chrome C release and inhibition of pathological apoptosis (2.6% to 12.4%, SWOP vs. sham) during the late phase of ischemic preconditioning. Opening the permeability transition pore before the sustained ischemia on day 2 with the PTP activator Ionidamine (10 mg/kg body weight) completely abolished these cyto protective effects of SWOP. Conclusion: The present study thus suggest the potential role of PTP in mediating the protection during second window of ischemic preconditioning by up regulating the Bcl-2 expression.

1132-130 C(-260)→T Polymorphism in the Promoter of CD14 Receptor Gene Is Associated With the Risk of Acute Coronary Events in Patients With Angina Pectoris

Ramon Arroyo-Espliguero, Eugenia Vazquez-Rey, Khaled El-Sharnouby, Kamini Kalidas, Juan R. Gimeno-Blanes, Della Cole, Steve Jeffery, Juan C. Kaski, St. George's Hospital Medical School, London, United Kingdom

Background: Inflammation and infection have been suggested to play a role in atherosclerosis and its complications. The CD14 receptor is a mediator for the activation of monocytes by lipopolysaccharide of gram-negative bacteria. The T allele of the C(-260)→T polymorphism in the promoter of CD14 receptor gene has been shown to enhance transcriptional activity and expresion of CD14 receptor on monocytes. The aim of this study was to assess whether this polymorphism is associated with increased risk of developing acute coronary syndromes (ACS) and atherosclerosis.
Methods: We studied 428 patients who underwent heart catheterization between 1994 and 1997. Stenoses ≥ 50% in at least one coronary artery were seen in 334 patients, whereas 94 had a normal angiogram. Patients with coronary artery disease were subdivided in two groups: 1) no history of ACS (n: 140; 64±9 years; men: 79%) and 2) patients with a history of ACS (n: 194; 64±9 years; men: 80%). CD14 genotypes were determined by a Polymerase Chain Reaction technique (PCR-RFLP). Genotype frequencies between different groups were compared by the χ^2-test and logistic regression adjusted by age, body mass index and conventional cardiovascular risk factors.
Results: Genotypes were in Hardy-Weinberg equilibrium. Patients with prior ACS had a significantly higher frequency of the T/T genotype than patients without a history of ACS (33% vs. 20.0%; P=0.009). After adjustment, genotype T/T was found to be an independent risk factor for ACS (OR 1.84 [1.1 to 3.1] CI 95%; P=0.023). When normal patients and patients with prior ACS were compared, the OR after adjustment was 3.1 [1.3 to 7.4] CI 95% (P=0.012). T/T genotype was not significantly different between patients without a history of ACS and normal patients (20.0% vs. 22.3%; P=0.67).
Conclusions: C(-260)→T polymorphism in the promoter of the CD14 gene is associated with a history of ACS, and it may represent a genetically determined risk factor for ACS. The response of monocytes to infectious stimuli determined by this polymorphism could play an important role in atheromatous plaque vulnerability.

1132-131 Extrinsic Rapid Electrical Stimulation Modulates Sarcoplasmic Reticulum Ca^{2+} Regulatory Proteins in Cultured Rat Cardiomyocytes

Tomoko Nao, Tomoko Ohkusa, Noriko Inoue, Tomo Matsumoto, Dong Jing Yao, Yuji Hisamatsu, Masafumi Yano, Masunori Matsuzaki, Yamaguchi University Graduate School of Medicine, Ube, Japan

Background: Tachycardia is commonly present in patients with heart failure (HF). However, its role in the development of failing myocardium has received little attention. We studied the effects of rapid electrical stimulation (RES) of contraction on sarcoplasmic reticulum (SR) Ca^{2+} regulatory proteins in cardiomyocytes in vitro. Methods: Neonatal rat ventricular myocytes were cultured as confluent monolayers and then subjected to RES (3.0Hz) for up to 180 min. The expression of SR Ca^{2+}-ATPase (SERCA), ryanodine receptor (RyR) and inositol 1,4,5-trisphosphate receptor type 1 (IP3R) were identified by Western blot method and RT-PCR. Contraction and relaxation characteristics of cardiomyocytes were monitored with contractility data acquisition systems. Results: The expression of SERCA protein significantly increased after 60 min compared with control (0.50±0.17 vs 0.24±0.08, p<.05), and its level returned to the control level after 180 min stimulation. The expression of SERCA mRNA tended to decrease after 180 min of RES, though not significantly, compared with control. The expression of RyR protein significantly increased after 180 min (1.76±0.56 vs 0.68±0.45, p<.05), however RES did not affect the expression of RyR mRNA. RES also caused a significant increase in IP3R protein expression, however its mRNA level significantly decreased after 180 min (0.034±0.017 vs 0.084±0.049, p<.05). There were no significant differences in terms of the time to peak tension, the time to 70% tension-regression, departure velocity, and return velocity. Conclusion: In the early stage of RES, in vitro, the expression of SR Ca^{2+} regulatory proteins was compensated due to decreased protein degradation in a different time course, leading to the maintenance of contraction-relaxation characteristics.

1132-132 Glycoprotein 130 Mediated Induction of Vascular Endothelial Growth Factor in Human Adult Cardiac Myocytes

Thomas W. Weiss, Walter S. Speidl, Christoph Kaun, Jan Bialy, Christoph Springer, Gerald Maurer, Kurt Huber, Johann Wojta, University of Vienna, Vienna, Austria

Background: Vascular endothelial growth factor (VEGF-A) is an endothelium-specific growthfactor. It induces proliferation, migration and NO-synthesis in endothelial cells and is able to stimulate neoangiogenesis in ischemic organs. A significant increase of VEGF-A serum levels was shown after myocardial infarction. These data suggest the importance of the VEGF system during reperaration and neovascularization. Recent data showed that glycoprotein 130 (gp130) is involved in the regulation of VEGF-A. Therefore we investigated whether oncostatin-m (OSM) or Leukemia Inhibitory Factor (LIF) are possible regulators of VEGF-A in Human adult cardiac myocytes (HACM) in vitro and thus might contribute to the neoangiogenesis during cardiac repair processes.
Methods: HACM were isolated from recipients' hearts after heart transplantation and characterized by positive staining for actin, troponin-I and cardiotin. The cells were negative for two fibroblast-specific antibodies as well as for desmin and vWF indicating the absence of fibroblasts, smooth muscle cells and endothelial cells. Such characterized HACM were treated with OSM or LIF for 24 hours and VEGF-A was determined by a specific ELISA in the conditioned media of these cells. We performed a RT-PCR in order to detect gp130, Interleukin-6-receptor (IL-6R), LIF-receptor (LIFR) or OSM-receptor (OSMR).
Results: We showed that OSM, but not LIF increased VEGF-A expression in HACM dose-dependently. The effect of OSM could be reversed using AG490, a specific JAK Inhibitor, indicating that OSM increases VEGF-A expression via the JAK/STAT pathway. These results could be confirmed on the level of specific mRNA expression as determined by RT-PCR. We detected the expression of gp130 and OSMR and to a lesser extent LIFR and IL-6-R on HACM by RT-PCR.
Conclusion: Our data suggest, that selective expression of the il-6 superfamiliy-receptors on cardiac myocytes might be involved in the induction of VEGF-A mediated neoangiogenesis in the heart.

1132-133 Trace Element Analysis of Hair Samples in Coronary Artery Disease Add Diagnostic Yield at a Bargain

Robert W. Biederman, Mark Doyle, Diane Vido, Edwin W. Biederman, Jr., Allegheny General Hospital, Pittsburgh, PA, The Pennsylvania State University, University Park, PA

INTRODUCTION Trace elements (TE) have been implicated in the pathogenesis of diseases including cancer (Se), diabetes (Ch), and CAD (Fe). The link is causal in some: Keshan disease (Se), and associative in others; Down's syndrome (Ca). Further, specific interactions are not well understood, in part related to complexities of traditional harvesting, preparation and analysis of low concentration samples. Clearly, an improved method would be advantageous. Since hair samples offer an atraumatic technique with a ten-fold higher concentration of TE than serum, we investigated the feasibility of TE analysis in hair of pts with documented (CAD).
HYPOTHESIS We hypothesized that using a new, highly sensitive technique, Inductively Coupled Plasma Mass-Spectrophotometer (ICP), TE may offer a novel non-invasive and inexpensive manner in which to screen populations for CAD.
METHODS Above root hair was obtained in 20 subjects; 10 pts with simultaneous routine cardiac catheterization and lesions >60%(CAD+). Ten subjects without clinical evidence of CAD served as controls(CAD-). Analysis was conducted on a double focusing sector field resolution ICP with a linear dynamic range greater than 100. Multi-element screening of 16 TE's (Cd, Co, Cr, Cs, Cu, Fe, Mg, Mn, Pb, Rb, Sb, Se, Sn, Sr, Tl, and Zn) with ultra-high resolution and low dark noise resulted in detection of TE to pcg/L. Calibrated preparation: acetone, double distilled H_2O, and digestion with 20% high purity NHO_3 at 60°C for 2 weeks prior to analysis. Mann-Whitney U and Newman-Keuls were used to test for significance.
RESULTS No significant relationship of TE with HTN, diabetes, race or family history was found. However, TE concentrations diverged between the CAD+ and the CAD- group in 14 of 16 TE's. Mean TE concentrations in the CAD+ patients were lower than CAD- patients in Cd, Co, Cr, Cs, Cu, Fe, Mg, Mn, Pb, Rb, Sb, Se, Sn, and Zn and higher for Sr and Tl ($p<0.05$). Analysis cost: $9.37/ hair sample.
CONCLUSION Trace element hair sample analysis by Inductively Coupled Plasma-Mass Spectrophotometer with a standardized preparation offers the potential for additive noninvasive, inexpensive and sensitive information in the evaluation of patients with suspected CAD.

POSTER SESSION

1133 Predictors of Risk in Hypertensive Patients

Monday, March 31, 2003, 3:00 p.m.-5:00 p.m.
McCormick Place, Hall A
Presentation Hour: 4:00 p.m.-5:00 p.m.

1133-117 Repeated Exposure to Caffeine Increases Arterial Stiffness

Charalambos Vlachopoulos, Andriana Sofianidou, Foteini Kosmopoulou, Christodoulos Stefanadis, Michael O'Rourke, Pavlos Toutouzas, Athens Medical School, Athens, Greece, University of New South Wales, Sydney, Australia

Background: Caffeine (C) is the most widely consumed pharmacological substance. Wave reflection (WR) along the arterial tree, an important index of arterial stiffening and cardiac afterload, is involved in the pathogenesis of hypertension. We studied the effect of C on WR and especially that of repeated exposure because of the possible tolerance that develops to C.
Methods: Twelve healthy volunteers (age 29±4 yrs) were studied in a randomized, placebo-controlled, crossover fashion (100 mg of C orally -equivalent to 1 cup of coffee- and 120 min later another 100 mg of caffeine). WR was evaluated using a validated system (Sphygmocor®) that employs (i) high-fidelity arterial tonometry for the non-invasive registration of arterial pulse and (ii) appropriate computer software for pulse wave analysis. Augmentation index (AIx) was measured as an index of WR.
Results: The first dose of C led to a substantial increase in AIx indicating increased effect of WR from the periphery. The second dose increased AIx again, but to a lesser extent (figure). Aortic pressures also increased (systolic: by 2.6 with the 1st dose and by 2.7 mmHg with the 2nd; diastolic: by 4.3 and by 1.3 mmHg respectively).