Improving pulmonary embolism management in cancer patients: PERT insights guiding personalized strategies for high-risk thrombosis

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BACKGROUND

Pulmonary embolism (PE) in cancer patients presents complex challenges due to competing risks of thrombosis and bleeding.

While multidisciplinary PERTs facilitate care, optimal management strategies for cancer-associated PE remain poorly defined, necessitating deeper exploration.

METHODS

We conducted a retrospective cohort analysis of all PERT-managed PE cases (Jan 2022–Mar 2025), stratified by active cancer.

Data included demographics, PE severity indices (PESI), management approaches, and outcomes.

RESULTS

57/196 (29.1%) PERT-managed PE patients

- Cancer patients were older (63.7 vs. 59.3 years)
- Lower hemoglobin (11.3 vs. 12.8 g/dL),
- Pulmonary embolism in cancer patients were more central
- Paradoxical lower cardiac biomarkers (Troponin T: 118 vs. 171 ng/L; Pro-BNP: 1901 vs. 5410 pg/mL)
- Despite higher PESI scores (2.49 vs. 1.32) in cancer patients

Significant management differences between cancer and non-cancer patients

- Anticoagulation being attenuated/withheld in 14.1% of cancer patients due to bleeding risk and/or cytopenias
- No cancer patient received catheter-directed thrombectomy

Outcomes were also significantly worse in the cancer population

- 30-day mortality was 26.3% in the cancer population
- PE recurrence rate was 5.3% in the cancer population

Table 1: Patient characteristics of cancer vs non-cancer patients managed by pulmonary embolism response team

Variable		Cancer Patient (n=57)	Non-Cancer (n=139)	p-value
Age, years		63.7	59.3	0.06
Haemoglobin, g/dL		11.3	12.8	< 0.01
Platelet count, 10^9/L		228.3	235.7	0.68
Troponin T, ng/L		118	171	0.46
BNP, mean (pg/mL)		1901	5410	< 0.01
PESI Score		2.49	1.32	< 0.01
PE Risk Stratification		2.72	2.86	0.31
PE location	Saddle	10	15	NA
	Main	18	40	
	Lobar	13	39	
	Segmental	15	45	
Cancer Subtypes	Lung	14	NA	NA
	Gastrointestinal	13		
	Hepatobiliary	9		
	Gynaecological	7		
	Breast	6		
	Others	9		

CONCLUSIONS

Cancer-associated PE demonstrates unique pathophysiology and therapeutic challenges, including discordant biomarkers, increased bleeding risks, and elevated mortality rates.

Our findings highlight key gaps in care:

- Anticoagulation dilemmas demand tailored protocols that carefully weigh the risks of thrombosis against haemorrhage in cancer patients
- The absence of CDT in cancer patients suggests either perceived or true contraindications, underscoring a need for further clinical evaluation and studies to clarify safety and efficacy.

While PERT teams are instrumental in managing these complexities, the study emphasizes the urgent requirement for dedicated frameworks specifically designed for cancer-related PE management to improve patient outcomes in this vulnerable group.