

**Results** The sensitivity of this magnetic LFIA of NT-proBNP was 0.01 ng/ml, the detection range was reached five orders of magnitude, and the detection time was within 15 min.

**Conclusion** It was showed that this magnetic LFIA of NT-proBNP has a high sensitivity, wide detection range and short detection time. It is a simple, rapid, accurate, quantitative and point-of-care testing which deserve to be spread and industrialised.

**e0680 RELATIONSHIP BETWEEN POLYMORPHISM OF ACE AND THE CURATIVE EFFECT OF METOPROLOL ON CHRONIC HEART FAILURE**

doi:10.1136/hrt.2010.208967.680

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**Objective** To investigate the effect of metoprolol on chronic heart failure and to discuss the relationship between polymorphism of ACE and the curative effect of metoprolol.

**Methods** 118 patients with chronic heart failure were included randomly and were divided into two groups. In control group (group A), the patients were treated with benazapril 2.5–10 mg once daily and routinely, in treatment group the patients were treated additionally with metoprolol 12.5–100 mg once daily. The period of treatment for all patients was 2 years. ACE polymorphism was detected by a PCR.

**Results** The patients encountered heart failure, myocardial infarction, malignant arrhythmia and sudden death in metoprolol group were lower than those of control group, the difference was significant ( $p < 0.05$ ). PRA was significant increased and AngII, ALD were significant lowered in two groups after treatment. The frequency of DD genotype in metoprolol effective group was 0.47 and that in metoprolol ineffective group was 0.13, the difference was significant ( $p < 0.05$ ). The effective rate of DD genotype was 90.9%, that of ID genotype was 76.9%, that of II genotype was 54.2%, and the effective rate of DD genotype was significantly higher than II genotype ( $p < 0.05$ ).

**Conclusion** Adding metoprolol to the treatment of chronic heart failure can improve heart function. The polymorphism of the ACE (I/D) is helpful for the diagnosis of the therapeutic efficacy of metoprolol in chronic heart failure.

**e0681 EFFECT OF CHEMOTATIC FACTOR FKN ON NF- $\kappa$ B AND TNF- $\alpha$  EXPRESSION IN PERIPHERAL BLOOD MONOCYTES AND THE ROLE OF PI3K**

doi:10.1136/hrt.2010.208967.681

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**Objective** In the present study, the effect of Fractalkine (FKN) on the expression of NF- $\kappa$ B and TNF- $\alpha$  induced by FKN was investigated one of possible signal transduction pathways of FKN/CX3CR1 in atherosclerosis, and the role of PI3K were also investigated.

**Methods** 1) Peripheral blood monocytes were isolated from fresh blood of healthy volunteers by FicolI–Paque gradient centrifugation. 2) Divide the extractive peripheral blood monocytes into four groups :control group, FKN group, LY294002 group and PDTC group. 3) Measure the NF- $\kappa$ B expression of monocytes from each group by Western Blot. 4) Collect the supernatant of monocytes from each group, determine the expression of TNF- $\alpha$  by ELISA.

**Result** 1. The expression of NF- $\kappa$ B and TNF- $\alpha$  in FKN group was increased, compared with that control group ( $p < 0.05$ ). 2. The expression of NF- $\kappa$ B and TNF- $\alpha$  in LY294002 group was decreased, compared with that FKN group ( $p < 0.05$ ).

**Conclusions** FKN-CX3CR1 increase the expressions of NF- $\kappa$ B and TNF- $\alpha$  in peripheral blood monocytes, which may be one of the mechanisms of contributing to the progression of atherosclerosis; After interacting with its receptor CX3CR1, FKN activates the PI3K by coupled with G-protein and then initiates intracellular signal conductive mechanism.

**e0682 THE COMBINED USE OF UROKINASE AND GLYCOPROTEIN IIb/IIIa-TARGETED MICROBUBBLES RECANALIZE RABBIT FEMORAL ARTERY WITH THROMBOTIC OCCLUSIONS**

doi:10.1136/hrt.2010.208967.682

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**Objective** To determine the effect of the combined use of urokinase and glycoprotein IIb/IIIa-targeted microbubbles prepared by direct conjugation method to dissolve the thromb.

**Methods** Urokinase and RGDS were in conjunction with microbubbles (SonoVue) by the direct conjugation method. The size, shape, fluorescent intensity, the binding rates of Urokinase and RGDS, and the activity of Urokinase were measured and analysed. A total of 42 rabbits with platelet-rich thrombi in the femoral artery were randomised into seven treatment groups (n=6): 1) ultrasound alone (US); 2) ultrasound plus non-targeted microbubbles (US+M); 3) urokinase alone (UK); 4) ultrasound, non-targeted microbubble and urokinase (US+M+UK); 5) ultrasound plus RGDS microbubble (US+R); 6) RGDS microbubble plus urokinase (R+UK); and 7) ultrasound, RGDS microbubble and urokinase (US+R+UK). US in diagnostic ultrasound were simultaneously applied over the thrombus up to 30 min. The thrombolytic effect was evaluated at 120 min post treatment.

**Results** SonoVue, Urokinase and RGDS were combined successfully. In vitro thrombolysis experiment indicated that the urokinase in the prepared contrast agent had activity ( $p < 0.01$ ). For US, UK, US+M, US+R and US+M+UK groups, recanalisation was failed with the blood flow less than 15% of baseline. The blood flow for R+UK was 15%~49% of baseline, while that of US+R+UK was more than 75% of baseline ( $p < 0.001$ ).

**Conclusion** The combined use of urokinase and glycoprotein IIb/IIIa-targeted microbubbles is effective in targeting thromb and recanalizing thrombolytic occlusion.

**e0683 CLINICAL SIGNIFICANCE OF AUTOANTIBODIES AGAINST CARDIAC TROPONIN I IN PATIENTS WITH MYOCARDIAL INFARCTION AND CHRONIC HEART FAILURE**

doi:10.1136/hrt.2010.208967.683

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**Objective** Autoantibodies against cardiac troponin I (cTnI) have been described in the serum from patients with dilated cardiomyopathy and heart failure. The clinical significance of these autoantibodies remains unknown. The present study was designed to evaluate the relationship between the serum level of autoantibodies against cardiac troponin I and the prognosis of patients with myocardial infarction (MI) and chronic heart failure (CHF).

**Methods** 97 patients were studied in the present study, including 38 patients ( $68.3 \pm 7.9$  years, 28 males) with MI and 59 patients ( $63.3 \pm 14.6$  years, 44 males) with CHF. The patients were recruited in the First Affiliated Hospital of Nanjing Medical University from 2005 to 2008. 78 healthy control subjects were enrolled in the study. The

control subjects were excluded from any cardiac events. The serum samples were collected from the patients after the admission to the hospital. A sandwich-like ELISA assay was established with human cTnI and anti-human IgG to detect the serum level of autoantibodies against cTnI. The level of the autoantibodies was expressed as the relative absorbance of optical density and the level exceeds 3XSD was defined as positive. After the patients were discharged from the hospital, a follow-up from 3 months to 6 months was performed.

**Results** The levels of the autoantibodies were  $0.49 \pm 0.10$  for control subjects,  $0.72 \pm 0.38$  for patients with MI and  $0.55 \pm 0.24$  for patients with CHF. Among 38 MI and 59 CHF patients, eight were positive (8/38) and nine were positive (9/59), respectively. During the follow-up period, one patient died and one patient underwent MI again in the eight positive patients with MI. Among 59 CHF patients, 34 patients finished follow-up investigation. Three of the seven positive CHF patients were death whereas only two of the 27 negative CHF patients were death. The life quality decreased in the positive CHF patients compared with that in negative CHF patients.

**Conclusion** The present study suggested that the level of autoantibodies against cTnI could be a worse prognostic marker in patients with MI or CHF. The underlying mechanism remains to be illustrated.

## Related Subjects: Imaging in Cardiovascular Disease (Radiology, Ultrasonography, Nuclear Medicine, CT, MRI)

### e0684 RIGHT VENTRICULAR EJECTION FRACTION FURTHER DECREASES IN HEART TRANSPLANTED HT PATIENTS WHEN REJECTION OCCURS

doi:10.1136/hrt.2010.208967.684

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**Objective** To investigate the shape and function of right ventricles in patients who received heart transplantation (HT) using single-beat real-time three-dimensional echocardiography (sRT-3DE).

**Methods** 60 healthy volunteers (40 male, mean age  $43.69 \pm 14.81$  years) and 31 HT patients [27 male, mean age  $40.10 \pm 14.67$  years] were enrolled consecutively as Normal controls and the HT group, respectively. All the participants received routine echocardiography as well as sRT-3DE by SIEMENS SC2000 to get parameters concerning morphology and systolic function of the right ventricle. All the HT patients received endomyocardial biopsy within 3 months before or after the echo exams and the HT group was further divided into the rejection group (HTr) and the non-rejection group (HTn) according to the endomyocardial biopsy results as well as the long term group (HTl) and the short term group (HTs) based on the post-operation length (cut point: 1 year), respectively. HTn was also divided into a long term group (HTnl) and a short term group (HTns) to rule out the influence of rejection on post-operation length.

**Results** 1. Right ventricular stroke volume and right ventricular ejection fraction (RVEF) were significantly different among the groups and the difference values progressively decreased. (Right ventricular stroke volume: Con vs HTn vs HTr was  $56.18 \pm 23.72$  vs  $36.08 \pm 10.94$  vs  $26.22 \pm 9.84$  ( $p < 0.0001$ ); RVEF: Con vs HTn vs HTr was  $62.09 \pm 7.18$  vs  $51.04 \pm 7.58$  vs  $35.86 \pm 9.86$ ,  $p < 0.00001$ ). 2. When taking the influence of rejection into consideration, none but RVEF proved to be a stable and sensitive indicator.

**Conclusions** sRT-3DE can quickly assess shape and systolic function of right ventricle. RVEF was the most stable and sensitive among all the RV-related and LV-related indicators and is a promising indicator in the clinic follow-up of HT patients.

### e0685 EVALUATE RIGHT VENTRICULAR SHAPE AND FUNCTION IN PATIENTS WITH ATRIAL SEPTAL DEFECT BY SINGLE-BEAT REAL-TIME THREE-DIMENSIONAL ECHOCARDIOGRAPHY SRT3DE

doi:10.1136/hrt.2010.208967.685

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**Objective** The current study was the first in China to investigate the value of single-beat real-time three-dimensional echocardiography (sRT-3DE) in assessing the shape and function of right ventricle in Patients with Atrial Septal Defect (ASD).

**Methods** 33 healthy volunteers (11 male, mean age  $41.15 \pm 17.49$  years) and 18 ASD patients (six male, mean age  $34.67 \pm 19.50$  years) were enrolled. All the participants received routine echocardiography. sRT-3DE by SIEMENS SC2000 was performed in all to evaluate parameters concerning morphology and systolic function of participants' right ventricle. All the parameters were indexed by body surface area. Further correlative analysis was calculated between right ventricular parameters and right heart pressures by cardiac catheter as well as right ventricular parameters and body surface area-indexed maximum diameter of ASD ( $I_{ASD}$ ). 21 participants (15 controls and six ASD patients) were randomly selected to explore the inter-observer agreement of this novel technique.

**Results** Rt-3DE was successful in all participants, even in patients with large right ventricle volume up to 250 ml. Statistic analysis showed the technology has good inter-observer correlation, ( $EDV_{RV}$ : ICC 0.891 (95% CI 0.731 to 0.956);  $ESV_{RV}$ : ICC 0.737 (95% CI 0.731 to 0.893)) Indexed right ventricular end diastolic volume ( $IEDV_{RV}$ ) and end systolic volume ( $IESV_{RV}$ ), indexed right ventricular systolic volume ( $ISV_{RV}$ ) and right ventricular ejection fraction (RVEF) were greater in the ASD group than in controls ( $p < 0.001$ ,  $p < 0.01$ ,  $p < 0.001$ ,  $p < 0.05$ ).  $IEDV_{RV}$ ,  $IESV_{RV}$  and  $ISV_{RV}$  had positive relations with pulmonary artery pressures, especially pulmonary artery diastolic pressure measured by cardiac catheter ( $r = 0.61$ ,  $r = 0.79$ ,  $r = 0.83$ , all  $p < 0.05$ ) and  $I_{ASD}$  ( $r = 0.57$ ,  $p < 0.05$ ;  $r = 0.6$ ,  $p < 0.01$ ;  $r = 0.55$ ,  $p < 0.05$  respectively). At the same time, they had negative relations with LVEF ( $r = -0.47$ ,  $r = -0.5$ ,  $r = -0.52$ ; all  $p < 0.05$ ).

**Conclusions** Left-to-right shunt in ASD patients may lead to an aggressive increase of pulmonary artery pressure and right ventricular volume. The enlargement of right ventricle increases right ventricular contraction and affects the morphology and function of left ventricle. sRT-3DE is a unique new modality to precisely and stably evaluate right ventricular changes in ASD patients.

### e0686 EVALUATION OF LEFT ATRIAL SYSTOLIC FUNCTION IN PATIENTS WITH HYPERTROPHIC CARDIOMYOPATHY OR HYPERTENSIVE LEFT VENTRICULAR HYPERTROPHY BY STRAIN RATE IMAGING

doi:10.1136/hrt.2010.208967.686

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**Objective** To explore the value of strain rate imaging in detecting left atrial systolic function in patients with hypertrophic cardiomyopathy (HCM) or hypertensive left ventricular hypertrophy (HLVH).

**Methods** There were three groups in this study, the group of HCM, HLVH and control, each group had 30 cases. Left atrial diameter, interventricular septal thickness, posterior left ventricle thickness, peak E and A of mitralis were measured by conventional echocardiography. Left atrial fractional shortening (LAFS) was calculated.