

Fine-tuning of risk prediction in PE: GFR and sPESi combined– powerful predictor of survival in patients with pulmonary embolism

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Abstract:

Background: The PESI score is an established prognostic score of the severity of the acute - pulmonary embolism (PE). Patients with sPESI class 0 represented a low-risk PE. However, several laboratory and echocardiographic parameters not included in sPESI score may represent the features of worse outcome in PE.

Purpose: To investigate whether adding brain natriuretic peptide (BNP) and cardiac troponin (cTn) blood concentrations, echocardiographic parameters or glomerular filtration rate to sPESI can improve the prognostic value of acute PE.

Methods: The study included 1201 consecutive patients with PE which was confirmed using MDCT. All patients underwent echocardiography examination on admission and blood samples were collected for troponin I (TnI), B-type natriuretic peptide (BNP), creatinine and other routine laboratory analyses.

Results: Intra-hospital mortality rate was 11.5%. Using three levels sPESI model : sPESI 0, sPESI 1 and sPESI ≥ 2 , patients were into three groups. There were statistically significant differences in death rate and values of BNP, TnI, eGFR and right ventricular dysfunction between groups based on sPESI score. Cox regression analysis revealed that the best predictor of 30-days all-cause mortality rate was eGFR ((HR 2.24 (CI 1.264-3.969); $p=0.006$) in all three sPESI groups. Neither TnI and BNP, nor RVD improved risk assessment in combination with a different stratification tool based on three levels sPESI model.

Conclusion: Renal dysfunction on admission, in patients with acute PE, is strongly associated with high intrahospital mortality risk. Three levels model of sPESI score, can be used as a more accurate prognostic stratification tool in patients with acute pulmonary embolism. Established sPESI score may have greater discriminative power by using a simple calculation of GFR in prediction of survival of patients with PE and possible outpatient treatment. In spite of that, GFR calculation has still not become the clinical routine in PE.

Biography:

Zorica Dimitrijevic has completed her M.D. and Ph.D. from University of Nis, Serbia and works as a staff physician at Clinic of Nephrology as well as teaching assistant in nephrology at Medical school, University of Nis, Serbia. She has published number of papers in reputed medical journals.



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