



IMPACT OF OBESITY AND LEFT ATRIAL FIBROSIS ON ATRIAL FIBRILLATION DIAGNOSIS

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Background: Atrial fibrillation (AF) is an irregular heartbeat associated with Left Atrial (LA) tissue remodeling visualized using Delayed Enhancement MRI¹. It is the most prevalent sustained arrhythmia, with 2.7 million Americans diagnosed in 2016, associated with significant morbidity and mortality². Studies have suggested obesity to be a well-described risk factor for AF because they often coexist³. This study aims to evaluate the correlation between AF and obesity.

Methods: 100 Patients underwent delayed-enhancement MRI (DEMRI) for quantification of fibrosis in the left atrium (LA) via Corview software. DEMRI provides a means for Radiologist, Cardiologists, and Electrophysiologists to get a visual understanding of the myopathy and fibrosed tissue caused by AF. A record of every patient's height (kg) and weight (cm) was recorded at time of the MRI. Later a BMI value was calculated using the patient's height and weight, which was then correlated to LA Fibrosis percentage via Wilkinson-Pearson Linear regression analysis.

Results/Conclusions: The data analysis showed a significant correlation between obesity and the development of AF. The correlation between the BMI and LA Fibrosis shows that as BMI increases so does LA Fibrosis and as a result, the likelihood of being diagnosed with AF. Further analysis, study of patient's body mass percentages may show a stronger correlation between the existence of adipose tissue and AF.

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Marrouche, N. F., Wilber, D., Hindricks, G., Jais, P., Akoum, N., Marchlinski, F., ... & Deneke, T. (2014). Association of atrial tissue fibrosis identified by delayed enhancement MRI and atrial fibrillation catheter ablation: the DECAAF study. *Jama*, *311*(5), 498-506.

² What is Atrial Fibrillation (AFib or AF)? (n.d.). Retrieved February 15, 2017, from

http://www.heart.org/HEARTORG/Conditions/Arrhythmia/About/Arrhythmia/What-is-Atrial-Fibrillation-AFib-or-AF_UCM_423748_Article.jsp#.WP5IIIIdTVEE

³ Magnani, J. W., Hylek, E. M., & Apovian, C. M. (2013). Obesity Begets Atrial Fibrillation: A Contemporary Summary. *Circulation*, *128*(4), 401-405. doi:10.1161/circulationaha.113.001840