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Mortality associated factors in patients with acute pulmonary edema

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Introduction: Risk factors related to acute pulmonary edema are still poorly described. However, they are determinant in the perspective of treatment.

Methods: This is a retrospective, unicentric and observational study which aim was to evaluate factors related to mortality in patients with acute pulmonary edema. A total of 142 patients were included between January of 2,015 and 2,016. The following factors were evaluated: age, systolic and diastolic pressures, heart rate, creatinine, C-reactive protein, BNP, left ventricular ejection fraction, left ventricular diastolic diameter, troponin, left atrial diameter and pulmonary arterial systolic pressure.

Statistical analysis: Evaluation of factors according to occurrence or not of death was performed through Q-square and T-test, being considered significant $p < 0.05$. The complementary analysis of the factors was done by ROC curve to identify the sensitivity and specificity of the best cut-off point of risk factors as a probability of death discriminator.

Results: About 49% of the patients were males and the mean age was 69 years. Hypertensive etiology was the most prevalent (42.3%) followed by valve disease (29.5%) and ischemia (14.8%). The in-hospital mortality rate was 15.5%. There were significant differences between patients who died or not, respectively, in the following factors: age (73.6 x 67.6, $p = 0.024$), C-reactive protein (64.9 mg/dL x 39.7 mg/dL, $p = 0.042$), troponin (7.41 ng/dL x 2.58 ng/dL, $p = 0.007$) and diastolic blood pressure (74.2 mmHg x 88.6 mmHg, $p = 0.023$). The areas under the ROC curve between risk and death factors were: age = 0.640; C-reactive protein = 0.640; Troponin = 0.660; Diastolic blood pressure = 0.318. Best cut-off points to discriminate the risk of death were: age = 67.5 (sensitivity of 72.7% and specificity of 54%), C-reactive protein = 21.5 mg/dL (sensitivity of 66.7% and specificity of 58%), troponin = 0.73 ng/dL (sensitivity of 63.6% and specificity of 65%) and diastolic blood pressure = 87.5 mmHg (sensitivity of 29.4% and specificity of 49%).

Conclusion: Mortality in patients with acute pulmonary edema remains high. Age, C-reactive protein, troponin, and diastolic blood pressure were the factors related to mortality

Keywords: Acute pulmonary edema; Risk factors; Mortality.