

doi: 10.4081/monaldi.2025.3293

SUPPLEMENTARY MATERIAL

Prospective assessment of venous thromboembolism in lung cancer patients using a standardized screening protocol

Pedro Magalhães Ferreira,¹ Joana Ferreira,¹ Cláudia Freitas,^{1,2} Catarina Sousa,^{1,2}
David Araújo,^{1,2} Hélder Novais Bastos,¹⁻³ Adriana Magalhães,^{1,2} Maria Gabriela Fernandes¹⁻³

¹Pulmonology Department, University Hospital Center of São João, Porto; ²Faculty of Medicine, University of Porto; ³Institute of Molecular Pathology and Immunology, University of Porto, Portugal

Correspondence: Pedro Magalhães Ferreira, Pulmonology Department, University Hospital Center of São João, Alameda Professor Hernani Monteiro, 4200-319, Porto, Portugal.
Tel.: 00351917921364. E-mail: pedrojorgeferreira@gmail.com

Key words: lung cancer, venous thromboembolism, screening, khorana, overall survival.

Supplementary Table 1. Khorana and COMPASS-CAT risk scores for venous thromboembolism.

Khorana	Score ^a
Site of cancer	
Very high risk (stomach, pancreas)	2
High risk (lung, lymphoma, gynecological, bladder, or testicular)	1
Pre-chemotherapy platelet count $< 350 \times 10^9 /L$	1
Pre-chemotherapy hemoglobin level $< 100 \text{ g/L}$ or use of red cell growth factors	1
Pre-chemotherapy leukocyte count $> 11 \times 10^9 /L$	1
Body Mass Index $< 35 \text{ kg/m}^2$	1
<hr/>	
COMPASS-CAT	Score ^b
Cancer-related risk factors	
Anti-hormonal therapy for women with hormone receptor-positive breast cancer or on anthracycline treatment	6
Time since cancer diagnosis > 6 months	4
Central venous catheter	3
Advanced stage of cancer	2
Predisposing risk factors	
Cardiovascular risk factors (at least 2: peripheral artery disease, ischemic stroke, coronary artery disease, hypertension, hyperlipidemia, diabetes, obesity)	5
Recent hospitalization for acute medical illness	5
Personal history of venous thromboembolism	1
Biomarkers	
Platelets count $< 350 \times 10^9 /L$	2

^a Low risk: 0; Intermediate risk: 1-2; High risk: 3; ^b Low/Intermediate risk: 0-6; High risk: 7

Supplementary Table 2. Baseline characteristics of the study population.

	Male (n=65)	Female (n=37)	<i>p</i> -value
Age (years)	66.7 ± 9.4	69.7 ± 8.9	0.124
BMI (kg/m ²)	24.6 ± 17.9	24.9 ± 4.6	0.756
Smoking status			
Non-smoker	4 (6.2)	20 (54.1)	<0.001
Former smoker	35 (53.8)	12 (32.4)	0.037
Active smoker	26 (40.0)	5 (13.5)	0.005
Cardiovascular comorbidities			
Arterial hypertension	51 (78.5)	22 (59.5)	0.041
Dyslipidemia	35 (53.8)	24 (64.9)	0.279
Diabetes mellitus	15 (23.1)	11 (29.7)	0.459
Coronary heart disease	13 (20.0)	0 (0)	0.004
Peripheral artery disease	10 (15.4)	2 (5.4)	0.133
Chronic kidney disease	4 (6.2)	2 (5.4)	0.877
Chronic obstructive pulmonary disease	38 (58.5)	15 (40.5)	0.082
Cancer-related VTE risk factors			
Presence of central venous catheter	0 (0)	2 (5.4)	0.058
Anti-hormonal therapy	0 (0)	0 (0)	—
Other general VTE risk factors			
Major trauma or surgery 3 months	10 (15.4)	12 (32.4)	0.044
Impaired mobility 7 days	9 (13.8)	8 (21.6)	0.311
Pregnancy	—	2 (5.4)	—
Cancer histology			
Lung adenocarcinoma	36 (55.4)	32 (86.5)	0.001
Squamous cell carcinoma	17 (26.2)	3 (8.1)	0.027
Small cell lung cancer	10 (15.4)	2 (5.4)	0.133
NSCLC-NOS	2 (3.1)	0 (0)	0.281
Cancer staging (at diagnosis)			
Limited disease	21 (32.3)	18 (48.7)	0.103
Locally advanced disease	15 (23.1)	2 (5.4)	0.021
Metastatic disease	29 (44.6)	17 (45.9)	0.897
ECOG-PS (baseline)			
0-1	57 (87.7)	31 (83.8)	0.581
2-4	8 (12.3)	6 (16.2)	0.581

BMI, Body-mass index; ECOG-PS, Eastern Cooperative Oncology Group Performance Status; NSCLC-NOS, Non-small cell lung cancer not otherwise specified; VTE, Venous thromboembolism.

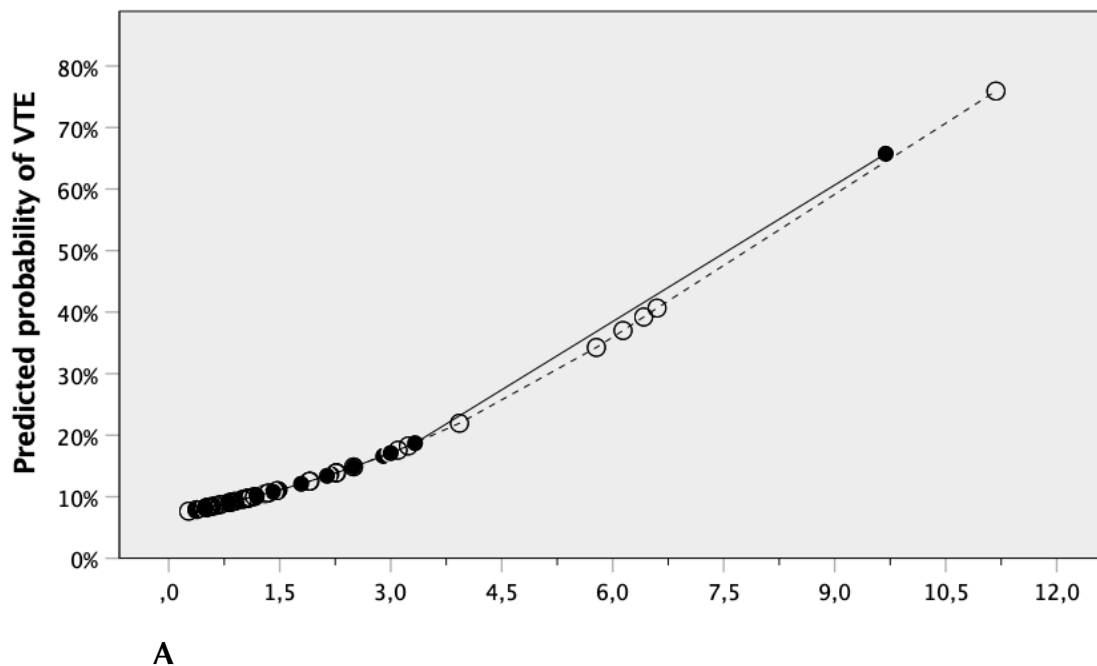
Continuous variables presented as mean (standard deviation); qualitative variables presented as absolute number (percentage).

Supplementary Table 3. Overview of analytical sampling and imaging results at baseline and 3-month reassessment according to final health status (alive/deceased).

	Alive (n=84)	Deceased (n=18)	<i>p</i> -value
Age (years)	68.5 ± 9.0	64.3 ± 10.2	0.157
BMI (kg/m ²)	25.0 ± 4.3	23.1 ± 2.9	0.085
Smoking status (active/former smoker)	64 (76.2)	14 (77.8)	0.885
Cardiovascular comorbidities (any)	68 (81.0)	14 (77.8)	0.758
Cancer histology (NSCLC)	76 (90.5)	14 (77.8)	0.129
Cancer staging (metastatic)	34 (40.5)	12 (66.7)	0.043
ECOG-PS (2-4)	8 (9.5)	6 (33.3)	0.008
Blood coagulation tests (baseline)			
Prothrombin time (sec)	12.5 (10.5-37.4)	12.9 (11.7-15.5)	0.295
Activated partial thromboplastin time (sec)	32.9 (24.0-50.9)	32.4 (27.7-37.3)	0.888
Fibrinogen (mg/dL)	432 (241-750)	442 (242-669)	0.598
Blood coagulation tests (3-month reassessment)			
Prothrombin time (sec)	12.9 (10.8-44.1)	13.3 (11.1-22.6)	0.380
Activated partial thromboplastin time (sec)	32.1 (23.1-52.9)	30.9 (24.2-42.5)	0.434
Fibrinogen (mg/dL)	400 (238-753)	440 (363-650)	0.155
D-dimer (mg/L)			
Baseline	1.18 (0.27-6.60)	3.93 (0.89-11.18)	<0.001
3-month reassessment	1.29 (0.27-13.00)	6.20 (1.05-12.30)	<0.001
Complete blood count (baseline)			
Hemoglobin (g/dL)	13.1 (9.7-17.6)	11.4 (8.0-15.3)	<0.001
White blood cell count (x10 ⁹ /L)	8.28 (3.59-17.21)	9.67 (7.01-22.28)	0.004
Platelet count (x10 ⁹ /L)	255 (149-533)	289 (182-502)	0.419
Complete blood count (3-month reassessment)			
Hemoglobin (g/dL)	12.9 (9.2-16.9)	10.6 (8.5-12.9)	<0.001
White blood cell count (x10 ⁹ /L)	7.50 (3.07-14.47)	15.11 (8.10-36.93)	<0.001
Platelet count (x10 ⁹ /L)	240 (25-473)	285 (15-448)	0.937
VTE risk stratification scores			
Khorana	1 (1-3)	2 (1-3)	0.047
mKhorana	1 (1-3)	3 (1-4)	<0.001
COMPASS-CAT	9 (4-13)	9 (6-13)	0.913

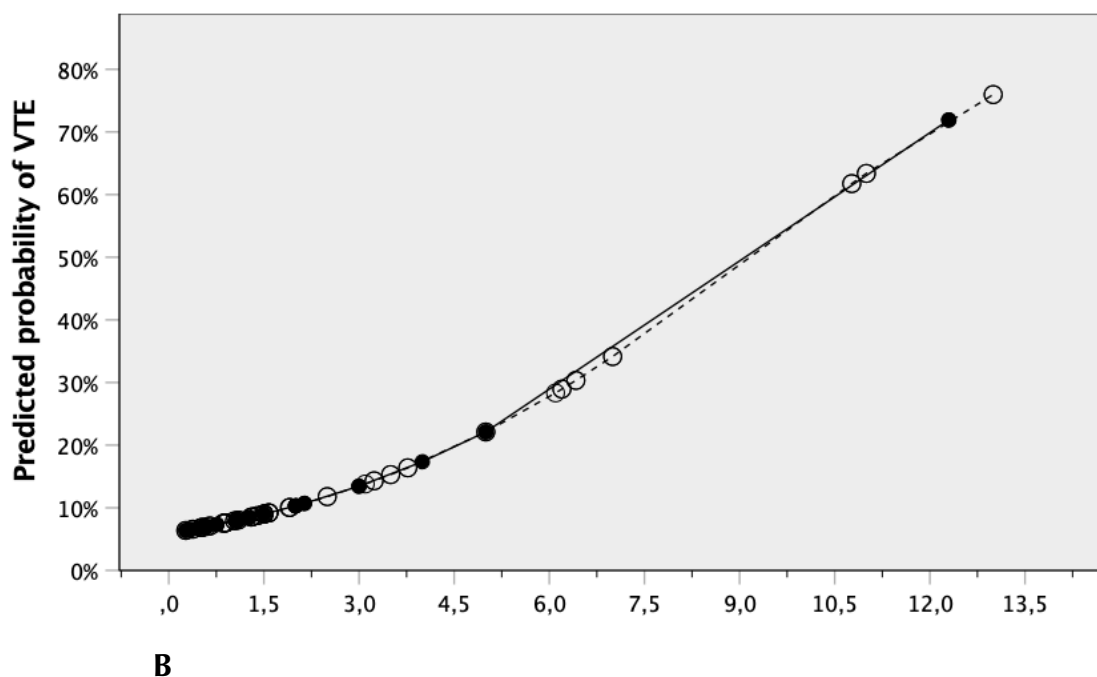
BMI, Body-mass index; ECOG-PS, Eastern Cooperative Oncology Group Performance Status; NSCLC, Non-small cell lung cancer; VTE, Venous thromboembolism.

Continuous variables presented as median (interquartile range) except for age and BMI, presented as mean (standard deviation); qualitative variables presented as absolute number (percentage).



● Female patients
○ Male patients

D-dimer at baseline (mg/L)



● Female patients
○ Male patients

D-dimer at 3-month reassessment (mg/L)

Supplementary Figure 1. Scatterplot of the predicted probability of VTE according to the measured D-dimer serum concentration at baseline (A) and 3-month reassessment (B), relative to the patient's sex.

Note: The publisher is not responsible for the content or functionality of any supporting information supplied by the authors. Any queries should be directed to the corresponding author for the article.