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EDITORIAL

Collection on molecular imaging in cardiac amyloidosis

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Cardiac amyloidosis (CA) is a complex and often underdiagnosed pathological condition, which poses significant challenges in both its detection and management. As the efficacy of the currently approved therapy decreases over time and is lowest in the advanced stages of the disease, a prompt diagnosis is mandatory to yield favourable outcome [1]. In this context, there is the need for reliable imaging modalities able to provide with an early and accurate diagnosis, along with useful prognostic information [2].

Molecular imaging has gained major interest in the latest year [3], and ^{99m}Tc-3,3-diphosphono-1,2 propanodicarboxylicacid ([^{99m}Tc]Tc-DPD) scintigraphy and single photon emission tomography/computed tomography (SPECT/CT) have become a cornerstone in the diagnosis of CA as well as its differentiation between transthyretin (ATTR) and light-chain (AL) amyloidosis [4, 5]. Furthermore, recent evidence show the potential for a prognostic stratification. In fact, molecular imaging, also including positron emission tomography (PET) enables specific insights in the processes underlying amyloid deposition within the heart, thus providing important information on disease progression and treatment response [6–10].

More recently, it was also hypothesized that quantitative [^{99m}Tc]Tc-DPD SPECT/CT may be able to assess the degree of active deposition of amyloid fibrils [1, 11]. This would represent another major difference compared to cardiac magnetic resonance (CMR), whose derived extracellular volume (ECV) assessment was demonstrated to correlate well with amyloid burden within the myocardium [12]. Hence, it is conceivable that [^{99m}Tc]Tc-DPD SPECT/CT and CMR will be complementary modalities in the diagnostic work-up and risk stratification of patients with CA.

We believe that molecular imaging will gain more and more importance in the next future, and will allow for an accurate assessment of the nature of the disease and its severity. It should also be noted that new tracers are under active investigation, both for AL [13] and ATTR-CA [14]. Therefore, it is not unrealistic to foresee a bright future for the evolution of molecular imaging in this clinical setting. To achieve this goal, future research will need to answer important questions: (1) what is the exact significance of bone tracer uptake in ATTR-CA? (2) are there specific categories of patients with different outcome depending on SPECT or PET imaging markers? (3) are there other pathophysiological mechanisms which need to be elucidated?

This collection aims to explore pre-clinical research and clinical applications of molecular imaging in the scenario of cardiac amyloidosis, highlighting its important role in improving patients' outcome and guiding therapeutic strategies. To this end, we warmly invite researchers to submit original research articles, systematic reviews, meta-analyses or interesting images for this collection issue.

Data availability Data availability statement is not applicable for this editorial.

Declarations

Ethical approval Institutional Review Board approval was not required because the paper is an editorial.

Informed consent Not applicable.

Conflict of interest The authors declare no competing interests.

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