The Impact of Persistent Atrial Fibrillation on Left Ventricular Outflow Tract Obstruction in HCOM

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Background: Persistent (chronic) atrial fibrillation (CAF) is the most common sustained arrhythmia in hypertrophic cardiomyopathy. It is well tolerated by about one third of patients but not uncommonly associated with adverse consequences, particularly when associated with left ventricular outflow tract (LVOT) obstruction.
Objective: To evaluate the effects of CAF on the severity of LVOT obstruction in patients with hypertrophic obstructive cardiomyopathy (HCOM).
Methods: Retrospective analysis of the echocardiographic examinations of all patients with HCOM who developed CAF during follow up at our cardiomyopathy clinic. LV end diastolic dimension (LVDD), LV end systolic dimension (LVSD), LV ejection fraction (EF) and the maximal LVOT gradient were measured in normal sinus rhythm and during CAF.
Results: Ninety nine patients with HCOM were followed in our cardiomyopathy clinic during 13.5±12 years, 11 of them developed CAF (11%). Ten patients were male, mean age 65+10 years. While on normal sinus rhythm LVDD was 47±4 mm, LVSD 26±3 mm and LVEF 63±7%. Maximal LVOT gradient 86+28 mmHg. While on CAF we found no changes on LVDD (46±4 mm), LVSD (26±4 mm) and on LVEF (63±4%). LVOT gradient significantly decreased to 30±24 mmHg (p=0.0003) and was completely abolished in 4 patients.
Conclusion: The presence of CAF is associated with a significant decrease on LVOT obstruction gradients in patients with HCOM without significant changes in LV dimensions or function. The mechanism responsible for this finding remains to be elucidated.