

Emostasi e Tumori

EMERGENCY DEPARTMENT MANAGEMENT OF PULMONARY EMBOLISM IN CANCER PATIENTS: PROGNOSTIC STRATIFICATION AND OUTCOMES

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Background and Aims. Cancer-associated pulmonary embolism (PE) represents a clinically complex condition, characterized by increased short-term mortality, competing thrombotic and bleeding risks. The performance of several risk stratification tools for PE in patients with active cancer remains uncertain, since cancer-related factors may independently affect clinical outcomes. This study aimed to describe management and short-term outcomes of patients with acute PE and active cancer admitted to the Emergency Department (ED) of the Ospedale di Circolo, ASST Sette Laghi, Varese, and to evaluate the prognostic performance of commonly used risk scores in this population.

Methods. We conducted a retrospective observational cohort study including consecutive adult patients diagnosed with acute PE after ED admission between July 2021 and January 2026. Patients were identified through ICD-9 codes and data were collected from hospital discharge letters, laboratory and imaging reports. Only patients with active cancer were included. Demographic data, cancer site and stage, active treatment, presenting symptoms, markers of right ventricle dysfunction (RVD), hospital pathway and outcomes were recorded. A composite outcome of mortality, major bleeding and recurrent venous thromboembolism (VTE) within 30 days was considered. Prognostic performance of PESI, sPESI, ESC and AHA risk classes, BOVA score and NEWS2 was assessed by ROC curve analysis.

Results. Ninety-nine patients were included. The mean age was 69.2 years (SD 11.1). The most frequent cancer sites were lung (23.2%), colorectal (11.1%) and breast (8.1%). Metastatic disease was present in 38.4% of patients and 55.6% were receiving chemotherapy at PE diagnosis. At diagnosis 63 patients were symptomatic, whereas 36 patients were referred to ED after incidentally found PE at CT scans performed for cancer follow-up. PE was limited to subsegmental arteries in 6 (6.1%) of patients, whereas it involved lobar arteries in 71 (71.7%) of patients. Elevated troponin levels were present in 39.4%, while RVD was detected in 16.2%. Thirty-one (31.3%) patients were discharged home from ED after a mean of 26.3 hours and early followed-up at the Thrombosis and Haemostasis Center, whereas 66 (66.7%) patients were admitted, mainly to Oncology, Internal Medicine or Emergency Medicine wards. No recurrent VTE was observed within 30 days. Six patients experienced major bleeding (6,1%). Thirty-day mortality was 13,1% (13/99). The composite outcome occurred in 2 (2%) patients discharged home from ED (no patient died) and in 17 (17.2%) patients admitted to hospital wards (p=0,0289). All cancer patients has sPESI ≥1 by definition. According to ESC classification, AHA classification, Bova score, NEWS2 score 96 (97%), 87 (87.9%), 18 (18.2%), and 38 (38.4%) patients were classified not at low-risk of short-term adverse outcome, respectively. ROC curves and AUC are presented in Figure.

Conclusions. In patients with acute PE and active cancer, short-term adverse outcomes were frequent. Conventional PE risk scores showed only moderate prognostic performance, suggesting that standard stratification may not fully capture cancer-related vulnerability. Updated analyses on the expanded database are needed to confirm these findings and to integrate cancer-specific variables into PE risk assessment.

