

Incidence and predictors of pulmonary embolism recurrence and mortality in patients with lung cancers

Almesfir, Reem^{*1}, Alqudaibi, Nada¹, Abdel Glil Abdel Gader², Aleidan and Fahad A. S³

¹King Saud Bin Abdulaziz University for Health Sciences, Saudi Arabia

²King Abdulaziz Medical City, Saudi Arabia

³King Abdullah International Medical Research Center, Saudi Arabia

Background: Pulmonary embolism (PE) in lung cancer patients is a serious complication that may determine their outcome. This research aims at identifying the predictors of recurrence of PE and its related death in lung cancer patients.

Methods: All lung cancer patients with an initial confirmed PE were retrospectively retrieved from two electronic medical records at King Abdulaziz Medical Cities in Riyadh and Jeddah, Saudi Arabia. The demographic features, clinical manifestations, and laboratory data were recorded for each patient. The variables employed included ECOG performance status, systemic infections, serum albumin, and D-dimer levels. Standard imaging techniques confirmed the diagnosis of PE and its recurrence. The statistical analyses comprised descriptive statistics, analysis of the ROC curve to establish the optimum cutoff values of the biomarkers, and logistic regression to identify predictors of PE recurrence and mortality.

Results: A total of 98 adult lung cancer patients associated with initial PE were identified during the study period. Of these, 19 patients were confirmed to be suffering from recurrent PE and 79 were considered as controls. The recurrence rate was 19.4%, whereas those who had recurrence were found to be dying at 73.7%. The significant disparities were found mainly in ECOG performance status and systemic infections, which were more common among the recurrences. Laboratory tests showed that patients who suffered recurrences had significantly lower serum albumin (≤ 20.5 mg/L) and higher D-dimer (≥ 6.5 mg/L) levels. Logistic regression results indicated that adenocarcinoma type, systemic infections, raised D-dimer level, and decreased serum albumin are significant indicators of the repeating occurrence of PE. Fourteen (73.7%) patients in the PE recurrence group and 35 (44.3%) patients in the group with no PE recurrence died ($p=.021$).

Conclusion: The findings of this study show that lung cancer patients with initial PE have a recurrence rate of 19.4%. Adenocarcinoma, systemic infection, increased D-dimer, as well as low serum albumin levels were the most clinical risk factors to predict the development of PE recurrence in our lung cancer population. However, larger studies are required to support and validate these predictors.

Keywords: Pulmonary Embolism, Lung Cancer, D-dimer, Serum Albumin, Predictors.

Joint Event on

20th Euro-Global Gastroenterology Conference

23rd World Hematology Congress

July 07-08, 2025

Webinar

Biography

Reem Almesfir, researcher and academic at the College of Medicine, KSAU-HS, Riyadh, specializing in medical education and healthcare advancement.

Received: February 02, 2025; **Accepted:** February 04, 2025; **Published:** July 28, 2025
