POSTER PRESENTATION



Open Access

Usefulness of combining electrocardiogram and echocardiography findings and brain natriuretic peptide in early detection of cardiac amyloidosis in subjects with transthyretin gene mutation

Gianluca Di Bella^{1*}, Fabio Minutoli², Anna Mazzeo³, Matteo Cssale¹, Claudia Stancanelli³, Scipione Carerj¹, Sergio Baldari², Giuseppe Vita³

From First European Congress on Hereditary ATTR amyloidosis Paris, France. 2-3 November 2015

Early non-invasive identification of cardiac amyloidosis (CA) is of growing clinical importance. Low voltage on electrocardiogram (ECG), increased left ventricular (LV) septal thickness (ST) and global longitudinal strain (GLS) on echocardiography, and elevated brain natriuretic peptides (BNP) are used as surrogates of CA. Thirtyfive patients (50 \pm 14 years, 22 females) underwent an ECG to analyze low-voltage QRS (<15 mV) pathological Q-waves, poor R-wave progression, ST-T abnormalities - and left bundle branch block. An ECG was considered abnormal if at least one ECG alteration was present. Echocardiography was used to analyze LVST, E/E' and GLS. All participants also had BNP blood testing. 99mTc-DPD scintigraphy assumed as a reference method showed CA in 18 patients (51%, CA group) and no accumulation in 17 patients (no CA group). In descending order of accuracy, LVST >14 mm, E/E' >6.6, GLS <14.1, BNP >129 pg/ml, and an overall abnormal ECG showed good capability to distinguish patients with and without CA. All these parameters were predictors of CA in univariate analysis while low-voltage QRS showed the worst performance. LVST >14 mm (p = 0.002) was the best independent predictor of CA, achieving sensitivity of 78% and accuracy of 89%. However, a LVST >14 mm (p = 0.005) plus an abnormal ECG (p = 0.03) show together a higher sensitivity, equal to 89%, in identifying CA. An integrated evaluation of ECG and echocardiography is a sensitive and low-cost

¹University of Messina, Clinical and experimental medicine department, 98100, Messina, Italy

technical approach to identify CA in patients with transthyretin gene mutation.

Authors' details

¹University of Messina, Clinical and experimental medicine department, 98100, Messina, Italy. ²University of Messina, Department of Biomedical Sciences and of Morphologic and Functional Images, 98100, Messina, Italy. ³University of Messina, Department of Neurosciences, 98100, Messina, Italy.

Published: 2 November 2015

doi:10.1186/1750-1172-10-S1-P34 **Cite this article as:** Di Bella *et al.*: **Usefulness of combining** electrocardiogram and echocardiography findings and brain natriuretic peptide in early detection of cardiac amyloidosis in subjects with transthyretin gene mutation. *Orphanet Journal of Rare Diseases* 2015 10(Suppl 1):P34.

Submit your next manuscript to BioMed Central and take full advantage of:

- Convenient online submission
- Thorough peer review
- No space constraints or color figure charges
- Immediate publication on acceptance
- Inclusion in PubMed, CAS, Scopus and Google Scholar
- Research which is freely available for redistribution

) BioMed Central

Submit your manuscript at www.biomedcentral.com/submit



© 2015 Di Bella et al. This is an Open Access article distributed under the terms of the Creative Commons Attribution License (http:// creativecommons.org/licenses/by/4.0), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited. The Creative Commons Public Domain Dedication waiver (http://creativecommons.org/publicdomain/ zero/1.0/) applies to the data made available in this article, unless otherwise stated.

Full list of author information is available at the end of the article