A Retrospective Study Characterizing Myocardial Strain Patterns in Patients with Mitral Annular Disjunction with and without Mitral Valve Prolapse

John A. Gallagher  
Wayne State University, hl9204@wayne.edu

Ahmad El-Moussa MD  
Wayne State University, aelmoussa@med.wayne.edu

John Dawdy MD  
Wayne State University, jdawdy@med.wayne.edu

Luis Afonso MD  
Wayne State University, LAfonso@med.wayne.edu

Follow this and additional works at: https://digitalcommons.wayne.edu/som_srs

Part of the Medicine and Health Sciences Commons

Recommended Citation
Gallagher, John A.; El-Moussa, Ahmad MD; Dawdy, John MD; and Afonso, Luis MD, "A Retrospective Study Characterizing Myocardial Strain Patterns in Patients with Mitral Annular Disjunction with and without Mitral Valve Prolapse" (2024). Medical Student Research Symposium. 348.  
https://digitalcommons.wayne.edu/som_srs/348

This Research Abstract is brought to you for free and open access by the School of Medicine at DigitalCommons@WayneState. It has been accepted for inclusion in Medical Student Research Symposium by an authorized administrator of DigitalCommons@WayneState.
A Retrospective Study Characterizing Myocardial Strain Patterns in Patients with Mitral Annular Disjunction with and without Mitral Valve Prolapse

**Background:** Mitral annular disjunction (MAD) is an atrial displacement of the mitral valve hinge point. MAD may occur with or without mitral valve prolapse (MVP) and has been linked to ventricular arrhythmias (VA) and sudden cardiac death (SCD). Although cardiac magnetic resonance imaging (cMRI) is the gold standard for MAD detection, it is not practical for screening. We used 2D transthoracic echocardiography (TTE) with speckle tracking echocardiography (STE) to characterize segmental and global longitudinal myocardial strain (SLMS, GLMS) patterns in patients with MAD, +/-MVP.

**Methods:** 43 subjects were identified by searching “MAD” in our institution’s database. GLMS and SLMS patterns were analyzed by STE, and hospital charts were reviewed to record comorbidities.

**Results:** 43 MAD patients (36 +MVP and 7 -MVP) were studied using 2D TTE (average MAD distance 9.6 mm, range 3-22mm). 17 (40%) patients had prior VA (average MAD distance 11.6mm, range 6.6-22mm). Average GLMS was -18.2%; attenuated MS was noted in basal inferior, inferoseptal, and anteroseptal segments (-15.2%, -12.5%, and –13.8%, respectively).

**Conclusion:** It is postulated that MAD causes myocardial fibrosis, leading to arrhythmia. Though MAD can be identified on cMRI, TTE is a better screening test, and STE with MS mapping may offer a novel way of additional characterization.

**Clinical Implications:** We used TTE with STE for MS mapping to profile GLMS and SLMS in patients with MAD, +/-MVP. Our results show that deranged basal LMS may reflect MAD severity. Future research should optimize screening practices with STE to improve outcomes for patients with MAD.