

CONTENTS

1. Immediate and delayed effects of postnatal administration of diprophos
Simona Clichici, Adriana Filip, Adela Joantă, C Puică
2. The effects of hemodialysis on some oxidative stress markers in chronic renal failure patients
Soimita Suci, Simona Racasan, Adriana Muresan, Lavinia Sabau
3. Modulation of rat liver prooxidant/antioxidant balance by thyroid hormones
Adela Joantă, Adriana Filip, Simona Clichici, Șoimița Suci, M Dorofteiu
4. Clinical significance and prognostic value of urinary low molecular weight (“tubular”) proteins evaluated by SDS-polyacrylamide gel electrophoresis in glomerulonephritis
M Gherman-Caprioara, A Cristea, C Spanu, L Kacso
5. The effect of rehabilitation treatment after an uncomplicated acute myocardial infarction in patients with or without type 2 diabetic nephropathy. Echocardiographic data
S Blaga, S Pop
6. Plasma levels of sE-selectin in patients with unstable angina pectoris
Luminița Vida-Simiti, Anca Cristea
7. Implications of erythropoietin in oxidative stress in hemodialysed patients suffering of chronic renal failure
Irina Chis, Adriana Muresan
8. The involvement of free radicals in chronic venous insufficiency
Adriana Filip, Adriana Muresan, Adela Joanta, Simona Clichici, Gabriela Chereches, Doina Daicoviciu, Nicoleta Decea
9. Book review: Textbook of algesiology
Francisc Schneider

1. IMMEDIATE AND DELAYED EFFECTS OF POSTNATAL ADMINISTRATION OF DIPROPHOS

Simona Clichici¹, Adriana Filip¹, Adela Joanta¹, C Puică²

¹Department of Physiology, University of Medicine and Pharmacy, Cluj-Napoca

²Department of Biological Research, Cluj-Napoca

Address for correspondence: Department of Physiology, University of Medicine and Pharmacy “Iuliu Hatieganu”, 13 Emil Isac Street, Cluj-Napoca, Romania

ABSTRACT

Experimentally, we studied in rats the immediate and delayed effects of Diprophos administration (2μg/g body weight, i.m.) during the first 24 postnatal hours. Our results indicate the presence of neuronal lesions 48 hours after the Diprophos administration, especially in the cerebral cortex and hippocampus, partially reversible until the age of 3 months, when the cerebral structures have an almost normal aspect, with the exception of mediobasal hypothalamus. Our results also indicate a statistically significant decrease of the learning capacity of conditioned reflexes of active avoidance at the age of 3 months, demonstrated through the decrease of the positive reactions percentage and the increase of the global time of latency average.

Key words: glucocorticoids, nervous system, Diprophos, learning, hippocampus, neurogenesis.

2. THE EFFECTS OF HEMODIALYSIS ON SOME OXIDATIVE STRESS MARKERS IN CHRONIC RENAL FAILURE PATIENTS

Somita Suci, Simona Racasan¹, Adriana Muresan, Lavinia Sabau

Department of Physiology, University of Medicine and Pharmacy “Iuliu Hatieganu” Cluj-Napoca

¹“Mihai Manasia” Nephrology Clinic, Cluj-Napoca

Address for correspondence: Department of Physiology, University of Medicine and Pharmacy “Iuliu Hatieganu”, 13 Emil Isac Street, Cluj-Napoca, Romania

ABSTRACT

In this study we determined the plasma levels of thiobarbituric reactive substances (TBARS) and carbonyl content of proteins, as well as the hydrogen donating ability, in 15 patients with chronic renal failure undergoing hemodialysis, before and after one hemodialysis session. We found that the average baseline levels of TBARS neither differ from those in controls, neither rose during hemodialysis session. The carbonyl content of proteins did not show significant differences from those in controls, but increased significantly during hemodialysis session. Hydrogen donating ability showed a large decrease during the hemodialysis session. The increase in the plasma levels of carbonyl content of protein as well as the decrease of hydrogen donating ability during one session of hemodialysis suggest that hemodialysis *per se* may cause oxidative stress.

Key words: chronic renal failure, hemodialysis, oxidative stress.

3. MODULATION OF RAT LIVER PROOXIDANT/ANTIOXIDANT BALANCE BY THYROID HORMONES

Adela Joanta, Adriana Filip, Simona Clichici, Șoimita Suci, M Dorofteiu

Physiology Department, University of Medicine and Pharmacy "Iuliu Hatieganu" Cluj-Napoca

Address for correspondence: Department of Physiology, University of Medicine and Pharmacy "Iuliu Hatieganu", 13 Emil Isac Street, Cluj-Napoca, Romania

ABSTRACT

The effects of the altered thyroid status on prooxidant/antioxidant balance of the rat's liver were examined. Hypothyroidism was induced by administering carbimazole (0,10 mg/100g body weight) in drinking water for 14 days. Hyperthyroidism was elicited by a 7- day treatment of hypothyroid rats with L-Thyroxine (10µg/100 g body weight). It has been determined from the rat's liver the oxidative stress parameters such as thiobarbituric acid reactive substances (TBARS), protein carbonyl content and the antioxidant enzymes activity (catalase, glutathion peroxidase, superoxidismutase). The results of the present study indicated that administration of L-Thyroxine(T₄) to hypothyroid rats resulted in significant augmentation of malondialdehyde(TBARS) and protein carbonyl content of the liver comparative to euthyroid and hypothyroid rats. In hypothyroid rats has been found a decrease of catalase activity, an increase of glutathione - peroxidase and superoxidismutase activity comparative to euthyroid rats. In hyperthyroid rats it has been reported an increase of the antioxidant enzymes activity. The results of the present study suggest that the liver prooxidant/antioxidant balance is considerably influenced by the thyroid status of the body.

Key words: liver, oxidative stress, antioxidant enzymes.

4. CLINICAL SIGNIFICANCE AND PROGNOSTIC VALUE OF URINARY LOW MOLECULAR WEIGHT ("TUBULAR") PROTEINS EVALUATED BY SDS-POLYACRYLAMIDE GEL ELECTROPHORESIS IN GLOMERULONEPHRITIS

Gherman-Caprioara M¹, A Cristea², C Spanu¹, I Kacso¹

¹"Mihai Manasia" Nephrology Clinic,

²Clinical Immunology Laboratory – 1st Medical Clinic

University of Medicine and Pharmacy "Iuliu Hatieganu" Cluj-Napoca

Address for correspondence: Department of Physiology, University of Medicine and Pharmacy "Iuliu Hatieganu", 13 Emil Isac Street, Cluj-Napoca, Romania

ABSTRACT

In this study we characterized by SDS-PAGE the proteinuria of 220 patients with glomerulonephritis (GN) and 20 patients with microalbuminuria (diabetes mellitus, and essential hypertension). The

proteinuric patterns of a separate group of 35 patients with renal biopsy and diagnosed with primary GN were correlated with the morphopathological lesions. The degree of irreversible tubulointerstitial damage correlated with the low molecular weight proteins, which may have a predictive role for the progression to CRF. The characterization of the proteinuria by SDS-PAGE may be a useful, noninvasive clinic tool for establishing prognosis in GN.

Key words: SDS-PAGE, progression to chronic renal failure, glomerulonephritis, proteinuric patterns, low molecular weight proteins.

5. THE EFFECT OF REHABILITATION TREATMENT AFTER AN UNCOMPLICATED ACUTE MYOCARDIAL INFARCTION IN PATIENTS WITH OR WITHOUT TYPE 2 DIABETIC NEPHROPATHY. ECHOCARDIOGRAPHIC DATA

S Blaga, S Pop

1st Medical Clinic – Internal Medicine and Cardiology,
University of Medicine and Pharmacy “Iuliu Hațieganu”, Cluj-Napoca, Romania

Address for correspondence: Department of Physiology, University of Medicine and Pharmacy “Iuliu Hațieganu”, 13 Emil Isac Street, Cluj-Napoca, Romania

ABSTRACT

The paper studies the role of the rehabilitation treatment in type 2 diabetic patients with an acute myocardial infarction, evaluated by the echocardiographic data.

We analyzed several echocardiographic parameters of the left ventricular function, in 40 type 2 diabetic patients, with or without diabetic nephropathy, after an acute myocardial infarction, who underwent 6 weeks of rehabilitation program. The presence of the diabetic nephropathy has the significance of a poor prognosis in the rehabilitation period.

Key words: myocardial infarction, diabetic nephropathy, echocardiography, rehabilitation program.

6. PLASMA LEVELS OF sE-SELECTIN IN PATIENTS WITH UNSTABLE ANGINA PECTORIS

Luminita Vida-Simiti, Anca Cristea

1st Medical Clinic - Internal Medicine and Cardiology
University of Medicine and Pharmacy “Iuliu Hațieganu” Cluj-Napoca

Address for correspondence: Department of Physiology, University of Medicine and Pharmacy “Iuliu Hațieganu”, 13 Emil Isac Street, Cluj-Napoca, Romania

ABSTRACT

Introduction. Recent evidence suggests that inflammation plays a role in unstable angina pectoris (UAS). Leukocyte-endothelial cell interactions in inflammation are regulated by cell adhesion molecules. E-selectin is a cell adhesion molecule that is only expressed on activated endothelium and is required for optimal leukocyte rolling and firm adhesion.

Aim of the study. The aim of the study was to evaluate the plasma levels of E-selectin in patients with UAS in the first 5 days after the last spontaneous angina.

Methods. We measured sE-selectin (ELISA-sandwich) and CRP (nano-RID) in 9 patients with UAS in the Braunwald class IIIB at 6, 12, 18 and 24 hours after the last angina, in 14 patients with UAS in the class IIB at 5 days after the last angina and in 9 healthy volunteers (controls).

Results. As compared with the controls (4.8 ± 1.91 ng/ml), in patients with UAS, plasma levels of sE-selectin were significantly elevated in the first 6 hours after the last angina (25.91 ± 5.75 ng/ml) and remained elevated at least 5 days (17.64 ± 2.52 ng/ml). The peak of the levels was recorded at 18 hours after the last angina. A negative correlation between sE-selectin and CRP was found.

Conclusion. In patients with UAS the demonstration of sE-selectin in the blood proves that the endothelial activation persists even in the clinically stabilized disease.

Key words: sE-selectin, CRP, unstable angina pectoris.

7. IMPLICATION OF ERYTHROPOIETIN IN OXIDATIVE STRESS IN HEMODIALYSED PATIENTS SUFFERING OF CHRONIC RENAL FAILURE

Irina Chis, Adriana Muresan

Department of Physiology, University of Medicine and Pharmacy “Iuliu Hatieganu” Cluj-Napoca

Address for correspondence: Department of Physiology, University of Medicine and Pharmacy “Iuliu Hatieganu”, 13 Emil Isac Street, Cluj-Napoca, Romania

ABSTRACT

Even if aerobic metabolism provides advantages to different forms of life, oxygen as is both an indispensable element for life and a source for very active detrimental and destructive potential known under the name of reactive oxygen species (ROS). Its destructive effects on stimulated when ever it is an overproduction of ROS or when antioxidative defense systems on overtaken leading to oxidative stress.

Nowadays, the implications of ROS in different physiological and pathological processes are well-known, some of them having relevance for clinical practice, as a causal factor, leading accompanying or aggravating primary lesions. To sum up, it is perfectly justified the attempt to use biological agents with antioxidant effect in diseases involving ROS.

Erythropoietin (Epo) is an alpha 1-glicoprotein with an important antioxidant role intercepting peroxide radicals and inhibiting lipid peroxidation amplification. In sources of ROS is chronic renal failure and hemodialysis (HD) in patients with chronic renal failure.

Authors have looked for the protective role of Epo in oxidative stress in hemodialised patients and chronic renal failure. We determined the ROS in hemodialysis patients with chronic renal failure, through determination of lipid peroxides and proteins carbonyl; we also dosed antioxidative ferric capacity, through determination of ceruloplasmin, an antioxidant which acts in extracellular tissue, and donor capacity of H⁺, which shows the quantity of buffer substances from serum which is able to neutralize stable ROS after the patients were previously treated with recombinant human erythropoietin (rHuEpo). The results were compared with the ones from a control group of healthy persons.

Key words: erythropoietin, reactive oxygen species, protein carbonyl, lipid peroxides, hemodialysis.

8. THE INVOLVEMENT OF FREE RADICALS IN CHRONIC VENOUS INSUFFICIENCY

Adriana Filip¹, Adriana Muresan¹, Adela Joanta¹, Simona Clichici¹, Gabriela Chereches², Doina Daicoviciu², Nicoleta Decea¹

¹Department of Physiology, University of Medicine and Pharmacy “Iuliu Hatieganu” Cluj-Napoca

²Biochemistry, Immunology and Cellular Cultures Laboratory, Institute of Oncology Cluj-Napoca

Address for correspondence: Department of Physiology, University of Medicine and Pharmacy “Iuliu Hatieganu”, 13 Emil Isac Street, Cluj-Napoca, Romania

ABSTRACT

Chronic venous insufficiency is a frequent health problem, especially in females with a prolonged evolution and important social costs.

There are a few pathogenetical hypothesis, but the hypothesis of white cell trapping with release free oxygen radicals is the most actual.

This research aims to demonstrate the intervention of FOR through the dosage of parameters, which quantify oxidant stress from blood, drawn from varicose veins and tissue homogenate from the vein wall. The values of lipid peroxides and carbonylate proteins were increased, demonstrating the local production of free oxygen radicals (FOR) The local antioxidant defense was measured through the determination of the hydrogen donor capacity of a stable radical in the presence of an antioxidant

mix and ceruloplasmin. The results show that the inhibition of a free radical used is reduced in patients with varicose illness.

Key words: chronic venous insufficiency, lipid peroxides, carbonylate proteins.

9. BOOK REVIEW: TEXTBOOK OF ALGESIOLOGY

Ostin C Mungiu

Edited by Ostin C Mungiu, Polirom Publishing House, 2002, ISBN 973-683-966-1

Professor Ostin C Mungiu, a prestigious Pharmacology Professor from Iasi, the initiator of Algesiology in Romania, coordinated an exceptional textbook regarding pain, including causes, consequences and treatment.

Reviewing the 34 chapters, we realize the textbook touches every single domain where pain generates sufferance and can be healed. It is signed by 43 authors of the most representative in the medicine in Iasi and collaborators from Targu Mures and Bacau. Among authors are professors like academician Ion Haulica, Stefan Antohe, Mircea D Pavelescu, Eusebie Zbranca representing the clinical domain.

Pain, known in more than ten thousand diseases, is defined in the beginning of the book, followed by neuroanatomy, physiology, pharmacology and chronobiology. The methods of pain evaluation are described next, pointing out pain as symptom in humans. The following chapters focus on opioid and non-opioid analgesics and para-analgesics, local anesthetics and stress-induced analgesia. The most representative types of pain considering age, localization, symptomatic and causal therapy are reviewed.

The most important pain syndromes, such as angina pectoris, acute abdomen, pain in gynecology and obstetrics and rheumatic pain are exhaustively described. The next chapters concern central and peripheral neurological pain syndrome, migrainous and non-migrainous cephalalgia, etc. Special chapters are dedicated to cancer pain and psychopathology of pain.

The last one hundred pages, out of 1036 pages of the book, present kinetotherapy, electrotherapy and placebo therapy, ending with possible perspectives in pharmaco-analgesic strategies.

It is a captivating book, useful to those who serve the people in sufferance. Subsequently covering this textbook we have to subscribe to the final conclusion of the editor "...as long as PAIN exists no effort should be separated for its relief".

Francisc Schneider