



High Sensitivity Troponin T: A Biomarker of Ventricular Wall Stress in Acutely Decompensated Heart Failure

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Purpose: Patients presenting with acutely decompensated heart failure (ADHF) and positive troponin were found to be a high-risk cohort. Measurement of cardiac troponins in this setting adds important prognostic information. The aim of this study is to determine the early evolution, associations, and correlations of high-sensitivity troponin T (hsTnT) in ADHF.

Methods: Secondary analysis of a prospective study including 100 patients with ADHF. In that study patients were non-randomly assigned in a 1:1 ratio to spironolactone 100 mg/day plus standard ADHF therapy or standard ADHF therapy alone. Data were collected in the first admission day (before spironolactone administration) and at day 3 of hospitalization.

Results: Globally, high-sensitivity troponin T decreased from day 1 to day 3 (median [IQR], 0,033 [0,019 – 0,050] vs. 0,030 [0,018 – 0,051], $p = 0,039$). However, in the subgroup of patients who remained decompensated no significant differences in hsTnT from day 1 to day 3 were observed (median [IQR], from 0,046 [0,033 - 0,087] to 0,055 [0,032 - 0,072], $p = 0,955$), whereas in successfully compensated patients a significant reduction in hsTnT levels was observed (median [IQR], from 0,032 [0,017 - 0,048] to 0,028 [0,017 - 0,045], $p = 0,025$). High sensitivity troponin T decrease was correlated with NTproBNP reduction (NAC [_{95%}CI], 0,267 [0,044 to 0,276], $p = 0,007$). Patients with hsTnT increase had lower NTproBNP decrease (median [IQR], -1187 [-2371 to 441] vs. -411 [-1295 to 36], $p = 0,002$) and had longer length of stay (median [IQR], 8,0 [6 to 11] vs. [9,0 [7 to 12], $p = 0,033$).

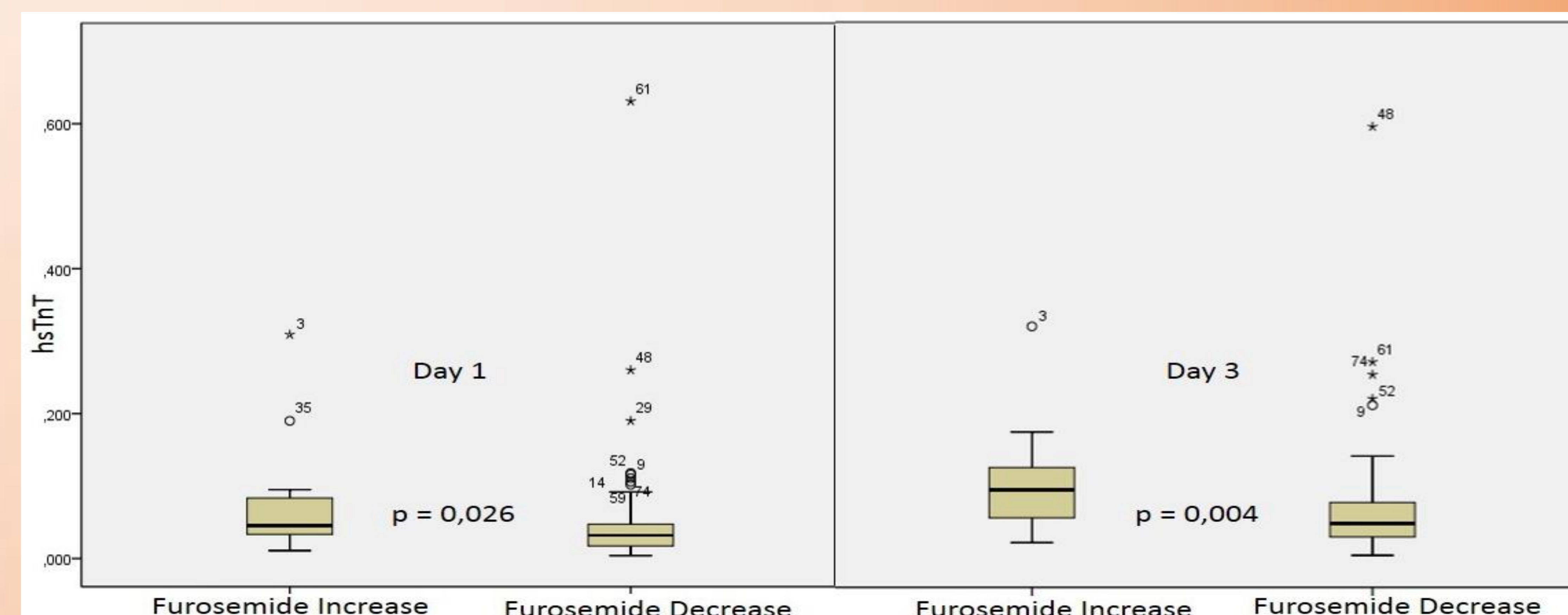


Figure: Differences in hsTnT Between Diuretic Responders and Non-Responders at Day 1 and Day 3

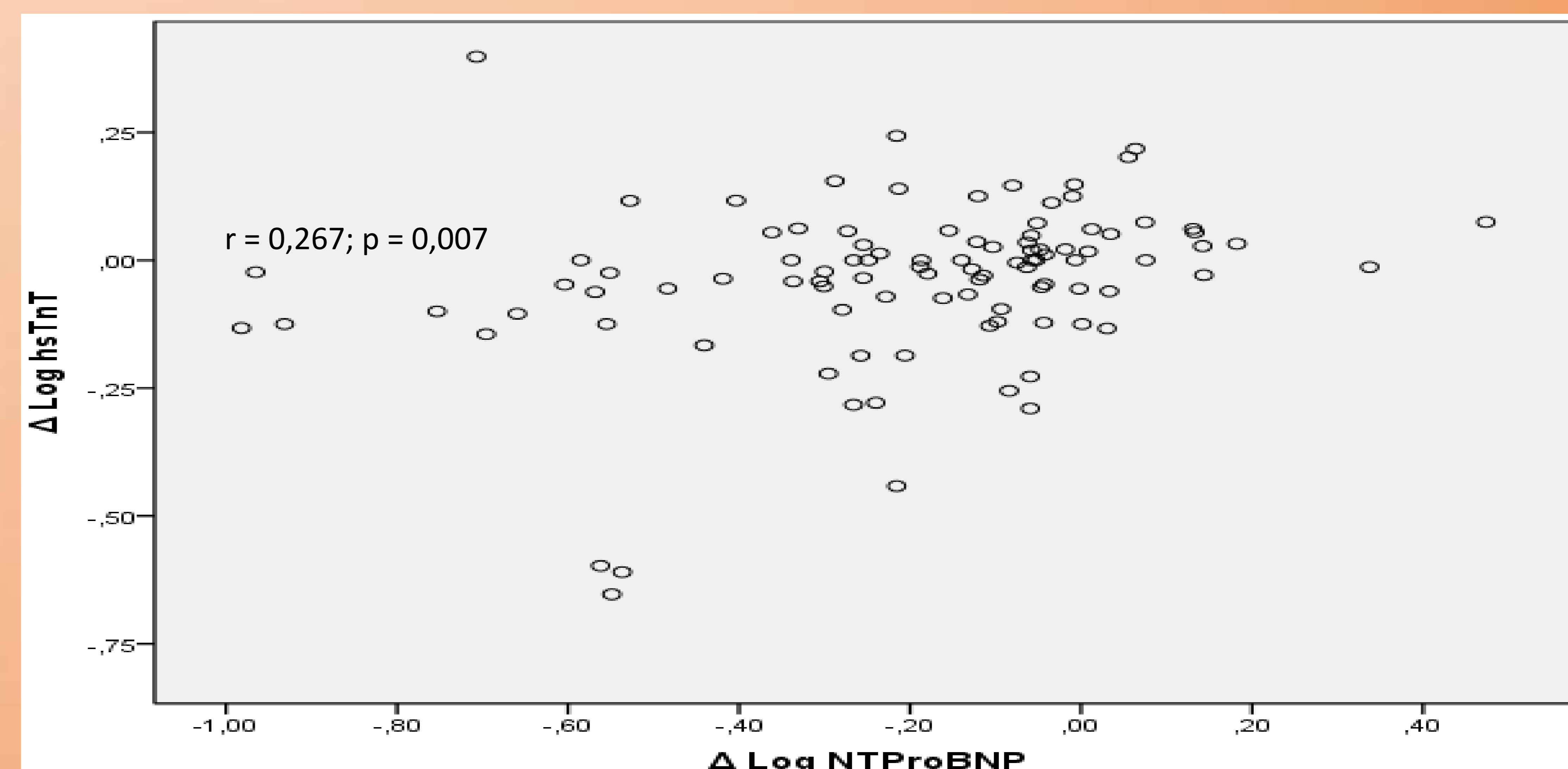


Figure: Correlation Between Δ Log hsTnT and Δ Log NTProBNP

Conclusions: Episodes of ADHF are associated with transient increases in the blood levels of hsTnT that are reduced with effective acute episode treatment. The decrease in hsTnT and NTproBNP are correlated which can translate ventricular wall stress relief with ADHF treatment.

Disclosures: The authors have no conflicts of interest to disclose