

EPIDEMIOLOGY

EPIDEMIOLOGY, CLINICAL CHARACTERISTICS, AND OUTCOMES OF PROVOKED AND UNPROVOKED PULMONARY EMBOLISM IN A MULTICULTURAL ISRAELI POPULATION

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Introduction. Pulmonary embolism (PE) is a major cause of cardiovascular morbidity and mortality worldwide, ranking after myocardial infarction and stroke. It comprises provoked (PPE) and unprovoked (UPE) forms, which differ in etiology, management, and prognosis. Despite extensive international literature, detailed data on PE epidemiology and outcomes in Israel, particularly regarding gender and ethnic differences, remain limited.

Aim. This study aimed to characterize the epidemiology, clinical features, and intra-hospital mortality of PE in an Israeli population, with emphasis on age, gender, ethnicity, and country of birth.

Materials and Methods. A single-center, retrospective observational study was conducted including patients diagnosed with PE at Ziv Medical Center, Israel, between 2017 and 2022. PE was classified as PPE or UPE according to established clinical risk factors. Demographic and clinical variables were extracted from electronic medical records. Statistical analyses included descriptive statistics, Mann-Whitney and chi-square tests, multivariable logistic and linear regression models, Kaplan-Meier survival analysis, and Cox proportional hazards regression.

Results. A total of 348 patients were analyzed (mean age

68.6±17.6 years; median 72; 54.3% female). Provoked PE accounted for 189 cases (54.3%), while 159 cases (45.7%) were UPE. Female patients were significantly older than males (71.7 vs 65.0 years, p<0.001). Ethnicity was significantly associated with PE type, with Jewish patients showing lower odds of PPE compared with Arabic patients (OR 0.46, 95% CI 0.26-0.82). The mean length of hospital stay was 10.7±16.2 days (median 6). In multivariable analysis, male gender was associated with longer hospitalization (+4.2 days, p=0.017), while UPE was associated with shorter stays compared with PPE (-4.0 days, p=0.024). Overall intra-hospital mortality was 16.1% (56 deaths), higher in PPE (21.2%) than UPE (10.1%). Kaplan-Meier analyses showed no significant survival differences by gender, ethnicity, or PE type, whereas age was a consistent predictor of mortality (adjusted HR 1.03 per year, 95% CI 1.00-1.06). Survival curves suggested better outcomes for patients born in Israel compared with those born abroad.

Conclusions. This study highlights important demographic and clinical patterns of PE in Israel, underscoring the need for population-sensitive risk stratification and tailored management strategies to improve PE outcomes.