Predictors of de novo atrial fibrillation in a non-cardiac intensive care unit

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Objective: To assess the predictors of de novo atrial fibrillation in patients in a non-cardiac intensive care unit.

Methods: A total of 418 hospitalized patients were analyzed between January and September 2016 in a non-cardiac intensive care unit. Clinical characteristics, interventions, and biochemical markers were recorded during hospitalization. In-hospital mortality and length of hospital stay in the intensive care unit were also evaluated.

Results: A total of 310 patients were included. The mean age of the patients was 61.0 ± 18.3 years, 49.4% were male, and 23.5% presented de novo atrial fibrillation. The multivariate model identified previous stroke (OR = 10.09; p = 0.016) and elevated levels of pro-B type natriuretic peptide (proBNP, OR = 1.28 for each 1,000 pg/mL increment; p = 0.004) as independent predictors of de novo atrial fibrillation. Analysis of the proBNP receiver operating characteristic curve for prediction of de novo atrial fibrillation revealed an area under the curve of 0.816 (p < 0.001), with a sensitivity of 65.2% and a specificity of 82% for proBNP > 5,666 pg/mL. There were no differences in mortality (p = 0.370), but the lengths of hospital stay (p = 0.002) and stay in the intensive care unit (p = 0.031) were higher in patients with de novo atrial fibrillation.

Conclusions: A history of previous stroke and elevated proBNP during hospitalization were independent predictors of de novo atrial fibrillation in the polyvalent intensive care unit. The proBNP is a useful and easy- and quick-access tool in the stratification of atrial fibrillation risk.

Keywords: Atrial fibrillation/epidemiology; Incidence; Intensive care

INTRODUCTION

The prevalence of atrial fibrillation (AF) is high, reaching 10% in individuals over 80 years of age.1-3 AF is associated with longer stays in the hospital and intensive care unit (ICU),4 and de novo AF in critically ill patients is associated with higher mortality.5 The clinical complexity of patients in the ICU requires rapid diagnosis and effective treatment of this condition.6-8

In this context, knowledge of the epidemiology of this event in critically patients becomes important. The incidence of de novo AF ranges from 5 to 65%, depending on the type of ICU, and is higher in patients undergoing cardiac surgery.9-18 In turn, the large variation in the incidence of de novo AF in the various types of ICU can be explained by different predictors of AF occurrence.
Some of these predictors of de novo AF have already been described in the literature, especially in critical cardiac patients, such as advanced age, greater severity score on admission, surgical or post-trauma admission, occurrence of sepsis, and need for ventilatory or catecholamine support. However, for medical and non-cardiac surgical ICU patients, there is a paucity of data in the literature regarding predictors of de novo AF. Therefore, the objective of this study was to investigate the predictive factors of de novo AF in patients in a non-cardiac polyvalent ICU (critically ill and non-cardiac surgical patients). As secondary objectives, the incidence of de novo AF and its prognostic impact in terms of in-hospital mortality and length of hospital and ICU stay were also evaluated.

METHODS

A sample of patients hospitalized during a period of 9 months (January 1, 2016 to September 30, 2016) in a non-cardiac polyvalent ICU at the Fernando Fonseca Hospital, Lisbon, Portugal, were retrospectively and consecutively analyzed.

The data were obtained through clinical consultations and were complemented by analytical and other diagnostic evaluations. The Hospital Ethics Committee approved the study, and informed consent was not required given the study’s observational nature.

The ICU had 14 beds. Patients with a pathology requiring mechanical ventilation, trauma patients, and non-cardiac surgery patients were admitted.

All patients were under continuous cardiac monitoring with three leads. The presence of an absolutely irregular RR interval with no apparent P waves or the replacement of these by AF waves was classified as AF, with subsequent confirmation on a 12-lead electrocardiogram. For classification as de novo AF, all patients with sinus rhythm on ICU admission and without any record of prior AF or atrial flutter (documented electrocardiographically, in a previous medical report or indicated by the patient and/or family) were considered. To this end, the national platform of medical records, called the Health Data Platform (Plataforma de Dados da Saúde), was also consulted. Patients with a definite pacemaker on admission or previous cardiac surgery, chest trauma, or pulmonary thromboembolism in the last year (the latter two associated with a higher risk of de novo AF) were excluded from this group.

Each patient was classified according to the reason for hospitalization: medical, surgical, or trauma. Each patient was further stratified on admission according to the in-hospital mortality scores Acute Physiology and Chronic Health Evaluation II (APACHE II) and Simplified Acute Physiology Score (SAPS II).

The presence of the following cardiovascular disease and risk factors was evaluated: arterial hypertension, dyslipidemia, diabetes mellitus, obesity, smoking, heart valve disease, heart failure (HF), and previous acute coronary syndrome. Individuals with at least 1 year of smoking cessation were considered former smokers/non-smokers. The presence of heart valve disease was assumed in individuals with stenosis and/or moderate or severe failure of at least one valve, previously documented by an imaging method. Chronic obstructive pulmonary disease (COPD), obstructive sleep apnea syndrome, stroke, thyroid function disorders, and chronic kidney disease were also documented. The COPD definition of the Global Initiative for Chronic Obstructive Lung Disease was adopted. In cases of kidney injury or a glomerular filtration rate of less than 60mL/min/1.73m² for 3 months or more, the presence of chronic kidney disease was assumed, according to the Kidney Disease Outcomes Quality Initiative of the National Kidney Foundation.

The infectious complications were recorded (nosocomial infection, sepsis, and septic shock), applying the criteria defined by the recommendations of the Surviving Sepsis Campaign.

Information regarding the interventions performed up to the date of occurrence of AF were recorded. The peak/maximum values of C-reactive protein, serum creatinine, and pro-B type natriuretic peptide (proBNP) were also documented in all patients admitted to the ICU, as was the serum albumin nadir/minimum value during hospitalization until the date of occurrence of AF. Serial measurements of these biomarkers are part of the institutional protocol.

Statistical analysis

The demographic and clinical characteristics of the sample were analyzed using descriptive statistics. Continuous variables with normal distribution are expressed as the mean ± standard deviation (SD), and categorical variables as the number of patients in each category and corresponding percentages. Nonparametric continuous variables are expressed as medians and...
interquartile ranges. Normal distribution was assessed using the Kolmogorov-Smirnov test.

Continuous variables were compared using the independent Student’s t test or Mann-Whitney U test, as appropriate. The association of categorical variables was assessed using the chi-square test or Fisher’s exact test.

Univariate logistic regression analysis was used to identify risk factors associated with the development of de novo AF during ICU stay. All variables considered as significant predictors of de novo AF (p < 0.05) were further analyzed using multivariate logistic regression. The results of the regression analysis are expressed as odds ratios (ORs) and 95% confidence intervals (95%CI), with p < 0.05 being considered statistically significant.

The peak proBNP performance for prediction of de novo AF during ICU stay was tested using the receiver operating characteristic (ROC) curve. The Youden index was used to identify the optimal cutoff point of proBNP, thereby determining the sensitivity, specificity, accuracy, predictive values, and positive and negative likelihood ratios.

Lastly, the impacts of de novo AF on the lengths of stay in the hospital and ICU were analyzed using the Mann-Whitney U test, and its impact on in-hospital mortality was analyzed using the Fisher exact test.

Statistical analysis was performed with the Statistical Package for Social Science (SPSS), version 22.0 (Chicago, IL, USA).

RESULTS

Of the 418 patients admitted to the ICU during the study period, 91 patients were excluded due to previous AF (21.8%), 11 due to the presence of a definitive pacemaker (3.4%), and 6 due to chest trauma (1.9%). No patient had a history of pulmonary thromboembolism in the last year or had been admitted to the ICU for cardiac surgery (Figure 1). Thus, 310 patients admitted during the study period were included in the final analysis.

The mean age of the patients was 61.0 ± 18.3 years, and 49.4% (n = 153) were male. Table 1 summarizes the main demographic and clinical characteristics of our sample.

Table 2 summarizes the outcomes, complications (nosocomial infection, sepsis, septic shock, and death), the interventions performed during hospitalization, and the values of the laboratory markers studied.

During the study period, 73 patients with de novo AF (23.5%; 95%CI 18.9 - 28.7) were recorded. The incidence rates of de novo AF were 24.2% in males and 22.9% in females (p = 0.894). De novo AF occurred in 15.3% of medical admissions, 15.8% of surgical admissions, and 9.1% of admissions due to non-thoracic trauma.

Table 3 summarizes the general characteristics of the population, according to the presence or not of de novo AF (univariate analysis). Upon admission, patients with de novo AF were significantly older (70.1 ± 14.7 years versus 58.1 ± 18.5 years; p < 0.001) and had higher baseline prevalence rates of arterial hypertension (68.5% versus 48.9%; p = 0.005), HF (26.0% versus 6.8%; p < 0.001), valve disease (8.2% versus 0.4%; p = 0.001), stroke (27.4% versus 15.6%; p = 0.037), and thyroid dysfunction.

Figure 1 - Flowchart of patient inclusion in the study. AF - atrial fibrillation; ICU - intensive care unit.

| Table 1 - General population characteristics (n = 310) |
|----------------------|---------------------|
| Variables                         | 61.0 ± 18.3 |
| Age (years)                       | Male sex 153 (49.4) |
| Type of admission | Medical 242 (78.1) |
|                        | Surgical 57 (18.4) |
| Risk factor/cardiovascular pathology | Non-thoracic trauma 11 (3.5) |
| Arterial hypertension 166 (53.5) | Dyslipidemia 43 (13.9) |
| Diabetes mellitus 64 (20.6) | Obesity 23 (7.4) |
| Smoking 41 (13.2) | Heart failure 35 (11.3) |
| Valve disease 7 (2.3) | Acute coronary syndrome 24 (7.7) |
| Respiratory disease | Chronic obstructive pulmonary disease 41 (13.2) |
| Obstructive sleep apnea syndrome 8 (2.6) | Stroke 57 (18.4) |
| Chronic kidney disease 36 (11.6) | Thyroid dysfunction 10 (3.2) |
| SAPS II 36 (12 - 56) | APACHE II 16 (10 - 26) |

SD - standard deviation; APACHE II - Acute Physiology and Chronic Health Evaluation II; SAPS II - Simplified Acute Physiology Score. Values are expressed as the means ± standard deviations, n (%), or medians (interquartile ranges).
Table 2 - Outcomes, complications, interventions performed, and laboratory markers (n = 310)

| Infectious complications       | No de novo AF (n = 73) | De novo AF (n = 237) |
|-------------------------------|------------------------|---------------------|
| Nosocomial infection          | 129 (41.6)             | 152 (49.0)          |
| Sepsis                        | 152 (49.0)             | 152 (49.0)          |
| Septic shock                  | 71 (22.9)              | 71 (22.9)           |

| Interventions                 | No de novo AF (n = 73) | De novo AF (n = 237) |
|-------------------------------|------------------------|---------------------|
| Catecholamine support         | 90 (29.0)              | 90 (29.0)           |
| Non-invasive ventilation      | 43 (13.9)              | 43 (13.9)           |
| Invasive mechanical ventilation | 168 (54.2)          | 168 (54.2)          |
| Days on invasive ventilation  | 1 (0 - 7)              | 1 (0 - 7)           |
| Reintubation                  | 13 (4.2)               | 13 (4.2)            |
| Tracheotomy                   | 23 (7.4)               | 23 (7.4)            |
| Renal replacement             | 31 (10.0)              | 31 (10.0)           |
| Central venous catheter       | 221 (71.3)             | 221 (71.3)          |

| Laboratory markers           | No de novo AF (n = 73) | De novo AF (n = 237) |
|-------------------------------|------------------------|---------------------|
| Peak serum creatinine (mg/dL) | 1.37 (0.93 - 2.75)     | 1.84 (1.65 - 2.96)  |
| Nadir serum albumin (g/dL)   | 2.85 ± 1.79            | 2.85 ± 1.79         |
| Peak C-reactive protein (mg/dL) | 16.9 (6.3 - 28.8) | 16.9 (6.3 - 28.8)  |
| Peak proBNP (pg/mL)           | 4,640 (1,220 - 10,155) | 4,640 (1,220 - 10,155) |

| Days of ICU stay             | 6 (3 - 13)             | 6 (3 - 13)          |
| Days of hospital stay        | 9 (4 - 20)             | 9 (4 - 20)          |
| In-hospital mortality        | 52 (16.8)              | 52 (16.8)           |

proBNP - pro-B type natriuretic peptide; ICU - intensive care unit. Values are expressed as n (%), medians (interquartile ranges), or means ± standard deviations.

(8.2% versus 1.7%; p = 0.007). All 6 patients with de novo AF and thyroid dysfunction had hypothyroidism. The median APACHE II scores (21 points versus 15 points) and SAPS II scores (47 points versus 34 points) were also significantly higher in patients with de novo AF (p = 0.004 and p < 0.001, respectively).

Table 3 - Sample characteristics according to the presence or absence of de novo atrial fibrillation

| Age in years       | 70.1 ± 14.7 | 58.1 ± 18.5 | < 0.001 |
|--------------------|-------------|-------------|---------|
| Male sex           | 37 (50.7)   | 116 (48.9)  | 0.894   |
| Type of admission  |             |             |         |
| Medical            | 63 (86.3)   | 179 (75.5)  | 0.290   |
| Surgical           | 9 (12.3)    | 48 (20.3)   |         |
| Non-thoracic trauma| 1 (1.4)     | 10 (4.2)    |         |
| Risk factors/cardiovascular pathology |         |             |         |
| Arterial hypertension| 50 (68.5)  | 116 (48.9)  | 0.005   |
| Dyslipidemia       | 12 (16.4)   | 31 (13.1)   | 0.446   |
| Diabetes mellitus  | 12 (16.4)   | 52 (21.9)   | 0.408   |
| Obesity            | 4 (5.5)     | 19 (8.0)    | 0.613   |
| Smoking            | 8 (11.0)    | 33 (13.9)   | 0.693   |
| Heart failure      | 19 (26.0)   | 16 (6.8)    | < 0.001 |
| Valve disease      | 6 (8.2)     | 1 (0.4)     | 0.001   |
| Acute coronary syndrome| 2 (2.7)   | 4 (1.7)     | 0.629   |

Respiratory disease

| Chronic obstructive pulmonary disease | 9 (12.3) | 32 (13.5) | 1.000 |
| Obstructive sleep apnea syndrome     | 3 (4.1)  | 5 (2.1)   | 0.398 |
| Stroke                               | 20 (27.4)| 37 (15.6) | 0.037 |
| Chronic kidney disease               | 10 (13.7)| 26 (11.0) | 0.534 |
| Thyroid dysfunction                  | 6 (8.2)  | 4 (1.7)   | 0.007 |
| APACHE II                            | 21 (12 - 28)| 15 (10 - 24)| 0.004 |
| SAPS II                              | 47 (33 - 65)| 34 (22 - 51)| < 0.001 |

AF - atrial fibrillation; APACHE II - Acute Physiology and Chronic Health Evaluation II; SAPS II - Simplified Acute Physiology Score. Values are expressed as the means ± standard deviations, n (%), or medians (interquartile ranges).

not significantly different between patients with and those without HF (median 11,068pg/mL versus 7,875pg/mL; p = 0.222).

After the selection of the significant predictors in the univariate analysis and their application in the multivariable model (Table 5), the presence of stroke (OR = 10.09; 95%CI 1.54 - 66.27; p = 0.016) and elevated proBNP values (OR = 1.28; 95%CI 1.086 - 1.520; p = 0.004, for each 1,000pg/mL increment) were identified as independent predictors of de novo AF.

The capacity of the proBNP peak to predict de novo AF during ICU stay was tested using the ROC curve; the area under curve (AUC) was 0.816 (95%CI 0.733 - 0.899; p < 0.001), demonstrating good performance (Figure 2). A proBNP value > 5,666pg/mL was identified as the optimal cutoff point for prediction of de novo AF, with a sensitivity of 65.2% and a specificity of 82% (Table 6).
Patients with *de novo* AF had significantly longer stays in the hospital (14 [7 - 23] days *versus* 8 [4 - 19] days; *p* = 0.002) and ICU (8 [4 - 16] days *versus* 6 [3 - 12] days; *p* = 0.031).

There were no significant differences in in-hospital mortality between patients with and those without *de novo* AF (20.5 *versus* 15.6%; *p* = 0.370).

**DISCUSSION**

**Predictors of *de novo* atrial fibrillation: the role of proBNP**

In our population, the presence of previous stroke and an elevated proBNP value were independent predictors of *de novo* AF. The existence of previously documented paroxysmal AF is one of the possible explanations for the high prevalence of prior stroke in this subgroup with *de novo* AF. Such individuals presented sinus rhythm on admission, though they may have had previous paroxysmal AF that manifested *de novo* during hospitalization.

In turn, proBNP was found to be a marker with good performance in predicting *de novo* AF in the ICU. To the best of our knowledge, there are no previous studies demonstrating this role of proBNP in general ICUs. A recent study by Chokengarmwong et al.\(^{(24)}\) performed with 387 patients without AF revealed that proBNP at

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**Table 4 - Complications, interventions performed, and laboratory markers according to the presence or absence of *de novo* atrial fibrillation**

|                                | *De novo AF (n = 73)* | *No de novo AF (n = 237)* | *p* value |
|--------------------------------|------------------------|---------------------------|-----------|
| **Infectious complications**   |                        |                           |           |
| Nasocomial infection           | 37 (50.7)              | 92 (38.8)                 | 0.079     |
| Sepsis                         | 41 (56.2)              | 111 (46.8)                | 0.182     |
| Septic shock                   | 27 (37.0)              | 44 (18.6)                 | 0.002     |
| **Interventions performed**    |                        |                           |           |
| Catecholamine support          | 30 (41.1)              | 60 (25.3)                 | 0.012     |
| Non-invasive ventilation       | 13 (17.8)              | 30 (12.7)                 | 0.332     |
| Invasive mechanical ventilation| 44 (60.3)              | 124 (52.3)                | 0.283     |
| Days on invasive ventilation   | 2 (0 - 10)             | 1 (0 - 6)                 | 0.082     |
| Reintubation                   | 6 (8.2)                | 7 (3.0)                   | 0.086     |
| Tracheotomy                    | 8 (11.0)               | 15 (6.4)                  | 0.205     |
| Renal replacement              | 11 (15.1)              | 20 (8.4)                  | 0.118     |
| Central venous catheter        | 62 (84.9)              | 159 (67.1)                | 0.003     |
| **Laboratory markers**         |                        |                           |           |
| Peak serum creatinine (mg/dL)  | 1.84 (1.09 - 3.65)     | 1.22 (0.89 - 2.41)        | 0.002     |
| Nadir serum albumin (g/dL)     | 1.94 (1.55 - 2.42)     | 2.15 (1.65 - 2.64)        | 0.140     |
| Peak C-reactive protein (mg/dL)| 18.8 (9.81 - 28.8)     | 16.2 (5.8 - 28.8)         | 0.422     |
| Peak proBNP (pg/mL)            | 9.461 (2.951 - 17.882) | 1.652 (0.535 - 5.289)     | < 0.001   |

AF - atrial fibrillation; proBNP - pro-B type natriuretic peptide. Values are expressed in n (%) or medians (interquartile ranges).

**Table 5 - Multivariate model for prediction of *de novo* atrial fibrillation**

| Multivariate model*          | B    | OR   | 95%CI for OR | *p* value |
|------------------------------|------|------|--------------|-----------|
| Age (per 1-year increment)   | 0.028| 1.028| 0.965 - 1.095| 0.394     |
| High blood pressure          | 0.936| 2.550| 0.482 - 13.487| 0.271     |
| Heart failure                | 0.997| 2.711| 0.447 - 16.438| 0.278     |
| Valve disease                | 19.818| 4.04 x 10^6| 0.000     |
| Stroke                       | 2.311| 10.087| 1.535 - 66.271| 0.016     |
| Thyroid dysfunction          | 2.407| 11.105| 0.784 - 157.2| 0.075     |
| APACHE II (per point increment)| 0.140| 1.150| 0.990 - 1.336| 0.067     |
| SAPS II (per point increment) | 0.062| 1.064| 0.987 - 1.146| 0.104     |
| Septic shock                 | 1.584| 0.940| 0.872 - 1.013| 0.162     |
| Catecholamine support        | 0.528| 1.696| 0.247 - 11.624| 0.591     |
| Central venous catheter      | 0.239| 1.269| 0.157 - 10.292| 0.823     |
| Peak serum creatinine (per 1 mg/dL increment) | 0.230| 1.259| 0.850 - 1.864| 0.250     |
| Peak proBNP (per 1,000 pg/mL increment) | 0.250| 1.284| 1.086 - 1.520| 0.004     |

B - coefficient B; OR - odds ratio; 95% CI - 95% confidence interval; APACHE II - Acute Physiology and Chronic Health Evaluation II; SAPS II - Simplified Acute Physiology Score; proBNP - pro-B type natriuretic peptide. * Only variables with *p* < 0.05 were included in the multivariable analysis.
admission is a predictor of de novo AF in the first 3 days of hospitalization in a surgical and trauma ICU. In our study, proBNP > 5,666 pg/mL showed good specificity and reasonable sensitivity in the prediction of de novo AF. However, the pathophysiological relationship between AF and proBNP still needs to be explained and may be attributed to atrial dilation, atrial fibrosis, or even decompensation of the underlying disease.\(^{(25)}\) However, it seems more likely that proBNP, like troponin, is a consequence rather than a cause of stress and/or injury. Regardless of the type of pathophysiological relationship between AF and proBNP, elevated values of the latter allow the identification of patients at risk for AF. In turn, the early identification of these patients allows establishing early strategies for the prevention of AF.

**High incidence of de novo atrial fibrillation in the general intensive care unit**

The incidence of de novo AF observed in our medical non-cardiac surgical ICU was 23.5%, which is considered high in this type of ICU. Although several previous studies focused on cardiac and surgical populations,\(^{(10-14,26)}\) our data suggest that de novo AF is also a fairly frequent problem in the polyvalent ICU. Previous studies on the incidence of de novo AF in general ICUs have shown that the frequency of these events can reach 7 to 15%. However, some of these studies focused on the incidence of supraventricular tachyarrhythmias, regardless of the type of arrhythmia;\(^{(4,17)}\) in these studies, the incidence of AF may be lower.

The increased proportion of septic patients with nosocomial infection in the ICU during the period of our study may explain the high incidence of AF. In fact, inflammation is a common process in critically ill patients and may be a mechanism in the genesis of AF.\(^{(27)}\) In critically ill patients, in addition to the infectious pathology, respiratory and cardiac pathologies, invasive procedures, and the use of mechanical ventilation and catecholamine support may be triggers of AF.\(^{(15)}\)

**Prognosis and prevention strategies**

Previous studies have shown that AF is associated with higher in-hospital mortality in critically ill patients, especially in those with advanced age.\(^{(28)}\) Although there were no significant differences in in-hospital mortality between patients with and those without de novo AF in our cohort, the median days of hospital and ICU stay were significantly higher in the latter. To a certain extent, prolonged hospitalization in patients with AF may be associated with increased morbidity and higher health costs. Thus, the prevention of AF plays a central role in critically ill patients at increased risk (here identified by elevated proBNP). Several prophylactic AF strategies have been described,\(^{(29,30)}\) most of which are described in critically ill patients after thoracic surgery.

Our study has some limitations due to its retrospective nature and the heterogeneous group of patients. The small sample size and participation of a single hospital center also limit the capacity to infer the overall impact of AF.
predictors. Recording the type and dose of catecholamines administered was not part of the study protocol, and these data may have a relevant impact on the prediction of AF. Data regarding the position of the central venous catheter and the possible rapid volume expansion phases may play relevant roles in both the proBNP levels and the prediction of AF; however, these data were not evaluated in the present study. Although the diagnostic sensitivity of proBNP should be not be considered a strong effect, this limitation is compensated at least partly by the considerable specificity of proBNP in detecting *de novo* AF in this population. Only a small proportion of patients had available echocardiographic parameters; therefore, these data were excluded from the analysis. However, proBNP has the advantage of being an easily accessible marker in non-cardiac ICUs.

**CONCLUSIONS**

History of previous stroke and elevated proBNP on admission were independent predictors of *de novo* atrial fibrillation in the polyvalent intensive care unit. ProBNP can be a useful and easily and quickly accessible tool to stratify the risk of atrial fibrillation. The high incidence of *de novo* atrial fibrillation in the polyvalent non-cardiac intensive care unit emphasizes the importance of timely recognition of this pathology.

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**RESUMO**

**Objetivo:** Avaliar quais os preditores de fibrilação atrial *de novo* em doentes de uma unidade de cuidados intensivos não cardíaca.

**Métodos:** Foram analisados 418 doentes internados entre janeiro e setembro de 2016 em uma unidade de cuidados intensivos não cardíaca. Registaram-se as características clínicas, as intervenções efetuadas e os marcadores bioquímicos durante a internação. Avaliaram-se ainda a mortalidade hospitalar e o tempo de internação hospitalar e na unidade de cuidados intensivos.

**Resultados:** Foram incluídos 310 doentes, com média de idades de 61,0 ± 18,3 anos, 49,4% do sexo masculino, 23,5% com fibrilação atrial *de novo*. O modelo multivariável identificou acidente vascular cerebral prévio (OR de 10,09; p = 0,016) e valores aumentados de proBNP (OR de 1,28 por cada aumento em 1.000pg/mL; p = 0,004) como preditores independentes de fibrilação atrial *de novo*. A análise por curva Característica de Operação do Receptor do proBNP para predição de fibrilação atrial *de novo* revelou área sob a curva de 0,816 (p < 0,001), com sensibilidade de 65,2% e especificidade de 82% para proBNP > 5.666pg/mL. Não se verificaram diferenças na mortalidade (p = 0,370), porém a duração da internação hospitalar (p = 0,002) e na unidade de cuidados intensivos (p = 0,031) foi superior nos doentes com fibrilação atrial *de novo*.

**Conclusões:** História de acidente vascular cerebral prévio e proBNP elevado em internação constituíram preditores independentes de fibrilação atrial *de novo* na unidade de cuidados intensivos polivalente. O proBNP pode constituir ferramenta útil, de fácil e rápido acesso na estratificação do risco de fibrilação atrial.

**Descritores:** Fibrilação atrial/epidemiologia; Incidência; Cuidados intensivos

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