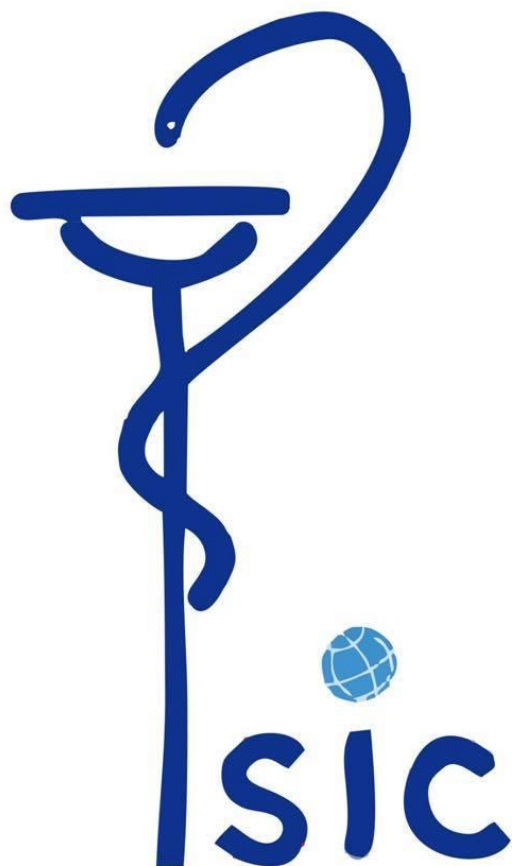




***IXth International Interdisciplinary
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«Actual problems of clinical and
theoretical medicine»***

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***«Actual Problems Of Clinical And
Theoretical Medicine»***



BIOMEDICAL SCIENCES





MUKHERJEE PRATIBHA.....	44
INTERRELATION BETWEEN DOPAMINE CONTENTS IN CEREBELLUM AND EMOTIOGENIC LIMBICOCORTICAL SYSTEM REGIONS IN RATS WITH DIFFERENT BEHAVIOR TYPES.....	44
NABOK T.A., ZELENSKA A.N.....	45
ON THE QUESTION OF THE EFFECTIVENESS OF PSYCHOPHYSIOLOGICAL METHODS OF DIAGNOSTICS OF EDUCATIONAL MOTIVATION OF MEDICAL STUDENTS.....	45
NAZAROV DMYTRO IHOROVICH	47
ADVANCES OF NANOPARTICLE-BASED TARGETED DRUG DELIVERY FOR CANCER TREATMENT.....	47
ONIKOVA A., OTCHIK A.....	48
EXPERIMENTAL STUDY OF COPPER ION ROLE IN MECHANISMS OF NEPHROPATHY.....	48
PAVLICHUK E. A., PANICH R. V., KARNAUKH E. V.....	49
HOW BRANDS OF DRUGS DEFEND THEIR PRODUCTS AGAINST OF FALSIFICATION?.....	49
POLIAKOVA VERONIKA VIACHESLAVOVNA, KRAVCHENKO MAKSIM..... IUREVICH	
50	
THE INFLUENCE OF ELECTROMAGNETIC RADIATION ON THE LEVEL OF RATS STEROID HORMONES.....	50
POLIKOV G., KARNAUKH E.	51
INNOVATIVE BIO-TECHNOLOGICAL DEVELOPMENTS OF UKRAINIAN SCIENTISTS IN THE AREA OF PROBIOTICS.....	51
PRISICH K.S., SHULGA L.I., BEZTSENNA T.S.....	52
STUDY OF THE INFLUENCE OF PHARMACEUTICAL FACTORS IN THE DEVELOPMENT OF DENTAL FUNDS – LIQUID EXTRACT OF BURNET.....	52
PUSHKAR L., BONDARENKO V.....	53
THE NEW METHOD OF FORENSIC MEDICAL DIAGNOSTIC OF ACUTE ALCOHOL POISONING.....	53
SADER ABBAS, ADEEM F.Y., VASYLIEVA O.....	55
THE EFFECT OF CHRONIC ELECTRICAL STIMULATION ON THE MUSCLES PHYSIOLOGICAL PROPERTIES IN PATIENTS WITH MYOTONIC DYSTROPHY TYPE 1	55
SAVELIEVA E.V., LEVASOVA O.L., MASIH T.....	56



Sader Abbas, Adeem F.Y., Vasylieva O.

**THE EFFECT OF CHRONIC ELECTRICAL STIMULATION ON THE MUSCLES
PHYSIOLOGICAL PROPERTIES IN PATIENTS WITH MYOTONIC DYSTROPHY
TYPE 1**

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Actuality. To date, in Myotonic Dystrophy type 1 (DM1) the rehabilitative interventions have always been aimed at muscle strengthening, increasing of fatigue resistance and improving of aerobic metabolism efficiency whereas the electrical membrane fault has always been addressed pharmacologically. Neuromuscular electrical stimulation (NMES) is a useful therapeutic tool in sport medicine and in the rehabilitation of many clinical conditions characterized by motor impairment such as stroke, cerebral palsy and spinal cord injury.

The aim of our pilot study was to evaluate the effects of chronic electrical stimulation both on functional and electrical properties of muscle in a small group of DM1 patients.

Materials and methods: five DM1 patients and one patient with Congenital Myotonia (CM) performed a home electrical stimulation of the tibialis anterior muscle lasting 15 days with a frequency of two daily sessions of 60 minutes each. Muscle strength was assessed according to the MRC scale (Medical Research Council) and

functional tests (10 Meter Walking Test, 6 Minutes Walking Test – MWT and Timed Up and Go Test – TUG test) were performed. We analyzed the average rectified value of sEMG signal amplitude (ARV) to characterize the sarcolemmal excitability.

Results. After the treatment an increase of muscle strength in those DM1 patients with a mild strength deficit was observed. In all subjects an improvement of 10 MWT was recorded. Five patients improved their performance in the 6 MWT. In TUG test 4 out of 6 patients showed a slight reduction in execution time. All patients reported a subjective improvement when walking. A complete recovery of the normal increasing ARV curve was observed in 4 out of 5 DM1 patients; the CM patient didn't show modification of the ARV pattern.

Conclusions: NMES determined a clear-cut improvement of both the muscular weakness and the sarcolemmal excitability alteration in our small group of DM1 patients. Therefore this rehabilitative approach, if confirmed by further extensive studies, could be



considered early in the management of muscular impairment in these patients. An attractive hypothesis to explain our encouraging result could be represented by a functional

inhibition of small conductance calcium-activated potassium channels expressed 3 (SK3) in muscle of DM1 subjects.

Savelieva E.V., Levasova O.L., Masih T.

EFFECTS OF CAFFEINE, ACETAMINOPHEN, CARBAMAZEPINE AND THEIR COMPOSITIONS ON LIPID PEROXIDATION AND STATE OF THE ANTIOXIDANT SYSTEM IN A BLOOD SERUM OF RATS

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Actuality. One of the ways to improve traditional medicines is to create co-formulated drugs. The drug combination in multicomponent composition mutually enhances their pharmacological effects; effectively eliminates pain, inflammation, than each individual component.

The aim. Determination of lipid peroxidation (LPO) and state of the antioxidant system (AOS) in a blood serum of rats in multicomponent composition compare to mono-preparation in rats under the condition of formalin induced edema.

Materials and Methods. An experimental study was performed on 54 rats of WAG line with the average weight 210 - 230 g. The animals were divided into 9 groups of 6 animals in each group. 3% starch mucus was injected orally via gastric tube to intact animals of 1st group (2 ml/200 g of rat weight). The animals

in 2nd group were administered 3% starch mucus and formalin edema was caused by subplantar introduction of 2% formalin solution in the hind paw of rat. Animals of 9 groups were administered the investigated drugs once orally via gastric tube. Animals of the 3rd group received paracetamol (6 mg/1 kg of body weight); 4th - caffeine (0.6 mg/1 kg), 5th group - carbamazepine (5 mg/1 kg); 6th group - a combination of carbamazepine (5 mg/1 kg) and caffeine (0.6 mg/1 kg); 7th group - a combination of carbamazepine (5 mg/1 kg) and paracetamol (6 mg/1 kg); 8th group - a combination of paracetamol (6 mg/1 kg) with caffeine (0.6 mg/1 kg); 9th group - a combination of carbamazepine (5 mg/1 kg) with caffeine (0.6 mg/1 kg) and acetaminophen (6 mg/1 kg).

Intact animals and animals of 2-9th groups were decapitated under