

Pulmonary Infarction in Acute Pulmonary Embolism: A 10-year Retrospective Study in a Veteran Population

Diane S. Casini, DO¹, Benjamin W. Curry, MD¹, Perry Nystrom, MD^{1,2}

1 Wright State University Boonshoft School of Medicine, Department of Internal Medicine, Dayton, OH;
2 Dayton VA Medical Center, Dayton, OH



BACKGROUND

- Pulmonary infarction (PI) refers to a spectrum of ischemic injury to pulmonary parenchyma.
- Pulmonary infarction (PI) is not uncommon in pulmonary embolism (PE).
- Symptoms, although nonspecific, associated with PI include dyspnea, chest pain, hemoptysis, and dizziness.
- PI may be observed in 10-15% of patients presenting with PE, but the clinical relevance remains unclear.
- Management of PI is rarely addressed in PE guidelines, and there is a paucity of information for optimal patient counselling.

PURPOSE

This study evaluated the incidence, patient characteristics and potential implications of pulmonary infarction in acute PE cases.

METHODS

- Between 2013-2022, 375 cases of acute PE at the Dayton VA were identified in the VA National Data System (VA Informatics and Computing Infrastructure) and manually reviewed.
- Acute PE cases were risk stratified into low-risk, intermediate-low/high and high-risk using 2019 European Society of Cardiology (ESC) guidelines.
- CTPA reports were reviewed for presence or suspicion of PI.

RESULTS

Table 1. Characteristics: Pulmonary Infarct in Low-Risk Acute PE (N = 26)

Characteristic		Patients, No.
Gender	Male	24
	Female	2
Age, years Median (IQR)	63 (35-71)	
Antibiotic administration	3	
PI laterality	Right	15
	Left	9
	Bilateral	2
RV/LV ratio Median (IQR)	0.87 (0.75 - 0.91)	

Table 2. Characteristics: Pulmonary Infarct in Intermediate Low/High Risk Acute PE (N = 15)

Characteristic		Patients, No.
Gender	Male	14
	Female	1
Age, years Median (IQR)	68 (52-71)	
Antibiotic Administration	3	
PI laterality	Right	7
	Left	4
	Bilateral	4
RV/LV ratio Median (IQR)	1.135 (0.85 - 1.31)	

Table 3. Comparison: Length of Stay in Acute PE Cases with and without PI

	Low-Risk Acute PE	Low-Risk Acute PE with PI	Intermediate Low/High Risk Acute PE	Intermediate Low/High Risk Acute PE with PI
Length of stay, Mean (days)	4.61	3.12	7.1	5.13
Length of stay, Median (IQR)	3 (2-6)	2 (2-4)	5 (3-8)	4 (2-7)

DISCUSSION

- This 10-year retrospective study demonstrates no difference in hospital length of stay.
- Younger age is associated with PI, aligning with previous studies evaluating clinical outcomes and factors associated with PI following acute PE.
- Thus, PI should be considered in younger patients with nonspecific symptoms of PI.
- No cases of PI were noted in high-risk acute PE cases.
- Recognizing infarctions is important and relevant to allow for early assessment and management of clinical consequences.

FUTURE DIRECTIONS

- Ongoing data analysis of the identification, risk stratification, and management of low, intermediate and high-risk PE with and without pulmonary infarction.
- Future research should focus on long-term clinical outcomes of PI in veterans, an underrepresented patient population.
- Data presented at this time will support future efforts to improve clinical practice at the Dayton VA, which does not currently have a Pulmonary Embolism Response Team.