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### 1. PHYSIOLOGICAL BASES AND PATHOGENESIS OF AGING. PILLARS OF THE AGING

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#### ABSTRACT

What means the aging? Aging is normal-physiological process that begins from the moment of conception and continues until the end of the life (Fig. no. 2). The aging process / processes is / are a plurality of normal changes in human organism due to the lapse of time, the change in the frame of mind, in the philosophy and physical condition of each of us. Disease is an accident, a pathological process which can occur occasionally in childhood, adulthood and not exclusive to old people. The disease itself can be prevented, treated and cured, or if it becomes chronic it can be alleviated. In each case, a geriatrician and gerontologist, thinking about a complex of measures could give / improve the Quality of Life. It is important to know that aging is under the influence of genetic (60%) and environmental factors (40%). Under their influence the aging rhythm can be normal, accelerated or delayed. Each person has his own aging rhythm, his own biological clock. After more than 30 years of studies in Gerontology and Geriatrics I will present some of the markers / pillars / criteria / indicators of normal / physiological Inner / Biological age.

**Key words:** normal aging, physiology, pathogenesis, pillars

### 2. SUBCELLULAR ANTI-AGING MECHANISMS IN BRAIN LONGEVITY

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#### ABSTRACT

Lipopigments (LP): lipofuscin - hallmark of cellular senescence, and ceroid - cumulating result of external aggressions and of cellular distresses represent an important indicator of central nervous system (CNS) vulnerability and aging.

In experiments were used Wistar rats, which were divided in three lots: control old stressed group (C-OS), old stressed group which Meclofenoxat treatment (OS-MF), and old stressed group treated with anti-stress, anti-impairment and anti-aging therapy (A-SIA-T). Rat brains were processed, investigated and analyzed by qualitative and quantitative electron microscopy.

In treated rat groups, LP from CNS (as from neurons, as from glial cells) shown significant anti-aging changes (volume / surface reduction and processed structure), more intense at A-SIA-T group. In addition, lipofuscino- and ceroido-lysis are associated with neuro- → glio → capillar (tissual) transfer of sub cellular wastes highly processed. Re-establishment of lysosomal homeostasis is accompanied also by structural rejuvenation of sub cellular compartments, anabolic [energetic].

The use of A-SIA-T synergistic-simultaneous therapy opens new prospects in anti-aging and prolongevity medicine.

**Key words:** lipofuscino- / ceroido-lysis, tissue transfer - elimination of processed lipopigments, anti-aging sub cellular mechanisms, brain renewal - longevity.

### 3. PARTICULARITIES OF CIRCADIAN RHYTHM IN CHILDREN OF VARIOUS AGE

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#### ABSTRACT

Blood pressure, pulse and body temperature determination have been performed on a number of 108 children distributed by age in four groups (1 to 3; 3 to 7; 7 to 14 and 14 to 16 years old), some of them (48) healthy and some (60) having respiratory and digestive pathology, etc. The measurements have been registered at 7.30, 12.30 and 18.30 hours daily, following the circadian oscillation, curves being drawn according to cosinor calculation. This curve shows that hourly normal circadian oscillations of body temperature and pulse are present only in healthy children of all ages and also in ill teenagers and partially in 8 to 14 years old ill children.

Besides, blood pressure oscillations in teenagers and partially in pupils are also ampler and more likely in adults as daily program.

**Key words:** circadian rhythm, children, pulse, blood pressure, body temperature.

### 4. INFLUENCE OF CATECHOLAMINES DEPLETION BY RESERPINE ON THE PANCURONIUM-INDUCED MYORELAXATION IN RATS

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#### ABSTRACT

In male Wistar albino rats, the intraperitoneal (i.p.) administration of pancuronium (0.280 mg/kg) induced a short-lasting reversible muscle relaxation documented by a more rapid fall from a horizontal bar in comparison with the non-treated animals (Julou-Courvoisier test). The respiration was not affected. Reserpine pretreatment (5 mg/kg i.p.) decreased the latency and augments the duration of the myorelaxation. The dose of 1 mg/kg reserpine was ineffective.

**Key words:** muscle relaxation, pancuronium, rats, reserpine

#### 5. BRIEF REVIEW: UMBILICAL CORD BLOOD STEM CELLS - CRYOPRESERVATION AND BANKING

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#### ABSTRACT

Umbilical cord blood banking consists of the collection, processing, and cryopreservation of the remaining blood within the umbilical and placental circulation following the birth of a child and typically prior to placental delivery. Within this "leftover" blood, traditionally discarded with the placenta as medical waste, lies a rich source of hematopoietic stem cells. For more than a decade, banked cord blood stem cells have been used to treat thousands of people worldwide with more than 45 different malignant and nonmalignant diseases and to treat patients with severe combined immunodeficiency syndrome through gene therapy techniques. The premise for banking cord blood is the fact that cord blood stem cells are the progenitor cells that can reconstitute the blood and immune systems. These cells are particularly abundant in cord blood - with concentrations nearly 10 times greater than that found in bone marrow - and are more proliferative. When infused, cord blood stem cells migrate to the bone marrow where they engraft and develop into the cell lines of blood and immune system components mentioned above. In the present article, we describe and discuss the most important aspects regarding collection, processing, and cryopreservation of umbilical cord blood (UCB), and also about the indications and advantages of transplantation procedures using UCB stem cells.

**Key words:** umbilical cord blood, stem cells, cryopreservation, banking

#### 6. EFFECT OF ACUTE INTRAPERITONEAL ADMINISTRATION OF ZOLPIDEM ON SERUM LIPIDS AND BLOOD GLUCOSE LEVELS IN HYPERLIPIDEMIC RATS

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## ABSTRACT

In Wistar rats rendered hyperlipidemic by an i.p. injection of TRITON WR-1339, the i.p. administration of Zolpidem induced significant decreases of serum total cholesterol and triglycerides. The effective doses were 25, 10 and 15mg/kg, whereas doses of 2.5 and 5 mg/kg were inactive, while at this dosage range, benzodiazepines compounds, acting on the same receptors, induce a bell-shape dose-response curve. Zolpidem failed to affect the HDL-cholesterol level, related to total cholesterol. Blood glucose level was modified by Zolpidem in a manner which excludes the possibility to describe it in a definite dose-response curve. We suggest that the antihyperlipidemic activity of Zolpidem was due to the stimulation of a particular subpopulation of peripheral type benzodiazepine receptors.

**Key words:** rats, hyperlipidemia, Zolpidem, blood glucose, serum lipids.

## 7. IMMOBILIZATION-RELATED MUSCULAR ATROPHY – EXPERIMENTAL STUDY

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## ABSTRACT

The purpose of this study is to determine the degree of muscle atrophy in a hind limb of Sprague-Dawley rats, which had been immobilized for a certain period of time. By correlations with clinical studies, we aim to develop some clinical solutions for improving the physical condition of patients who were submitted to a prolonged period of immobilization.

The experimental research was performed on two groups of Sprague-Dowley adult rats, weight between 280 g and 350 g; group I consists of 10 rats on which elastic bandage immobilization of one hind limb was performed for a period of 25 days; group II consists of 10 non-immobilized rats, as the control group. Several parameters were monitored: macroscopic changes regarding the thickness of the immobilized limb compared to the other limb; histopathologic changes of the immobilized hind limb musculature compared to the contralateral limb (free); changes in body weight during the immobilization period.

The extremely significant decrease of thigh circumference was found, at 2 cm and 4 cm from the knee joint, respectively. Muscle fragments harvested from the immobilized limbs had shown a series of changes: inequalities in fibers size, cytoplasm homogenization, and centralization or nuclei loss phenomena, multi-nucleation phenomena. In addition, the significant decrease of muscle fiber diameter in the lower leg and in thigh was shown, both in transversal and in longitudinal section.

The muscular atrophy is always produced as a result of striated muscle immobilization and represents a phenomenon that can be demonstrated both macroscopic and microscopic.

**Key words:** immobilization, muscular atrophy, lower limb, skeletal muscle.

## 8. ASSESSMENT OF URINARY VANIL MANDELIC ACID AND HYDROXY INDOL ACETIC ACID IN STUDENTS UNDER MENTAL STRESS CONDITION

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#### ABSTRACT

Via hypothalamus and the sympathetic nervous system, psychological stress stimulates the adrenal medulla to secrete the two catecholamines, epinephrine and norepinephrine into the blood stream. The same circumstances induce the increase of serotonergic activity, being well known that serotonin is the neurotransmitter involved in sensory perception, mood, depression and other psychological disturbances generated by stress.

Assessment of catecholamines and serotonin activity by their main metabolites, urinary vanil mandelic acid (VMA) and hydroxy indole acetic acid (HIAA) in students under examination stress, showed significant variations of these parameters as an adaptation to the mental stress.

**Key words:** catecholamine, products of metabolism, stress

### **9. FOR THE GENERAL PRACTITIONER: ORGANOPHOSPHORUS INSECTICIDE POISONING - CLINICAL FEATURES, MECHANISM OF TOXICITY AND MANAGEMENT**

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#### ABSTRACT

The toxicology of organophosphorus insecticides (OP) when taken in large doses is well documented and relates principally to the interaction between the OP and acetylcholinesterase (AChE). The clinical picture of OP poisoning results from accumulation of acetylcholine (ACh) at nerves terminals. As ACh is a neurotransmitter through the whole nervous system, poisoning with OP results in its excessive stimulation. In mild poisoning, the muscarinic effects prevail, while in severe poisoning, CNS symptoms and cardiovascular signs are predominant. Following significant poisoning, two other neurological syndromes are recognized, the intermediate syndrome and OP-induced polyneuropathy. This syndrome is related to ability of the OP to interact with neuropathy target esterase. Although, other cholinolytic (e.g. Dextetimide) substances may have distinct advantages, the role of atropine, as a mainstay of therapy, is essentially unchallenged; however, there is still a debate about the most appropriate dosage of atropine. In order to deal with the fatal neuromuscular dysfunction of respiratory muscles, antidotes reactivating inhibited AChE have been developed, but their effectiveness is still a matter of debate.

**Key words:** organophosphorus insecticides, poisoning, features, mechanism, management.

### **10. BOOK REVIEW: IMAGES OF PSYCHIATRY IN ROMANIA (21<sup>ST</sup> CENTURY ROMANIAN PSYCHIATRY)**

*Eliot Sorel, Dan Prelipceanu*

Ed. Infomedica, București 2004, 171 pages, ISBN 973-7912-32-2

This book under aegis of World Psychiatric Association proposes to be a selective inventory of the last three decades of Romanian Psychiatry, developed around Alexandru Obregia, Constantin I Parhon, Alexandru Stuzu, Eduard I Pamfil and Petre Brânzei.

Psychiatric research has become an official scientific activity in 1972 thanks to Prof. Vasile Predescu (Institute of Neurology and Psychiatry) but today the official existence of psychiatric research is

integrated in „Prof. Dr. Alexandru Obregia” Clinical Hospital of Psychiatric Research, Genetics and Development Unit, and Compartment for Research on Stress. The stress unit created by Sorin Riga and Dan Riga beginning in the 1970’s, established new concepts in bio-medicine and therapeutics, anti-stress, anti-impairment, anti-aging therapies and created an original Romanian drug-ANTAGONIC - STRESS.

In the last chapter the book presents the ethics in Romanian psychiatry, psychotherapy, rehabilitation and the role of NGO organizations, the field of drug addiction and the „Alliance against Alcoholism and Drug Addiction”.

Finally, Radu Mihăilescu, director of “Prof. Dr. Al. Obregia”, Psychiatric Hospital Bucharest, presents the principles of the reformation of the mental health system: goal and objectives, primary, secondary and tertiary prophylaxis legislation.

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