Abstracts

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The Effect of Atrial Fibrillation on Right Heart Function in Patients with Heart Failure with Reduced Ejection Fraction

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Background: Left (LV) and right ventricular (RV) function are proposed to be intimately linked. We previously demonstrated that RV dysfunction increases with severity of LV dysfunction. Atrial fibrillation (AF) is an established cause of LV systolic dysfunction, but its effect on RV size and function in this population is not well characterised. We aim to evaluate the effect of AF on RV systolic function in a cohort of non-ischaemic cardiomyopathy patients.

Methods: We compared 64 consecutive patients in sinus rhythm (SR) with 32 patients in AF with stable HFrEF in the absence of coronary artery, significant valvular, congenital, or pulmonary disease. Patients in both SR and AF were categorised based on LVEF (mild 40–49%, moderate 30–39%, severe <30%). Standard and novel echocardiographic parameters of right heart were assessed. RV free wall peak systolic strain (RVFWS) was measured (TomTec Image Arena, Germany v4.6).

Results: Patients with SR (mean age 56 ± 19 y; 61% male), and AF (mean age 67 ± 11 y; 75% male) groups had similar proportions of patients in the mild, moderate and severe groups (SR: n = 25, 21, 18 vs AF n = 10, 12, 10, respectively). Conditional regression analysis revealed that patients with AF had significantly worse RV impairment compared to patients in SR as defined by RV fractional area change (RVFAC; p < 0.001) and RVFWS (p < 0.001) across all grades of LV impairment.

Conclusions: Our results demonstrate that AF is associated with worse RV impairment compared to patients in SR as defined by RV fractional area change (RVFAC) and RVFWS. This highlights the potential benefits of restoration of SR in this cohort of HFpEF patients.

http://dx.doi.org/10.1016/j.hlc.2019.06.323

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The Role of Cardiac Imaging in Monitoring Response to Therapy in Anderson-Fabry disease: A Systematic Review

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Background: Anderson-Fabry disease (AFD) is a rare X-linked inherited metabolic disorder, which results in a deficiency or absence of the enzyme α-galactosidase A, leading to the accumulation of glycosphingolipids in various cells and organs including the heart. Cardiac involvement is common and results in increased myocardial inflammation, left ventricular hypertrophy (LVH) and myocardial fibrosis. Due to the rarity of AFD the utility of cardiac imaging techniques in monitoring pharmacologic therapy has not been fully elucidated.

Methods: Using the MEDLINE database a search was performed by an experienced information specialist using the terms “Fabry disease,” “enzyme replacement therapy” (ERT), “chaperone therapy” and “cardiac.”

Results: Of 472 studies found 32 were included in this systematic review that included one or more imaging parameter prior to initiation of therapy and at least 6 months post therapy. Both echocardiographic (echo) and cardiovascular magnetic resonance imaging (CMR) looking at LV mass regression demonstrated that LVH at baseline is one of the best indicators for regression across all treatment regimes. Furthermore, the absence of replacement fibrosis, as determined by either echo strain imaging or the preferred technique of CMR late gadolinium enhancement (LGE) results in improved cardiac remodelling with treatment.

Conclusion: In patients with AFD the degree of cardiac change with therapy varies according to baseline level of LV mass and presence of cardiac fibrosis. This would indicate that treatment of the AFD cardiomyopathy is most effective prior to the development of myocardial fibrosis.

http://dx.doi.org/10.1016/j.hlc.2019.06.325