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1. THE PHYSIOLOGICAL ROLE OF REACTIVE OXYGEN SPECIES IN THE MECHANISM OF OVULATION

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ABSTRACT
The exact mechanism of the rupture of the graafian follicle at ovulation is not fully elucidated. Reactive oxygen species are produced permanently in our body and they have important roles in many physiological processes. Therefore, the aim of our study was to investigate whether reactive oxygen species can be involved in physiology of ovulation. We observed that in healthy women with normal menstrual cycle an increased production of reactive oxygen species occurs at ovulation. On the other hand, the women who have follicle cysts - follicle cyst being a result of failure of ovulation with continued growth of the follicle - we found no increase of reactive oxygen species at ovulation. Therefore, we concluded that, reactive oxygen species have a physiological role in production of the rupture of graafian follicle at ovulation because they can damage the cells from the follicular layers surrounding the oocyte. The antioxidants also increase at ovulation, probably in order to neutralize the reactive oxygen species produced in larger amounts at this moment and thus, the oxidative stress with negative effect cannot occur.

Key words: reactive oxygen species, antioxidants, ovulation.

2. HYDROGEN PEROXIDE EFFECTS ON VENOUS SMOOTH MUSCLE

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ABSTRACT

The aim of this study was to investigate the in vitro effects of hydrogen peroxide upon human saphenous vein contractility. Human saphenous veins were collected from patients undergoing stripping operations for varicose veins (n = 6). The preparations were suspended in organ baths containing Krebs-Henseleit solution, and their mechanical responses were isometrically measured. The cumulative concentration-response curves to hydrogen peroxide (10^{-5} – 10^{-2}M) were performed. Lower concentrations of H_2O_2 (10^{-5} - 10^{-4}M) induced contractions of the venous spirals, while higher doses (10^{-3} - 10^{-2}M) caused irreversible venodilation, probably due to their toxic, damaging effect. H_2O_2-induced contraction was significantly diminished after pretreatment of the preparations with calcium channel blockers, suggesting its calcium-dependence. The contractile response induced by 10^{-4}M H_2O_2 was partially inhibited by N^G-nitro-l-arginine, indomethacin and/or nordihidroguaiaretic acid, suggesting that nitric oxide, cyclooxygenase and/or lipooxygenase metabolites appear to play some role in hydrogen peroxide-induced contractions.

Key words: hydrogen peroxide, human saphenous vein, nitric oxide, czclooxygenase, lipooxygenase.

3. SALIVARY OXIDANTS AND ANTIOXIDANTS IN PATIENTS WITH AMALGAM FILLINGS AND DIRECT COMPOSITE RESIN RESTORATIONS

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ABSTRACT
Recent studies have revealed the involvement of the reactive oxygen species (ROS) and the antioxidant defense mechanisms in human saliva in various processes of the oral cavity: the periodontal disease, oral carcinogenesis, inflammatory reactions of the oral mucosa, metal based restorations.
The authors have followed the dynamics of salivary lipid peroxides, ceruloplasmine and protein carbonyls in 2 groups of study: 1st group - patients with amalgam fillings, 2nd group - patients with direct composite resin restorations. The results were compared with those of a control group, including patients without any cavities or restorations, and a healthy periodontal status. Analysis of the results has revealed in the 1st group of patients, with amalgam fillings, a significant increase of salivary lipid peroxides and a decrease of antioxidants. In the 2nd group of study these parameters presented no significant changes.

Key words: oxidants, antioxidants, amalgam fillings, metal-free restorations.

4. HISTAMINE UPREGULATES ENDOTHELIAL NITRIC OXIDE SYNTHASE IN HUMAN ENDOTHELIAL CELLS

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ABSTRACT

Objective. The main vasorelaxing factor produced by endothelial cells is nitric oxide (NO). In the endothelium, NO is synthesized by endothelium nitric oxide synthase (eNOS). The aim of this study was to evaluate the effects of histamine on endothelial cells NO production.
Material and methods. Human umbilical vein endothelial cells (HUVEC) were harvested from umbilical cords by collagenase treatment and the cell culture established as previously described.
Results. The ratio of the cell population with the highest NO production (NO++) was measured using a Nitric Oxide Sensor Dye, by flow cytometry. The ratio of NO++ cells in basal conditions was 20%, and increased to 46% after adding Histamine. Pretreatment of the cell culture with Cimetidine, Phenergan and Cimetidine + Phenergan before stimulation with Histamine modified this ratio to 41%, 30% and 30%, respectively.
Conclusions. The upregulation of eNOS activity could be prevented by Phenergan, a selective antagonist at the H_1 receptor, but not by H_2 receptor antagonist.

Key words: human umbilical endothelial cells (HUVECs), endothelial nitric oxide synthase (eNOS), histamine, nitric oxide.

5. CARDIOVASCULAR RISK EVALUATION AND SUBCLINICAL ATHEROSCLEROSIS

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ABSTRACT
Aim: To evaluate cardiovascular risk in different age groups and to identify the presence of subclinical atherosclerosis.
Material and method: Three groups, each including 15 asymptomatic patients, aged between 30-40 years (group A), 40-50 years (group B), and 50-60 years (group C), M/F sex ratio 7/8 group A, 9/6 group B and 8/7 group C, were studied. The Framingham risk score was evaluated in each analyzed group. For the identification of subclinical atherosclerosis, echo-Doppler was used in order to determine: the common carotid artery (CCA) diameter, the CCA intimal medial thickness (IMT), the diameter and flow of the radial artery, initially, after reactive hyperemia, and after 0.8 mg sublingual spray nitroglycerine administration, respectively.
Results: Cardiovascular risk significantly increased in men in the 40-50 age group (from 11% to 18%), and increased less significantly in the 50-60 age group (21%). In case of women, the risk increased insignificantly in group B (7%-12%) and significantly in group C (22%). CAA diameter was insignificantly changed in the three analyzed groups, and IMT increased significantly in group C, for both men and women (IMT group A 0.82±0.05, group B 0.95±0.07, group C 1.08±0.06). The response to reactive hyperemia was reduced in group C, while the response to nitroglycerine was similar in all three groups.
Conclusions: The analysis of cardiovascular risk confirms an age-dependent increase in risk for men in the fourth decade and for women in the sixth decade of life. Subclinical atherosclerosis can be shown by the increase in CCA diameter and IMT; the reduction in the radial artery response to hyperemia is due to an increase in vascular stiffness with age, as well as to increased endothelial dysfunction.

Key words: subclinical atherosclerosis, echo-Doppler

6. THE INFUENCE OF ANTENATAL ADMINISTRATION OF GLUCOCORTICOIDS UPON THE NEURONAL ACTIVITY

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ABSTRACT
This study wants to show what are the effects of the antenatal administration of glucocorticoids upon neuronal viability, as well as upon some enzymes, such as Mg^{2+}-dependent ATP-ase and cytochrome oxidase. These enzymes are involved in cerebral energetic metabolism. We chose to administrate Dexamethasone, which remains active in the body for 48-72 h, and Diprophos, which is active within the body for a longer period of time, 2-3 weeks. Glucocorticoids cross the placenta and are eliminated in the lactate secretion. Our results show a decrease of the number of neurons in the analysed cerebral structures and a depression of the Mg^{2+}-dependent ATP-ase and cytochrome oxidase activity. This is true when administrating Diprophos and Dexamethasone, the effects being however more severe when administrating Diprophos.

Key words: glucocorticoids, neuronal viability, cytochrome oxidase, Mg^{2+}-dependent ATP-ase.

7. PATOPHISIOLOGICAL APPROACH IN EVALUATING BENEFITS OF VARIOUS HORMONAL THERAPIES IN POSTMENOPAUSE

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ABSTRACT
The most widely used oral estrogens in the treatment of climacteric and postmenopausal symptoms are conjugated estrogens (CE) and estradiol valerate (EV), associated to progesterone compounds. Because estrogen/progesterone supplementation is considered a possible cause of hyperplasia, may induce an increased risk for cardiovascular diseases in post-menopausal women, and could affect mood and behavior, we have investigated the safety and metabolic effects of various hormones used as replacement therapy in post-menopausal women.
All the estrogens tested showed similar efficacy in the management of climacteric symptoms. Our data suggest that progestogen ciproterone acetate (CPA) is safer than norethisterone (NET), because had no antagonistic effect upon the beneficial effects of estrogens on HDL levels.

Key words: HDL, LDL, menopausal women, cardiovascular diseases, conjugated equine estrogens, estradiol valerate, progestins.

8. FOR THE GENERAL PRACTITIONER: METOPROLOL IN HYPERTENSION

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ABSTRACT
The aim of the present study is to evaluate, by means of external mechanographic data, the changes in left ventricular performance of 41 patients with mild to moderate arterial hypertension, treated with metoprolol, a cardioselective beta-adrenolitic drug. The results show an improvement of all studied parameters, which are likely to be correlated with a regression of myocardial disease, in this context.

Key words: hypertension, left ventricular performance, metoprolol, systolic time intervals