

POSTER PRESENTATION

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Quantitative comparison between amyloid deposition detected by ^{99m}Tc-diphosphonate imaging and myocardial deformation evaluated by strain echocardiography in transthyretin related cardiac amyloidosis

Gianluca Di Bella^{1*}, Fabio Minutoli², Anna Mazzeo³, Claudia Stancanelli³, Luca Gentile³, Sergio Baldari², Scipione Carerj¹, Giuseppe Vita³

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Aims

The aim of our study is to assess the effect of amyloid deposition on myocardial function.

Methods and results

28 patients with transthyretin mutation and a group of 14 controls underwent echocardiography to quantify left ventricular (LV) dimensions and function, and global (G) longitudinal (L), radial (R) and circumferential (C) strain (S). ^{99m}Tc-3, 3-diphosphono-1, 2-propanodicarboxylic-acid-scintigraphy (^{99m}Tc-DPD) was used to quantify cardiac amyloidosis (CA). ^{99m}Tc-DPD revealed accumulation in 14 of 28 patients (CA-group) and no accumulation (no CA-group) in 14 patients. Cardiac accumulation was mild-moderate in 5 (Mild-Moderate CA-group) and severe in 9 patients (Severe CA-group). Severe CA-group showed higher values of LV septal thickness (LVST), posterior wall thickness and E/E' ratio than the no CA-group and the control group (adj. $p < 0.05$). Ejection fraction was similar among groups ($p = 0.65$). GLS was lower ($p < 0.001$) in severe CA-group (-12.2 ± 4.5) respect to no CA-group (-19.3 ± 3.0) and to the control group (-20.9 ± 2.5). On the contrary, GCS and GRS were lower ($p < 0.05$) in mild-moderate CA-group (-10.8 ± 4.1 and 9.5 ± 5.7 , respectively) respect to the severe CA-group (-18.9 ± 5.1 and 23.9 ± 6.3

respectively), no CA-group (-19.2 ± 4.1 and 28.4 ± 10.2 respectively) and the control group (-23.9 ± 4.4 and 29.9 ± 8.7 respectively). A correlation was found between the scintigraphic heart retention (HR) index and LVST ($\rho = 0.72$; $p < 0.001$) and E/E' ($\rho = 0.46$; $p = 0.03$). An inverse tendency was observed between HR and GLS ($\rho = -0.40$; $p = 0.06$).

Conclusions

^{99m}Tc-DPD HR is well correlated with LVST, diastolic and longitudinal systolic dysfunction.

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.

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

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