

Functional Mitral Regurgitation as a Predictor of Atrial Fibrillation Following Acute Myocardial Infarction

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Background: The role of factors that increase left atrial pressure or cause an acute left atrial dilatation is frequently emphasized in the pathogenesis of atrial fibrillation (AF) in patients with acute myocardial infarction (AMI). Functional (ischemic) mitral regurgitation (FMR) occurring after AMI may promote AF. However, there is no information concerning the role of FMR in the development of new-onset AF in patients with AMI.

Methods: We performed a post hoc analysis of 1529 patients admitted with AMI and enrolled in a prospective study on the clinical outcomes of FMR. Patients with previous AF were excluded. Echocardiography was performed within 7 ± 3 days from admission. FMR was classified into 3 groups: 1) none, 2) mild or mild-moderate, 3) moderate to severe. The relationship between FMR and new-onset AF occurring at any time during hospital course was examined using multivariable logistic regression.

Results: Mild FMR was present in 587 (38.4%) and moderate/severe FMR in 118 (7.7%) of patients. AF developed in 33 (4.0%), 63 (10.7%), and 19 (16.1%) of patients with no/trivial FMR, mild or mild-moderate FMR, and moderate to severe FMR, respectively (P trend < 0.0001). After adjustments for age, gender, hypertension, diabetes, anterior infarction, ST-elevation infarction, Killip class, coronary revascularization, ejection fraction, and FMR grade, both mild or mild-moderate and moderate to severe FMR were strong independent predictors of AF (Table).

Conclusions: There is a graded independent association between the severity of FMR and development of AF in pts with AMI. Concomitant FMR may be an important determinant of new-onset AF in patients with acute MI.

Independent predictors of new-onset atrial fibrillation		
Variable	Odds Ratio (95% CI)	P value
Age > 60	3. (1.8-4.8)	<0.0001
Ejection fraction < 45%	1.7 (1.1-2.5)	0.01
No/trivial FMR	1.0 (Referent)	-
Mild or mild-moderate FMR	2.2 (1.4-3.4)	0.0008
Moderate to Severe FMR	3.0 (1.6-5.6)	0.007