

POSTER PRESENTATION

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

Gianluca Di Bella<sup>1\*</sup>, Fabio Minutoli<sup>2</sup>, Anna Mazzeo<sup>3</sup>, Claudia Stancanelli<sup>3</sup>, Luca Gentile<sup>3</sup>, Sergio Baldari<sup>2</sup>, Scipione Carerj<sup>1</sup>, Giuseppe Vita<sup>3</sup>

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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).  $^{99m}\text{Tc}$ -3, 3-diphosphono-1, 2-propanodicarboxylic-acid-scintigraphy ( $^{99m}\text{Tc}$ -DPD) was used to quantify cardiac amyloidosis (CA).  $^{99m}\text{Tc}$ -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 ( $-12.2 \pm 4.5$ ) respect to no CA-group ( $-19.3 \pm 3.0$ ) and to the control group ( $-20.9 \pm 2.5$ ). On the contrary, GCS and GRS were lower ( $p < 0.05$ ) in mild-moderate CA-group ( $-10.8 \pm 4.1$  and  $9.5 \pm 5.7$ , respectively) respect to the severe CA-group ( $-18.9 \pm 5.1$  and  $23.9 \pm 6.3$

respectively), no CA-group ( $-19.2 \pm 4.1$  and  $28.4 \pm 10.2$  respectively) and the control group ( $-23.9 \pm 4.4$  and  $29.9 \pm 8.7$  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

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

## Authors' details

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

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<sup>1</sup>University of Messina, Clinical and experimental medicine department, 98100, Messina, Italy

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