# Association between Anderson-Fabry disease clinical severity and high-sensitivity troponin-T levels

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## OBJECTIVES

While there are but a few reports of the relationship between Anderson-Fabry disease (AFD) and Troponin I (**1,2**), the present study is, to our knowledge, the first report of the relationship between AFD and high-sensitive Troponin-T (**TnT-hs**). The purpose of the study is to observe the relationship between serum levels of **TnT-hs** with the severity of heart and renal disease in AFD patients.

## METHODS

Nineteen, clinically stable, adult patients with a genetic diagnosis of AFD underwent transthoracic echocardiography; serum **TnT-hs** (Roche Diagnostics), N-terminal pro-Brain Natriuretic Peptide (NTproBNP), urinary albumin / creatinin ratio (uACR), serum creatinine levels were measured, and the latter was used to estimate GFR (eGFR, CKD-EPI formula). The patients were divided in two groups on the basis of serum levels of **TnT-hs,** using the 99th percentile in the healthy general population as a cut-off value (14 ng/L) (**3**). Data are expressed as a mean ± standard deviation for continuous variables, as an absolute value for categorical variables. Continuous variables were analyzed with Student's t-test for independent samples. The associations between continuous variables were evaluated with linear regression analysis.

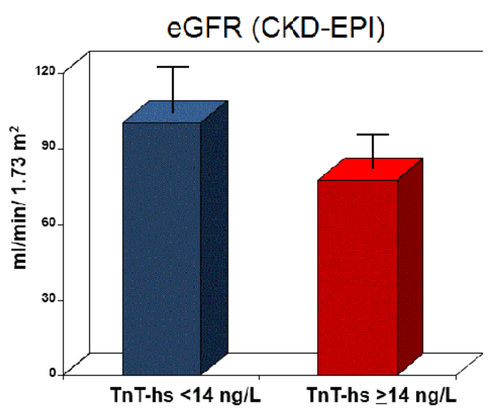


**Figure 1:** eGFR in patients with TnT-hs < 14 ng/L vs TnT-hs ≥ 14 ng/L

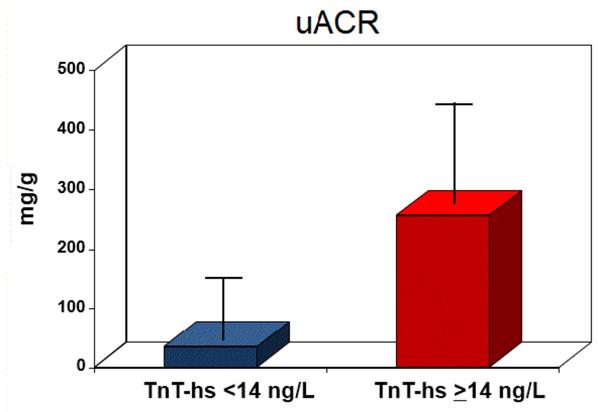


**Figure 2:** uACR in patients with TnT-hs < 14 ng/L vs TnT-hs ≥ 14 ng/L

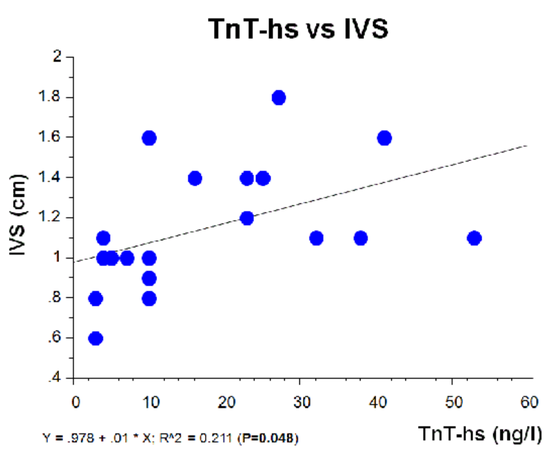


**Figure 3:** linear regression model for the relationship between TnT-hs and IVS thickness

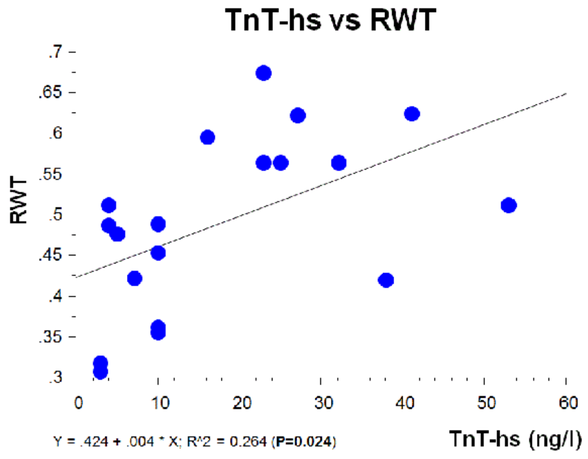


**Figure 4:** linear regression model for the relationship between TnT-hs and RWT

## RESULTS

| | TnT-hs < 14 ng/L (n=10) | TnT-hs ≥ 14 ng/L (n=9) | P-value |
|---|---|---|---|
| **Age** (years) | 44.4 ± 15 | 53.9 ± 8.4 | 0.081 |
| **Males** (no) | 0 | 5 | |
| **ERT** (no) | 4 | 7 | |
| **TnT-hs** (ng/L) | 6.6 ± 3.1 | 52.3 ± 67.9 | |
| **eGFR** (ml/min/1.73 m²) | 100.0 ± 15.9 | 77.3 ± 27.3 | 0.047 |
| **uACR** (mg/g) | 35.5 ± 66.2 | 256.9 ± 441.8 | 0.041 |
| **NT-proBNP** (pg/ml) | 46.8 ± 43.3 | 850.9 ± 1003.0 | 0.029 |
| **IVS thickness** (cm) | 0.98 ± 0.26 | 1.43 ± 0.3 | 0.004 |
| **RWT** | 0.42 ± 0.08 | 0.61 ± 0.08 | <0.001 |
| **LVMI** (g/m^2) | 88.8 ± 44.8 | 139.2 ± 49.7 | 0.049 |
| **LAD** (cm) | 3.5 ± 0.8 | 4.1 ± 0.7 | 0.11 |
| **E/Em** | 9.4 ± 5.8 | 15.4 ± 4.5 | 0.036 |

**Table 1**: patient and clinical data. ERT: enzyme replacement therapy. uACR: urinary albumin/creatinin ratio. IVS: interventricular septum. RWT: relative wall thickness. LVMI: left ventricular mass index. LAD: left atrium diameter. E/Em: E wave transmitral doppler velocity, Em tissue doppler velocity at the mitral annulus

## CONCLUSIONS

*High serum levels of **TnT-hs** are associated with an increased severity of organ involvement in patients affected by AFD. As expected, male gender is associated with more severe clinical involvement and higher serum **TnT-hs** levels as compared to females. Female gender, however, is characterized by wide, complex clinical variability and, in this context, higher levels of **TnT-hs** may be useful in defining overall clinical burden.*

## REFERENCES:

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*(**3**) Giannitsis E. et al. Analytical validation of a high-sensitivity cardiac troponin T assay. Clin Chem 2010 Feb;56(2):254-61.*



DOI: 10.3252/pso.eu.52era.2015