

Results:

Between 0.3-2% among regular ADSCs expressed eGFP and DsRed2 simultaneously. Sorted dual positive cells expressed cardiomyocyte-typical mRNAs including: Nkx2.5, MLC-2v, GATA-4, Connexin-45, Connexin-43, Troponin I, L-type calcium channel α -1c subunit (Cav1.2). The skeletal markers MyoD, Myogenin could not be detected. The function of Cav1.2 was analyzed through Fura-2 calcium imaging. 15-20% of the dual positive cells showed L-type calcium channel specific response. TEM studies revealed formation of aligned and condensed microfilaments in 3-5% of the dual positive cells whereas no such microfilament aggregation could be observed in regular ADSCs. About 70% of passage four dual positive cells expressed Ki67 and 18% of the cells were in the S-phase of the cell cycle.

Conclusions:

Our preliminary studies indicate the existence of cardiac progenitor cells among regular ADSCs. They can be isolated from ADSCs and expanded in vitro using lentiviral fluorescent indicators under the control of Nkx2.5 and MLC-2v promoters. These cells show an early cardiac gene expression profile, have proliferative capacity and form aligned microfilaments. Autologous human cardiac progenitor cells from ADSCs therefore might be a source for cell based therapy of MI.

Carotid-intima media thickness and serum uric acid concentrations are increased in healthy individuals with high-normal blood pressure.

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Introduction:

The current ESC guidelines identify a blood pressure level termed "high-normal" (HNBP). Individuals in this category are described as "prehypertensives," which illustrates their elevated cardiovascular (CV) risk. An increased carotid intima-media thickness (IMT) is considered indicative of target organ damage (TOD) in hypertension; elevated levels of C-reactive protein (CRP) and dyslipidemia are CV risk factors, and serum uric acid has been shown to be an independent predictor of BP progression.

Goal:

The goal of the study was to compare healthy individuals with HNBP and control subjects with optimal blood pressure (OBP) with respect to carotid IMT, serum CRP and uric acid concentrations, lipid profile, and other selected laboratory indices, in order to determine whether individuals with HNBP display early signs of possible TOD and/or increased CV risk.

Methods:

Fifty-four healthy individuals were included into the study and divided into two groups: subjects with OBP (<120/80 mm Hg, n=35) or HNBP (130-9/85-9 mm Hg, n=19), based on manual BP measurements. Carotid IMT was assessed bilaterally by ultrasound examination and calculated as the mean of ten measurements (five from the far wall of each common carotid artery). Morning fasting venous blood

samples were obtained from all subjects, and CRP and uric acid assays, as well as other laboratory tests (lipid profile, glucose, fibrinogen, blood count) were performed.

Results:

Carotid IMT was significantly greater in subjects with HNBP (0.043 ± 0.001 vs. 0.038 ± 0.001 cm, $p < 0.001$), although these values were below the TOD cut-off of 0.09 cm. IMT values correlated positively with HNBP, independently of age, gender, and BMI ($r = 0.38$, $p < 0.05$). Significant differences between the HNBP and OBP groups were also observed in uric acid concentrations (6.05 ± 0.27 vs. 4.07 ± 0.17 mg/dl, $p < 0.001$), as well as glucose (85 ± 1.73 vs. 81 ± 1.09 mg/dl, $p < 0.05$) and cholesterol/HDL ratio (3.18 ± 0.26 vs. 2.50 ± 0.16 , $p < 0.05$). Plasma CRP (1.28 ± 0.52 vs. 1.32 ± 0.33 mg/l), HDL (55 ± 4.72 vs. 65 ± 2.96 mg/dl) and LDL concentrations (83 ± 9.58 vs. 80 ± 6.00 mg/dl) did not differ significantly.

Conclusions:

Individuals with high-normal blood pressure are at greater risk of development of atherosclerosis and target organ damage than subjects with optimal blood pressure. A prospective trial should be conducted to assess the progression of IMT and BP values in these groups.

A study about the relation between QTC interval and 3-days mortality in admitted patients with acute myocardial infarction in Ardabil Bouali Hospital

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Introduction:

There are some factors that may enhance the mortality rate of patients with AMI like the size of infarct zone, left ventricle ejection fraction, ventricular hypertrophy, and.... Also it is said that the prolonged QT interval may increase the mortality rate of AMI. The aim of this study was to evaluate the effect of QT interval in 3-days mortality rate of patients with AMI admitted in Ardabil Bouali Hospital.

Methods and Materials:

This study was performed in prospective, descriptive and cross-sectional manner in patients with AMI, admitted in CCU section in Ardabil Bouali Hospital and after the collection of needed data in special forms, they were analyzed with statistical methods like SPSS. The patients with electrolyte abnormalities or using the drugs that had effect on serum calcium level were omitted from this study.

Results:

From 100 patients, 72 persons (72%) were male and 28 persons (28%) were female. The mean age of patients was 64.04 years. 57% of patients had anterior AMI and 43% had inferior AMI. Also, in 42% of patients, streptokinase was used. From all of 100 patients, ventricular tachyarrhythmia occurred in 17 patients. 8% of patients were

expired in first 3 days of the admission in the hospital, that 5 persons of them had ventricular tachyarrhythmia. The average QTc interval in first 3 days in all of the patients was 475 ms. Also, the mean QT dispersion of these patients was 77ms and this criteria increased slowly in the days of admission.

Conclusion:

In this study the QTC interval was prominently prolonged in the patients with AMI. Also patients with ventricular tachyarrhythmia had longer QTC interval than patient without ventricular tachyarrhythmia. In women, the QTC interval was longer than men. This study showed that AMI prolongs the QTC interval and the prolongation of QT interval is a risk factor for occurrence of ventricular tachyarrhythmia and increasing mortality rate in patients with AMI.

Key words: Acute Myocardial Infarction (AMI), QT corrected interval, QT dispersion, Mortality Rate.

Role of electrolyte exchange in maintaining of 24 hour blood pressure profile in different age healthy women and those suffering from primary hypertension

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The incidence of cardiovascular disease is 4-fold higher in postmenopausal women than in women of the same age who are premenopausal. After menopause, estrogen deficiency promotes lack of vasorelaxation due to relative NO deficiency, an overexpression of renal angiotensin I receptors resulting in oxidative stress, disturbed renal sodium handling, and hypertension, particularly in women genetically prone to salt sensitivity. These findings suggest an important function for estrogen in renal water and sodium regulation. The priority of vasor constriction/relaxation misbalance or salt-sensitivity and electrolyte imbalance in increase of hypertension in aged females is still discussed.

Aim:

To specify the role of electrolyte exchange in genesis of arterial hypertension under different estrogen state of female organism (pre- and postmenopausal life period).

Materials:

Study design was approved by Local Ethic Committee of the Clinic and University. 18 women out of the overall 34 were apparently healthy, 16 suffered from primary arterial hypertension II without the signs of heart failure. All the examined people had no signs of concomitant pathology. Pre- and postmenopausal statuses were validated by means gynaecological examination. We included women in age of 37-65 years. All included subjects were standardized by activity-rest regimen with resting time 23.00-07.00 and by time of meals intake. 24 h blood pressure (BP) monitoring was performed employing Spacelabs 90207 devices (USA). BP, heart rate were measured with 15 min interval at day time and with 20 min – at night. All people had deeping BP profile. Results from ABPM were analyzed

using “Chronos-Fit” program. Urine was collected during a 24-hour period with a 6-hour interval, blood – with 4-hour interval. The content of protein, Na⁺ and K⁺ ions was determined according to standard techniques; the results of the measurements were evaluated statistically. Our results revealed no significant difference in 24h blood profiles and excretion rates for sodium and potassium ions in all examined groups. Coincidence of maximal excretion rate, lowest blood quantity and lowest BP were observed (night hours). In spite of that significant increase of BP level, higher mesor and rhythms amplitude, bigger morning rise index, significant diminishing of deeping index were observed in aged hypertonics against younger group representatives. Changes were more pronounced for systolic BP profile with less change for diastolic one. No significant differences and low variability were observed in healthy people of two groups.

Conclusions:

Our results support the hypothesis that estrogen-dependent blood pressure regulation with involvement of factors triggering vasorelaxation may serve as key factor in maintaining of cardiovascular functions stability. We suppose that electrolyte disturbances due to age-dependent changes in renal functions play secondary role.

A pharmacological enhancement of eNOS, leads to a reduction of diastolic heart failure in a hypertensive Dahl-Salt-Rat-Model

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1. Introduction:

40% of Patients with clinical symptoms of heart failure show an isolated diastolic dysfunction with preserved ejection fraction. One of the concomitant diseases for diastolic dysfunction is arterial hypertension. Therefore, we investigate if pharmacological activation of eNOS has an influence on diastolic heart failure in the hypertensive Dahl-salt-rat model.

2. Material and Method:

For this study we used Dahl-salt-sensitive rats. 20 animals were fed with 8% salt content during a period of 14 weeks, of which 10 were treated with the pharmacological eNOS-enhancer S803 (10mg/kg/day) (DSSENOS), and 10 with placebo (DSS). 10 rats were fed a normal diet and used as a control group (DS0). After 6, 10 and 14 weeks wall thickness (Septum, PW) and ejection fraction was tested by echocardiography. Final assessment of LV function was performed after 14 weeks by measuring pressure-volume loops to assess systolic (LV systolic pressure) and diastolic function (LV end diastolic pressure, diastolic stiffness constant).

3. Results:

In the echocardiographic analyzation DSS showed a significantly increased wall thickness (+40%, p<0.05) compared to the control group DS0. DSSSENOS rats showed a