Hepatocyte growth factor has prognostic utility in light chain and transthyretin cardiac amyloidosis

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Topic(s):
Myocardial Disease – Epidemiology, Prognosis, Outcome

Citation:
Background: With the advent of multiple novel therapeutics for light chain (AL) and transthyretin (ATTR) amyloidosis, there is a critical need for validated prognostic markers in cardiac amyloidosis. A discriminatory serum biomarker may improve prognostic and staging systems in AL and ATTR cardiac amyloidosis.

Purpose: Our objective was to test the hypothesis that hepatocyte growth factor (HGF) is associated with clinical outcomes in patients with AL and ATTR cardiac amyloidosis.

Methods: 102 patients with AL or ATTR and suspected cardiac involvement were prospectively enrolled. HGF, NT-proBNP, troponin-T, and eGFR were measured upon study enrollment. Cardiac involvement was established by 1) endomyocardial biopsy, or 2) non-cardiac biopsy with concentric hypertrophy on echocardiography, low voltage or pseudo-infarction on ECG, elevated NT-proBNP or troponin-T, or characteristic delayed myocardial enhancement on cardiac MRI. Patients were followed for the occurrence of all-cause mortality, cardiac transplantation, and left-ventricular assist device implantation.

Results: Of the total amyloidosis cohort, 72 had cardiac involvement while 30 had non-cardiac disease. HGF, NT-proBNP, and troponin-T levels were significantly higher in patients with cardiac involvement than in patients with non-cardiac disease (p<0.05 for all comparisons). Over a median follow-up period of 1.9 years there were 20 deaths, 1 cardiac transplant, and 1 left-ventricular assist device implant, all in patients with cardiac involvement. Patient stratification by cut-off levels of NT-proBNP (332 pg/mL), troponin-T (35 ng/L), and eGFR (45 mL/min/1.73m²) used in published staging models for AL and ATTR cardiac amyloidosis showed no association between abnormal biomarker level and adverse clinical outcome (p>0.05). In contrast, stratification by HGF level of 310 pg/mL (identified by the Youden Index for cardiac involvement by AL and ATTR in our cohort) showed that elevated HGF was associated with worse clinical outcomes (p=0.0211). Furthermore, event-free survival was worse in patients with elevated HGF, with survival curves diverging soon after enrollment (p=0.0730).

Conclusions: Elevated HGF is associated with worse clinical outcomes in patients with AL and ATTR cardiac amyloidosis and has potential for clinical utility.
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