

Poster presentation

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Stress cardiomyopathy depresses left atrial function compared to acute anterior myocardial infarction: left atrial size and function by cardiac MRI

Joseph A Browning*¹, Marc C Newell¹, Scott Sharkey², John R Lesser², Jay Traverse², Timothy Henry² and Robert S Schwartz²

Address: ¹University of Minnesota, Minneapolis, MN, USA and ²Minneapolis Heart Institute, Minneapolis, MN, USA

* Corresponding author

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Introduction

Little is known about the left atrium (LA) in acute left ventricular (LV) dysfunction. Left atrial systolic function is reported as normal in Acute Myocardial Infarction (AMI), but its relationship to the degree of LV dysfunction is unknown. Also unclear is whether similar relationships hold in primary LV dysfunction such as Stress Cardiomyopathy (SCM). Cardiac MRI (CMR) is ideally suited to quantitate LA size, shape and function.

Purpose

Examine LA size and function by CMR in SCM and AMI and compare results to matched controls. Examine the relationship between LA and LV with respect to size and function in the setting of acute LV dysfunction.

Methods

CMR was obtained in patients with acute LV dysfunction due to SCM (n = 77) and AMI (n = 37). Age and gender-matched control groups without LV dysfunction were similarly examined. The following parameters were measured for both the left atria and left ventricles in disease and control groups: end-systolic and end-diastolic volume (ESV, EDV); ejection fraction, and stroke volume. Standard, validated area-length algorithms were used to characterize chamber volumes.

Results

LV dysfunction was significantly depressed in both SCM and AMI groups compared to controls (mean EF 49+14% vs. 65+8% and 50+9% vs. 65+7%, respectively) with similarly significant differences for LV stroke volume. LA function in SCM was substantially reduced compared to controls (EF 42+17% vs. 52+11%, P < 0.001), and more than in AMI (45+14% vs. 52+14%, p = 0.04). Diastolic volumes did not differ across disease state or controls. Importantly, there was no statistical relationship between LV function and LA function for either LV myopathic state.

Conclusion

1) Stress Cardiomyopathy has a direct depressive effect on LA function in addition to its negative effect on the left ventricle. 2) LA function is also reduced in AMI, but to a lesser degree when compared to SCM. 3) Little correlation exists between atrial and ventricular function in either disease state.