageenan solution (Sigma, USA) in the animal’s right hind limb. Observation of the prostaglandin edema development in the animals of both sexes was conducted at the 3rd hour (development pick) after the flogogen injection. Animals were divided into 3 groups: I group involved animals with carrageenan edema without any treatment (control group), animals of the II group were injected fentanyl (5 mcg/kg) intraperitoneally, the animals of the III group were injected bupivacaine (25 mcg/kg, 1-2 ml) in the perineural area. Using of fentanyl in high doses in animals can lead to opioid-induced hyperalgesia, which is accompanied by skin morphological changes after carrageenan injection. On the 3rd hour after fentanyl injection next morphological changes were observed: alteration zone was very spread, without clear borders, with the necrosis development in its centre (thickness of necrosis tissue was under 5 mm) with expressed perifocal reactive changes in the form of marked inflammation (reactive changes zone thickness under 7 mm), significant microcirculation disturbances were noticed as well. Using local analgesia methods with bupivacaine almost completely reduces these changes.

References

INVESTIGATIONS OF METABOLITE DRUGS ACTION ON FATTY ACID COMPOSITION OF LIPIDS IN TISSUES OF RATS WITH SPONTANEOUS HYPERTENSION
Dovgan R.S., Zagorodny M.I., Bruzgina T.S., Gorchakova N.O.

Key words: fatty acid composition of lipids, quercetin, thiotriazolin, spontaneous arterial hypertension.

In recent years, scientists throughout the world are continuing to research various aspects of hypertension pathogenesis and the possibility of combine therapy to improve therapeutic effectiveness. According to the up-to-date conceptions on hypertension pathogenesis the treatment must include the antihypertensive drugs and medicines correcting metabolism and morphology of target organs. This problem may be solved by metabolite and metabolite trophic drugs including the drugs of basic therapy. Such representatives are quercetin and thiotriazolin, of herbal and synthetic origin. That may protect prooxidant-antioxidant homeostasis and energy metabolism in myocardium, liver, kidney, brain tissues. The aim of research was to investigate the changes of fatty acid composition of lipids in the heart and kidney of rats with hypertension before and after quercetin and thiotriazolin treatment. The experiments have been performed on 21 HSIAH test rats of both sexes with genetically determined arterial hypertension (systolic pressure 170-180 mm Hg) and 7 normotensive WKY rats (systolic pressure – 100-105 mm Hg), which were kept in the vivarium of NMU O.O. Bogomolets. Experiments were carried out on 4 groups of the animals: group 1 – intact animals; group 2 – hypertensive animals; group 3 – quercetin treatment (25 mg/kg) during 3 month; group 4 – thiotriazolin treatment (25 mg/kg) during 3 month. The drugs were injected intragastrically during 3 months. The animals were decapitated under urethane anaesthesia. In the kidney and myocardium fatty acid composition of lipid was determined by gas-liquid chromatography. In the spectrum of lipids we identified following fatty acids: C14:0 – myristic acid; C15:0 – pentadecan acid; C16:0 – palmitic acid; C17:0 – margarine acid; C18:0 – stearic acid that are saturated fatty acids; C18:1 – oleic acid; C18:2 – linoleic acid; C18:3 –linolenic acid; C20:4 – arachidonic acid that were unsaturated. It was found that in the kidney of hypertensive rats the content of stearic acid decreased by 29%. There was a tendency to reduce the level of oleic acid. It was shown that the linoleic acid content increased by 29%, and arachidonic acid content elevated by 12%. Thus, in the kidney under hypertension the level of saturated fatty acids diminished and level of unsaturated fatty acids increased. After 3 months of quercetin therapy the level of stearic acid increased by 45% and oleic acid by 76%. The last fatty acid might be precursor of arachidonic acid and the arachidonic acid content diminished by 27%, resulting in the normalization of the ratio of saturated and unsaturated fatty acids. The assessment following 3-month thiotriazolin therapy showed that the stearic acid content increased by 27%; the oleic acid content had tendency to increase, the arachidonic acid content had tendency to diminish. In hypertensive animals were recorded to demonstrate the changes in saturated and unsaturated fatty acids in the heart. So the content of palmitic acid diminished by 34%, level of stearic acid had tendency to decrease and arachidonic acid content grew by 31%. In general, the content of unsaturated acids increased. 3 month Quercetin therapy increased palmitic acid level by 67%, and lowered the arachidonic acid content by 26%. 3 month Thiotriazolin therapy increased the content of palmitic acid by 61% and decreased arachidonic acid content by 39%. Thus, metabolite drugs of herbal and synthetic origin (quercetin, thiotriazolin) normalize the amount of saturated, unsaturated, polysaturated fatty acids in the kidney and myocardium.
References
EVALUATION OF ANTIHYPOXIC ACTION PRODUCED BY 7-HYDROXYPROPYL-8-AMINOSUBSTITUTED OF THEOPHYLLINE

Key words: 7- hydroxypropyl -8- aminosubstituted of theophylline, antihypoxic action.

This paper describes the data obtained by screening of antihypoxic action produced by 7-hydroxypropyl -8- aminosubstituted of theophylline. It was determined the compound of 7-(2-hydroxy-3-p-methoxopenex) propyl-8-dimethylamino-theophylline (union 7) in the dose of 21,9 mg/kg increased the rats' life span by 71,2% in acute normobaric hypoxia with hypercapnia. Derivatives of 7-(2-hydroxy-3-p-methoxopenex) propyl-8 theophylline substitutes are prospective group of organic substances for further fusion (synthesis) and search for new pharmacological substances with antihypoxic action.

References
INFLUENCE OF LONG-TERM ADMINISTRATION OF EXENATIDE AND INSULIN ON ULTRASTRUCTURAL ORGANIZATION OF PANCREAS IN MODELLED DIABETES MELLITUS 

Ivanciv O.R.

Key words: pancreatic islet, beta cells, alpha cells, treatment, and insulin exenatide.

The paper describes the morphological changes of the pancreas, which developed in experimental diabetes and its therapy with insulin and exenatide whose long-term administration resulted in morphologically marked improving carbohydrate metabolism and increasing regenerative processes in pancreatic islets. This was proven by the increase in the average area of the islands (µm²), the average number of islands per 1 mm², the relationship between beta cells and alpha cells during the experiment and partial reconstruction of typical ultrastructural endocrinocytes of pancreatic islands.

References


**APPLYING BIOMECHANICAL TECHNIQUES IN PREDICTING BEHAVIOUR OF CAROTID ATHEROSCLEROSIS**

Kuzyk Yu.I., Ivanov D.V., Dol A.V.

**Key words:** carotid atherosclerosis, the method of finite element analysis, biomechanics of atherosclerosis.

Hemodynamic stress of the vascular wall is a major factor in the development of carotid atherosclerosis. Therefore, the study aimed at evaluating effective and tangential stress and distribution of hemodynamic forces, depending on the structure of carotid plaque by the method of finite element analysis ANSYS. We found out the phenomenon of stress-strain state of an atherosclerotic plaque. Streams swirl and formation of stagnation sites in the ampoule of the internal carotid artery contributes to the further progression of plaque. Elevated levels of effective stress at the junction of healthy and diseased sites of the vessel in the case of mild atherosclerosis plaque contribute for intraplaqued breaks, detachment of plaque and following thrombus formation.

**References**


COMPARATIVE ASSESSMENT OF QUANTITATIVE AND QUALITATIVE STATE OF GLIAL SYSTEM IN CEREBRAL CORTEX IN RATS
Makarenko O.M., Kevtun A.M., Petrov P.I.

Key words: neuralgia, glial homeostasis, cerebral cortex, intercellular relationships glial index quantitative glial formula.

This paper describes the quantitative and qualitative analysis of the cytostructural organisation of glial system in different parts of cerebral cortex in white rats. We suggested objective (quantitative) methods for studying the cellular composition of cerebral cortex of hemispheres as glial quantitative index and glial formula, which make it possible to detail and quantitatively describe the processes that occur in the certain types of glial cells, as well as allow us to establish a relationship between cell formations in studied brain structures.

References
HISTOLOGICAL AND ULTRASTRUCTURAL CHARACTERISTICS OF TONGUE IN DIABETES MELLITUS TYPE I

Marusyn O.V.

Key words: tongue, diabetes mellitus, nerve fibers, nerve-muscle endings, microcirculatory bed.

The paper highlights the results obtained by studying structural components of tongue of 30 laboratory rats weighing 250-300 g with streptozotocin-induced diabetes mellitus type I. 25 animals made up the test group, who were killed in the 4th and 8th weeks of the experiment. 5 animals made up a control group. Histological and ultra structural methods were used to find nerve-muscles endings and their blood network. It was found out the morphological changes in these structures of tongue were of progressing inflammatory and destructive nature that was accompanied by segmental demyelination of mielinated nerve fibres with signs of axon transport delay and reactive remodelling of nerve-muscle endings. The alterations in metrical composition of peripheral nervous apparatus of the tongue resulted from the increase of quantity of mielinated nerve fibres, which were middle and large in their diameter (in 4 weeks) and small in diameter (in 8 weeks).

Leading factor resulted in the affection of nerve-muscle endings of tongue in modelled diabetes mellitus type I is the impairment of their blood supply. The morphological alteration of structural components of capillary wall results in the disorder of transport processes that is cause of lowered permeability of vascular walls, the development of ischemia and hypoxia, spreading of indistinct connective tissue, impairing the structure of mielinated and unmielinated nerve fibres and myofibrils.

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CHARACTER OF NEUROTRANSMITTER RESPONSE PRODUCED BY ANIMALS TO DOMESTIC XENOBIOTICS

Nakonechnaya S.A.

Key words: biogenetical amines, neuromediators, xenobiotics.

This paper highlights some aspects of metabolism of biogenetical amines and their predecessors in subacute experiment on white rats in 1/100 DL50 in case of influence AF 9-12 and AFS 9-6 KM and also the system of secondary neuromediators. It was established that structural metabolic injury of mediator regulation in cellular units resulted from effects produced by the neonols. AF 9-12 caused more severe influence on intracellular metabolism. The results of research of PAV influence on membranes and membranous processes enabled to draw a conclusion about membranotoxic character caused by oxyethilirolized derivative of phenols.

References
EVALUATION OF ATP AND 2,3-BIPHOSPHO-GLYCERATE CONTENT IN ERYTHROCYTES OF DONOR BLOOD DURING FREEZING

Ramazanov V.V., Bondarenko V.A.

Key words: red blood cells, freeze, combined cryopreservatives, adenosine triphosphate, 2,3-biphospho-glycerate.

It was previously shown that media containing permeable and impermeable protective components during freezing-warming of red blood cell samples provide cell resistance to the action of osmotic and hypertonic (post-hypertonic) stress. In addition, the red blood cells that have been frozen in combined environments with impermeable and permeable cryoprotectants slightly differ in osmotic and morphological characteristics from intact cells. These figures are known to depend on the concentration of intracellular adenosine triphosphate (ATP), the loss of which during hypothermic storage or freezing of red blood cells is accompanied by the loss of 2,3-biphosphoglycerate (2,3-BPG). This study was aimed to evaluating the contents of the main phosphor-organic compounds of erythrocytes (ATP and 2,3-BPG) after freezing in the medium with dextran and in the medium with dextran and combined 1,2-propanediol (1,2-PD). It has been shown that the freezing of red blood cells in the medium with dextran markes a significant loss of ATP and 2,3-BPG. Combining of dextran and permeable cryopreservatives 1,2-PD in the medium provides satisfactory storage of phosphor-organic compounds. The results obtained are probably due to the fact that the inclusion of permeable cryoprotectants and its entering cells into the medium provides weakening of their "critical" compression in cooling. This helps to preserve normal localization of enzymes on membrane structures and to support cellular metabolism in thawed red blood cells.

References

methylphenyloxy) propylxanthines. The research results have been presented in the article in the models of the cardiac rhythm dysfunctions (aconitine, calcium chloride, and adrenaline). It has been proven that the most effective compound in this row is 7-β-hydroxy-γ-(2′-methylphenyloxy) propyl-8-aminoxanthine in a conditionally therapeutic dose of 59.8 mg/kg, which decreased the incidence of arrhythmia, has prolonged mean latency period (i.e. the interval between injection and appearance of the first premature heart beat), reduces the duration of arrhythmia, decreases the percentage of mortality in experimental animals. It has been established that its anti-arrhythmic activity exceeds reference medicines as novocainamide and ajmaline on the models of aconitine and calcium chloride arrhythmias indicating that the compound possesses properties of class 1A anti-arrhythmics and has a wide therapeutic potential. 7-β-hydroxy-γ-(2′-methylphenyloxy) propylxanthines is a non-toxic compound with antiarrhythmic properties which can be regarded as a new highly effective anti-arrhythmic medicine.

References
MORPHOLOGICAL CHARACTERISTICS OF MICROVASCULAR BED IN ADRENAL CORTEX UNDER DIABETES MELLITUS AND UNDER ITS CORRECTION

Tkachuk Yu.L.

Key words: microcirculation, adrenal glands, diabetes, exenatide.

This work is devoted to the study of morphological and functional changes in microvascular vessels of adrenal cortex in experimental diabetes mellitus and during the course of its correction. It has been established that on the fifty-sixth day of experimental diabetes there were some pronounced signs of diabetic microangiopathy, which were characterized by narrowing of the arterial and capillary lumen and venular dilatation. Morphologically diabetic microangiopathy was manifested by swelling and destruction of the membrane structures of endothelial cells, thickening of the basal membrane, blood flow disorder. Daily injections of exenatide led to the normalization of blood glucose and glycosylated hemoglobin in the blood, restore the morphometric parameters and ultrastructural structure of vessel walls of adrenal cortex in different zones.

References

CHARACTERISTICS OF HEMOVESSELS OF URINARY BLADDER IN RATS UNDER DIABETES MELLITUS

Tokaruk N.S.

Key words: hemovessels, microcirculatory bed, urinary bladder, diabetes mellitus.

The study was carried out to determine the peculiarities of remodelling hemovessels of the urinary bladder in the development of streptozotocin-induced diabetes mellitus. Histological sections were stained with hematoxylin and eosin, and semithin ones with methylene blue. Ultrastructural changes in capillaries were also studied. Morphometry of hemovessels of suburothelial microvasculature was performed using an ingenious method. It has been established
that the development of diabetic microangiopathy of the rats’ urinary bladder is non-specific universal process that develops in the same way as in other organs. Specificity of the development of streptozotocin-induced diabetic angiopathy of the rats’ urinary bladder is determined by the degree of severity of non-specific vascular disorders and peculiarities of their chronological dynamics, in which we distinguish three periods: early (14th–28th day of the experiment), intermediate (42nd day) and final (56th–70th day). Each of these periods has its own histological, ultrastructural and morphometric characteristics.

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ON THE QUESTION OF IMPLEMENTATION OF EUROPEAN CREDIT TRANSFER SYSTEM INTO TEACHING FORENSIC DENTISTRY

Babkina E.P., Gladar V.Yu., Varukha K.V.

Key words: educational activities, Bologna, forensic medicine.

The process of European integration covers more and more areas of life, including higher education in Ukraine and provides modernization of educational activities according to European standards and practical works of the Bologna Convention. The formation of the European higher education helped create conditions for the free movement of students, teachers and researchers, to increase mobility and expand job opportunities and increase the international competitiveness of European higher education. The Bologna process promotes out academic mobility within European Community. Ukraine supports the general understanding of the purpose and responsibilities the set out in the Bologna Declaration and subsequent communiqués in Prague, Berlin and Bergen. Important and crucial tool for the preparation of students is creating guidelines and recommendations on the structure and content of the new higher education based on competent approach to determining the content of training and implementing ECTS. The new standards should have the same structure regardless of the direction of education. The program of forensic medicine for dental students considers the current state of forensic science and related medical and legal disciplines. The educational process is carried out by the ECTS in accordance with the requirements of the Bologna process. Forensic science is a branch of science that studies the issue of medical, biological and medical-forensic nature arising in the practice of the medical and justice. Within forensic medicine there is a separate specific branch, judicial dentistry, that meet the needs of law enforcement and justice system deals with forensic events of dental character. The need to get thorough mastering knowledge in the theory and practice of forensic medicine (dentistry) grows because law enforcement agencies may employ experts, including dentists to address specific issues of dental nature. In this regard, forensic knowledge is important for dentists who, if necessary, can able to apply them in practice. Forensic Medicine (Dentistry) as an academic discipline: first, based on the knowledge that students receive by studying general biological and clinical disciplines; secondly, provides basic knowledge to implement their functioning as forensic expert by judicial legislation; thirdly, provides knowledge of legal principles of medical practice in accordance with applicable law. The program is structured into 1 module (Organization of forensics expertise and general principles of environmental factors on the human body), which includes 10 submodules. The student workload described in ECTS, students are credited with the successful assimilation of the relevant module (test credit). ECTS implemented into the educational process encourages students to the systematic study during the semester. The types of educational activities according to the curriculum consist in: a) practical training (79%); b) independent (extracurricular) work (21%). We recommend using standardized diagnostic tools of training students: tests, problem-
based learning, interpretation and evaluation of the results of laboratory studies and others. The final module control is carried out on completion of the module. Assessment of students rating was carried out by multi-scale as the arithmetic mean score. During the current academic activities most students can get 120 scores.

Conclusions. Thus, the Bologna Declaration confirmed that the possibility of employment is the main issue for the higher institutions of Ukraine and Europe, as employment is an indicator of educational success.

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PROFESSIONAL OPINION AS A WAY TO IDENTIFY THE APPROACHES IN IMPROVING QUALITY OF MEDICAL CARE FOR PATIENTS WITH NEPHROLOGY PATHOLOGY
Bezruk V.V.

Key words: doctors, public opinion poll.

The quality of medical care is one of the most pressing issues in the process of social reforming in Ukraine. Professional (personal, subjective) opinion is one of indicators which might contribute to reforming of the healthcare and namely to improving the quality of care (managerial decisions) at the regional level. The aim of this study was to analyze the ratio of private experts in the processes of reforming the healthcare and possible ways to improve the quality of health (nephrology) care for children at the regional level to the population (Chernivtsi region). According to the results of the survey it was found that at the regional level (Chernivtsi region) the experts demonstrated understanding of the need for health and support the reform process in the country (including nephrology care for children's population); improving the quality of care. This study will allow us to point out activities (administrative decisions) to ensure the quality of medical care (at regional
level), in accordance with the requirements of national standards

References


APPROACHES TO THE DEVELOPMENT OF AUTOMATED DATA ACQUISITION SYSTEM ON INNOVATION IN HEALTH CARE OF UKRAINE

Gorban A.E.

Key words: structure of innovative products in medicine, predicting of effectiveness of innovative data acquisition system, questionnaire of implementation, automated information system of registration and monitoring of innovation in medicine.

There is an urgent need in the development of objective criteria for assessing the expected innovative product of research and development work at the stage of the request for funding. Objectives. The study was aimed to provide justification of approaches in creating an automated system for obtaining information on the innovation of health care institutions of Ukraine to create forecasting models of its effectiveness. Results and discussion. We analyzed the criteria of expert assessment of innovative potential of data acquisition system. A conceptual model of the automated information system for collecting and processing information and forecasting the competitiveness of the alleged receivable innovative product as an electronic form of the questionnaire in the form
of the program "Questionnaire of implementation" are propose. The structure of the data is used to construct a model predicting the expected competitive innovative product. Conclusion. Research substantiates the necessity of developing an automated information system for recording and monitoring of innovation in the sphere of health care of Ukraine.

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SCIENTIFIC AND METHODICAL BASES OF TEACHING PHARMACOLOGY AT EXTENSION COURSES FOR HEALTHCARE AND MEDICAL EDUCATORS

Gorchakova N.A., Chekman I.S.

Key words: extension courses, healthcare and medical educators, informational technology, textbooks, lectures.

The work describes scientific and methodical bases of teaching pharmacology at extension courses for healthcare and medical educators at the Department of Pharmacology in O. O. Bogomolets National medical University. We analysed the examples of the informational and organized activity of the department teachers and text books preparation. All listeners of the faculty were tested twice and prepared independent written works. The trainers of the department deliver problematic lectures to the listeners in the forms of lecture-press conferences, lecture-conversations, lecture-debates. The department teachers used the informational resources and the new pedagogic methods such as brainstorming and case-method, method of cooperative groups. There are different programs for the listeners of the I-II and III-IV levels of the accreditation. The listeners are used the internet resources. Also for the listeners’ knowledge improvement the department teachers used election educational resources applying, multimedia technique. Educational innovative technologies help motivate them for further active professional development.
References

RESULTS OF DOCTORS' PROFESSIONAL OPINION RESEARCH ABOUT THE SYSTEM OF
OPHTHALMOLOGICAL TREATMENT: ITS CONDITION AND REFORMATION
Kovtun M.I.

Key words: ophthalmological treatment organization, opinion, doctors, health-care reform.

The aim of research is comparative evaluation of professional doctors’ opinion about current condition of high qualified ophthalmological treatment and ways of its reformation. Using developed questionnaire the survey of 114 doctors-ophthalmologists who worked in ophthalmological department sand offices of clinics from different regions of Ukraine (north-east, east, central, north and west) was carried out. Based on answers comparison is determined that doctors from all regions of Ukraine are not satisfied with their salary, except doctors from Kiev and Kharkiv. Questioned doctors from all cities are willing to work more for appropriate economic reward, except doctors from Kharkiv (38%). The majority of questioned doctors are satisfied with their work (78-91%), except doctors from Kharkiv (13%). From 57% to 91% of questioned doctors think that health care reform is needed. All questioned doctors think that preferable forms of health care organization should be medicine with multichannel mechanism of funding (41%) and insurance medicine (33%). The least number of votes got family doctor’s practice (2%) and budget medicine (11%).

References
EBOLA VIRUS: PATHOGENETIC ASPECTS AND PRINCIPLES OF LABORATORY DIAGNOSIS, DIRECTIONS OF IMMUNOPREVENTION
Ananjeva M.M., Knysh O.V.

Key words: Ebola virus, pathogenicity factors, laboratory diagnostics, immunoprevention.

Modern views on etiology, pathogenesis, the principles of laboratory diagnostics and the perspective directions of specific prevention and treatment of the hemorrhagic fever caused by the Ebola virus are presented in this review paper. This disease is naturofocal with steady tendency to expansion of a nozoareal, with multiple ways of transmission. The hemorrhagic fever is characterized by serious course, high mortality rate, up to 90%. The Ebola virus is a member of family Filoviridae, the genus Filovirus, comprises five distinct species. The virion is enveloped, large-sized and threadlike, containing a single-stranded, negative RNA. The genome of a virus encodes synthesis of eight proteins which are carrying out not only structural, regulatory, receptor and enzymatic functions, but also being major pathogenic determinants. The Ebola virus causes disturbances of the immune response - both cellular, and humoral. Phenomena of antibody-dependent enhancement of infection, an immunological imprinting and the excessive reaction of immune system play an important role in pathogenesis of the hemorrhagic fever, leading to damage of blood vessels endothelia and to development of disseminated intravascular coagulation syndrome. Express research methods are of great value in laboratory diagnostics. A number of different vaccines (DNA-vaccines, virus-like-particles and viral vectors) and specific immunoglobulins are being developed by assessing preclinical and clinical efficacy now.

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**PHARMACOLOGICAL PROPERTIES OF MAGNETITE NANO-PARTICLES**

Vazhnichaya Ye.M., Devyatkina T.A., Moklyak Ye.V.

**Key words:** nano-particles of iron oxide, magnetite, pharmacodynamics, pharmacokinetics, theranostics.

One of nano-pharmacology branches is the study of magnetic nano-particles (NPs), which include the low zero-valent iron and iron oxides, as well as composite materials on their basis. The purpose of work is to summarize information on the pharmacokinetics and pharmacodynamics of LF magnetite (iron oxide II, III) based on literature available. It has been shown that their pharmacokinetics is characterized by a wide distribution in the body, processing in cells of the reticuloendothelial system, iron accumulation in depot organs and different by applying external magnetic field. Specificity values of pharmacokinetic parameters of individual species and magnetite NP preparations are based on particle sizes used and coating. The pharmacodynamics of LF magnetite except antianemic effect shows pronounced magnetic properties, which determine the magnetic resonance imaging (diagnostic), transport and hyperthermia action. Thus, magnetite LF demonstrates such pharmacokinetics and pharmacodynamics, which are defined by their size, structure, nature of the stabilizing agents. Properties of LF can be combined in a single preparation providing diagnostic and therapeutic effect and involving principles and features for antianemic effect - to develop tools that have advantages over the existing stimulators of erythropoiesis.

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RETROSPECTIVE ANALYSIS OF COMPLEX METHODS OF GOUTY ARTHRITIS THERAPY BASED ON PATIENT-CENTRED APPROACH

Kapustianska A., Vakhnenko A., Moiseyeva N., Rумыньтева М.

Key words: gouty arthritis, complex treatment, hyperuricemia.

Gout, history of which has been lasting for centuries, ceased to be some "exotic diseases". The risk of the disease at young age and rates of gout is increasing every year. Improvement of methods of complex treatment of gout is a very urgent task. Basic therapy is provided by diet, herbal medicine, pharmacotherapy and enterosorption. Repose, low purin and low-calorie diet are recommended for treatment of acute gouty arthritis. The purpose of basic therapy is to reduce hyperuricemia in chronic arthritis and visceral (kidney) disease. For the treatment and prevention of acute articular syndrome a drug of choice is colchicine. NSAIDs are undoubtedly effective under the condition of acute gouty arthritis It is also effective to combine corticosteroids and NSAIDs. Basic medication, and namely, allopurinol, and orotic acid or tiopurinol may be taken only after disappearing symptoms of acute arthritis, usually not early than in 3 weeks. Benzbramaron and benzomaron are also often prescribed. Undoubtedly, the use of complex therapy as a means of correcting hyperuricemia to stabilize the purine metabolism is of great scientific and clinical importance.

References
CHEMILUMINESCENCE ASSAY IN BIOLOGY AND MEDICINE

Mykytiuk O.Yu.

Key words: chemiluminescence, medical diagnostics, biology.

The article deals with activated chemiluminescence in biological systems, which plays an important role in medical diagnostics and research due to its simplicity, low cost, high sensitivity and selectivity. Chemiluminescence is being studied as a solution or suspension cells, and the entire organs in the body composition. Methods of chemiluminescence immune analysis aim at identifying biologically important compounds of low concentrations in which they are present in biological objects, because they are used to detect hormones, allergens, drugs, nucleic acids, antigens and antibodies in virus and somatic diseases and al. For medical diagnosis it is important that the nature of the processes that determine the actual glow of fabric may vary when the state of the tissue.

The method was used to detect serological markers of infection with hepatitis B and A. Various automated chemiluminescence ELISA analyzers for the detection of antibodies to the hepatitis C virus are now present in many clinical laboratories, they are of high clinical sensitivity.

The results of investigations of violations of three-dimensional structure of macromolecules of proteins can provide useful information to specify the severity of type 2 diabetes combined with psoriasis and monitoring the effectiveness of therapy.

Research of functional activity of neutrophils in patients with chronic rhinosinusitis found an increase in the rate of formation of reactive oxygen species in the spontaneous chemiluminescent reaction, which is used as an activator Luminal and is determined by the total functional activity of neutrophils. CL method was used to determine the relative contribution of different cell types in the washed sperm to the overall size of the intracellular production of H$_2$O$_2$ and peroxynitrite. Each type of cells in semen gives a different contribution to the intracellular level of H$_2$O$_2$ and peroxynitrite.
Chemiluminescent ELISA is used in various fields, including environmental monitoring, clinical diagnostics, food safety and pharmaceutical analysis, as a promising approach to selective, sensitive, rapid and simple analysis.

Methods for chemiluminescent enzyme immunoassay are rapid, high-throughput, sensitive and cheap.

Chemiluminescence is traditionally used to study the nature of oxidative bactericidal mechanisms of neutrophils and monocytes, intrinsic defects or abnormal functioning of neutrophils and monocyte cell activation.

Another important clinical application of chemiluminescence in clinical immunology consists in studying autoimmune diseases, inflammatory reactions, endocrine disorders, immunodeficiencies, immune response to mucosal drugs and pathogens and response to tumours and infections. Chemiluminescent diagnostic tests can accurately differentiate patients with physiological pregnancy and patients with threatened abortion in I trimester with malignant trophoblastic tumours. CL in recent years has become a useful tool for the analysis of food products in recent years to determine the nitrogen components, sugar, chemical preservatives, metals, hormones and anabolic metabolites and other compounds in foods because of the simplicity, low cost and high sensitivity. Searching for new substances that may be used as luminescence activators enables further development of this method for biological and medical needs, for diagnosis and monitoring the effectiveness of therapy in clinical practice.

References

INFLUENCE PHYSIOLOGICAL AGING ON GASTROINTESTINAL MICROFLORA (Review paper)

Molozhavaya O.S., Ivahnjuk T.V., Makarenko A.N.

Key words: intestinal microflora, age-related changes.

The review describes experimental researches of qualitative and quantitative composition of human intestinal microflora during physiological aging. Intestinal microflora is considered as a biomarker of involutive aging changes of homeostasis and, at the same time, contributes to the development of different diseases: inflammatory bowel diseases, diabetes mellitus, metabolic syndrome, obesity, hepatic diseases, cancer, autoimmune and neurodegenerative processes. The data on changes in the intestinal microflora with age are contradictory. It could be explained by using different research methods and influence of different factors on the intestinal microflora ecology (country, eating habits, environmental factors, etc.). Preserving beneficial bacteria in human intestine throughout life is promising and important approach in disease prevention.
References


4. CLINICAL AND LABORATORY SUBSTANTIATION OF APPLICATION OF A-SILICONE MATERIAL FOR CLASPLESS FIXATION OF REMOVABLE DENTURES IN MESIAL-DISTAL TEETH INCLINATION
Yanishen I.V., German S.A.

Key words: prosthetic dentistry, A-silicone material, claspless fixation, partial removable denture.

The prevalence of defects of dentition among the population of Ukraine has reached significant figures. As evidenced by data from the scientific literature (Dorubets 2007, Pavlenko 2010, Kabakov 2011) the number of such patients from the total population of Ukraine amounts to from 70% to 95%.

The aim of prosthetics is not only restore aesthetics but also the function of chewing, anatomical integrity, normalization of activity of masticatory muscles and the temporomandibular joint, retention of the existing dentition and prevent its further destruction. Modern dentistry offers many options to achieve this goal. Currently, dental implantation is becoming an increasingly common treatment method, while using partial removable dentures is becoming less popular. But, on the other hand there are many factors that are limitations to the use of the method of implantation. Among them: the quality of bone, Smoking, presence of systemic diseases, the patient's age and economic conditions. In this regard, the importance of a removable prosthesis cannot be denied.

Evolution of removable partial dentures has come a long way, leading to numerous projects that were a failure in dentistry. The vast majority of these projects do not function to protect or preserve abutment teeth and strengthen the surrounding structures of periodontium. In generally, they are not comfortable and not aesthetic. Partial dentures is perhaps the most undervalued and, in some cases, improperly designed. Classically, partial dentures are considered a last resort to restore the
dentition.

Large defects of dentition and distal unlimited defects are the main factors in the manufacture of removable structures. Fixation of removable partial dentures is one of the major problems of modern prosthetic dentistry. Prosthetics with a small number of remaining teeth is very challenging, which is determined by the clinical conditions of the oral cavity.

One of the obvious limitations of using RPD especially in the replacement of front teeth is unsightly metal clasp. Traditional clasp fixation was used for many years and has proven its ability to retain a partial removable laminar denture in place. However, the use of traditional clapers as a fixation may have an aesthetic disadvantage, especially when the placement is in the anterior region. Therefore, in this situation should be considered other options, because there are many types of fixation in the form of intracoronal and extracoronal systems.

Soft elastic lining for prostheses were designed to improve the surface of complete dentures and help to avoid injury to the tissues. There are two types of silicone soft linings: plasticized polyacrylate and silicone.

In some studies, the use of soft linings is characterized by significantly better performance restore speech and ability to chew, significantly reduced pain and pain when wearing dentures. Prosthesis retained better and stabilizes, increases psychological comfort and times the dressing dentures, significantly increases the maximum occlusion power. However, other studies have not confirmed this finding.

Common techniques of manufacturing of claspless dentures are described in relevant literature. Fixation takes place with the help of magnets from samarium-cobalt, which is built into the abutments of the prosthesis on the one hand, and the teeth that remained. Studies have shown that many cells and tissues of organisms are sensitive to a magnetic field depending on the nature, duration of exposure and intensity.

Having conducted the literature review, we can conclude that the elaborated literary sources emphasize the relevance of A-silicone material for claspless fixation of removable dentures with mesiodistal inclination of the teeth, which requires clinical and laboratory studies on the development and implementation of methods of claspless fixation of dentures using A-silicone material, and also to determine the clinical and cost-effectiveness.

References


MORPHOLOGICAL AND FUNCTIONAL STUDIES OF LYMPHATIC SYSTEM IN ITS HISTORICAL ASPECTS

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Key words: lymph, lymphatic vessels, circulation, microcirculation, injection, absorption.

The article highlights the historical aspects of research of the lymphatic system. They originated from ancient times and can be associated with the names of Hippocrates, Aristotle, Erasistratos, Herophilus, and later, during the Renaissance of science with the names of Vesalius, Falloppio, Eustachio. In the works of ancient scholars, vessels and components containing clear liquid or white blood were mentioned, the purpose of which long remained unclear. Anatomical study of the lymphatic system with the use of injections was actively conducted by many scientists such as Azelli, Nuke, Stenon, Semmering (1801) and Stefanis (1902). Some injectable mass is still successfully used in our time. In the XVIII century the works of Hunter and Huston had a major relevance due to the fact that they were the first to use mercury injections in their studies of the lymphatic system. It was at that time that an important part of studying the functions of the lymphatic system was the observation, confirmed by many researchers, that certain substances that were injected into serous and synovial cavities and into the tissue, were absorbed by lymphatic capillaries. Mascagni (1787) and Bichat were the first to study the issue. They imagined serous cavities as large interim storage tanks. They proposed that the internal liquid, while leaving blood capillaries, is delayed for a while in the serous cavities, and then sucked into the lymphatic capillaries. The authors speculated that absorption occurs through the numerous holes that connect directly to the body cavity with a dense mesh of lymphatic capillaries of serous membranes. At that time atlases of the lymphatic system, written by Mascagni (1787), were already published. This theory, which was introduced during the reign of the doctrine of the open structure of the lymphatic...
system has been further developed in the works of Recklinghausen (1862-1863), Arnold (1874), Klein, Dybkovskiy (1866), Schweiger-Zeidel (1871) and other authors. In 1885 an atlas of the lymphatic system, written by Sappeya, was published.

Later, during the study of the lymphatic system, morpho-functional methods of research were applied, based on instructional techniques that had been developed before. The founder of the Soviet lymphology was the distinguished anatomist G.M. Iosyfov (1870-1933). His main works were devoted to the study of lymphatic vessels, using methods of injection. Iosyfov, for the first time, comprehensively investigated the composition, circulation and functions of lymph in the body, describing the morpho-functional role of the thoracic duct tank as a peripheral heart (1904.). It was he who created the theory of lymphatic collectors and published the monograph "The Lymphatic system of the person with a description of adenoids and organs lymphatic movement" (Tomsk, 1914., 1930), the former – in German.

Particular attention is paid to the historical aspects of the modern domestic lymphology. One of the first researchers is considered to be the student of Professor Tikhomirov - F. A. Stephens (1902-1917). F. A. Stephens made a systematic study of the lymphatic vessels of the stomach, liver, kidneys; created the foundations for the classification of lymph nodes of the abdominal cavity and their relationship with the organs of the thoracic cavity. The idea proposed by Stephens of the layer-by-layer arrangement of the lymphatic vessels of the abdominal cavity, was at that time thoroughly developed, and even today may contribute to a correct explanation of the directions of the outflow of lymph in the abdominal cavity. Data, obtained by F. A. Stephens, allowed him to complete the research about the anatomy of the lymphatic system that was contained in the writings of its most prominent researchers Krukshenk, Mascagni and Sappee. A further principle of classification of lymph nodes was developed by Rouvière (1932), Syzganov (1932), Ogneviy (1936), Zhidanov (1945, 1952). F. A. Stephens prepared many unique specimens of the circulatory system, internal organs and was the founder of the academic anatomical Museum ("Systematic list of the specimens Museum at the Department of descriptive anatomy of the Kiev University", 1899).

In our time the number of researchers of the microvasculature movement increased significantly and this problem, under the guidance of Professor I. I. Bobryk, began engaging morphologist not only in Ukraine, but abroad as well. An important research area emerged and is gradually growing, the modern Ukrainian school of this research area is also developing.

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ЛЄКЦІЇ

CLINICAL DIAGNOSTIC FEATURES OF CHRONIC OBSTRUCTIVE PULMONARY DISEASE OF PROFESSIONAL GENESIS

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Keywords: chronic obstructive pulmonary disease, diagnosis, treatment, prophylaxis.

At present, the level of occurrence of occupational diseases is a serious medical, social and economic problem worldwide. The index of occupational diseases in Ukraine in 2014 amounted to 1.29 per 10 thousand of workers. A significant proportion of occupational diseases is made up of respiratory diseases caused by the exposure to dust. Potentially hazardous industries, where workers are observed to develop chronic dust bronchitis more often include foundries, mining, engineering and construction industries, agriculture, etc. Dust particles of different crystal structure and chemical properties produce different types of interaction with the surface of phagocytes, which cause varying degrees of cytotoxicity.

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