Aim: Monitoring of the clinical- paraclinical manifestations in order to confirm the diagnosis of mitochondrial encephalopathy.

Materials and methods: There were investigated seven children between 3-15-year-old suspected by a positive diagnosis of mitochondrial encephalopathy. The following laboratory tests were performed: serum creatinine, creatinine kinase, serum lactate, EMG, brain CT, brain MRI, muscle biopsy.

Results: We observed that children suspected with mitochondrial encephalopathy often presented in neurological manifestations: neuropsychological retardation, myoclonic epilepsy, headache, pseudoictale seizures, vomiting, ataxia, sensory hearing loss, dementia, retinitis pigmentosa; and extraneurological: hypertrophic cardiopathy, endocrine disorders, iron-deficiency anemia, lactic acidosis, physical retardation, short stature. Laboratory tests revealed lactic acidosis in six cases and hyperpyruvatemia in one case. Muscular biopsy: in five cases- presence of red muscle fibers in flaps. EMG pattern: in four cases- myopathic potential, in three cases - signs of peripheral neuropathy. MRI scan: in three cases - hypodense foci, in two cases - cortical atrophy, in one patient- hyperintense areas were found in the basal ganglia and brainstem, in another case - calcification in the basal ganglia. The study was mainly based on characteristic clinical signs, MRI pattern and muscle biopsy.

Conclusions: We suggest that the heterogeneous symptomatology of mitochondrial encephalopathy is one of the causes why patient see different specialists in order to seek the diagnosis. The most common clinical symptoms are brain, muscle, cardiac and neuro. The suggestive symptoms of CNS damage are the most frequent in these patients. The genetic test and neuroimaging method have the major role in mitochondrial encephalopathy diagnosis confirmation. The presence of red fibers in skeletal muscle and the biochemical results characteristic to the mitochondrial defects support the diagnosis. But, the decisive diagnostic test represents the DNAmt molecular analysis.

Key words: mitochondrial encephalopathy, laboratory tests, imaging exam.

CHANGES IN HEART RATE VARIABILITY INFLUENCED BY HYPERVENTILATION AND EVOKED PSYCHOEMOTIONAL STATES

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Introduction: This study aimed to investigate ventilatory correlates of conditioned psychoemotional states – responses to fear, anxiety and restful states and heart rate variability. Respiratory, end-tidal carbon dioxide pressure (PetCO2) and heart rate changes were studied in a differential fear and anxiety conditioning paradigm as well as in a restful state paradigm. We aimed to find out which kind of images, evoking a corresponding psychoemotional state, induce changes in respiration, causing hyperventilation and in heart rate variability. Medically unexplained dyspnea refers to a condition characterized by a sensation of dyspnea and is typically applied to patients presenting with anxiety and hyperventilation without underlying cardiopulmonary pathology. We were interested to know how anxiety triggers hyperventilation and elicits subjective symptoms in those patients. Using an imagery paradigm, we investigated the role of fearful imagery in provoking hyperventilation and in eliciting symptoms, specifically dyspnea and heart rate variability as well as the role of restful psychoemotional state.

Methods: Twenty-eight patients with medically unexplained dyspnea matched for age and gender were exposed to scripts and asked to imagine both fearful and restful scenarios of images, while end-tidal

PCO_2 ($PetCO_2$) and breathing frequency were recorded and subjective symptoms evaluated. The subject who had $PetCO_2$ falling more than 5 mmHg from baseline and persisting at this low level for more than 15 seconds in the imagination was regarded as a hyperventilation responder. Parallel was registrated cardiac activity.

Results: In patients with medically unexplained dyspnea, imagination of fearful scenarios, induced anxious feelings, and provoked a significant fall in $PetCO_2$ ($P<0.05$). Breathing frequency tended to increase. 18 out of 28 patients were identified as hyperventilation responders compared to 8 out of 28 normal subjects without hyperventilation($P<0.01$). The patients reported symptoms of dyspnea, palpitation or rapid heart beat in the same fearful script imagery. Additionally, $PetCO_2$ fall was significantly correlated with the intensity of dyspnea and palpitation experienced during the mental imagery on one hand, and with anxiety symptoms on the other. Restful scenarios of images induced also hyperventilation but in comparison fearful scenarios of images they differ qualitative. Heart rate variability changed in case of hyperventilation in correlation with restful scenarios of images.

Conclusions: Fearful imagery provokes hyperventilation and induces subjective symptoms of dyspnea and palpitation in patients with medically unexplained dyspnea. Restful imagery provokes hyperventilation and induces changes in heart rate variability by increasing. The difference between the both hyperventilatory states is that in case of fearful imagery we observe tachypnoe and in case of restful imagery – hyperpnoe.

Key words: heart rate variability, hyperpnoe, fearful script imagery.

THE STEM CELLS IN CHRONIC EXPERIMENTAL LIVER DISEASES

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Introduction: Chronic liver diseases (CLD) are increasing worldwide affecting almost 17% of general population. In the Republic of Moldova during the last ten years the incidence and prevalence of CLD had increased continuously. The liver cirrhosis in our country is the third cause of death after cardiovascular diseases and cancer. This situation is the result of a high prevalence of infectious viral hepatitis, alcohol and hepatotoxic drug abuse, and the unavailable so far of the orthotopic liver transplantation (OLT), the only curative treatment for the end stage liver diseases. The number of patients waiting for an OLT has increased during the last years, meanwhile the organ donation has not kept up with demand. Consequently the organ shortage is increasing the morbidity and mortality of patients on waiting list. This clearly implies the need for finding alternative solutions for the patients with end stage liver disease, and stem cell therapy is the one that gives the most hope so far.

The aim of this study was to induce chronic experimental liver disease in rats, then transplant stem cells and further evaluate the effect on liver function.

Material and methods: Chronic liver lesions were induced on white female rats of 6-8 months age, weighting 210-250 mg, by injecting CCL4 subcutaneously, dissolved in olive oil, twice a week, for 8 weeks. At the end of 6 weeks the rats were divided into 5 groups with further intrasplenic transplantation of 6×10^3 allogenic stem cells (SC) performed. The animals in group 1 received blood marrow SC, the second group received umbilical cord SC, the third group received hepatic fetal SC. The fourth and fifth groups received intrasplenic saline solution only. Meanwhile we continue to inject CCL4 subcutaneously