

e0661 **THE VALUE OF SERUM HOMOCYSTEINE LEVEL IN EVALUATION OF OXIDATIVE STRESS IN ATRIAL FIBRILLATION PATIENTS WITH HEART FAILURE**

doi:10.1136/hrt.2010.208967.661

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**Background** Serum homocysteine, an intermediate, is produced during the metabolism of methionine. It has been related to the development of cardiovascular diseases, such as coronary heart disease, heart failure and so on. On the other hand, it is a long-time issue whether atrial fibrillation will affect the mortality among patients with heart failure, which is still controversial. We argue that atrial fibrillation at least will alter the status of oxidative stress in patients with heart failure.

**Methods** 124 (72 men, mean age  $64.1 \pm 10.5$ ) patients from our hospital between January and June, 2010 were recruited. They were divided into four groups as follows: group 1, control,  $n=40$ ; group 2, patients of heart failure (NYHA III-IV),  $n=24$ ; group 3, patients of atrial fibrillation (NYHA I-II or over),  $n=24$  and group 4, patients of atrial fibrillation with heart failure (NYHA III-IV),  $n=36$ . Homocysteine and C reactive protein (CRP) level were measured after hospitalisation.

**Result** There were no significant difference between the first three groups both in homocysteine ( $13.0 \pm 2.8$  vs.  $13.8 \pm 3.7$  vs.  $14.6 \pm 7.2$ ) and CRP ( $4.5 \pm 4.0$  vs.  $6.8 \pm 3.2$  vs.  $6.8 \pm 5.1$ ) level. The  $p$  values were 0.36, 0.63, 0.44 for homocysteine and 0.57, 0.98, 0.64 for CRP, respectively. While there was a huge difference between group 4 (homocysteine,  $21.8 \pm 6.5$ ; CRP,  $23.2 \pm 13.1$ ) and others groups,  $p$  value were all below 0.0001 for both of homocysteine and CRP.

**Conclusion** Our data indicated that the status of oxidative stress was much more obvious in heart failure patients (NYHA III-IV) with atrial fibrillation. In other words, atrial fibrillation and heart failure made patients highly stressed.

e0662 **EVALUATION OF THE WHOLE AND REGIONAL MYOCARDIAL FUNCTION OF LEFT VENTRICLE IN DOGS WITH CONGESTIVE HEART FAILURE INDUCED BY FAST RIGHT VENTRICULAR PACING**

doi:10.1136/hrt.2010.208967.662

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**Objective** Use the Doppler and strain rate imaging (SRI) to evaluate the systolic and diastolic function of the whole and regional ventricular myocardial in congestive heart failure dog models induced by rapid ventricular pacing, and in order to provide more mature and sound methods and parameters to assess the clinical tachyarrhythmia left heart function.

**Methods** 13 healthy mongrel dogs received rapid right ventricular pacing 4 weeks at the rate of 230 beats per minute, to establish congestive heart failure models. The diastolic diameters of the left ventricle (LVDd), left ventricular end diastolic volume (LVEDV), left ventricular end systolic volume (LVESV), ejection fraction (EF), diastolic flow velocity E and A wave, E/A, and E wave deceleration time (EDT) were measured before operation and after pacing of 4 weeks. Meanwhile, the peak systolic velocities were measured by Doppler quantitative tissue velocity image at four mitral ring sites (LV septum, LV lateral wall, LV inferior wall, LV anterior wall). At SRI condition, analysis was performed in basal and mid of septal and lateral walls in the apical 4-chamber view, in basal and mid of inferior and anterior walls in the apical 2-chamber view. All the walls SRI and SR curves were obtained, and the peak strain rate in

every cardiac cycle, such as peak systolic strain (PSS), and peak systolic strain rate (SRs), peak diastolic strain (PDS) were recorded.

**Result** 1. After 4 weeks, compared with prior pacing, the following parameters increased significantly ( $p < 0.01$ ): the LVDd, LVEDV, LVESV and Tei index. While LVEF of CHF dogs decreased significantly ( $p < 0.01$ ). 2. After 4 weeks, Compared with prior pacing, the peak systolic velocities at four mitral ring sites decreased significantly ( $p < 0.01$ , or  $p < 0.05$ ). 3. After 4 weeks, Compared with prior pacing, the PSS and SRs in basal and mid of LV walls decreased significantly ( $p < 0.01$ ). While, the gradient of the PSS and SRs among the basal and mid of LV walls all disappeared ( $p > 0.05$ ). For example, the PSS in basal of LV walls decreased significantly ( $p < 0.01$ ): LV septum ( $5.7 \pm 5.2\%$  vs  $15.3 \pm 2.4\%$ ), LV lateral wall ( $7.3 \pm 1.2\%$  vs  $15.8 \pm 1.6\%$ ), LV inferior wall ( $4.9 \pm 3.8\%$  vs  $13.7 \pm 1.6\%$ ), LV anterior wall ( $6.6 \pm 0.6\%$  vs  $15.5 \pm 1.9\%$ ). The SRs in basal of LV walls decreased significantly ( $p < 0.01$ ): LV septum ( $1.0 \pm 0.4 S^{-1}$  vs  $2.4 \pm 0.6 S^{-1}$ ), LV lateral wall ( $1.3 \pm 0.5 S^{-1}$  vs  $2.3 \pm 0.5 S^{-1}$ ), LV inferior wall ( $1.0 \pm 0.3 S^{-1}$  vs  $1.8 \pm 0.4 S^{-1}$ ), LV anterior wall ( $1.4 \pm 0.4 S^{-1}$  vs  $2.6 \pm 0.7 S^{-1}$ ). 4. Compared with prior pacing, peak velocities of E and A waves, E/A and EDT showed no difference ( $p > 0.05$ ). However, the PDS in basal and mid of LV walls decreased significantly ( $p < 0.01$ ). While, the gradient of the PDS among the basal and mid of LV walls all disappeared ( $p > 0.05$ ). For example, the PDS in basal of LV walls decreased significantly ( $p < 0.01$ ): LV septum ( $7.1 \pm 1.2\%$  vs  $15.6 \pm 2.7\%$ ), LV lateral wall ( $7.5 \pm 1.1\%$  vs  $14.9 \pm 1.7\%$ ), LV inferior wall ( $6.6 \pm 1.5\%$  vs  $13.6 \pm 1.8\%$ ), LV anterior wall ( $6.5 \pm 1.0\%$  vs  $15.5 \pm 2.3\%$ ).

**Conclusion** After rapid ventricular pacing, congestive heart failure occurred in these experimental dogs, not only did the whole and regional myocardial systolic function decreased significantly, but also did to some extent the ventricle diastolic function changed. SR and SRI can be used to evaluate systolic and diastolic regional myocardial function in CHF dog models induced by rapid ventricular pacing and may provide more mature and sound parameters to assess the left heart function.

## Clinical and Research Medicine: Cardiovascular Surgery

e0663 **INITIAL EXPERIENCE OF SYNCHRONISED ELECTRICAL CARDIOVERSION FOR ATRIAL FIBRILLATION AFTER BIPOLAR RADIOFREQUENCY ABLATION MAZE OPERATION**

doi:10.1136/hrt.2010.208967.663

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**Background** The purpose was to explore clinical experience of electrical cardioversion for atrial fibrillation (AF) after bipolar radiofrequency ablation Maze operation.

**Methods** From July 2006 to July 2009, 223 patients underwent bipolar radiofrequency maze operation for AF. Out-patient were followed up after discharge on a regular basis. If effects of oral administration drugs such as digoxin, amiodarone and metoprolol were not obvious, with AF staying alive, patients should receive electrical cardioversion therapy. There were 13 cases underwent cardioversion therapy. After admission, ECG monitoring was needed. After intravenous anaesthesia using propofol, electrical cardioversion was carried out with dose of  $1 \sim 2$  J/kg. Three times had they failed to turn to normal sinus rhythm (NSR), cardioversion be given up.

**Results** Four cases within 6 months after operation were given electrical cardioversion, three cases (75%) turned to NSR and one case (25%) was in AF instantly, the same until now. Of nine cases more than 6 months after operation, four cases (44.45%) turned to NSR instantly, two cases (22.22%) were still in AF, three cases