DOES ATRIAL FIBRILLATION-INDUCED LEFT ATRIAL REMODELING CAUSE MITRAL VALVE DYSFUNCTION?

ACC Poster Contributions
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Background: Atrial fibrillation (AF) is the most common sustained arrhythmia in man and the use of ablation (RFA) to treat it has increased significantly over the past decade. The clinical and echocardiographic profile of this heterogenous population has not been widely investigated. Furthermore, the relationship between AF associated left atrial (LA) remodeling, and its effects on the mitral valve have not been widely studied. Mitral regurgitation (MR) may be a cause or consequence of AF, and we sought to characterize these relationships in this unique cohort.

Method: We retrospectively analysed the periprocedural transthoracic and transesophageal echocardiographic parameters (24 hours before or after RFA) and clinical characteristics of 1370 consecutive patients who underwent RFA between 2003 and 2008 in our institution. Patients with a history of mitral valve surgery, or with incomplete data were excluded.

Results: Patient demographics include mean age 56.2 ±10.2 yrs, 77% male. 37% had persistent AF, 47% HTN and 11% CAD. Mean left ventricular ejection fraction (LVEF) was 58±9% and an LVEF<50% was present in 11%. Mean LA size was 44±7mm. Moderate or greater MR was identified in 15.6%. By comparison, in an unselected group of similar age in the Framingham Study, the incidence of moderate or greater MR was < 2.5 %. Patients with persistent AF had a greater incidence of moderate or greater MR than those with paroxysmal AF (26.6 vs. 9.2%, p < .0001). Similarly, pts with persistent AF also had greater prevalence of moderate or severe LA enlargement (44.6 vs 16.7%, p<0.0001), and of LVEF<50% (21.1 vs. 5.7%, p<0.0001).

Conclusion: In patients with AF undergoing RFA, we found a much higher prevalence of moderate or greater MR than would be expected in the general population. Furthermore, the prevalence of moderate or greater MR, significantly increased LA dimensions and lower LVEF was greater in patients with persistent compared to paroxysmal AF. These observations suggest a potential relationship between AF induced LA and LV remodeling, and MR. Further work is needed to characterize the relationship of AF, LA and LV geometry, and its direct effects on the mitral valve apparatus.