ELSEVIER

Blood 142 (2023) 2641–2642

The 65th ASH Annual Meeting Abstracts

POSTER ABSTRACTS

332.THROMBOSIS AND ANTICOAGULATION: CLINICAL AND EPIDEMIOLOGICAL

Pulmonary Embolism and the Impact of Concomitant Deep Vein Thrombosis on Outcomes Among Cancer Patients

Steven Callori, MPH,BS[1], *Robert D. McBane, MD*[2], *Danielle T. Vlazny, PA-C*[2], *Damon E. Houghton, MDMS*[3,2], *David Froehling, MD*[4], *David O. Hodge*[5], *Ana I. Casanegra, MD*[2], *Waldemar E. Wysokinski, MD PhD*[2]

[1] Mayo Clinic Alix School of Medicine, Rochester, MN
[2] Gonda Vascular Center, Mayo Clinic, Rochester, MN
[3] Department of Cardiovascular Diseases, Division of Vascular Medicine & Dept of Medicine, Division of Hematology, Mayo Clinic, Rochester, MN
[4] Mayo Clinic, Rochester, MN
[5] Mayo Clinic, Jacksonville, FL

Intro: Venous thromboembolism (VTE) is a common cause of death among cancer patients, second only to cancer progression. Identifying factors predicting worse outcomes among cancer patients with VTE would be useful clinically. For cancer patients with pulmonary emboli (PE), it remains unclear whether concomitant leg deep vein thrombosis (DVT) as a source for further embolization adversely impacts this risk. The aim of this project was to determine the impact of residual DVT on adverse outcomes among cancer patients suffering acute PE.
Methods: Consecutive patients with confirmed acute PE (March 1, 2013 - June 30, 2021) underwent ultrasound (US) imaging and were divided into two groups depending on the presence or absence of leg DVT. PE severity was classified based on AHA criteria. Patients were followed prospectively for VTE recurrence, major and clinically relevant non-major bleeding (CRNMB) and all-cause mortality.
Results: Over the study interval, 1,035 cancer patients with PE were enrolled (Table 1). Of these, 375 (36.2%) had leg DVT confirmed by US. Patients with leg DVT were older (64.2 vs 61.4 years, $p = 0.01$), heavier (90.2 vs 85.1 kg, $p < 0.001$), with lower metastatic disease prevalence (49.1% vs 57.1%, $p = 0.01$) compared to those without leg DVT. Cancer type distribution also differed between groups. PE patients with DVT more often had prostate, genitourinary, and hematologic cancers while those without DVT more often had pancreatic and breast cancers. Patients with DVT more often had symptomatic PE (48.2% vs. 35.9%, $p < 0.001$), massive (2.9% vs 0.5%, $p < 0.001$), and submassive (22.0% vs 7.6%, $p < 0.001$). Patients with DVT more often received unfractionated heparin (39.5% vs 18.7%, $p < 0.001$) whereas those without DVT were more frequently treated with low molecular weight heparin (57.5% vs. 44.3%, $p < 0.001$), and apixaban (16.4% vs. 11.7%, $p < 0.05$). Anticoagulant duration, VTE recurrence, major bleeding and CRNMB were similar between groups (Table 2).
Conclusion: Among a large cohort of cancer patients with pulmonary emboli, significant clinical and cancer specific differences exist comparing those with and without leg DVT.While theoretically increasing the risk of recurrent embolization, the presence of residual DVT does not appear to adversely impact important outcomes among cancer patients adequately treated with anticoagulation.

Disclosures No relevant conflicts of interest to declare.

Table 5. Demographics

	No DVT (N=660)	DVT (N=375)	P-value
Age – yr, MN (SD)	61.4 (12.9)	64.2 (11.1)	0.001
Female Gender, n (%)	303 (46.0%)	169 (45.1%)	0.777
Weight kg, MN (SD)	85.1 (23.0)	90.2 (23.3)	0.001
Cancer site, n (%)			<0.001
Brain	11 (17.4%)	17 (4.5%)	
Pancreatic	122 (18.5%)	50 (13.3%)	
Renal	36 (5.5%)	14 (3.7%)	
Lung	64 (9.7%)	29 (7.7%)	
Gastrointestinal	152 (23.0)	83 (22.1%)	
Genitourinary	51 (7.7%)	44 (11.7%)	
Ovarian	38 (5.8%)	26 (6.9%)	
Prostate	18 (2.7%)	18 (4.8%)	
Heme/Lymphoma/Myeloma	47 (7.1%)	48 (13.1%)	
Hepatobiliary	27 (4.1%)	17 (4.5%)	
Sarcoma	20 (3.0%)	9 (2.4%)	
Breast	42 (6.4%)	12 (3.2%)	
Melanoma	14 (2.1%)	4 (1.1%)	
ENT	17 (2.6%)	6 (1.6%)	
Other	15 (2.3%)	2 (0.5%)	
Metastasis	378 (57.1%)	184 (49.1%)	0.011
Cancer therapy (radio/chemo)	445 (69.4%)	212 (58.7%)	
PE Characteristics, n (%)			
Symptomatic	235 (35.9%)	179 (48.2%)	<0.001
Massive	3 (0.5%)	9 (2.9%)	0.003
Submassive	47 (7.6%)	77 (22.0%)	<0.001
Segmental	430 (65.1%)	240 (64.0%)	0.710
Subsegmental	183 (29.0%)	54 (15.6%)	<0.001
Limb DVT, n (%)			
Proximal leg DVT	0 (0%)	140 (37.3%)	
Distal leg DVT	0 (0%)	290 (77.3%)	
Coinciding VTE, n (%)			
Upper extremity	25 (3.8%)	12 (3.2%)	0.624
Mesenteric veins	2 (0.3%)	4 (1.1%)	0.120
Renal	4 (0.6%)	2 (0.5%)	0.882
Portal	4 (0.6%)	4 (1.1%)	0.416
Gonadal	5 (0.4%)	0 (0.0%)	0.091
Cerebral	0 (0.0%)	1 (0.3%)	0.184
Splenic	2 (0.3%)	3 (0.8%)	0.268
Other	4 (0.6%)	3 (0.8%)	0.714
Anticoagulants provided, n (%)			
Unfractionated heparin	123 (18.7%)	148 (39.5%)	<0.001
Low molecular weight heparin	379 (57.5%)	166 (44.3%)	<0.001
Warfarin	4 (0.6%)	2 (0.5%)	0.881
Apixaban	106 (16.4%)	44 (11.7%)	0.042
Rivaroxaban	44 (6.7%)	15 (4.0%)	0.074
Dabigatran	1 (0.2%)	0 (0.1%)	
Anticoagulant duration			
Treatment duration, days, mean (SD)	7.2 (8.7)	6.4 (7.7)	0.177
≤ 3 months, n (%)	202 (30.6%)	133 (35.5%)	
3 – 6 months, n (%)	217 (32.9%)	100 (26.7%)	
6 – 9 months, n (%)	99 (15.0%)	61 (16.3%)	
≥ 9 months, n (%)	142 (21.5%)	81 (21.6%)	

Table 6. Outcomes

	No DVT (N=660)	DVT (N=375)	P-value
Death, n (2-year %)	335 (63.4%)	184 (66.3%)	0.577
VTE recurrence, n (2-year %)	30 (7.5%)	21 (11.6%)	0.417
Major Bleed, n (2-year %)	30 (6.0%)	25 (9.3%)	0.142
Clinical relevant non major, n (2-year %)	45 (11.1%)	26 (9.5%)	0.875

VTE venous thromboembolism, DVT deep vein thrombosis

Figure 1

https://doi.org/10.1182/blood-2023-187012