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Título	Prediction of mortality in patients with ST-segment elevation myocardial infarction based on lung ultrasound and its association with SCAI Shock stages classification
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ABSTRACT

Background: ST-segment elevation myocardial infarction (STEMI) complicated by cardiogenic shock (CS) is associated with high mortality despite improvements in early diagnosis and revascularization. We sought to evaluate the association between pulmonary congestion evaluated by lung ultrasound (LUS) with the Society for Cardiovascular Angiography and Interventions (SCAI) shock stages classification and clinical outcomes in patients admitted with STEMI.

Methods: We prospectively included a cohort of STEMI patients treated in a tertiary centre. LUS was performed immediately before coronary angiography, and we evaluated its association with SCAI shock classification within 24h of admission, inpatient development of cardiogenic shock and in-hospital mortality.

Results: 582 patients were included with a mean age of 61±12 years and 373 (64.1%) were male. SCAI shock stage A was present in 361 (62%) patients, while 115 (19.8%) were class B, 44 (7.6%) class C, 58 (10%) class D, and 4 (0.7%) class E. There was an association between increasing number of positive LUS zones and higher SCAI shock classification (OR 1.3; 95% CI 1.2-1.4, P<0.001). We also found an association between the number of positive zones in LUS and the development of CS [OR 1.4 (95% CI 1.3-1.5, P<0.001)] and in-hospital mortality [OR 1.3 (95% CI 1.2-1.4, P<0.001]. Additionally, three or more positive LUS zones were associated with increased mortality [P (log-rank)<0.001], adjusted OR 6.2 (95% CI, 3.5-10.9, P<0.001).

Conclusions: Lung congestion evaluated by LUS at admission was significantly associated with SCAI shock stage, development of CS and in-hospital mortality in STEMI patients.

Keywords: Mortality; percutaneous coronary intervention; myocardial infarction; ultrasound; cardiogenic shock;