Author's Response to JNC-21-331-LE

It is often forgotten that in the seminal work by Perugini on bone scanning in ATTR cardiac amyloidosis (Perugini 2005), 11 patients with myocardial uptake of Tc-DPD (DPD) with visual score 2 or greater subsequently underwent Tc-MDP (MDP) scintigraphy. The MDP myocardial scans were reported to be negative in these patients.

Since then, occasional case reports of positive MDP scans in cardiac ATTR have continued to appear.

More recently, Cuscaden (Cuscaden 2020) reported that in 2 different patient groups undertaking bone scans for non-cardiac indications, the rate of scans incidentally positive for cardiac ATTR using MDP bone scans was much lower than the rate found with Tc-HMDP, though we do need to note that these 2 patient subgroups were highly similar but not identical and were time sequential.

To conclude, case reports show that if you do a bone scan with MDP and find myocardial uptake greater than or equal to bone, then that patient is likely to have cardiac ATTR. However, the combined findings from Perugini and Cuscaden indicate that if bone scans are being performed for the purpose of detecting cardiac ATTR, then MDP is not an appropriate radiopharmaceutical due to a high likelihood of false negative studies.

Perugini E, Guidalotti PL, Salvi F, Cooke RM, Pettinato C, Riva L, et al. Noninvasive etiologic diagnosis of cardiac amyloidosis using ^{99m}Tc-3,3-diphosphono-1,2-propanodicarboxylic acid scintigraphy. *J Am Coll Cardiol* 2005;46:1076–84.

Cuscaden C, Ramsay SC, Prasad S, Goodwin B, Smith J. Estimation of prevalence of transthyretin (ATTR) cardiac amyloidosis in an Australian subpopulation using bone scans with echocardiography and clinical correlation. *J Nucl Cardiol* 2020; <https://doi.org/10.1007/s12350-020-02152-x>.

Stuart C. Ramsay, MBBS MD FRACP^{a,b}

^aRoyal Brisbane and Women's Hospital, Herston, QLD, Australia

^bSchool of Medicine, James Cook University, Townsville, QLD, Australia

stuart.ramsay@health.qld.gov.au

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