Session:

POSTER SESSION

TITLE: INFLUENCE OF DRONEDARONE ADMINISTERED ALONE AND IN COMBINATION WITH CLASSICAL ANTIEPILEPTIC DRUGS ON LONG TERM MEMORY IN THE PASSIVE AVOIDANCE TASK IN MICE.

AUTHOR: Paweł Marzęda

CO-AUTHORS: Katarzyna M. Sawicka

SUPERVISOR: Prof. Jarogniew Łuszczki MD, PhD

AFFILIATION: Department of Pathophysiology, Medical University of Lublin

Introduction: Donedarone (Multaq) is a novel class III antiarrhythmic drug used in cardiology as an alternative to amiodarone to treat atrial fibrillation and atrial flutter in patients. Dronedarone is a "multichannel blocker" because of inhibition of multiple outward K+ currents, inward rapid Na+ current and L-type Ca2+ channels. Previous experiments in animals indicated that dronedarone increased the threshold for electroconvulsions in mice.

Aim of study: This study was aimed at evaluating the influence of dronedarone (50 mg/kg) administered intraperitoneally alone or in combination with four classic antiepileptic drugs (carbamazepine, phenobarbital, phenytoin and valproate) on long-term memory in mice subjected to the step-through passive avoidance task. The antiepileptic drugs were administered intraperitoneally at doses corresponding to their median effective doses (ED50) from the maximal electroshock-induced seizure test in mice.

Material and methods: In the passive avoidance task, on the first day before training, each mouse receiving the respective treatment was placed in the light box connected to a larger dark box equipped with an electric grid floor. Entrance of the mice to the dark box was punished by an electric footshock for 2 s. The next day, the pretrained animals were placed again into the light box and observed for 180 s. The animals presenting long-term memory deficits (unable to learn and acquire the task or recall the task) enter the dark box before 180 s. Statistical analysis of data from the passive avoidance task was performed with the Kruskall-Wallis non-parametric analysis of variance (ANOVA).

Results: Neither dronedarone administered alone at 50 mg/kg, nor in combination with carbamazepine, phenobarbital, phenytoin and valproate considerably impaired long-term memory in the passive avoidance task in mice.

Conclusions: Lack of any memory deficits in mice receiving dronedarone (50 mg/kg) alone and in combination with four classic antiepileptic drugs (carbamazepine, phenobarbital, phenytoin and valproate) may suggest that the treatment was safe enough to be recommended as therapeutic option for patients receiving these drugs and additionally suffering from atrial fibrillation and flutter.

TITLE: COMPARISON BETWEEN FUNDOSCOPY TRAINING USING AN INDIRECT OPHTALMOSCOPE SIMULATOR AND TRAINING DURING STANDARD PATIENT'S EXAMINATION.

AUTHOR: Tomasz Domański

CO-AUTHORS

SUPERVISOR: Prof. Robert Rejdak MD, PhD

AFFILIATION: Department of Didactics and Medical Simulation; Department of General Ophthalmology, Medical University of Lublin

Introduction: Indirect ophthalmoscopy is an examination procedure of posterior segment of the eye. Thus it allows visualization of peripheral retina, it found use particularly in retinopathy of prematurity and retinal detachment. Indirect ophthalmoscopy examination procedure is complex and requires control of hand and head positioning as well as coordination of patient's eye. Eyesi Indirect Ophthalmoscope (VRmagic, Manheim, Germany) is an augmented reality simulator designed for training of retinal examination which provides a highly realistic, three-dimensional view. Additionally it provides immediate and objective evaluation of both procedural and diagnostic skills.

Aim of study: Evaluation and comparison of the efficiency of both training with Eyesi Indirect simulator and training during standard patient's examination.

Material and methods: Two groups of ophthalmology residents (Department of General Ophthalmology, Medical University of Lublin) with no experience in indirect ophthalmoscopy were compared. At the baseline two groups investigated both real patient's and virtual retina. After evaluation of examined retinal area residents were asked to practise ophtalmoscopic examination using simulator (group 1) and during standard patient's investigation (group 2). Following the practise, the residents again studied both the patient's and virtual retina. Then examined retinal area was evaluated. At the end of the study residents were asked to fill in a questionnaire about the fidelity of simulation device. Statistical analysis: percentages of examined retina were compared with Kruskal Wallis and Dunn's multiple comparison test for post hoc (GraphPad Prism)

Results: No significant statistical differences ($P>0.05$) were observed between two groups both during baseline and final comparison as well as between simulated and real patient's examined retinal area. All residents evaluated virtual retina examination conditions as highly realistic..

Conclusions: Eyesi Indirect Ophthalmoscope is a useful tool in training of indirect funduscopy and is comparable to training during real patient's examination.

TITLE: THE INFLUENCE OF SB ON THE ANTICONVULSANT EFFECT OF PHENOBARBITAL IN PENTYLENETETRAZOL INDUCED SEIZURE TEST IN MICE.

AUTHOR: Agnieszka Konarzewska

CO-AUTHORS: Paweł Gryta, Barbara Miziak, Paulina Chmielewska, Urszula Grudzień

SUPERVISOR: Prof. Stanisław Jerzy Czuczwar MD, PhD

AFFILIATION: Student's Club of Pathophysiology, Medical University of Lublin

Introduction: SB-334867, an orexin antagonist, is a substance which has sedative and anorectic effects in animals. The mechanism of orexin antagonists action can be used in many possible clinical applications such as the treatment of drug addiction, insomnia, obesity and diabetes. These days phenobarbital is the most frequently prescribed antiepileptic drug, which also is recommended by the World Health Organization in developing countries. Moreover it is used when there is trouble sleeping, anxiety and drug withdrawal.

Aim of study: The target of this study was to rate the influence of SB 334867, an orexin antagonist, on the anticonvulsant effect of phenobarbital in the seizure test induced by pentyleneteterazol.

Material and methods: In the control group phenobarbital was administered intraperitoneally (i.p) alone in doses from 4.8 to 13.1 mg/kg. Mice in experimental group received SB 334867 in a dose of 2.5 mg/kg in combination with phenobarbital in ranged doses form 1.0 to 6.4 mg/kg i.p. The effectiveness was checked using pentylenetetrazol-induced seizure test. The method is based on administering subcutaneously pentylenetetrazol on dose of 100 mg/kg i.p (which results in clonic seizures in 97 per cent of the animals tested). Each of the mice was watched for 30 minutes starting from the injection. The proof of seizure activity is a whole body clonus that lasts at least 3 seconds, with concurrent loss of postural reflex.

Results: SB 334867 administered in dose of 2.5 mg/kg had an impact on the anticonvulsant activity of phenobarbital against pentylenetetrazol seizure test.

Conclusions: There is significance in the effect of SB 334867, an orexin antagonist, on the anticonvulsant effect of phenobarbital, verified in pentylenetetrazol-induced seizure test in mice.

TITLE: THE INFLUENCE OF CAFFEINE ADMINISTERED TO SWISS MICE IN THEIR PRE AND PERINATAL PERIOD ON EFFECT OF CARBAMAZEPINE ON THE MUSCULAR STRENGHT.

AUTHOR: Agnieszka Konarzewska

CO-AUTHORS: Iwona Radzik, Barbara Miziak, Piotr Gorlach, Katarzyna Ligęza

SUPERVISOR: Prof. Stanisław Jerzy Czuczwar MD, PhD

AFFILIATION: Student's Club of Pathophysiology, Medical University of Lublin

Introduction: Caffeine is a powerful stimulant and it can be used to improve physical strength and endurance. It is classified as a nootropic drug because it sensitizes neurons and provides mental stimulation. Certain drugs and supplements may interact with this substance. The experimental results confirm that caffeine intake in epileptic patients results in increased seizure frequency, what may lead to a conclusion that epileptic patients should limit their daily intake of this stimulant.

Aim of study: The target of this survey was to evaluate an impact of caffeine, administered to female mice during pregnancy and feeding period, on the disorders of muscular strength of mice cubs, which was checked with the muscular strength test following administration of carbamazepine.

Material and methods: The first group of pregnant female mice drunk water with caffeine in a concentration of 0.3 g/l during 3 weeks and 3 weeks when feeding the mice cubs. The second group was given tap water. The other raising conditions stayed the same in both groups. The control group, which consisted of 8 adult mice that were 8 weeks old, was not exposed to caffeine and the other 8 mice were. Following injection of carbamazepine (8.4 mg/kg in the control group and 11.6 mg/kg in the trial group – the doses of carbamazepine refer to its ED50 values against maximal electroshock-induced convulsions), disorders of muscle activity were examined using the chimney test and the neurotoxic potential of carbamazepine was described with the muscle strength in Newton scale.

Results: The muscular strength of mice which were not exposed to caffeine was 121.4 N and this value in mice exposed to caffeine was not significantly weakened reaching 113.4 N.

Conclusions: The muscle strength was a criterion for the evaluation of neurotoxicity. The neurotoxic action of carbamazepine was not modified with the exposure to caffeine of mice in their pre- and perinatal period.

TITLE: MULTIDRUG RESISTANT PATHOGENS INVOLVED IN COMMUNITY ACQUIRED INFECTIONS: A RETROSPECTIVE ANALYSIS OF THEIR PREVALENCE AND OCCURRENCE RATE.

AUTHOR: Dorota Pitucha

CO-AUTHORS: Paulina Różycka, Damian Rzętała

SUPERVISOR: Agnieszka Magryś MSc, PhD

AFFILIATION: Department of Medical Microbiology, Medical University of Lublin

Introduction: Excessive and inappropriate use of antibiotics continues to generate resistance among pathogens. Multidrug resistant bacterial pathogens, until recently connected with hospital environment, are increasingly involved in community acquired infections According to the experts, antibiotic resistance has become one of the world's most pressing public health problems of 21st century.

Aim of study: The aim of the study was to retrospectively analyze the prevalence and occurrence rate of multidrug resistant bacteria associated with community acquired infections.

Material and methods: A total of 2097 bacterial isolates identified in the laboratory of the Department of Medical Microbiology, Medical University of Lublin in a period of 2014-2016 were subjected to the retrospective analysis. Bacterial strains were isolated from clinical materials (nose and throat swabs, skin lesions, urine) and identified to the species level by standard morphological and biochemical characteristics. The susceptibilities of bacterial isolates to antimicrobial agents were determined by the disc-diffusion method in accordance with EUCAST recommendations.

Results: In the analyzed period of time, 2097 bacterial strains were identified and 264 (12,6%) were classified as multidrug-resistant. The pathogens predominated in adult patients (n=168). Of the multidrug resistant bacteria, methicillin-resistant Staphylococci were the most commonly isolated (n=110; 41,6%), with MRSA (n=81; 30,7 %) and MRCNS (n=19; 7,2%) patterns respectively. The second most common resistance mechanism observed was the resistance to macrolides, linkozamides and streptogramins B (MLSB/MSB) with 146 cases (55,3%). Prevalence of constitutive MLSB, inducible MLSB and MSB resistance phenotypes were 68 (25,8%), 73 (27,7%) and 5 (1,9%) respectively. Of note, 34 strains of MRSA revealed iMLSB (7 strains) and cMLSB (17 strains) mechanisms additionally. The analysis revealed 30 strains of Haemophilus influenzae with BLNAR phenotype (β-lactamase negative, ampicilin resistant). Extended spectrum beta lactamase (ESBL) mechanism of resistance was detected in 8 strains of Gram (-) bacteria.

Conclusions: Among 3221 analyzed bacterial strains, 8.2% were identified as multidrug-resistant. S. aureus, H. influenzae, S. epidermidis isolates demonstrated multidrug resistance patterns with relatively high prevalence. Among ambulatory patients the most common multidrug-resistance mechanisms are: MRSA, followed by MLSB, BLNAR and ESBL.

TITLE: ANALYSIS OF THE PERCENTAGE OF MONOCYTE SUBPOPULATIONS DEPENDING ON THE EXPRESSION LEVEL OF CD38 AND ZAP-70 IN CLL CELLS

AUTHOR: Wioleta Kowalska

CO-AUTHORS: Michał Zarobkiewicz

SUPERVISOR: assoc. prof. Agnieszka Bojarska-Junak MD, PhD

AFFILATION: Department of Clinical Immunology, Medical University of Lublin

Introduction: The presence or absence of immunoglobulin variable gene chain (IgVH) gene mutations is a very important predictor in patients with chronic lymphocytic leukemia. It reflects the intracellular expression of ZAP-70 protein in leukemia B cells and expression CD38 on leukemia cells. It is also of great practical importance in predicting the course of the disease. Monocytes are one of less recognised factors in the course of chronic lymphocytic leukemia. Currently only monocytosis at diagnosis is considered relevant prognostic and predicting factor.

Aim: The aim of the study was to assess the expression of CD38 and ZAP-70 on $CD5^+/CD19^+$ lymphocytes as well as assessment of monocyte subpopulations.

Material and methods: The expression of CD38 on CD5+/CD19+ lymphocytes was performed by incubation of whole blood specimen with monoclonal antibodies CD38 FITC, CD5 PE-Cy5 i CD19 PE. After incubation fixation and permeabilization was performed with Cytofix/Cytoperm and Perm/Wash, according to producers protocol. Intracellular expression of ZAP-70 in leukemic lymphocytes was performed with monoclonal antibody anti-ZAP-70. Monocyte subpopulations were distinguished with use of anti-CD14 and anti-CD16 monoclonal antibodies. Analysis was performed by flow cytometry with BD FACS Calibur.

Results: Monocytes subpopulations were analysed depending on the expression of ZAP-tp and CD38. Patient was considered ZAP-70 positive when more than 20% of CD5+/CD19+ lymphocytes were ZAP-70+. No statistically significant differences in monocytes subpopulations was observed between ZAP-70 positive and negative patients ($p>0,05$). Patient was considered CD38-positive when more than 30% of CD5+/CD19+ lymphocytes were CD38+. No differences in percentage of classical, intermediate and non-classical monocytes were observed between CD38 positive and negative patients.

Conclusions: No dependence was observed between monocytes subpopulations distribution and expression of CD38 and ZAP-70 on leukemic CD5+/CD19+ lymphocytes.