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## Valvular Heart Disease

### CARPENTIER I MITRAL REGURGITATION: NEW INSIGHTS FROM MULTI-DETECTOR COMPUTED TOMOGRAPHY

Poster Contributions

Hall C

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Session Title: Valvular Heart Disease: Functional Imaging

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**Background:** The underlying mechanism of Carpentier I mitral regurgitation (MR) remains controversial. The present study evaluated changes in mitral valve geometry of patients with atrial fibrillation (AF) and structurally and functionally normal left ventricles and mitral leaflets. The multi-detector row computed tomography (MDCT) evaluations prior to radiofrequency catheter ablation for AF were evaluated.

**Methods:** From a cohort of 480 patients with drug-refractory AF referred for catheter ablation, 184 patients (age  $58 \pm 10$  years, 124 (67.4%) men) with structural and functional normal left ventricles and mitral leaflets were included. The intercommissural and anteroposterior diameter, perimeter and area of the mitral annulus were assessed with MDCT and correlated with the grade of MR as assessed with echocardiography.

**Results:** 55 patients (30%) had  $MR \geq 2+$ . These patients had larger mitral annulus area compared with patients with  $MR < 2+$  ( $658.8 \pm 97.7$  mm<sup>2</sup>/m<sup>2</sup> vs.  $530.5 \pm 66.2$  mm<sup>2</sup>/m<sup>2</sup>,  $p < 0.001$ ) while left ventricular size and function (ejection fraction  $65.2 \pm 6.2\%$  vs.  $63.8 \pm 6.4\%$ ,  $p = 0.18$ ) were similar. After adjusting for age, left ventricular end-systolic volume and the type of atrial fibrillation (paroxysmal or persistent), the mitral annulus dimensions remained independently correlated with  $MR \geq 2+$  (Table).

**Conclusion:** In AF patients with structural and functional normal left ventricles and mitral leaflets, mitral annulus dilatation was independently correlated with the grade of MR.

	Multivariate	
	Odds Ratio (95% CI)	P-value
Baseline model:		
Age (years)	1.11 (1.06-1.16)	<0.001
Atrial fibrillation pattern	1.90 (0.74-4.87)	0.184
Left ventricular end-systolic volume (ml/m <sup>2</sup> )	1.12 (1.04-1.21)	0.003
Baseline model + mitral annular intercommissural diameter (mm/m <sup>2</sup> )	1.61 (1.32-1.95)	<0.001
Baseline model + mitral annular anteroposterior diameter (mm/m <sup>2</sup> )	1.93 (1.50-2.47)	<0.001
Baseline model + mitral annular perimeter (mm/m <sup>2</sup> )	1.20 (1.12-1.29)	<0.001
Baseline model + mitral annular area (mm <sup>2</sup> /m <sup>2</sup> )	1.02 (1.01-1.03)	<0.001