Abstract: 25

99mTc-DPD SPECT/CT correlates to both Troponin-T release and cardiac function measured as echocardiographic strain in cardiac transthyretin amyloidosis.

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Aims 99mTC-DPD scintigraphy is a widely used diagnostic tool in transthyretin amyloidosis and cardiac involvement. So far 99mTC-DPD scintigraphy has only been used as a semi-quantitative diagnostic tool. The objective of this study was to determine the functional value of 99mTC-DPD single-photon emission computed tomography, SPECT/CT by quantifying 99mTC-DPD uptake and correlating uptake to well established, functional cardiac parameters.

Methods In total 30 mutated- and 21 wild-type transthyretin amyloidosis patients who had undergone 99mTC-DPD SPECT/CT and echocardiographic examinations were retrospectively analysed. 99mTC-DPD examinations were used for manually mapping volumes of interest for different heart regions. Mean- and max 99mTC-DPD uptake values were then correlated to echocardiographic strain values and cardiac biomarker levels.

Results Statistically significant correlations were found between 99mTC-DPD uptake and echocardiographic strain, Troponin-T- and logarithmic NT-ProBNP (p<0.05). Correlations were especially strong in mutated transthyretin amyloidosis patients with no ischemic heart disease. In those, correlations between mean 99mTC-DPD uptake and left- and right ventricular strain were r=0.73, p<0.01 for both. Furthermore, mean 99mTC-DPD correlated with Troponin-T and logarithmic NT-ProBNP r=0.78, p<0.01 and r=0.62, p=0.01, figure 1.

Conclusion 99mTC-DPD uptake in transthyretin amyloidosis strongly relates to both echocardiographic strain and cardiac biomarkers suggesting a functional property in 99mTC-DPD scintigraphy.