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Scintigraphy with ^{99m}Tc-Pyrophosphate contributes in avoiding pitfalls by non-invasive diagnosis of TTR related cardiac amyloidosis

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Cardiac amyloidosis (CA) as a cause of cardiac insufficiency may be attributed to light-chain cardiac amyloidosis (immunoglobulin light-chain amyloidosis – AL) or to transthyretin (transthyretin-related amyloidosis – ATTR), whether familial amyloid cardiomyopathy or wild type (senile) TTR amyloidosis. The underlying pathophysiology, the treatment as well as the prognosis differ significantly between these entities. Diagnosis can now be augmented by using the non-invasive method of technetium-^{99m} pyrophosphate (^{99m}Tc-PYP) scintigraphy instead of the invasive cardiac biopsy. We present the case of a patient which was initially regarded as suffering from AL amyloidosis based on the presence of a small monoclonal protein and plasma cell bone marrow infiltration which was then correctly typed as ATTR by ^{99m}Tc-PYP. Our patient is a 75-years old female who underwent cardiac MRI indicating amyloidosis. Myocardial scintigraphy (planar and tomographic imaging) with 740 MBq ^{99m}Tc-PYP was performed 75 min p.i. myocardial radiotracer retention was evaluated optically and further semi quantitatively analyzed. The retention over myocardium was highly increased, with a heart-to-contralateral (H/CL) count ratio of 1.67, prompting further testing for typing of amyloid. Fat aspirate was positive for amyloid. Mass spectrometry then revealed that the amyloid deposits were TTR and not light-chain derived. In conclusion, this case demonstrates that ^{99m}Tc-PYP scan is a simple, cheap, non-invasive and widely available method of utmost importance in the identification of patients with the ATTR CA subtype, with subsequent therapeutic and prognostic implications.

Biography

Valsamaki P has completed her PhD from Aristotle University School of Medicine of Thessaloniki, Greece and postgraduate studies from Aristotle University of Thessaloniki, National and Kapodistrian University School of Medicine of Athens, Greece, and Nuclear Medicine Department, University of Bologna, Italy. She works as consultant in the Nuclear Medicine Department of the UGHospital Alexandra, Athens, Greece. She has published more than 25 papers in reputed journals, participated in more than 10 research protocols, received highlights distinction in 10 presentations/articles, and has been serving as an Editorial Board Member (HJNM) and as a reviewer (ANM) of repute.

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