EDITORIAL

De novo Atrial Fibrillation in STEMI: A Clinical Red Flag

La fibrilación auricular de novo en el IAMCEST: una señal de alarma clínica

MIRZA RIVERO[1, MTSAC]

Atrial fibrillation (AF) is the most common arrhythmia encountered by cardiologists in a variety of clinical settings: in patients with heart failure, in the postoperative period following cardiac and non-cardiac surgery, in intensive care units, and, of course, in acute myocardial infarction (AMI). (1) It is estimated that approximately 10% of patients with acute coronary syndrome present with *de novo* AF on admission, (2,3) and this incidence may be even higher after intensive monitoring or the use of implantable devices. (4,5)

The risk factors for AF are well established: advanced age, obesity, hypertension, smoking, diabetes, and excessive alcohol consumption. (6,7) These factors largely overlap with those for myocardial infarction, which raises the question: why do some patients with AMI develop AF during the acute event? This question points, on the one hand, to the substrate (age, atrial fibrosis, structural heart disease) and, on the other hand, indicates that AF may be a marker of the severity of the clinical condition, likely triggered by an adrenergic discharge and the hemodynamic stress characteristic of acute heart failure. (2)

Attempting to predict which patients will develop AF in the context of AMI is an important step toward a more accurate risk stratification and better therapeutic guidance. In practice, patients with ST-segment elevation myocardial infarction (STEMI) and AF raise multiple questions: does AF necessarily indicate heart failure? Should rhythm or rate control be prioritized? Should anticoagulation be initiated immediately, even if AF reverts spontaneously? How should the balance between anticoagulation and antiplatelet therapy be managed?

In this issue of the Argentine Journal of Cardiology, Julia Janches Quiñones and colleagues address these questions through a retrospective analysis of the ARGEN-IAM-ST continuous registry, to assess the incidence, predictors, and prognostic value of *de novo* AF in STEMI. (8) In a cohort of over 7200 patients, they found a 4.3% incidence of *de novo* AF and, using the Boruta algorithm—a variable selection tool in machine learning environments—they identified age ≥70 years, Killip and Kimball classes B–D, tachycardia on admission, and ejection fraction <35% as clinical predictors.

In this analysis, *de novo* AF was associated with a higher incidence of ischemic stroke (2.5% vs. 0.8%), longer hospital stay, and a significantly higher in-hospital mortality rate (23.3% vs. 8.2%). However, after adjustment for confounding variables, *de novo* AF did not act as an independent predictor of mortality, suggesting that, rather than being a direct cause, it is more likely a marker of greater clinical severity and ventricular dysfunction, at least during hospitalization.

Although *de novo* AF was not shown to be an independent predictor of in-hospital death in this study, the role of AF in the long-term prognosis of these patients remains to be determined. Several similar studies suggest that the prognosis of *de novo* AF following AMI is similar to that of AF diagnosed prior to the ischemic event, with implications for increased thromboembolic risk, anticoagulation decisions, and higher bleeding risk. (9-11)

Unlike other prediction models developed in selected cohorts or clinical trials, this study offers a representative view of the real-world practice in Argentina. The use of the Boruta algorithm —a technique usually reserved for data science contexts to identify the most predictive variables— reflects a methodological advancement in national clinical registries. However, it is worth noting that the model did not include variables related to infarct size or location, atrial echocardiographic parameters, or post-hospitalization follow-up, which could enhance future developments.

Rev Argent Cardiol 2025;93:95-96. https://doi.org/10.7775/rac.v93.i2.20885

SEE RELATED ARTICLE: Rev Argent Cardiol 2025;93:97-104. https://doi.org/10.7775/rac.v93.i2.20876

Correspondence: Mirza Rivero Email: mrivero@cemic.edu.ar

[1] Coordinator of the Coronary Care Unit at Centro de Educación Médica e Investigación Clínica, CEMIC, Autonomous City of Buenos Aires

These findings complement and expand on observations made in other clinical settings. In a recent analysis of the SCACEST registry from the Buenos Aires I study, AF was also identified as a marker of higher clinical risk in patients with non-ST-segment elevation myocardial infarction, associated with older age, ventricular dysfunction, and heart failure, although without an independent impact on mortality. The comparison between the two registries —SCACEST and IAMCEST— reinforces the hypothesis that *de novo* AF in the context of acute coronary syndrome, rather than being an isolated entity, should be understood as an expression of the patient's hemodynamic severity and baseline frailty. (12)

This study represents a valuable local contribution that describes a frequent and challenging complication using national data, supported by a robust and continuous registry such as ARGEN-IAM. Although the predictive model does not, by itself, change therapeutic decision-making, it enables the clear identification of a clinical phenotype —elderly patients with hemodynamic deterioration and ventricular dysfunction— that justifies intensive monitoring, early assessment of complications, and a cautious approach to antithrombotic management.

Moreover, this work paves the way to further research into the long-term prognostic and therapeutic implications of novo AF following myocardial infarction, a field that remains largely unexplored in the region.

Conflicts of interest

None declared

(See authors conflicts of interest forms on the website).

Ethical considerations

Not applicable.

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