

Objectives To investigate the level differences of cardiac ankyrin repeat protein (CARP) in the blood of patients with heart failure and the correlation among CARP, brain natriuretic peptide (BNP), left ventricular end-diastolic diameter (LVEDD), left atrium diastolic diameter (LADD) and left ventricular ejection fraction (LVEF) in the same patients.

Methods A total of 120 patients with heart failure and 30 healthy individuals between May 2011 and October 2012 in our department of cardiology were enrolled in this study. According to the New York heart (NYHA) classification criteria, the patients with heart failure were divided into four subgroups (the NYHA class I, the NYHA class II, the NYHA class III and the NYHA class IV) 3 ml blood of antecubital vein from patients with heart failure were collected at admission and 3 ml blood of antecubital vein from healthy individuals on an empty stomach in early morning. Added Na₂-ethylenediaminetetra-acetic acid to the samples of whole blood, separated plasma by prompt centrifugation of the blood samples at 3000 g at room temperature for 15 min. The samples were immediately frozen and stored at -20°C. And the functional parameter of left ventricular contraction were collected, including left ventricular end-diastolic diameter, Left atrial end-diastolic diameter and left ventricular ejection fraction. After collected all specimens, the CARP and BNP were detected using method of ELISA. Then analysed all measure value by using the 18.0 SPSS software.

Results

1. The levels of serum CARP (21.24 ± 8.30 ng/ml) were significantly higher in patients with heart failure than those in control subjects (8.30 ± 1.45 ng/ml); ($p < 0.05$).
2. The levels of serum CARP increased with increment of degree of severity of heart failure according to the NYHA classification and the differences between the groups of class I, class II, class III and class IV were significant; ($p < 0.001$).
3. The correlation between levels of serum CARP and BNP was positive; ($r = 0.917$, $p < 0.001$).
4. The levels of serum CARP positively correlated with left ventricular end-diastolic diameter and left atrium diastole diameter, but negatively correlated with left ventricular ejection fraction.

Conclusions

1. The levels of serum CARP and BNP changed dynamically with increment of degree of severity of heart failure and LVEF, which demonstrate that CARP testing as same as BNP might can be biochemical markers of helpful to assist diagnosing heart failure, prognosis and clinical treatment.
2. The levels of serum CARP positively correlated with plasma level of BNP, which revealed that change of oxidative stress and neurohumor could contribute pathogenesis of heart failure.
3. The levels of serum CARP negatively correlated with left ventricular ejection fraction and changed dynamically with progress of LVEDD, which demonstrate that CARP testing as same as BNP might be helpful to evaluate left ventricle remodelling.

GW23-e2287

EXPRESSION OF SERUM CARDIAC ANKYRIN REPEAT PROTEIN IN PATIENTS WITH HEART FAILURE AND ITS CLINICAL SIGNIFICANCE

doi:10.1136/heartjnl-2012-302920o.18

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