Serum Tenasin-C Levels as a Prognostic Biomarker of Heart Failure Events in Patients with Hypertrophic Cardiomyopathy

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Abstract

Background and purpose: Although serum tenasin-C (TN-C) levels are related to left ventricular (LV) remodeling in patients with acute myocardial infarction and are useful as a prognostic biomarker of heart failure in patients with dilated cardiomyopathy, the clinical significance of TN-C levels has not yet been studied in patients with hypertrophic cardiomyopathy (HCM). Therefore, the purpose of this study was to elucidate whether serum TN-C levels are a prognostic biomarker for heart failure events in patients with HCM.

Methods: The relationship between serum TN-C levels and heart failure events was studied in 36 patients with HCM during follow-up.

Results: Levels of serum TN-C were 28 ± 13 ng/ml (range; 11–80 ng/ml). Although patients with LV systolic impairment showed higher TN-C levels than those with preserved LV systolic function (33 ± 11 ng/ml vs. 27 ± 14 ng/ml; p = 0.16), serum TN-C levels were not related to any conventional echocardiographic parameters. During the follow-up period of 4.8 ± 1.4 years, heart failure events were observed in six patients and serum TN-C levels in patients with events were higher than those in patients without events. Kaplan–Meier analysis showed that the prognosis was worse in patients with high TN-C levels (>39.2 ng/ml) than in those with low TN-C levels.

Conclusions: Heart failure events were more frequently observed in patients with high serum TN-C levels than in those with low TN-C levels. Serum TN-C levels may be a new prognostic biomarker for heart failure in patients with HCM.

Objectives

Tenasin-C (TN-C) is an extracellular matrix glycoprotein expressed during embryogenesis, and it is re-expressed under pathologic conditions such as myocardial infarction and dilated cardiomyopathy. Clinically, serum TN-C levels are associated with LV remodeling in patients with acute myocardial infarction. Moreover, it was recently reported that TN-C levels were useful for prognosis of heart failure in patients with dilated cardiomyopathy. Although serum TN-C levels are also elevated in patients with LV hypertrophy, the clinical significance of serological TN-C levels has not yet been studied in patients with HCM. Therefore, the purpose of this study was to elucidate whether serum TN-C levels are useful in predicting heart failure events in patients with HCM.

Methods

Patients and study design

The relationship between serum TN-C levels and heart failure events was studied in 36 patients with HCM during follow-up.

Results

(1) Levels of serum TN-C and plasma BNP were 28 ± 13 ng/ml (range; 11–80 ng/ml) and 259 ± 191 pg/ml (range; 15–696 pg/ml), respectively.

(2) There was no significant correlation between serum TN-C levels and conventional echocardiographic parameters

(3) During follow-up period of 4.8 ± 1.4 years, six events were observed.

(4) Comparison of tenasin-C levels between patients with events and those without events.

Conclusions

Heart failure events were more frequently observed in patients with high serum TN-C levels than in those with low TN-C levels. Serum TN-C levels may be a new prognostic biomarker for heart failure in patients with HCM.

References