

## Related Subjects: Biomarkers and Laboratory Testing for Cardiovascular Disease

### e0674 INSULIN INDUCES PHOSPHORYLATION OF NDRG2 THROUGH ACTIVATION OF AKT IN CARDIOMYOCYTES DURING TRANSIENT ISCHAEMIA/REPERFUSION

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**Aims** The protein kinase Akt mediates an important cell-survival signalling of insulin through inhibition of apoptosis post cardiac ischaemia/reperfusion (I/R) injury. As Ndr2 (N-Myc downstream-regulated gene 2) protein is one of Akt-mediated phosphorylation target in C2C12 skeletal muscle cell line, we evaluated whether insulin treatment could lead to Ndr2 phosphorylation through Akt activation in rat cardiac tissue or cultured primary cardiomyocytes.

**Methods** Male Sprague-Dawley rats underwent 30 min of ligation of the left anterior descending coronary artery, followed by reperfusion for various periods. Western blot was applied to detect total and phosphorylated Akt and Ndr2.

**Results** Our data showed that both Akt and Ndr2 phosphorylation were increased by 30 min of ischaemia alone compared to those of control group, then they were gradually reduced by following reperfusion, reaching their respective lowest levels after 3 h of reperfusion. In addition, insulin treatment resulted in significant enhancement of phosphorylated Ndr2 and Akt after 3 h of reperfusion. In vitro, insulin increased Ndr2 phosphorylation in cardiomyocytes in a wortmannin- and 1L-6-hydroxymethyl-chiro-inositol-2(R)-2-O-methyl-3-O-octa-decyl-carbonate (HIMO)-inhibitable manner, whereas cavtratin, a selective eNOS inhibitor, had no such effect, supporting a likely direct role for Akt.

**Conclusions** we first demonstrated in rat cardiomyocytes that Ndr2 phosphorylation level was modulated during transient I/R injury and could be enhanced by activation of Akt secondary to insulin treatment.

### e0675 THE CLINICAL SIGNIFICANCE AND THE EXPRESSION OF N-TERMINAL PRO-BRAIN NATRIURETIC PEPTIDE IN PATIENTS WITH CHRONIC HEART FAILURE

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**Objective** To detect the N-terminal pro-brain natriuretic peptide (NT-proBNP) levels in patients with chronic heart failure, and to evaluate the difference of the levels in patients with chronic left and right heart failure.

**Methods** 1. 83 patients with chronic heart failure as the experimental group, and 25 patients without organic heart disease as the control group were included in the study. The patients in the experimental group were divided into left heart failure group (31 cases), right heart failure group (25 cases) and total cardiac failure group (27 cases), in which 25 patients of right heart failure group had chronic cor pulmonale, and the left heart failure and total cardiac failure group included 31 cases of coronary heart disease, 15 cases of hypertensive heart disease, 12 cases of heart valve disease. In the left heart failure and total cardiac failure group, the patients were further divided into three subgroups according to the classification of the New York Heart Academy (NYHA), including 17, 22 and 19 patients in Class II, III and IV, respectively; 2. Collected peripheral vein blood from each patient, and

assayed the plasma NT-proBNP, creatinine (CRE), blood urea nitrogen (BUN), uric acid (UA), triglycerides (TG), total cholesterol (TC), low-density lipoprotein cholesterol (LDL-C) and high density lipoprotein cholesterol (HDL-C) by ELISA; 3. Evaluated the left ventricular ejection fraction (LVEF), left ventricular end diastolic diameter (LVEDD), right ventricular end diastolic diameter (RVEDD) and ventricular septal thickness (IVST) of these patients by echocardiography; 4. SPSS11.5 was used for statistical analysis, statistical significance was established at  $p < 0.05$ .

**Results** 1. The level of plasma NT-proBNP were  $79.53 \pm 36.77$  pg/ml,  $2076.95 \pm 1024.32$  pg/ml,  $743.26 \pm 152.82$  pg/ml and  $4815.52 \pm 3165.98$  pg/ml in the control group, the left heart failure group, the right heart failure group and the total cardiac failure group respectively ( $p < 0.05$ ); 2. The NT-proBNP was significantly increased with the heart function deteriorated, as observed of  $1018.16 \pm 551.03$  pg/ml,  $2557.27 \pm 1582.38$  pg/ml,  $6359.77 \pm 2605.76$  pg/ml, in the subgroups of NYHA Class II, III and IV, respectively, which were all significant greater than that in Group Control. 3. The plasma NT-proBNP level of chronic cor pulmonale ( $743.26 \pm 152.82$  pg/ml) was significantly lower than coronary heart disease ( $3670.48 \pm 1619.55$  pg/ml), hypertension ( $3404.78 \pm 1056.10$  pg/ml) and heart valve disease ( $2462.31 \pm 1130.25$  pg/ml) ( $p < 0.05$ ); The plasma NT-proBNP level was no significant difference among coronary heart disease, hypertension and heart valve disease ( $p > 0.05$ ); 4. The plasma NT-proBNP level was negatively correlated with LVEF ( $r = -0.425$ ,  $p < 0.05$ ), and positively correlated with BUN ( $r = 0.231$ ,  $p < 0.05$ ), CRE ( $r = 0.405$ ,  $p < 0.05$ ) and LVEDD ( $r = 0.371$ ,  $p < 0.05$ ), but had no correlation with age, UA, TC, TG, HDL-C, LDL-C, RVEDD and IVST ( $p > 0.05$ ). Multivariate stepwise regression analysis demonstrated that the CRE and LVEF were the independent factors influencing the plasma NT-proBNP level.

**Conclusions** 1. The plasma NT-proBNP level of the patients with chronic heart failure was higher than normal, and the plasma NT-proBNP levels were significantly increased with the severity of cardiac function classification, and it is good at reflecting the abnormal of cardiac function. The plasma NT-proBNP level of the left heart failure was significantly higher than the right heart failure. Furthermore detecting the plasma NT-proBNP levels can distinguish between cardiac dyspnoea and pulmonary dyspnoea; 2. The plasma NT-proBNP level of the total cardiac failure group was significantly higher than the other groups. The plasma NT-proBNP level is important to detect serious heart failure. The CRE of total cardiac failure group was higher than other groups. The higher CRE suggests that patients of serious heart failure are often accompanied with a decline of renal function; 3. The plasma NT-proBNP level was negatively correlated with the LVEF, and positively correlated with the BUN, CRE and LVEDD. The CRE and LVEF are independent impact factors effecting the plasma NT-proBNP level.

### e0676 VALUE OF SERUM ADIPONECTIN LEVEL IN ATRIAL FIBRILLATION PATIENTS AND CLINICAL SIGNIFICANCE

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**Objective** To investigate the level of plasma adiponectin (APN) in atrial fibrillation (AF) patients and clinical value.

**Methods** 1. 40 AF patients hospitalised in cardiology department in our hospital divided into two groups of paroxysmal and persistent (containing persistent and permanent AF) according AF guideline of ACC/AHA 2006. Control group comprised 15 patients admitted to hospital in Cardiology Department without AF. Plasma adiponectin level were measured and compared among the three groups. 2. All