Conclusions. The normalized total brain size was smaller in the schizophrenics in both sexes. However, the normalized cortical and white matter sizes were only smaller in females between groups. Therefore, there are sex dependent differences.

THERE ARE RELATIONS BETWEEN THE CLINICAL COGNITIVE TESTS AND SUBCORTICAL STRUCTURES OF THE BRAIN IN THE PARKINSON'S DISEASE PATIENTS WITH MILD COGNITIVE IMPAIRMENT: A BRAIN SEGMENTATION STUDY

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Key words: *parkinson's disease, mild cognitive impairment, cognitive tests, magnetic resonance imaging, brain segmentation*

Background. The relation between the function and structure of the brain is under interest of the scientist. This relation gives information to the clinician to diagnose or monitor the neurodegenerative diseases. However, there are limited studies on clinical tests and structural analysis of the brain.

Aim. In the present study, we evaluated the correlation between the cognitive tests and size of the subcortical structures.

Material and Methods. 26 Parkinson's disease patients with mild cognitive impairment (7 females and 19 males) included to the study. The mean age of the patients (±SD) is 67.1±10.3 years. Cognitive tests were done in the clinic and the structural analysis of the subcortical structures were done on magnetic resonance (MR) images. Brain segmentation was done using the BrainSuite software. The correlation analysis is done between the cognitive tests and the size of the hippocampus, amygdala, caudate nucleus, putamen, globus pallidus and nucleus accumbens of the right hemisphere.

Results and Discussion. The size of the hippocampus, amygdala, caudate nucleus, putamen, globus pallidus and nucleus accumbens were 3770.2±483.1, 2874.2±506.7, 3007.0±1115.8, 5009.5±912.7 and 1876.9±327.4 cm^3 in the right hemisphere. The hippocampus was bigger in the patients who had high SBST learning mark (r=0.555; p=0.003). The amygdala was bigger in the patients who had high verbal memory learning score (r=0.420; p=0.03). There were positive correlations between size of the caudate nucleus and fruit&human (r=0.454; p=0.02), stroop error (r=0.457; p=0.02). There was also negative correlation between the nucleus accumbens and UPDRS (r=–0.446; p=0.02). There was not any correlation between the size of the globus pallidus and the cognitive tests.

Conclusions. Our findings revealed that there are strong correlations between the cognitive tests and the size of the subcortical structures. Our findings are also reveals that the above mentioned cognitive test could be accepted as powerful tests in clinic.

MORPHOLOGICAL STUDY OF CYTOTOXICITY OF LIGHTCURING NANOCOMPOSITE PARTICLES IN RAT MODEL

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Key words: *dental filling material, Vitremer, Filtek Ultimate, nanoparticles, cytotoxicity, gum*

Aim. To study the cytotoxicity of glass-ionomer cement Vitremer (V), a nanocomposite for direct restorations of Filtek Ultimate (FU) and particles of the FU nanocomposite in an experiment on laboratory rats.

Material and Methods. Experimental rats in the precervical area of the first maxillary molar were provided with a cavity in which V glass-ionomer fillings, a FU glass nanocomposite for direct restorations or daily powdered FU nanocomposite powder were placed in the cavity. On the 14th day, the animals were removed from the experiment. For morphological studies, a gum site was taken from the animals adjacent to the prepared cavity and a gum site from the opposite side of the dentition and paraffin sections were made. For histological examination, the dewaxed sections were stained with hematoxylin and eosin.

Results and Discussion. For animals with fillings made of nanocomposite, as well as those which a powder was placed in the cavity of the tooth, significant changes in the structure of the gingival mucosa were revealed, the signs of hyperkeratosis and chronic inflammation are characteristic, and, in addition, the presence of cysts, both in the surface and basal layers of the epithelial layer.

Conclusions. Taking into account the negative influence of the nanocomposite particles on the gingival mucosa, we consider it advisable to limit the use of the test material to occlusal surfaces.

COMPUTED TOMOGRAPHIC ANATOMY OF THE MEDIASTINUM IN NORM, IN ESOPHAGEAL CANCER AND AFTER RESECTION OF THORACIC ESOPHAGUS WITH AUTOGASTROPLASTY

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Key words: *computer tomography anatomy, mediastinum, norm, esophagus cancer, resection, autogastroplasty*

Aim. Comparison of topographic and anatomical parameters of the mediastinum and its organs in norm and after resection of the thoracic esophagus with plastic gastric graft.

Material and Methods. The material of the anatomical section of the study was the in vivo computed tomograms of the thorax of 115 patients who had no digestive pathology, and 40 patients examined and operated in the Orenburg cancer clinic with a diagnosis of breast cancer of the esophagus. The paper uses the following methods: computed tomography; morphometry and variation-statistical processing of the data.

Results and Discussion. The average values of the anterior-posterior size of the mediastinum increased from 54.8±0.7 mm at the level of the sternoclavicular articulation to of 129.7±2.0 mm at the level of the base of the heart, the transverse dimension of anterior mediastinum, respectively, of a 60.3±1.4 to 102.0±2.5 mm, the transverse dimension of the posterior mediastinum from 21.7±1.4 to 32.8±1.4 mm. When cancer of the thoracic esophagus is the displacement of the heart anterior and left with an approach to the anterior thoracic wall to an average of 4.8 mm, the trachea and the left main bronchus anteriorly, the descending part of the thoracic aorta to the left and posteriorly with the movement of the lateral surface of the vertebral bodies. After resection of the esophagus with autogastroplasty due to the movement of the posterior mediastinum of the gastric graft, in the first two weeks after the operation, there is a decrease in the anterior dimension of the mediastinum, an increase in the transverse size of the posterior mediastinum with its displacement to the right of the median plane, preserving the displacement of the heart forward to the sternum, and the thoracic aorta to the left on the lateral surface of the vertebral bodies. By three months, the gastric graft occupies the position of the esophagus in the posterior mediastinum, the mediastinum parameters return to the preoperative parameters and remainin the long term.

Conclusions. In the course of the study, new in vivo data on computer tomographic anatomy and topography of the mediastinum and its organs were obtained.

EFFECT OF SUPERIMPOSITION OF THE VASCULAR DAMAGE ON SCIATIC NERVE İNJURY

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Key words: *nerve, injury, vascular damage*

Despite traumatic nerve injuries has been well documented in literature, vascular injuries of the peripheral nerve has not been extensively studied. It is not well understood if the nerve affected from mechanical trauma or ischemic insult results to degeneration by interruption of axonal traffic and flow. Although peripheral nerves have extensive anastomotic channels. it is interesting that ischemic insult should have been compensated by collateral system of the epineurial vessels. In the present study we aimed to study effect of vascular damage on axonal degeneration and regeneration process. We found that superimposition of the vascular damage aggravated severity of the trauma. We think that futher studies should be carried to understand vascular damage of the peripheral nerves.

EFFECT OF İLOPROST ON FUNCTIONAL RECOVERY AFTER CRUSH İNJURY OF THE SCIATIC NERVE

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Key words: *functional recovery, crush, injury, nerve*

Background. Vascular damage of the sciatic nerve results to subperineurial degeneration/demyelination injury.

Aim. In the present study, it was aimed to study the effect of iloprost on recovery of the sciatic nerve after crush injury.

Material and Methods. A total number of 40 Wistar rats were used for this purpose and divided into four groups [Group 1: Control, Group 2: Sham, Group 3: Crush injury+iloprost (–), Group 4: Crush injury+iloprost (+)].

Results and Discussion. Sciatic nerve regeneration was evaluated by walking track analysis, pinch test, light and electron microscopy and antioxidant effect of iloprost was evaluated by biochemical analysis.

Conclusions. Sciatic function test, pinch test, electrophysiologic, and biochemical analyses revealed that the iloprost showed a beneficial effect on recovery of function after crush injury.

APPLICATION OF POLYMERS FOR PLASTINATION OF TEACHING ANATOMICAL AND BIOLOGICAL SPECIMENS

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Key words: *anatomy, education, formalin, polyester*

Background. Plastination was fabricated in 1978 by Dr. Gunther Von Hagens at the University of Heidelberg, Germany, which keeps for good conservation of anatomical and biological material**.**

Aim. Our goal was to use a cost effective plastination polymers as compared to standard S10 technique that using silicone polymers.

Material and Methods. The S10 is the original silicone polymer used for preparation of plastinated specimens and whole dissecting body. Specimens were fixed in formalin, dehydrated and decreasing