

NEUROANATOMY



www.neuroanatomy.org

VOLUME 4 [2005]
Supplement 1

4th National Congress of Neuroscience
Mersin, Turkey, March 29–April 2, 2005

ABSTRACT BOOK

Honorary Committee

Prof.Dr. Ugur Oral - *Rector*
Prof.Dr. Suha Aydin - *Dean*

Scientific Committee

Prof.Dr. Turgay Dalkara
Prof.Dr. Tamer Demiralp
Prof.Dr. Murat Emre
Prof.Dr. Lutfiye Eroglu
Prof.Dr. Yucel Kanpolat
Prof.Dr. Fatma Kutay
Prof.Dr. Filiz Onat
Prof.Dr. Cigdem Ozesmi
Prof.Dr. Gonul Peker
Prof.Dr. Sakire Pogun
Prof.Dr. I. Hakki Ulus
Prof.Dr. Pekcan Ungan

Organizing Committee

Prof.Dr. Huseyin Beydagi - *Chairman*
Asst.Prof.Dr. Seyit Ankarali - *Secretary*
Prof.Dr. Emin Erdal
Assoc.Prof.Dr. Belgin Buyukakilli
Assoc.Prof.Dr. Aynur Ozge
Assoc.Prof.Dr. A. Hakan Ozturk
Assoc.Prof.Dr. Kemal Yazici
Asst.Prof.Dr. Tolgay Ergenoglu
Asst.Prof.Dr. Cetin Okuyaz

The conference is organized under the auspices of
Turkish Council of Scientific and Technical Research,
TUBAS,
BAD,
and
Mersin University.



group: the group that was exposed to 30 minutes daily immobilization stress for 15 days and was given i.p. 30 mg/kg 7-NI 30 minutes before immobilization (n=9). Results were analysed by one way ANOVA –Tukey test and student t test.

In holeboard test, in peanut oil + chronic immobilization group there was an increase in immobilization time and a decrease in the number of rears and the squares crossed when compared with control group. Comparison between 7-NI + chronic immobilization and peanut oil group did not yield any statistically significant results. In open field test; there was no significant difference among groups. Morris water maze test; the latency to find the platform was getting shorter in control and 7-NI + chronic immobilization groups, whereas in Peanut oil + chronic immobilization group no significant shortening was found.

Our results suggest that administration of 7-NI, in a dose of 30 mg/kg i.p. 30 minutes before immobilization stress for 15 days has no significant effect on anxiety, on the other hand could restore spatial memory impaired by chronic immobilization.

Keywords: nitric oxide, 7-nitroindazole, stress, holeboard, open field, Morris test, rat

P84

Effects of tianeptine pretreatment on trace elements levels in brain, liver and spleen in chronically immobilized rats

Karakoc Y [1], Kasar M [2], Mengi M [3], Yildirim EA [4], Yurdakos E [3], Barutcu UB [5].

[1] Department of Physiology, Izzet University Faculty of Medicine, Malatya [2] Medical student, Cerrahpasa Medical School, Istanbul [3] Department of Physiology, Cerrahpasa Faculty of Medicine, Istanbul [4] Bakirkoy Research and Training Hospital for Psychiatry and Neurology, Istanbul [5] Department of Biophysics, Cerrahpasa Faculty of Medicine, Istanbul, Turkey

ertanyurdakos@mynet.com

In the present study, we aimed to determine the effects of intraperitoneal tianeptine administration on trace element disturbances in brain tissues (frontal and temporal lobes and brain stem), liver, and spleen (Zn, Cu, and Fe rich-tissues) in chronically immobilized rats. The animals were divided into three groups: control group (n=9), chronic restraint group (n=7), chronic restraint+tianeptine group (n=9). Restraint stress was applied by keeping the rats in plexiglass cages that does not let the rats to move inside. The rats in chronic restraint group and chronic restraint+tianeptine group had 6 hours daily restraint stress for 21 consecutive days and had either intraperitoneal 1 ml saline injection or 10 mg/kg tianeptine twice a day within an interval of 8 hours, respectively. First injections were applied one hour before the beginning of the stress procedure. Controls and immobilized rats were decapitated 30 minutes after last restraint period was over, and tissue samples were taken. Zn, Cu and Fe levels of the frontal lobe, temporal lobe, brain stem, liver and spleen were determined by flame atomic absorption spectrophotometer. Cu and Fe levels were significantly increased in the frontal lobe, temporal lobe and brain stem in response to chronic restraint stress. Tianeptine administration prevented the elevation of Cu and Fe in these brain samples. On the other hand, while tianeptine administration led to an increase in Zn levels of all tissues studied, it caused a decrease in Cu levels. Increased levels of Cu and Fe in frontal, temporal lobes and brain stem may be related to induction of metallothionein-1 (MT-1) and iron transfer protein synthesis in the brain areas. Tianeptine showed its effect probably by suppressing these syntheses.

Keywords: Tianeptine, restraint stress, rat, trace elements, tissues

P85

Effects of prenatal stress on stress response of adult rats

Kocak EE [1], Yavuz A [2], Rezaki M [2], Dalkara T [3].

Baskent University, Medical Faculty, Department of Psychiatry [1], Hacettepe University, Medical Faculty, Department of Psychiatry [2], Hacettepe University, Medical Faculty, Department of Neurology [3], Ankara

emerkocak@yahoo.co.uk

Prenatal stress is thought to be important, besides genetic vulnerability, in the expression of many psychiatric disorders. Prenatal stress is supposed to decrease the ability to cope with the stressors in adult life. This study aimed to investigate the role of prenatal stress exposure on stress responses during adulthood. It is hypothesized that the adult rats that were subjected to prenatal stress would show increased immobility in Porsolt's forced swimming test. Female rats were housed with males during the dark phase of their cycle. Presence of spermatozoa in the vaginal smear indicated the first day of pregnancy. Beginning from the 10th day of the pregnancy half of the pregnant rats were forced to swim in water maintained at 22 centigrad degrees for 10 minutes till the end of the pregnancy. Male rats born from both stress subjected mothers (n: 18) and control groups (n:16) were subjected to Porsolt's test between 56-60 days of age after their weights being recorded. There was no difference regarding the immobility times between the offsprings of the two groups. However weight of the offsprings subjected to prenatal stress was significantly less than that of the control group. These results suggest that the

type and severity of prenatal stress exposure used in this study has no effect on the stress responses during adulthood measured by Porsolt's forced swimming test, but may cause growth retardation.

Keywords: Prenatal stress, rat, Porsolt's forced swimming test, stress response, growth retardation

P86

Prenatal stress reduces synaptophysin expression in the rat cerebellar granular layer

Ulupinar E, Yucel F.

Osmangazi University, Faculty of Medicine, Department of Anatomy, Eskisehir, Turkey

eulupi@ogu.edu.tr

The cerebellum receives sensory, motor, perceptual and cognitive information from all parts of the nervous system and can be severely affected from the environmental adversity during the development of the central nervous system. In this study, the cerebellar interneuronal connectivity was taken into account to examine the effects of prenatal restraint stress. Rat embryos are exposed to stress on their embryonic day (E) 7 and 14, by keeping the dam in close-fitting wire mesh cylinders, for six hours. After completion of the cerebellar development at postnatal day (P) 30, the expression of a synaptic vesicle-associated protein, synaptophysin, were quantitatively analyzed in the neuropil area of the granule cell layer. Although the volume fraction of the granular layer to whole cortex and the numerical density of granule cells per unit volume of granular layer were not affected by exposure to stress, synaptophysin immunoreactivity showed a significant decrease (41%) in the granular layer of the cerebellum. Since synaptophysin is ubiquitously distributed as a presynapse-specific component in the brain, decrease in the staining intensity of coarse synaptophysin immunoreactive granules indicates a decrease in the density of presynaptic terminals. Collectively, these results demonstrate that exposure to gestational stress causes a profound and long-lasting deficit in the sensory input to the cerebellar granule cells of offspring.

Keywords: Hemispheric preferences, Mental Work Load, Differential aptitudes, Left preference, Right Preference

P87

Electrophysiological and histological changes in peripheral nerves in ovariectomized rats

Comelekoglu U [1], Yalin S [2], Hatungil R [3], Bagis S [4], Ogenler O [5], Coskun B [5], Bahar L [5].

[1] Mersin University Medical Faculty Department of Biophysics, [2] Mersin University Pharmacy Faculty Department of Biochemistry, Mersin University Medical Faculty [3] Department of Physiology, [4] Physical Treatment and Rehabilitation, [5] Histology and Embryology, Mersin, Turkey

rhatungil@yahoo.com

Ovariectomized rat model have been commonly used for the investigations of postmenopausal changes on female rats. In our study, we investigated the effect of ovariectomy on the rat sciatic nerve using electrophysiological and histological techniques and observed electrophysiological and morphological changes in ovariectomized rats. Twelve female Wistar albino rats were divided into two groups as control and ovariectomized (OVX) (n=6 each). The OVX rats were operated underwent bilateral ovariectomy after being anesthetized with ketamine. Ventral incision was made and ovaries were removed after ligation of the uterine horn. 30 weeks after ovariectomy compound motor action potentials (CMAP) were recorded by using standardized nerve conduction study techniques, progesterone and estrogen levels in the serum were measured employing the biochemical methods and sciatic nerve samples were examined using the light microscope for two groups. Progesterone and estrogen were significantly decreased in OVX group compared to the controls. No statistically significant difference was found regarding the amplitude and area in OVX group compared with the control group. But distal latency was significantly increased in OVX group. At light microscope, while normal peripheral nerve structure were observed in controls, in OVX group axonal degeneration, myelin sheat separation, vacuolization and in some fibers myelin degeneration were observed. In conclusion, our data indicate that ovariectomy affects electrophysiological and morphological parameters of rat periferic nerves.

This work was supported by the grant from Mersin University, Scientific Research Projects Fund (BAP ECZ.F.BB(SY) 2002).

Keywords: Ovariectomy, nerve conduction, action potential, myelin, progesterone

P88

Quantitative EEG analysis in patients with severe COPD: some clues of chronic hypoxemic degeneration