



ORIGINAL ARTICLE

## Impact of atrial fibrillation type during acute coronary syndromes: Clinical features and prognosis



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Received 17 June 2014; accepted 1 January 2015

Available online 29 May 2015

### KEYWORDS

Atrial fibrillation;  
Acute coronary  
syndrome;  
Prognosis

### Abstract

**Introduction:** Atrial fibrillation (AF) is widely recognized as an adverse prognostic factor during acute myocardial infarction, although the impact of AF type – new-onset (nAF) or pre-existing (pAF) – is still controversial.

**Objectives:** To identify the clinical differences and prognosis of nAF and pAF during acute coronary syndromes (ACS).

**Methods:** We performed a retrospective observational cohort study including 1373 consecutive patients (mean age 64 years, 77.3% male) admitted to a single center over a three-year period, with a six-month follow-up.

**Results:** AF rhythm was identified in 14.5% patients, of whom 71.4% presented nAF and 28.6% pAF. When AF types were compared, patients with nAF more frequently presented with ST-elevation ACS ( $p=0.003$ ). Patients with pAF, in turn, were older ( $p=0.032$ ), had greater left atrial diameter ( $p=0.001$ ) and were less likely to have significant coronary lesions ( $p=0.034$ ). Regarding therapeutic strategy, nAF patients were more often treated by rhythm control during hospital stay ( $p<0.001$ ) and were less often anticoagulated at discharge ( $p=0.001$ ). Compared with the population without AF, nAF was a predictor of death during hospital stay in univariate ( $p<0.001$ ) and multivariate analysis (OR 2.67,  $p=0.047$ ), but pAF was not. During follow-up, pAF was associated with higher mortality ( $p=0.014$ ), while nAF patients presented only a trend towards worse prognosis.

**Conclusions:** AF during the acute phase of ACS appears to have a negative prognostic impact only in patients with nAF and not in those with pAF.

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**PALAVRAS-CHAVE**

Fibrilhação auricular;  
Síndrome coronária  
aguda;  
Prognóstico

## Impacto do tipo de fibrilhação auricular no contexto das síndromes coronárias agudas – características clínicas e prognóstico

**Resumo**

**Introdução:** A fibrilhação auricular (FA) é um reconhecido fator de mau prognóstico no enfarte agudo do miocárdio, no entanto, o impacto do tipo de FA, *de novo* (FAn) ou pré-existente (FAP), é ainda controverso.

**Objetivos:** Identificar as diferenças clínicas e o prognóstico da FAn e da FAP nas síndromes coronárias agudas (SCA).

**Métodos:** Estudo retrospectivo observacional de coorte, incluindo 1373 doentes consecutivos (idade média 64 anos, 77,3% homens) com SCA, admitidos num hospital, ao longo de três anos, com *follow-up* de seis meses.

**Resultados:** A FA foi identificada em 14,5% doentes, dos quais 71,4% tinham FAn e 28,6% FAP. Comparando os tipos de FA, verificou-se que os doentes com FAn apresentaram mais frequentemente SCA com elevação do segmento ST ( $p=0,003$ ). Por sua vez, a FAP foi mais comum em doentes idosos ( $p=0,032$ ), com diâmetro superior da aurícula esquerda ( $p=0,001$ ) e ausência de doença coronária ( $p=0,034$ ). Quanto à estratégia terapêutica, os doentes com FAn foram mais vezes submetidos a controlo de ritmo durante o internamento ( $p<0,001$ ), mas menos hipocoagulados à alta ( $p=0,001$ ). Quando comparada com a população sem FA, a FAn foi preditora de morte hospitalar na análise univariada ( $p<0,001$ ) e multivariada (OR 2,67,  $p=0,047$ ), enquanto a FAP não. Já no *follow-up*, a FAP associou-se a maior mortalidade ( $p=0,014$ ), enquanto os doentes com FAn apresentaram apenas uma tendência para um pior prognóstico.

**Conclusões:** O impacto prognóstico negativo da FA na fase aguda das SCA parece ocorrer apenas nos doentes que apresentam FAn e não naqueles com FAP.

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**Introduction**

Atrial fibrillation (AF) frequently complicates the clinical course of acute myocardial infarction (AMI), with a reported incidence between 6 and 21%.<sup>1</sup> Although this arrhythmia is a well-established independent predictor of mortality in the short and long term after AMI,<sup>2-4</sup> the impact of the specific AF type – new-onset or pre-existing – may be different. Few published studies have been conducted regarding this question and the results are conflicting.<sup>2,5-11</sup> In a recent meta-analysis, Angeli et al.<sup>12</sup> showed that AF in the setting of AMI was associated with a two-fold higher risk of in-hospital mortality, but the risk of death was 87% higher in patients with new-onset AF than in those with permanent AF.

The primary aim of this study was to identify the clinical differences and prognostic impact of AF type during acute coronary syndromes (ACS).

**Methods**

This was a retrospective observational cohort study with a six-month follow-up. All patients ( $n=1373$ ; mean age 64 years, 77.3% male) consecutively admitted to the coronary care unit of a single center with a diagnosis of ACS between July 2009 and June 2012 were included.

Diagnoses of ACS and AF were made according to the European Society of Cardiology guidelines.<sup>13-16</sup> Heart failure was defined as Killip class  $\geq 2$  during hospitalization and

as NYHA class  $\geq 2$  during follow-up. Patients with AF were divided according to the timing of the arrhythmia: every patient who presented with AF for the first time (i.e., who did not have previously documented AF) at admission or during hospital stay was considered to have new-onset AF, while those with previously documented AF were classified as having pre-existing AF (paroxysmal, persistent or permanent).

Regarding AF management, a rhythm control strategy was defined as the aim of restoration and successful maintenance of sinus rhythm and rate control strategy as acceptance of AF rhythm with ventricular rate control. The use of oral anticoagulation and antiarrhythmic therapy (amiodarone) at discharge was also assessed. The management of each patient was individualized and based on clinical parameters.

Demographic, clinical, laboratory, echocardiographic and coronary angiographic data were collected prospectively and recorded in a computerized database, in accordance with our department's protocol for patients admitted to the coronary care unit with ACS.

Concerning laboratory data, N-terminal pro-brain natriuretic peptide (NT-proBNP) values were obtained within 24 hours of admission and peak creatinine was considered to be the maximum value during hospitalization. Glomerular filtration rate was calculated at presentation using the abbreviated Modification of Diet in Renal Disease formula.<sup>17</sup>

The first echocardiogram performed in hospital was used to provide echocardiographic data. Right ventricular systolic dysfunction was defined as tricuspid annular systolic excursion  $>16$  mm.

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