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1. RAT ERYTHROCYTES SUPEROXIDE DISMUTASE ACTIVITY IN ACUTE EXPOSURE TO HYPOBARIC HYPOXIA

Adriana Muresan¹, Soimita Suciu¹, Cristina Gagyi², C Login¹

¹Physiology Department, "I.Hatieganu" University of Medicine and Pharmacy, Cluj-Napoca

²Pharmaceutical Biochemistry Department, "I.Hatieganu" University of Medicine and Pharmacy, Cluj-Napoca

Address for correspondence: Prof. Adriana Muresan, Department of Physiology, University of Medicine and Pharmacy Iuliu Hatieganu Clu-Napoca, Clinicilor Street no.1, 400006 - Cluj-Napoca, Romania

ABSTRACT

Hypoxia is a source of reactive oxygen species. Acute or chronic exposure to hypobaric hypoxia leads to oxidative stress in living organisms. The aim of this study was to investigate the SOD activity in rats exposed to hypobaric hypoxia, at a simulated altitude of 2000 m, with or without antioxidant protection. We found a decreased SOD activity in rat erythrocytes following acute exposure to hypobaric hypoxia. In selenium treated rats, red blood cells SOD activity is even lower than in no antioxidant receiving group.

Key words: hypobaric hypoxia, superoxide dismutase activity, antioxidants

2. EXPERIMENTAL STUDY ON THE GENDER DIFFERENCE IN LIVER OXIDATIVE STRESS INDUCED BY HIGH DOSE TAMOXIFEN

Soimita Suciu, Lavinia Sabau, Adriana Muresan, Doina Daicoviciu, M Dorofteiu

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

Address for correspondence: Dr. Soimita Suci, Department of Physiology, University of Medicine and Pharmacy Iuliu Hatieganu Clu-Napoca, Clinicilor Street no.1, 400006 - Cluj-Napoca, Romania

ABSTRACT

In this study we determined the liver content of lipid peroxides, malonaldehyde and carbonyl groups of proteins, as markers of oxidative stress, comparatively in male and female Wistar rats which were acutely exposed to high dose tamoxifen. We found higher levels of hepatic oxidative stress markers in tamoxifen treated groups as compared to controls. None of the three markers differed in the two sexes, suggesting that oxidative effect of tamoxifen in the liver is estrogen receptor independent.

Key words: tamoxifen, liver, oxidative stress, gender difference

3. EFFECTS OF MAGNESIUM SUPPLEMENTATION IN EXPERIMENTAL ALLOXANIC DIABETES

Irina Chiș¹, MI Ungureanu², P Turcoman², Anca Suci², Adriana Muresan¹

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

²Students, University of Medicine and Pharmacy "Iuliu Hatieganu, Cluj-Napoca, Romania

Address for correspondence: Dr. Irina Chis, Department of Physiology, University of Medicine and Pharmacy Iuliu Hatieganu Clu-Napoca, Clinicilor Street no.1, 400006 - Cluj-Napoca, Romania

ABSTRACT

The implications of the reactive oxygen species (ROS) in the physiological and pathological processes are well known. According to previous studies, the ROS level is high in diabetes mellitus. The aim of the present study was to discover whether Magnesium could in some way protect from the damages produced by the ROS. In order to do this, several experiments were made on male Wistar rats, which were divided into three groups. In each group of rats, the markers of the oxidative stress were assessed, as well as the level of nitric oxide. Significantly lower values of the oxidative stress parameters were obtained from the group of rats treated with Magnesium before inducing diabetes. This is an argument for the fact that the alloxanic diabetes is clearly associated with decreased Magnesium status and increased oxidative stress.

Key words: reactive species of oxygen, diabetes mellitus, Magnesium, nitric oxide.

4. THE ROLE OF VITAMIN E IN ENDOMETRITIS

Lavinia Sabau, Adriana Muresan, Soimita Suci, M Dorofteiu, Dorina Daicoviciu

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

Address for correspondence: Dr. Lavinia Sabau, Department of Physiology, University of Medicine and Pharmacy Iuliu Hatieganu Clu-Napoca, Clinicilor Street no.1, 400006 - Cluj-Napoca, Romania

ABSTRACT

Endometritis is a common type of infection that occurs postpartum or postabortum. The predisposing risk factors are: great length of labor, rupture of membranes, cesarean section, and low socioeconomic status, number of vaginal examinations, anemia and obesity. Reactive oxygen species are produced in great quantities during the infections, in general. The aim of our study was to evaluate whether oxidative stress plays a role in the evolution of this disease and whether administration of vitamin E can be beneficial.

Key words: reactive oxygen species, vitamin E, endometritis.

5. POST MYOCARDIAL INFARCTION DILATED CARDIOMIOPATHY – CLINICAL, ELECTROCARDIOGRAPHIC, ECHOCARDIOGRAPHIC AND OXIDATIVE STRESS DATA

Luminița Ardelean¹, S Blaga², I Marian², Anca Cristea², Soimița Suciu³, Adriana Mureșan³

¹County Hospital, Satu Mare

²Medical Clinic One, University of Medicine and Pharmacy “Iuliu Hatieganu” Cluj-Napoca

³Physiology Department, University of Medicine and Pharmacy “Iuliu Hatieganu” Cluj-Napoca

Address for correspondence: Prof.Dr. Sorin Blaga, Medical Clinic One, Clinicilor Street 3-5, 400006, Cluj-Napoca, Romania. E-mail: sblaga@umfcluj.ro

ABSTRACT

Aim: Ischemic heart disease, with or without previous myocardial infarction, alters the energy metabolism, hidroionic balance, coronary microcirculation and the oxidative stress, resulting in the reduction of the left ventricular function. The aim of the present study was to evaluate some clinical, electrocardiographic and oxidative stress parameters, in patients with post myocardial infarction dilated cardiomyopathy.

Design: 25 consecutive patients with previous myocardial infarction and dilated cardiomyopathy (22 males and 3 females), mean age 66±14 years) were evaluated by means of clinical (NYHA class), electrocardiographic, echocardiographic and of oxidative stress data at baseline. The echocardiographic measurements were taken from the routine echo-report and were focused on the diameters and ejection fraction of the left ventricle. The serum levels of reactive oxygen species was evaluated by means of the lipid peroxides and the hydrogen donating ability of plasma.

Results: 22 patients (88%) had many risk factors for ischemic heart disease and 24 patients (95%) had severe NYHA class (III-IV). The dilated cardiomyopathy evolving in context of extensive myocardial infarction, usually with electrical or mechanical complications, had a significantly higher levels ($p<0,001$) of the lipid peroxides, a significantly lower levels ($p<0,001$) hydrogen donating capacity, comparatively with those having a smaller myocardial dysfunction.

Conclusions: The post myocardial infarction dilated cardiomyopathy, especially secondary to the extensive myocardial infarction will have a marked poor left ventricular function. The reactive oxygen species might be involved in the pathogenesis, the evolution and the prognosis of this condition.

Key words: myocardial infarction, dilated cardiomyopathy, oxidative stress.

6. ERYTHROPOIETIN RESPONSIVENESS IN ANEMIC CHRONIC HEMODIALYSIS PATIENTS: LINKS WITH INFLAMMATION AND MALNUTRITION

Anca Rusu¹, Simona Racasan¹, Patiu IM¹, Anca Cristea², Mirela Gherman-Caprioara¹

¹Nephrology and Dialysis Clinic, Cluj-Napoca, Romania

²Immunology Department, Cluj-Napoca, Romania

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

Address for correspondence: Dr. Anca Rusu, Nephrology and Dialysis Clinic, University of Medicine and Pharmacy “Iuliu Hatieganu” Cluj-Napoca, Clinicilor Street no. 1, 400006 Cluj-napoca, Romania

ABSTRACT

It is well known that some hemodialysis patients have a poor response to recombinant human erythropoietin (rHuEPO) treatment even after resistance factors are excluded. Less attention has been accorded to inflammation and malnutrition. The aim of this study is to analyse the relationship between anaemia, erythropoietin responsiveness, inflammation and malnutrition. 34 hemodialysis patients were included. Haemoglobin, hematocrit, serum ferritine and serum creatinine were measured. C-reactive protein (CRP) was determined as a marker of inflammation. rHuEPO dose and rHuEPO responsiveness index (U/week/hematocrit) were calculated. Mean CRP values were 7.5±1.3 mg/l. Hemoglobin was higher in patients with CRP<2mg/l (group A), as compared with those having CRP>2mg/l (group B) (11.1±0.5 vs. 10.1±0.2 g/dl, NS); rHuEPO dose was significantly lower in

group A compared with group B (56.3 ± 18.6 vs. 93.8 ± 7.2 U/kg/wk, $p < 0.05$). Serum creatinine displayed a significantly negative correlation with CRP and rHuEPO dose. At 6 months, patients from group A had higher hemoglobin: 12.1 ± 0.4 g/dl ($p = 0.0036$ vs. group B) even though they needed less rHuEPO, compared with patients from group B.

Conclusion: there is a strong correlation between anemia and inflammation and malnutrition markers in our hemodialysed patients. CRP might be a predictive factor for rHuEPO responsiveness.

Key words: anemia, hemodialysis, erythropoietin, inflammation, C-reactive protein, malnutrition

7. THE EFFECTS OF ACUTE ADMINISTRATION OF NIMODIPINE IN AN INFLAMMATION EXPERIMENTAL MODEL

Anca Dana Buzoianu, Dana Goşa, Corina Bocşan

Department of Pharmacology and Toxicology, University of Medicine and Pharmacy “Iuliu Haţieganu”, Cluj-Napoca

Address for correspondence: Conf. Dr. Anca Buzoianu,, Department of Pharmacology and Toxicology, University of Medicine and Pharmacy Iuliu Hatieganu Clu-Napoca, Clinicilor Street no.1, 400006 Cluj-Napoca, Romania

ABSTRACT

In this paper, we studied the effect of nimodipine, calcium channel blocker, in acute experimental inflammation. The material was represented by 4 groups of rats, which were injected with kaolin solution in one paw. The inflammatory response was measured using a digital pletismometer in 4 moments: initially, after 1 hour, 2 hours and 24 hours after injection. We compared the values obtained between the groups treated with different nimodipine amounts. The results obtained show a moderate anti-inflammatory effect of nimodipine in mentioned doses.

Keywords: anti-inflammatory effect, calcium channel blockers, oedema

8. THE MALNUTRITION AND INFLAMMATION MARKERS, AS CARDIOVASCULAR RISK FACTORS IN PATIENTS WITH END-STAGE RENAL DISEASE (ESRD) TREATED BY DIALYSIS

Crina Rusu¹, Simona Răcăşan¹, Anca Cristea², Liliana Pârvu¹, Diana Moldovan, IM Paţiu¹, Mirela Gherman Căprioară¹

¹Nephrology and Dialysis Clinic “Mihai Manasia” County Clinical Hospital Cluj

²Immunology Laboratory, County Clinical Hospital Cluj

Address for correspondence: Dr. Crina Rusu, Nephrology and Dialysis Clinic, University of Medicine and Pharmacy Iuliu Hatieganu Clu-Napoca, Clinicilor Street no.1, 400006 Cluj-Napoca, Romania

ABSTRACT

The cardiovascular diseases in patients with chronic kidney disease (CKD) determine an important morbidity and mortality in this group. Malnutrition and inflammation are factors that contribute to the increase of the cardiovascular risk.

The aim of the study is the evaluation of nutrition and inflammation indices in patients with ESRD treated by dialysis having symptomatic cardiovascular diseases; we intend to identify the removable causes of malnutrition and inflammation, seeking for the most efficient methods for prevention and treatment.

We have studied two groups of patients: 95 patients with ESRD treated by hemodialysis (HD) and 37 patients with ESRD treated by continuous ambulatory peritoneal dialysis (CAPD) from the Nephrology Clinic in Cluj. Patients with acute inflammatory states, neoplasia were excluded.

We organized them in 4 groups depending on the dialysis modality (HD or CAPD) and on the existence of the symptomatic cardiovascular diseases.

We have measured the C-reactive protein (CRP) and the anthropometrical and biochemical markers of the nutrition status. The results were compared with those obtained from a control group (for CRP) and with literature data for the other parameters.

It has been remarked that CRP presents statistically significant high serum levels in patients with ESRD and cardiovascular diseases. We identified protein malnutrition in all dialysis patients. There has not been found any correlation between CRP and the nutritional markers.

Key words: dialysis, cardiovascular diseases, C-reactive protein, inflammation, malnutrition.

9. OBSERVATIONS ON THE SHORT-TERM EVOLUTION IN A HOSPITAL OF A GROUP OF PATIENTS WITH UNSTABLE ANGINA PECTORIS: THE PREDICTABILITY OF A MULTIMARKER TYPE OF ANALYSIS

Roxana Chiorescu¹, S Blaga¹, Luminița Vida-Simiti¹, Anca Cristea¹, Soimița Suciu², Adriana Mureșan²

¹Medical Clinic I, University of Medicine and Pharmacy “Iuliu Hațieganu” Cluj-Napoca

²The Physiology Department, University of Medicine and Pharmacy “Iuliu Hațieganu” Cluj-Napoca

Address for correspondence: Prof. Sorin Blaga, Medical Clinic 1, Clinicilor Street 3-5, 40006, Cluj-Napoca. E-mail: sblaga@umfcluj.ro

ABSTRACT

Objective: The complete and quick evaluation of patients with acute coronary syndromes allows their inclusion into a risk class and the choice of the optimal therapeutic strategy. The aim of the present research was the evaluation of the intra hospital short-term prognosis in patients with unstable angina pectoris (UAP), using a multimarker type strategy.

Methods: 22 patients with UAP included in the Braunwald I-III classes, were evaluated in hospital, using clinical observation (centered mainly upon the evolution of the thoracic pain, the identification of risk factors), electrocardiography, echocardiography and angiographic parameters (regarding the extension and severity of the coronary lesions) and some biochemical inflammation (CRP, fibrinogen), myocardial damage (troponin I) and ischemia (the changes in the albumin) markers. The clinical evolution was monitored also within the first month after hospital release.

Results: 2 subgroups of patients were identified from the evolutionary point of view: subgroup A – 11 patients with recurrent angina pectoris during the period of hospitalization and subgroup B – 11 patients, without the relapse of thoracic pain. The patients of subgroup A also presented significantly increased levels of serum fibrinogen, as compared to the normal levels in subgroup B ($p=0.001$), the significant decrease between days I and V of the value of serum albumin ($p=0.02$), in comparison to an insignificant decrease in subgroup B, major EKG abnormalities of the ST segment and T wave (in comparison with the interest only of the T wave, in group B), more severe and/or extended lesions at coronary angiography, as well as the reappearance of angina pectoris, the development of myocardial infarction or stroke in the first month after release.

Conclusions: The most complete possible evaluation of patients with UAP, through a multimarker strategy, using clinical, echocardiography, angiographic and biochemical parameters, establishes an intra hospital and short-term evolutionary profile.

Key words: unstable angina pectoris, risk classes, coronary angiography, biochemical markers.

10. THE ROLE OF OXIDATIVE STRESS IN ACUTE VIRAL HEPATITIS

Monica Turdean¹, Doina Tatulescu¹, Adriana Muresan², Soimita Suciu²

¹Department of Infectious Diseases, “Iuliu Hațieganu” University of Medicine and Pharmacy Cluj-Napoca

²Department of Physiology, “Iuliu Hațieganu” University of Medicine and Pharmacy Cluj-Napoca

Address for correspondence: Dr. Monica Turdean, Department of Infectious Diseases, “Iuliu Hațieganu” University of Medicine and Pharmacy, Iuliu Moldovan Street no. 23, Cluj-Napoca.

ABSTRACT

This study aims to evaluate the role of oxidative stress in the evolution of acute viral hepatitis. The study was carried out in 20 patients with acute viral hepatitis: 13 patients with acute hepatitis A and 7 patients with acute hepatitis B, admitted to the Clinical Hospital of Infectious Diseases of Cluj-Napoca in the period 2004-2005. The criteria for inclusion in the study were the absence of: viral/bacterial associated infections, diabetes mellitus, chronic alcoholism, or pro-oxidant medication (paracetamol, corticosteroids) administered prior to admission.

All the patients studied underwent biochemical serum testing on admission in order to assess oxidative stress: lipid peroxides and carbonylated proteins.

This paper reports the preliminary results of a study in progress whose objective is to evidence the oxidative stress and its role as a prognostic factor for the evolution of acute viral hepatitis. The final aim is to assess the efficiency of antioxidant medication administered in association with conventional therapy in acute viral hepatitis.

Keywords: acute viral hepatitis, oxidative stress.

11. FOR THE GENERAL PRACTITIONER: ANTIOXIDANT THERAPY IN ACUTE VIRAL HEPATITIS

Doina Tatulescu¹, Monica Turdean¹, Adriana Muresan², Simona Mera³

¹Department of Infectious Diseases, "Iuliu Hatieganu" University of Medicine and Pharmacy Cluj-Napoca

²Department of Physiology, "Iuliu Hatieganu" University of Medicine and Pharmacy, Cluj-Napoca

³Infectious Diseases Hospital, Cluj-Napoca

Address for correspondence: Dr. Doina Tatulescu, Department of Infectious Diseases, "Iuliu Hatieganu" University of Medicine and Pharmacy, Iuliu Moldovan Street no. 23, Cluj-Napoca.

ABSTRACT

In acute viral hepatitis produced by B and/or C hepatitis virus, hepatic cells injuries are mainly induced by immune mechanism, beside an important role is granted to the pathophysio-genetic mechanism produced by oxidative stress. It is demonstrated unanimously the fact that the persistence of the infection, the evolution of hepatic injury and carcinogenesis are mediated by the initial degree and the persistence of the reactive oxygen species. In this article are evaluated concisely the indications and the efficiency of some drugs, generically included in the group of complementary therapy, recommended to be administrated in association with the antiviral therapy in the treatment of acute viral hepatitis thanks to their antioxidant and immune modulating effects.

Key words: acute hepatitis, oxidative stress, antioxidant therapy.