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Mortality predictors of successful cardiac resuscitation in acute coronary syndrome

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Background: Cardiac arrest (CA) is a life-threatening condition that can influence the approach, treatment and the patient outcome. Is more frequent in acute coronary syndrome (ACS) and favorable prognostic predictors can be an useful tool in clinical practice.

Purpose: Evaluate mortality predictors in patients admitted for ACS and suffered a successful CA resuscitation.

Methods: Single-centre retrospective study, engaging patients hospitalized for ACS between 1/01/2014-31/10/2018. Epidemiological, clinical data and diagnosis procedure's results were collected at admission. Chi-square, Fisher and T-student tests were used to compare categorical and continuous variables. Logistic regression was performed to assess mortality rates in ACS patients that suffer CA.

Results: 222 patients were included, mean age 62.44 ± 13.77 years, 68% males. Patients that suffer CA (138 patients) were similar regarding age, gender, body mass index, mortality rates and the occurrence of arrhythmias 24 hours after the admission compared to non-CA patients. However, non-CA patients had a higher prevalence of arterial hypertension (59.5 vs 46.4%, $p=0.047$), diabetes (34.1 vs 19.6%, $p=0.011$), dyslipidemia (54.8 vs 41.3%, $p=0.047$), previous ACS (31.0 vs 15.9%, $p=0.008$) and other cardiovascular comorbidities (31.3 vs 18.8%, $p=0.045$). On other hand, active smoking status was more frequent in CA (45.7 vs 32.1%, $p=0.017$). On CA after an immediate success resuscitation, *de novo* cardiac arrhythmias (24.6 vs 8.3%, $p=0.002$) are more frequent. CA patients had higher left ventricular



ejection fraction (35 ± 20 vs $25.1\pm 12.5\%$, $p < 0.001$), but presented at worse neurological prognostic (30.4 vs 2.4% , $p < 0.001$) compared to non-CA patients. CA had a mean time of 19.63 ± 14.31 minutes, 60.6% happen out-of-hospital, 70.3% had a shockable rhythm at first evaluation and the left anterior descending artery was the culprit lesion in 48.3% . Logistic regression revealed non-shockable rhythm (*odds ratio* (OR) 8.98 , $p = 0.01$, confidence interval (CI) $2.51-32.103$) and culprit lesion (OR 2.818 , $p = 0.002$, CI $1.45-5.47$) as predictors of mortality in ACS patients after a successful CA resuscitation.

Conclusions: The first access of rhythm on CA and the culprit lesion in successful cardiac resuscitation were significant predictors of mortality in patients admitted for ACS.