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1. PROFESSOR VALERIU NEŞTIANU AT 80 YEARS

Prof.dr. Marius Sabau

President of the Romanian Society of Physiological Sciences

At the beginning of December 2006 professor Valeriu Neştianu reached the age of 80 years.

Charismatic personality of Romanian physiology in the last 50 years, Valeriu Neştianu represents for all of us an example of vitality, enthusiasm, scientific curiosity and intuition, organizational capacity.

Springing from a family with reputed tradition he was an excellent student of the faculty of Medicine of Bucharest. He was early remarked by professor Ion Niţescu who convinced him about the importance of physiology as a science of life. His entire energy was then dedicated to the physiology, especially to the neurophysiology.

I had the occasion to meet him in 1964 in the electrophysiology laboratory of the „D.Danielopolu” Institute of Normal and Pathologic Physiology led by Grigore Benetato well-known physiologist, member of the Romanian Academy. I was impressed by his unequalled knowledge not only in the field of neurophysiology but also in the field of medical electronics and informatics new and exciting domains of increasing importance for scientific research and exploration of human body functions. He knew and could handle as no one else the electrophysiological devices purchased in premiere from the renowned German engineer Tonnie.

In the early 70's professor Neştianu totally devoted himself to the organization of the new faculty of Medicine in Craiova. In spite of the inherent difficulties, obtuseness and dogmatism of the political leadership of the epoch he never gave up and finally succeeded. As consequence of the hard work of the founders whose soul he was as the first Dean, the faculty of Medicine of Craiova gained the respect and recognition of the older medical schools of Romania.

The chair of physiology headed by professor Neştianu became soon an example with its new laboratories, modern equipment and excellent results in scientific research. The proof of this prodigious

work were the numerous original papers presented at the national and international congresses or published in representative journals and books.

Subtle connoisseur of people, pleasant interlocutor, with zest for life professor Neșțianu is the possessor of impressive encyclopedic knowledge appreciated by all of us on the occasion of scientific events where he regularly participates.

Medical school creator, genuine teacher close to his collaborators and pupils he had a great contribution to the formation of numerous specialists and researchers. His activity continues for more than a decade with the same perseverance and generosity as consultant professor.

Member of the Academy of Medical Sciences, the first president of the Romanian Society of Physiological Sciences founded in 1991 by his tireless endeavours, then honorary president of the Society, president of the Commission for Medical Informatics, citizen of honour of Craiova, professor Valeriu Neșțianu is a well-known personality in our country and abroad.

On this occasion I wish him together with the members of our Society „Many happy returns of the day!”

2. THE BEHAVIOUR OF THE N-TERMINAL PRO-BNP IN ISCHEMIC DILATED CARDIOMYOPATHY HEART FAILURE PATIENTS, WITH OR WITHOUT PREVIOUS MYOCARDIAL INFARCTION

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ABSTRACT

Aim. Heart failure following ischemic heart disease, secondary to the myocardial energy metabolism, hydroionic and coronary microcirculation abnormalities, alters the haemodynamic stress balance. The aim of the present study was to evaluate the haemodynamic stress status and to correlate this to the left ventricular condition (mass, volume and systolic function), on baseline, in ischemic dilated cardiomyopathy heart failure patients.

Design. 53 consecutive heart failure patients with ischemic dilated cardiomyopathy, 25 patients with and 28 without previous myocardial infarction (43 males and 10 females, mean age 66 ± 14 years) were comparatively evaluated as for the behaviour of the NT-proBNP plasma level (as marker of the haemodynamic stress) in correlation with the ejection fraction, the volume and the mass of the left ventricle.

Results. The patients with a previous myocardial infarction had a significantly higher mean value of the NT-proBNP levels ($p=0.02$) and the left ventricular mass ($p=0.006$) as compared with the patients without myocardial infarction.

Conclusions. The mechanical disturbances (primarily of mass and volume) added to the haemodynamic stress anomalies, represent elements of a poor prognosis in ischemic dilated cardiomyopathy heart failure, especially in the patients with previous myocardial infarction.

Key words: ischemic dilated cardiomyopathy, myocardial infarction, haemodynamic stress.

3. VISUAL EVOKED POTENTIALS IN EPILEPTIC CHILDREN

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ABSTRACT

The studies have been carried out on 28 children, aged between 3 and 16, with a certain diagnosis of convulsions, most of them with epilepsy. For these children visual evoked potentials (VEPs) were recorded on three channels which triggered responses evoked by monocular visual stimulation, pattern reversal full-field using a LED matrix and EEG recordings on 16 traces, then the recordings were correlated (PEV, EEG).

The 28 children studied from the point of view of the results obtained by the VEP record are divided into three categories: the first, with normal VEP obtained both by RE (right eye) stimulation and by LE (left eye) stimulation; the second, with clearly pathological VEP with very long latencies on both hemispheres, obtained by stimulating one eye and perfectly normal latencies obtained by stimulating the other eye, in the way that the differences of latency between the two ways of light stimulation are very large (tens of milliseconds), when normally the maximum difference accepted for the P100 wave is 5,5 ms; and, finally the third category, with clearly pathological VEP obtained through successive stimulation of both eyes.

In these categories were noticed the growth of latencies, of duration and the decrease of amplitudes, surfaces and slopes, the changes being very highly significant.

We can consider that the VEP recordings have a predictive value on the diagnosis of epilepsy by EEG.

Key words: visual evoked potentials, epilepsy, children

4. OXIDATIVE STRESS IS INVOLVED IN RESERPINE-INDUCED GASTRIC ULCER IN RATS

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ABSTRACT

It is currently thought that gastric ulcer induced by reserpine administration is a consequence of an increase in cholinergic tone. A number of papers suggested that reserpine treatment leads to oxidative stress in the brain. The aim of this experimental study was to determine if reactive oxygen species are produced in reserpine-induced gastric ulcer. We found increased levels of lipid peroxidation markers in gastric homogenate of rats with reserpine-induced ulcers. Vitamin E enhanced nonenzymatic antioxidant capacity, decreased oxidative stress markers and, at the same time, diminished the number of ulcer and the ulcer index in reserpine treated rats. Therefore, we suggest that oxygen reactive species may play a role in the pathogenesis of reserpine-induced ulcer in rat.

Key words: oxidative stress, reserpine, gastric ulcer, vitamin E

5. ANTIOXIDANT EFFECT OF PROPRANOLOL IN EXPERIMENTAL HYPERTHYROIDISM

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ABSTRACT

High concentrations of thyroid hormones can affect the metabolism of oxygen in aerobic conditions and stimulate free radicals generation in mitochondria. Reactive oxygen species are toxic to biomembranes and lead to peroxidation of lipids unless they are not removed by free radical scavengers.

The aim of this study was to examine the dynamic of oxidative stress in animals subjected to hyperthyroidism and the possible antioxidant effect of Propranolol under these circumstances. Hypothyroidism was induced by administering Carbimazole (0.1 mg/100g body weight) in drinking water for 14 days. Hyperthyroidism was elicited by a ten-day treatment of hypothyroid rats with L-Thyroxin (10 µg/100 g body weight). In order to evaluate the antioxidant effect of Propranolol we administered both L-Thyroxin (10µg/100 g body weight) and Propranolol (60µg/100 g body weight) during 10 days to another group of animals, previously treated with Carbimazole. It has been determined from the target tissues of the thyroid hormones (liver, cardiac muscle) the oxidative stress markers such as protein carbonyls, thiobarbituric acid reactive substances (TBARS) and the antioxidant enzymes activities (catalase, peroxidase). The results of the present study indicated that administration of L-Thyroxin to hypothyroid rats determined a significant augmentation of malondialdehyde (TBARS) and proteins carbonyl content of the hepatic and myocardial tissues comparative to euthyroid rats. The antioxidant enzymes activities were found increased in the same tissues at the animals treated with L-Thyroxin too. On the other hand, antioxidant effect of Propranolol was highlighted through a decrease in oxidative stress markers in the both target tissues and a decrease in peroxidasic activity only in the hepatic tissue. The results of the present study suggest that the prooxidant/antioxidant balance from hepatic and myocardial tissues is considerably influenced by the thyroid hormones and Propranolol.

Key words: hyperthyroidism, Propranolol, oxidative stress

6. THE BEHAVIOUR OF SOME INFLAMMATION AND OXIDATIVE STRESS MARKERS IN PATIENTS WITH UNSTABLE ANGINA

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ABSTRACT

Objectives. The aim of this study was the assessment of some markers of inflammation (CRP, fibrinogen, IL 18, CD 40 ligand) in patients with unstable angina pectoris (UA) in comparison with patients with stable angina pectoris (SA) and their correlation to some parameters of the oxidative stress.

Methods. The study included 40 patients with UA and 12 with SA admitted to the Medical Clinic I of Cluj-Napoca during 1 January 2005-1 July 2006. The patients with UA, included in Braunwald classes I – III, were assessed in hospital conditions, based on clinical parameters (focusing on the evolution of the angor and risk factor identification), ECG, echocardiography, angiography (assessing the extension and the severity of the coronary stenotic alterations), as well as chemical parameters of inflammation (CRP, fibrinogen, IL 18, CD 40 ligand), myocardial injury (troponin I) and of oxidative stress (lipid peroxides and plasmatic antioxidative capacity) in 16 of the patients. The comparison with the patients with SA was made based on the markers of inflammation.

Results. The values of the markers of inflammation in the patients with UA were statistically higher than in patients with SA, the maximal values of significance being found for the s CD 40 ligand ($p = 0.002$). Comparing the markers of inflammation and of the oxidative stress in the 16 patients with UA,

there was a borderline statistically significant correlation between the lipid peroxides and the s CD 40 ligand ($r = 0.57$).

Conclusions. Patients with UA presented significantly increased values of the markers of inflammation investigated as compared with patients with SA. Comparing the markers of inflammation and of the oxidative stress in the patients with UA, there was a borderline statistically significant correlation between the s CD 40 ligand and the lipid peroxides, which confirms the presence of a prothrombotic status at the onset of the acute coronary syndrome, accompanied by the increase of lipid peroxides.

Keywords: unstable angina pectoris, markers of inflammation, oxidative stress

7. DENTAL PULP TISSUE AS A SOURCE OF STEM CELLS FOR DENTAL RECONSTRUCTION

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ABSTRACT

The general objective of the project was the isolation of stem cells from dental tissues (dental pulp) and in vitro culture of this type of cells. The study was focused on evaluation of in vitro viability of stem cells from dental pulp in various cell culture media, quantification of proliferation rate of these cells and also the possibility of in vitro differentiation of the stem cells through other lineages. Regarding the bioethics regulations, the experiments were performed after obtaining the agreement of Bioethics Committee of our University; for dental pulp harvesting the informed writing consent of adult donors or the parents of minors was obtained. The study evaluated and standardized the procedure for dental pulp harvesting and the optimal method for isolation of mesenchymal stem cells was identified. The isolated mesenchymal stem cells from dental tissues had a very low clonogenicity, therefore the cell passage was not performed, but the cells were maintained in vitro culture condition as much time as was possible. In that time the cells were evaluated regarding the morphological characteristics and the presence of differentiation markers. The stem cells were placed in differentiation media through osteoblastic/odontoblastic lineages and the results indicated that the cells acquired some specialized functions like secretion of mineralization factors.

Key words: dental pulp, mesenchymal stem cells, osteoblasts, odontoblasts

8. THE ROLE OF THE FOCUS OF ATTENTION IN THE CREATION AND MAINTENANCE OF THE MEMORY VESTIGE FOR CHILDREN OF 5 TO 6 YEARS UNDER THE ACTION OF A STRESS FACTOR

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ABSTRACT

Study results of role of attention in forming and keeping the vestige in the memory for children of 5 to 6 years under the action of a stress factor. During each testing stage, the number of mistakes and vestige's

graphicalness has established five groups in memory. Many conclusions have been made when speaking of forming and keeping the vestige in the memory. All this depends on activity conditions.

Keywords: attention, memory, vestige, stress factor, stress reactivity, stress resistivity

9. THE ULTRASTRUCTURE OF BLOOD PLATELETS IN NORMOBARIC AND HYPOBARIC HYPOXIA AND AFTER 14 DAYS TREATMENT WITH DOXAZOSIN IN THE TWO ENVIRONMENTAL CONDITIONS

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ABSTRACT

We tried to assess in what degree platelet ultrastructure changes in hypobaric hypoxia, associated or not with α_1 -adrenergic receptor blocker treatment. We conducted our experiments on 40 white Wistar rats, which were divided into four groups. A daily dose of Doxazosin (α_1 receptor blocker) was given to two of the groups of rats, one in normobaric and the other in hypobaric conditions. Hypobaric hypoxia was obtained in a barochamber at an atmospheric pressure of 380 mmHg, corresponding to an altitude of 5500 m. We chose a 14 days exposure period to hypobaric hypoxia because this causes a visible decrease on the number of flowing platelets. Our results show important changes in platelet ultrastructure both in hypoxia and under the influence of α_1 -adrenergic receptor blockers.

Key words: thrombocytopoiesis, hypobaric hypoxia, blood platelet ultrastructure, Doxazosin