

Predicting long-term mortality after acute pulmonary embolism: One issue, multiple faces

To the Editor,

We read with great interest the article published by Sandal et al. (1). The authors retrospectively studied the original and simplified pulmonary embolism (PE) severity index (PESI) as a predictor of all-cause mortality after 30 days of acute PE diagnosis up to five years. It is interesting because "the principal strength of PESI lies in the reliable identification of patients at low risk for 30-day mortality" (2). However, long-term mortality after acute PE seems to be also related to renal function or hyponatremia (3, 4).

Chronic kidney disease could be a predictor of both early and long-term increased mortality in patients with acute PE. Ouatu et al. (3) studied the factors associated with mortality in patients with non-high-risk PE. In the same number of patients (n=404) followed up prospectively for 2 years, the highest mortality rate (20%) was unregistered in those with moderate renal dysfunction associated with right ventricle dysfunction (3). In the non-survivors group, there were no patients with cancer, and the glomerular filtration rate was significantly lower than in survivors. The causes of death in these patients were related in majority to the more advanced renal and cardiovascular disease. Patients with high-risk PE associated with cardiogenic shock or a blood pressure <90 mm Hg were excluded. In this study, glomerular filtration rate assessed by the MDRD formula was an independent predictor of the 2-year mortality, besides troponin I, dyslipidemia, acceleration time of pulmonary ejection, pericardial effusion, and brain natriuretic peptides. However, patients with acquired and persistent hyponatremia could also have a significantly higher rate of mortality rate than those with normonatremia (4).

In the study of Sandal et al. (1), which included, retrospectively, 414 patients, data on long-term anticoagulation were known only for 370 patients. In addition, data about the "use of long-term anticoagulant drugs..., recurrence of PE or deep vein thrombosis, chronic thromboembolic pulmonary hypertension development, and cause of death were not evaluated." In this specific population, there was a high prevalence of malignancy (31.9%), which is associated with a high risk of thrombosis. Mortality rate was 32.6% at one year and 51.0% at five years (1). Therefore, it is not surprising that "the only parameter significantly related to mortality within all sub-important periods of long-term follow-up was found to be a history of cancer." Active cancer is an important risk factor for recurrence of venous thromboembolism over the long term with an estimated risk >8% per year (2). The authors did not use any echocardiographic parameters in this study. Right ventricle dysfunction could be an important factor for a fatal prognosis in these patients (3). Therefore, this mortality rate at five years, in this specific population, might be because of malignancy, PE recurrence, or right ventricle dysfunction.

There are possible interactions between renal and heart dysfunction via procoagulant and inflammatory pathways, atherosclerosis, thrombosis, and arterial stiffness (5). In conclusion, in acute PE the long-term prognosis might depend on multiple factors and, therefore, should benefit from further mortality risk stratification studies.

LETTER TO THE EDITOR

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