

Initially elevated troponin I in rapid atrial fibrillation should lead to coronary angiography

Esteves AF.; Parreira L.; Marinheiro R.; Fonseca M.; Farinha JM.; Pinheiro A.; Ferreira J.; Mesquita D.; Amador P.; Fonseca N.; Santos R.; Seixo F.; Costa C.; Caria R.

Hospital Center of Setubal, Setubal, Portugal

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Background: In patients admitted to the emergency department (ED) with rapid atrial fibrillation (AF), the decision to undergo coronary angiography is usually due to elevated cardiac biomarkers. However, a study evaluating the rentability of this approach has never been done.

Purpose: Evaluate the predictors of a positive coronary angiography performed in patients with rapid AF and elevated cardiac biomarkers.

Methods: We retrospectively studied patients admitted to the ED between January 2016 and December 2018 with rapid AF who have undergone coronary angiography. We analysed symptoms, risk factors, initial value, peak value and curve of troponin I (TnI) and ST-T segment abnormalities. We evaluated the presence of significant coronary artery stenosis with the need of revascularization at coronary angiography and we used logistic regression to assess the predictors of a positive result.

Results: From 2265 patients admitted to the ED with rapid AF, 46 patients, 60.9% (28) male, median age 73 (IQR 14.75) years, were submitted to coronary angiography. Significant coronary artery stenosis was present in 24 (52.2%) patients. Regarding cardiovascular risk factors, 39 (85.6%) patients had hypertension, 15 (32.6%) had type 2 diabetes mellitus, 36 (78.3%) had dyslipidaemia, 25 (54.3%) were obese or overweight and 12 (26.1%) had a previous history of CAD. Twenty-eight (60.9%) patients presented with chest pain and 27 (58.7%) had ST-T segment abnormalities. Of note, in 17 (37.0%) cases high-sensitivity TnI was measured.

In univariable analysis, ST-T segment abnormalities, the presence of typical TnI curve and an elevated initial TnI predicted the presence of significant CAD in coronary angiography.

In multivariable analysis, an initial TnI value above the upper reference limit (URL) was the only independent predictor of significant CAD in coronary angiography.

Conclusion: In this group of patients with rapid AF an initial elevated TnI was the only independent predictor of the presence of significant CAD. Therefore, maybe it would be advisable to perform coronary angiography in these patients.

	Without CAD	With CAD	Univariate analysis OR (95% CI), p-value	Multivariate analysis OR (95% CI), p-value
Age in years, median (IQR)	69 (15)	77.5 (17)	1.045 (0.988-1.106), 0.127	0.967 (0.882-1.062), 0.484
Type 2 diabetes mellitus, n (%)	5 (23.8)	10 (41.7)	2.286 (0.629-8.313), 0.209	5.865 (0.566-60.806), 0.138
ST-T segment abnormalities, n (%)	8 (36.4)	19 (79.2%)	6.650 (1.788-24.730), 0.005	5.338 (0.491-58.063), 0.169
Typical TnI curve, n (%)	10 (52.6)	20 (90.9)	9.000 (1.628-49.756), 0.012	17.900 (0.475-674.480), 0.119
Elevated initial TnI, n (%)	10 (45.5)	18 (75.0)	3.600 (1.033-12.542), 0.044	15.167 (1.363-168.778), 0.027
Peak TnI elevation >2 times URL, n (%)	11 (50.0)	18 (75.0)	3.000 (0.863-10.428), 0.084	0.169 (0.005-5.298), 0.312