

nitinol wire surface. Three to six months after implantation, the occluder surface was completely endothelialized.

Conclusion The novel nitinol occluder can be safely and effectively used for PDA closure, providing a high success rate with few complications, and good biocompatibility.

Clinical and Research Medicine: Heart Failure and Left Ventricular Function

e0609 THE GENDER DIFFERENCES OF RED BLOOD CELL DISTRIBUTION WIDTH IN PATIENTS WITH CORONARY HEART DISEASE

doi:10.1136/hrt.2010.208967.609

Peng Qiang, Su Hai, Wang Ji-Wei, Wu Qing-Hua, Chen Xiao-shu. *The Second Affiliated Hospital and Cardiovascular Institute of Nanchang University*

Objective To observe the changes of RDW in patients with coronary heart disease (CHD).

Methods 287 CHD patients diagnosed by coronary angiography were selected from Jun. 2007 to Jun. 2008. Meanwhile, 286 hypertensive patients and 302 healthy adults were enrolled as control group. Red blood cell count (RBC), Haemoglobin (HGB), red blood cell distribution width (RDW-CV) was detected by full automatic haemocytometer analyser (Sysmex XE-2100).

Results Compared with hypertension and normal control group, the RDW of CHD group significantly increased. There was no difference between the male RDW in three groups. But the RDW of female CHD subgroup was higher than those of female hypertensive and normal subgroups (13.5 ± 0.8 vs 13.0 ± 0.6 vs 13.1 ± 0.8 , $p < 0.05$). Meanwhile, the RDW of female CHD subgroup was higher than that of male CHD subgroup also (13.5 ± 0.8 vs 13.1 ± 0.7 , $p < 0.05$).

Conclusion The RDW in CHD group has gender differences and only female RDW significantly increase.

e0610 THE CHANGES OF B-TYPE NATRIURETIC PEPTIDE IN CHRONIC HEART FAILURE PATIENTS WITH DIABETES MELLITUS

doi:10.1136/hrt.2010.208967.610

Qiang Peng, Hai Su, Tian Xie, De-zhi Hong, Qing-hua Wu, Xiao-shu Cheng. *Cardiovascular Department, Second Affiliated Hospital of Nan Chang University*

Objective To observe the changes of B-type natriuretic peptide (BNP) in chronic heart failure (CHF) patients with diabetes mellitus (DM).

Methods In this study, 559 CHF patients were enrolled, of them 276 patients with coronary heart disease diagnosed by coronary angiography, 234 with hypertensive heart disease, and 49 with dilated cardiomyopathy. They were divided into non-DM group and DM group of 175 patients. NYHA cardiac function degree, and routine blood test, BNP, fasting blood glucose, serum creatinine were detected. Left ventricular ejection fraction and the average thickness of left ventricular wall were detected by echocardiography. The heart failure scale was evaluated for each patient with the age, hypertension, LVEF, LVW and NYHA degree. And the relationship curve of scale-BNP was constructed.

Results 1. The BNP was significantly higher in DM group than in non-DM group (1143.73 ± 94.0 vs 884.34 ± 57.0 , $p < 0.05$). 2. The relationship between the scale and BNP either in DM group or in no-DM was significantly positive. But the scale-BNP relationship curve was notably steeper in DM group. At the same scale, the levels of BNP were significantly higher in the DM than in the no-DM.

Conclusion As the CHF patients with DM have significantly higher BNP level, the DM history and fasting blood glucose should be taken into consideration when for evaluating the heart failure with BNP.

e0611 DIABETES IS A PROGNOSTIC RISK IN PATIENTS WITH DIASTOLIC HEART FAILURE

doi:10.1136/hrt.2010.208967.611

Zhang Liangdeng, Wang Jie, Yao Kuiwu. *Guang An Men Hospital, China Academy of Chinese Medical Sciences*

Objective This study was designed to evaluate the prognostic impact of diabetes on diastolic heart failure (DHF) patients.

Methods We collected data on 359 consecutive patients with DHF (61 ± 19 [SD] years, female 65.5%), defined by the Framingham criteria (history of congestive heart failure (CHF) with left ventricular ejection fraction (LVEF) $\geq 50\%$), from 2004 to 2009. Diabetes was defined by oral glucose-tolerance test. The main outcomes were death and re-hospitalisation. Secondary outcomes were new myocardial infarction (MI) and percutaneous coronary intervention (PCI). The outcomes were compared in DHF with diabetes and without diabetes patients.

Results The study population presented 40.7% of DHF patients with diabetes. The rates of total death and re-hospitalisation were 31.5% (37.9% among men and 28.1% among women) and 42.3% (46.8% among men and 40.0% among women), respectively. The in-hospital mortality was higher among women than among men (20.0% vs 16.9%, $p < 0.05$). The rates of death and re-hospitalisation of DHF patients with diabetes were higher than that of DHF patients without diabetes (41.8% vs 24.4%, $p < 0.001$) and (50.7% vs 36.6%, $p < 0.001$). Furthermore, the mortality rate of DHF with diabetes patients increased with increasing courses of diabetes (17.6%, 35.4%, 57.1%, and 62.1% among patients who suffer from diabetes 1 to 5, 6 to 10, 11 to 15, and ≥ 15 years, respectively). The rates of new MI and PCI of DHF patients with diabetes were also higher than that of DHF patients without diabetes (26.7% vs 17.4%, $p < 0.01$) and (19.2% vs 8.0%, $p < 0.01$).

Conclusions These results indicate that the prognosis of DHF patients with diabetes is significantly poor. DHF patients with diabetes had a worse outcome than those patients without diabetes. Diabetes is an important modifiable risk factor in patients with DHF. Maybe strategies targeted at the prevention and therapy of diabetes can improve prognosis in DHF patients. And further investigation is needed.

e0612 CHANGES IN EXPRESSION LEVELS OF SERUM ACTIVIN A IN PATIENTS WITH HEART FAILURE AND ITS CLINICAL SIGNIFICANCE

doi:10.1136/hrt.2010.208967.612

Liu Miao, Wei Qun, Liu Yuxia. *Department of Cardiology, Sino-Japanese Friendship Hospital, Jilin University Jilin, China*

Objective The cytokine of the TGF- β superfamily called "activin A" regulates a wide variety of biological events. Recently, it is discovered that ACT-A has played an important role in the occurrence and the development of heart failure, such as promoting myocardial fibrosis and cardiac remodelling. In this paper, we detected the expression levels of serum activin A (ACT-A) in patients with heart failure and compared with brain natriuretic peptide (BNP) to discuss the changes in them and its clinical significance.

Methods Patients with CHF were divided into two groups according to the left ventricular ejection fraction (LVEF) and E/A value: LVEF $< 45\%$ group (Group HFREF, 62 cases), normal LVEF and E/A

<1 group (Group HFNEF, 20 cases). In addition, Group HFREF (LVEF<45%, 62 cases) was divided into 3 parts on the basis of New York Heart Association (NYHA) classification of the cardiac function: Grade II group (Group HF1, 20 cases), Grade III group (Group HF2, 21 cases) and Grade IV group (Group HF3, 21 cases). ELISA method was used to detect ACT-A and BNP levels in serum of patients with CHF and the control group in our study.

Results Serum ACT-A was in a state of high expression in patients with heart failure compared with the control group. The levels of serum ACT-A in Group HFREF, Group HFNEF and the normal control group (Group N) were (1.81 ± 0.44) , (1.36 ± 0.28) , (1.24 ± 0.18) ng/ml, and the difference between every two groups was significant ($p<0.01-0.05$). The expression levels of serum ACT-A in patients of Group HFREF was positively correlated with the degree of heart failure ($r=0.75$). Serum ACT-A and BNP in patients with heart failure presented a positive correlation ($r=0.82$).

Conclusions ACT-A is expected to be regarded as the effective clinical serology index, and has an important reference value to the diagnosis of heart declines.

e0613 PLASMA MICRORNA-361-5P AS A BIOMARKER OF CHRONIC HEART FAILURE

doi:10.1136/hrt.2010.208967.613

Chen Chen, Yang Shenglan, Wang Feng, Long Guangwen, Yang Xu, Chen Fuqiong, Wang Dao Wen. *Tongji*

Aims Recent studies have showed important roles for microRNAs in multiple cardiovascular diseases, including AMI, hypertension, HF, and so on. However, the signature of plasma miRNA expression in chronic heart failure has not been well understood.

Methods Here we used array analysis of miRNA production in plasma of heart failure patients ($n=10$) and normal control people ($n=10$) to identify the heart failure-specific miRNAs. And the results were confirmed by miRNA real-time PCR assay. Then, we assessed the plasma concentrations of miRNA in 20 individuals with acute coronary syndromes using a miRNA real-time PCR method that use U6 as an internal reference.

Results The miRNA microarray analysis of human plasma from heart failure patients and normal control people indicated that plasma miR-361-5p concentrations were decreased significantly in all individuals with heart failure. However, in contrast with the expression in heart failure, plasma miR-361-5p concentrations were markedly increased in all individuals with AMI.

Conclusions Our data demonstrated that the plasma concentrations of miR-361-5p were obviously various in heart failure patients, AMI patients and normal control people. Thus, plasma miR-361-5p may reveal a new biomarker for chronic heart failure.

e0614 LV DIASTOLIC RELAXATION AND FILLING ASSESSMENT USING THE TIME INTERVAL BETWEEN MITRAL INFLOW AND MITRAL ANNULAR VELOCITIES

doi:10.1136/hrt.2010.208967.614

¹Huang Feiqiong, ²Zhang Ruisheng, ¹Le Thuthao, ¹Tan Rusan. ¹National Heart Centre Singapore, Singapore; ²Beijing Hospital, Beijing, China

Objective The aim of our study was to evaluate the left ventricular (LV) function using the time intervals between peak mitral inflow and peak mitral annular velocities.

Methods This study included 39 patients with heart failure, left ventricular hypertrophy (LVH) and ischaemic heart disease (age from 29 to 56 years old, mean age: 36 years), and 23 age-matched healthy controls (age from 30 to 50 years). According to the filling

pattern, patients were classified into 2 groups: (1) impaired relaxation group and (2) restrictive filling pattern group. The measurements were: the time intervals from the R-wave on the ECG to the peak E-wave on the transmitral flow (TMF) (R-pE), to the peak E'-wave on the LV lateral wall of tissue Doppler imaging (TDI) (R-pe'); The time intervals from the onset of P-wave on the ECG to the peak A-wave on the TMF (P-pA), to the peak A'-wave (P-pA') on TDI. Early-diastolic temporal discordance (EDTD) and late-diastolic temporal discordance (LDTD) were calculated as the difference between the time intervals (R-E) and (R-E'), (P-pA) and (P-pA').

Results EDTD and LDTD were significantly decreased in the impaired relaxation group and restrictive filling pattern group compared with control group respectively (20.6 ± 28.3 , 9.1 ± 14.3 vs 34.5 ± 22.3 , $p<0.001$), (16.4 ± 15.2 , 3.5 ± 22.6 vs 31.4 ± 13.0 , $p<0.001$).

Conclusions EDTD and LDTD, which mean the LV relaxation and left atrial contraction, may be a useful new method to evaluate the LV diastolic function in patients with heart diseases.

e0615 THE RELATIONSHIP BETWEEN LEFT VENTRICULAR DIASTOLIC FUNCTION AND ARTERIAL STIFFNESS IN CORONARY HEART DISEASE PATIENTS WITH DIABETES

doi:10.1136/hrt.2010.208967.615

Yankai Lian, Yongliang Wang, Hongwei Li, Yongquan Wu. *Friendship Hospital, Washington, District of Columbia, USA*

Objectives By measuring left ventricular diastolic function and arterial stiffness, this study aims to probe into the effect of diabetes mellitus (DM) on left ventricular diastolic function and arterial stiffness, and evaluate the correlation between left ventricular diastolic function and arterial stiffness.

Materials and methods 76 inpatients who performed both coronary angiography and left ventricular angiography at the cardiovascular center of Beijing Friendship Hospital Affiliated with Capital Medical University from August 2009 to February 2010 were enrolled. Those with no diabetic history were given oral glucose tolerance test (OGTT). According to their coronary angiography, OGTT test results and past history of DM, patients were divided into controlled, CHD (Coronary Heart Disease) (with no DM), and CHD +DM groups. Through invasive haemodynamic monitoring during left ventricular angiography, left ventricular end-diastolic pressure (LVEDP) and tau index were collected. Carotid-femoral pulse wave velocity (c-f PWV), reflected wave augmentation index (AIx@75) and other data reflecting the degree of arterial stiffness were collected bedside with non-invasive means. SPSS 18.0 was used for statistical analysis.

Results (1) 37.5% (21 cases) of CHD patients were previous diagnosed type 2 diabetes before admission. Of those with no previous history of DM, 20% (7 cases) had impaired glucose regulation, and 28.6% (10 cases) were newly diagnosed type 2 diabetes. Overall, 67.9% (38 cases) of CHD patients also had abnormal glucose metabolism. (2) No significant differences were found between groups for left ventricular end diastolic pressure (LVEDP), tau index, and AIx@75. In terms of c-f PMV. The CHD +DM group (8.79 ± 1.59 cm/s) differ significantly from the CHD group (7.43 ± 1.42 cm/s) and the controlled group (6.83 ± 1.14 cm/s). No correlations were found between c-f PMV and LVEDP or tau index. A positive correlation was found between AIx@75 and tau index.

Conclusions (1) Compared to the controlled group and CHD patients with no DM, CHD+DM patients showed worse arterial stiffness. No differences were found for left ventricular diastolic function. (2) There is a positive correlation between arterial stiffness and diastolic dysfunction.