speculate that this unique form of renal injury may induce formation of a novel renal-derived factor, which participates directly or indirectly in the genesis of systemic vasoconstriction.

Key Words: Perinephritic hypertension, Renin-Aldosterone-Angiotensin System

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OXIDATIVE STRESS AND BAROREFLEX SENSITIVITY IN HEALTHY AND HYPERTENSIVE PATIENTS

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Relationship between oxidative stress and baroreflex sensitivity (BRS) in healthy and in hypertensive patients has been few studied. This prospective study set out to evaluate the correlation between the oxidative stress assessed by the urinary 15-F_{2}-IsoP levels (UIP) (chemically stable lipid peroxidation products of arachidonic acid) and BRS in two groups of patients: healthy volunteers (n = 56; age = 47.3±8.8 years; sex ratio = 0.65) and patients with never treated mild to moderate hypertension (n = 22; age = 53±11.2 years; sex ratio = 1.2). BRS was measured by the sequence method [PS+/RR+ and PS-/RR-] and cross-spectral analysis [MF gain].

BRS was lower in hypertensive patients compared with healthy controls. UIP levels were not significantly different in hypertensive patients compared with controls. No significant correlation was found between basal UIP levels and BRS in the two groups.

In conclusion: Our study suggests that oxidative stress is not implicated in the BRS level in normotensive subjects and in hypertensive patients.

Key Words: Hypertension, Baroreflex sensitivity, Oxidative stress

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THE INFLUENCE OF NEBIVOLOL ON 24-HOUR RHYTHM, MIOCARDIAL MASS AND PATIENTS LIFE’S QUALITY IN MEN WITH ARTERIAL HYPERTENSION

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The aim of this study is to evaluate the influence of Nebivolol on 24-hour rhythm, left ventricular’s miocardial mass and life’s quality in hypertensive patients. 42 men (aged 30-65 years old) with mild and moderate arterial hypertension (AH) were examined. Nebivolol was administrated in dosage of 5 mg once daily as a monotherapy during 6 months. All of parameters was assessed before and after therapy. Also we carried out dynamic control of Blood Pressure (BP) every 2 weeks. We estimated the left ventricular mass with echocardiography by Penn Convention method, carried out 24-hour monitoring of BP and evaluated patient’s life’s quality. In the result of Nebivolol’s monotherapy the left ventricular’s miocardial mass was decreased significantly, BP monitoring data showed significant great BP level (BPL) in hypertensives, with more increasing of night-BPL in patients with AH (78.6±5.3% and 75.6±6.3%, p<0.01). We must admit, that the indexes of patients life’s quality were improved considerably, in particular the common and psychological condition, the duration and intensity of heart’s pain tachycardia were reduced, but Nebivolol exerted influence on sexual inclination and satisfaction to improve them. Thus, the results of our investigation demonstrated, that Nebivolol reduced systolic and diastolic BP effectively, decreased miocardial mass significantly, and also had positive influence on 24-hour BP rhythm and improved life’s quality, particularly human’s general state and sexual function.

Key Words: arterial hypertension, 24-hour rhythm, nebivolol

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EFFECTS OF NEBIVOLOL ON LIPID PEROXIDATION AND LIPID’S SPECTRUM IN PATIENTS WITH ARTERIAL HYPERTENSION

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The aim of this study is to evaluate the influence of Nebivolol on lipoperoxidation’s (LP) processes and lipid metabolism in patients with arterial hypertension (AH). 32 patients with mild and moderate AH aged 30-65 years old were examined. LP was determined in erythrocytes, lipid’s level was defined in blood from patent’s vein before and after therapy of Nebivolol. Nebivolol was administrated in dosage 5 mg once daily as a monotherapy for three months. Dynamic control of LP’s parameters and lipid metabolism carried out. Therapy of Nebivolol suppressed the LP and activated antioxidant enzymes: level of malon dialdehyde was decreased on 14.6 nmole/min/ml, common antioxidant activity was increased on 5,6%. Nebivolol didn’t influence significantly on levels of lipoproteins with very low density and lipoproteins with high density. We must admit that common holesterole’s level reduced on 4.5%, lipoprotein’s with low density level reduced on 7.3%. Therefore, results of our investigation demonstrated, that Nebivolol suppressed LP, activated antioxidant system effectively and decreased lipid’s level slightly in patients with AH.

Key Words: arterial hypertension, lipoperoxidation, nebivolol

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EARLY AND LATE CHANGES IN THE EFFECTS OF VASOCONSTRICTORS IN AORTAE FROM SPONTANEOUS HYPERTENSIVE RATS (SHR)

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Spontaneous hypertension in the rat is a widely used experimental model for studying the pathogenic factors involved in the genesis and the development of high blood pressure. In the present study, KCl, Phenylephrine(PHE), Angiotensin-II(Ang II), Endothelin-1(ET-1) and Urotensin-II(UII) as well as some receptor antagonists, Prasozin(anti alpha 1), Losartan(anti AT-1), BQ-123(anti ET-1) and Oron8(UII) were used to characterize pharmacologically the myotropic responses of vascular smooth muscles in vitro. Experiments were performed in aorta: a) taken from SHR and Wistar Kyoto (WKY) controls aged 4.8 and 16 weeks, b) prepared as rings, without endothelium, and c) suspended in vitro under ordinary conditions for bioassays. Results indicate that aorta taken from SHR, 4(non hypertensive),8 and 16 (hypertensive)weeks old showed responses to vasoconstrictors much reduced, compared to those of WKY. Maximal responses obtained in tissues from 8 weeks old animals are indicated: PHE: SHR/WKY 4.67.9 mN ; Ang II 4.6/7.5 ;
ET-1 5.79±2.1; U.II 5.5±10.1. Sensitivity to KCl and PHE increased from 4 to 16 weeks in aortae from SHR, not in those of WKY, and such increase was accentuated by the presence of endothelium. It is suggested that large vessels from SHR undergo early remodeling (already at 4 weeks, before hypertension) that leads to reduced contractility in vitro and possibly to aortic rigidity in vivo. In parallel with the development of high blood pressure (from 4 to 16 weeks), the endothelium undergoes functional changes that contribute to blood pressure increase. Supported by Grant 4032 from the Medical Research Council of Canada.

Key Words: SHR, vasoconstrictors, receptors

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HIGH-FAT DIET AUGMENTS CARDIAC HYPERTROPHY AND DELAYS BLOOD PRESSURE RECOVERY FROM STRESS IN SPONTANEOUSLY HYPERTENSIVE RAT
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In this study, we investigated the effects of long-term high-fat diet (HFD) administration on heart morphology and cardiovascular system performance under basal and stressful conditions. Sixteen-week old (adult) male spontaneously hypertensive rats (SHR, n=6) were randomly separated into standard diet (SD, n=6) and HFD (n=7) fed groups. After 12 weeks of SD or HFD feeding, mean arterial blood pressure (MAP), heart rate (HR), activity (ACT) and pulse pressure (PP) were measured via telemetry for 4 consecutive days and during (30 minutes) and after (30 minutes) an immobilization stress. Following the measurements, the animals were sacrificed and their hearts were weighed. Transversal sections of the hearts were fixed in 4% paraformaldehyde, cut in 3 um sections and stained with hematoxylin-eosin. Cardiomyocyte size was measured in subendocardial and subepicardial regions using NIHImage software.

The 24-hour averages of MAP, ACT and PP did not differ between SD and HFD groups. HR was significantly (p<0.01) higher in HFD animals compared to SD group. No differences were observed in any of the measured parameters during the 30-minute immobilization stress, while during the 30-minute post-stress recovery, HFD group exhibited significantly higher MAP (p<0.01), PP (p<0.0001) and HR (p<0.05) than the SD group. The overall heart weight was higher in HFD than in SD fed animals (p=0.001). These results suggest that HFD administration promotes the development of the eccentric left ventricular hypertrophy.

Our results show that, in spontaneously hypertensive rats, long-term high-fat diet feeding (cafeteria diet) aggravates cardiac hypertrophy and deteriorates the performance of the cardiovascular system in coping with stressful stimuli of everyday life. Overall, the study demonstrates the importance of dietary habits in the development and/or progression of cardiovascular disease.

Key Words: SHR, immobilization stress, cardiac hypertrophy

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PROGRESSION OF PULMONARY HYPERTENSION: ROLE OF NITRIC OXIDE, ADRENOMEDULLIN AND GENDER
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Background: Pulmonary hypertension (PH) is a progressive disease leading to right heart failure and eventually death. In this study we analyzed the impact of adrenomedullin (ADM), nitric oxide (NO) and gender in the development of chemically induced pulmonary hypertension in rats.

Methods: PH was induced in SD rats (male/female) by monocrotaline (MCT, 60mg/kg wt) and the rats were terminated on days 7, 14 and 21. Control rats received solvent alone. Plasma ADM (pg/ml) and NO (µM) levels and lung nitric oxide synthase NOS (pmol/min/mg protein) activities were measured.

Results: The mortality rates were 33% for male and 3% and for female MCT-treated rats. Plasma NO levels and tissue NOS activity increased in all MCT-treated rats. However, NOS activity peaked at day 7 in male MCT-rats (67±8) and by days 14 and 21 NO activity had declined to baseline (38±11 and 34±7 respectively). In contrast, in the female MCT-rats, NOS activity continued climbing throughout the study period (52±9, 62±3, 58±5). There was a three-fold increase in ADM among male MCT-rats (1.9±0.4 to 6.2±0.4) but in female MCT-rats the levels increased more than 5-fold by day 21 (1.7±0.6 to 9.5±1.1) after MCT injection. Control values were unchanged ranging from 1.7 to 2.1.

Conclusions: The endothelial injury caused by MCT resulted in higher NOS activity and thus increased plasma NO levels fairly quickly while ADM responded in a somewhat delayed fashion. The more sustained increases in both ADM and NOS seen in female MCT-rats may alter the long-term progression of the disease resulting in better survival. Female gender may play an important role in modulating levels of vasodilators that can offset vasoconstrictors released during the development of PH.

Key Words: pulmonary hypertension, Nitric oxide, gender differences