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Title: Shock index as a prognostic value in risk stratification of patients with acute pulmonary embolism

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Body: Background: Patients with acute pulmonary embolism (PE) presenting with haemodynamic instability have the worst prognosis. The Shock Index (SI) is a sensitive indicator of left ventricular dysfunction.

Objective: To assess the value of shock index and echocardiographic abnormalities as predictors of in-hospital complications and mortality in patients with acute pulmonary embolism. Patients & methods: 81 patients who were diagnosed as acute pulmonary embolism were included in this study. Haemodynamic instability defined by shock index ≥ 1 (HR/systolic blood pressure). Detailed Doppler echocardiography (within 72h of admission) done for all patients. Results: Heart rate, systolic blood pressure and shock index >1 were significantly higher and more frequent in patients with in hospital mortality ($P < 0.05$ each). Patients with in-hospital mortality have statistically significant right ventricular hypokinesia, RV/LV end diastolic diameter >1 , right ventricular end diastolic diameter >3 , interventricular septal flattening, peak systolic PAP >50 mmHg and E/A ratio <1 ($P < 0.001$, $P < 0.001$, $P < 0.05$, $P < 0.001$, $P < 0.05$, $P < 0.01$ respectively). In multivariate logistic regression analysis, shock index (SI) >1 independent of right ventricular hypokinesia, RV/LV >1 and systolic PAP >50 mmHg was associated with significant in-hospital mortality $P < 0.0001$.

Conclusion: we can conclude that in pulmonary embolism patients, Shock index > 1 was associated with increased in-hospital mortality independently of other abnormal echocardiographic Doppler parameters and could be helpful in early diagnosis of patients with acute pulmonary embolism who are in need for meticulous observation.