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ABSTRACT BOOK

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ORAL PRESENTATIONS

O1

Modeling ‘post-stroke depression’ in a mouse model

Balkaya MG [1], Kronenberg G [1], Gertz K [1], Hortnagl H [2], Endres M [1]

[1] Charité–Universitätsmedizin Berlin, Klinik und Poliklinik für Neurologie; [2] Charité–Universitätsmedizin Berlin, Institut für Pharmakologie und Toxikologi

mgbalkaya@yahoo.com

Numerous emotional and behavioral disturbances including depression, mania, bipolar disorder, anxiety disorder, apathy, and pathological crying occur following stroke.

Despite their clinical importance these emotional disturbances have scarcely been characterized in animal models. Here we tested whether brief ischemic episodes induce ‘post stroke depression’ and other behavioral disturbances. In two separate experiments 129/Sv mice were subjected to 30 min-occlusion of the left and right middle cerebral artery (MCAo) followed by reperfusion. A widely used SSRI, cipramil or vehicle was used to treat animals starting at day 7 after MCAo until the end of the experiment. Approximately 14 weeks later, mice were subjected to several behavioral tests for assessing locomotion, anxiety and depression. Also lesion volumes were determined and brain monoamine and amino acid levels were measured.

We observed that left but not right MCAo animals develop a despair-like, anhedonic and anxious phenotype. Cipramil treatment normalized the observed phenotypes. In the left MCAo group primary lesion size assessed by NeuN staining was significantly reduced in animals that had received cipramil treatment. Microglia density as assessed by Iba1 staining was significantly reduced as an effect of cipramil treatment. Furthermore, cipramil treatment ameliorated secondary retrograde degeneration in the substantia nigra and ventral tegmental area. Neurochemical analyses via HPLC revealed a significant increase in norepinephrine, and a significant decrease in dopamine and homovanillic acid levels which were also reversed via cipramil treatment.

Our results indicate that 30-min IMCAo may represent an animal model for modeling “post stroke depression” and cipramil is a candidate drug for treating stroke even at late time points.

Keywords: stroke, depression, anxiety, citalopram, cipramil

O2

Neuropsychological tests (NPTS) and event-related potentials (ERPs) records in scuba divers

Uslu A [1], Caglar O [2], Ergen M [1], Keskin-Ergen Y [1], Bayraktaroglu Z [1], Gurvit H [3], Demiralp T [1], Cimsit M [2]

Istanbul University, Istanbul Faculty of Medicine, Department of Physiology [1], Department of Underwater and Hyperbaric Medicine [2], Department of Neurology, Behavioral Neurology and Movement Disorders Unit [3], 34039 Capa, Istanbul, Turkey

atillauslu_itf@hotmail.com

Recreational SCUBA (self contained underwater breathing apparatus) diving is becoming more popular everyday, both in Turkey and overseas. However, there are certain risks associated with SCUBA diving. Most diving injuries are related to the behaviour of the gases and pressure changes during descent and ascent. The nervous system and cognitive functions are frequently involved in dive-related complications and fatalities. Permanent

neuropsychological changes such as memory disturbances have been found in professional divers, even in those who have never had decompression illness (DCI). The changes are probably the result of intravascular silent gas bubbles insufficient to cause acute symptoms. The aim of the present study was to investigate the association between Event-Related Potentials (ERPs) of the brain, Neuropsychological Tests (NpTs) performance and exposure indices in experienced air SCUBA divers who had no history of neurological DCI. In this study, forty five right-handed male healthy volunteer (range 25-45 years) were employed. Subjects were divided into three groups as Divers I, Divers II and Control (had no diving experience). Each group consisted of 15 subjects. ERPs and NpTs performances of the groups were compared. All participants were screened with Physical Examination and Diving Anamnesis in a session prior to NpTs and ERPs testing. ERPs were recorded while the subjects performed auditory oddball and visual Continuous Performance Test (CPT). Delayed Recall Performance of Divers II group was worse than those of Control and Divers I groups in Rey–Osterrieth Complex Figure Tests ($p=0.045$). Total True Score Performance of Divers I group was better than performance of Control and Divers II groups in Tower of London Tests ($p=0.013$). In Go condition of CPT, P200 amplitudes of Control group was higher than those of Divers I and Divers II groups ($p=0.024$). P300 latency of Divers I and Divers II groups was significantly prolonged in comparison with the Control group, in Go condition of CPT paradigm ($p=0.047$). There was no significant differences amplitude and latency in the auditory oddball paradigm and in NoGo condition of visual CPT paradigm between groups. These findings suggest that exposure to hyperbaric environment could have lead to some cognitive decline, and ERPs, and NpTs may help early detection of those dysfunctions.

Keywords: SCUBA Divers, Neuropsychological Tests (NpTs), Event-Related Potentials (ERPs), P200

O3

Retrieval of ‘helplessness’ experience in BALB/C and C57BL/6J mice

Babar Melik E, Melik E

University of Çukurova, Faculty of Medicine, Department of Physiology, Division of Neurophysiology, 01330-Balcali, Adana, Turkey.

ebabar@cu.edu.tr

Aim: The aim of the present study is to examine the ability of two strains, BALB/c and C57BL/6j mice, to retrieve “helplessness” experience in a new conflict situation.

Metod: As two different mouse strain, adult BALB/c and C57BL/6j mice (12 weeks) were used. “Helplessness” experience was assessed by freezing behaviour displayed in the illuminated part of the modified one trial step-through passive avoidance paradigm following shock application (1 mA, 2 sec duration) in the dark section of the apparatus. Data was expressed as percentages of retrieval test time (5 min) (means \pm SEM).

Results: Results demonstrated that BALB/c mice spent approximately 50 % of testing time, and C57BL/6j mice spent approximately 20% of testing time, in freezing behaviour elicited in the testing section of the passive avoidance apparatus in immediate and delayed (24 h later) retrieval trials. In addition, BALB/c mice were more able to sense the time aspect of episodic-like memory retrieval, with respect to experience of “helplessness” (“recent” versus “later”), than were C57BL/6j mice. The Freezing scores of BALB/c mice obtained in immediate retrieval trial were significantly higher than freezing scores obtained during delayed retrieval trial. Both strains have intact avoidance conditioning, expressed as similar percentages of mice that did not enter the shock section in retrieval trials. There was no difference