Abstract: P1661

Title: PRIMARY AMBULATORY THROMBOPROPHYLAXIS (PATP) IN PATIENTS WITH LUNG CANCER UNDERGOING SYSTEMIC THERAPY: UPDATED ANALYSIS OF RANDOMIZED STUDIES

Abstract Type: Poster Presentation

Topic: Thrombosis and vascular biology

Background:

Lung cancer (LC) remains the number one cause of cancer mortality while thrombosis confers the second leading cause of death in such patients. Many studies have been conducted to determine the potential value of PATP in patients with solid malignancies.

Aims:

We systematically reviewed all potential studies and performed an updated combined analysis of randomized studies to check the potential benefit of PATP with low-molecular weight heparins (LMWHs) and direct oral anticoagulants (DOACs) in those patients.

Methods:

We performed a comprehensive literature search using MEDLINE and EMBASE databases through December 31, 2023. All potential studies were reviewed. The RCTs with reduction in VTE as a primary or secondary endpoint were incorporated in the analysis. Mantel-Haenszel (MH) method was used to calculate the estimated pooled risk ratio (RR), and risk difference (RD) with 95% confidence interval (CI). Heterogeneity was assessed with Cochran's Q- statistic. Fixed effects model was applied.

Results:

5,526 patients with LC from five RCTs and subgroups of another six RCTs were eligible. Bemiparin, certoparin, dalteparin, nadroparin, semuloparin, tinzaparin, enoxaparin, rivaroxaban and apixaban were used. The duration of the anticoagulation ranged from 3 to 6 months. The randomization ratio was 2 to 1 in PROTECHT study and 1 to 1 in all other studies. The I2 statistic for heterogeneity suggests homogeneity among RCTs. The VTE incidence was 116 (4.12%) in PATP group and 207 (8.12%) in control group with a RR of 0.51 (95% CI: 0.41 to 0.64, P < 0.00001). The absolute RD in VTE was -0.04 (95% CI: -0.05 to -0.03, P < 0.00001) with an estimate of the number needed to treat (NNT) of 25 to prevent one VTE event. In subgroup analysis of PATP trials treated with LMWHs in study arm, VTE events were reported in 114 (4.2%) in PATP group and 215 (8.2%) in control group with a RR of 0.51 (95% CI: -0.05 to -0.03, P < 0.00001).

Summary/Conclusion

Our analysis showed that the relative risk reduction is 47% with a NNT of 25 to prevent one VTE in ambulatory patients with LC by providing PATP. Selection of appropriate patients who are high risk for VTE remains vital. Further studies are required to determine the high-risk subsets of LC patients receiving systemic therapy who may benefit from PATP.

Pooled RR & RD for venous thromboembolism in ambulatory patients with lung cancer receiving thromboprophylaxis vs control

	Thromboproph	ylaxis	Contr	ol		Risk Ratio	Risk Ratio
Study or Subgroup	Events	Total	Events	Total	Weight	M-H, Fixed, 95% C	M-H, Fixed, 95% Cl
Agnelli 2009 PROTECHT	7	199	7	80	4.5%	0.40 [0.15, 1.11]	
Agnelli 2012 SAVE-ONCO	9	591	25	589	11.2%	0.36 [0.17, 0.76]	
Alexander 2023 TARGET-TP	2	46	13	46	5.8%	0.15 [0.04, 0.64]	
Altinbas et al 2004	0	42	1	42	0.7%	0.33 [0.01, 7.96]	
Carrier 2019 AVERT	0	31	0	28		Not estimable	
Ek 2018 RASTEN	5	186	16	191	7.1%	0.32 [0.12, 0.86]	
Haas 2012 TOPIC-2	12	268	22	264	9.9%	0.54 [0.27, 1.06]	
Khorana 2019 CASSINI	2	62	5	72	2.1%	0.46 [0.09, 2.31]	
Lecumberri 2013 ABEL	0	20	4	18	2.1%	0.10 [0.01, 1.75]	· · · · · · · · · · · · · · · · · · ·
Macbeth 2016 FRAGMATIC	61	1101	107	1101	47.9%	0.57 [0.42, 0.77]	•
Meyer 2018 TILT	18	269	20	280	8.8%	0.94 [0.51, 1.73]	
Total (95% CI)		2815		2711	100.0%	0.51 [0.41, 0.64]	•
Total events	116		220				
Heterogeneity: Chi2 = 10.20, df	= 9 (P = 0.33); I ² :	= 12%					
Test for overall effect: Z = 6.03	(P < 0.00001)						Eavars thrombon control
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	Thromboproph	ylaxis	Contr	rol		Risk Difference	Risk Difference
Study or Subgroup	Events	Total	Events	Total	Weight	M-H, Fixed, 95% C	M-H, Fixed, 95% Cl
Agnelli 2009 PROTECHT	7	199	7	80	4.2%	-0.05 [-0.12, 0.01]	-
Agnelli 2012 SAVE-ONCO	9	591	25	589	21.6%	-0.03 [-0.05, -0.01]	•
Alexander 2023 TARGET-TP	2	46	13	46	1.7%	-0.24 [-0.38, -0.10]	
Altinbas et al 2004	0	42	1	42	1.5%	-0.02 [-0.09, 0.04]	-+
Carrier 2019 AVERT	0	31	0	28	1.1%	0.00 [-0.06, 0.06]	+
Ek 2018 RASTEN	5	186	16	191	6.9%	-0.06 [-0.10, -0.01]	-
Haas 2012 TOPIC-2	12	268	22	264	9.7%	-0.04 [-0.08, 0.00]	-
Khorana 2019 CASSINI	2	62	5	72	2.4%	-0.04 [-0.11, 0.04]	-+
Lecumberri 2013 ABEL	0	20	4	18	0.7%	-0.22 [-0.42, -0.02]	
Macbeth 2016 FRAGMATIC	61	1101	107	1101	40.2%	-0.04 [-0.06, -0.02]	•
Meyer 2018 TILT	18	269	20	280	10.0%	-0.00 [-0.05, 0.04]	+
Total (95% CI)		2815		2711	100.0%	-0.04 [-0.05, -0.03]	+
Total events	116		220				
Heterogeneity: Chi2 = 17.39, df	= 10 (P = 0.07); l ^a	= 42%					
Test for overall effect: Z = 6.15	(P < 0.00001)						-1 -0.5 0 0.5 1 Favors thromboprophylaxis Favors control

Pooled RR & RD for venous thromboembolism in ambulatory patients with lung cancer receiving thromboprophylaxis with LMWH vs control

-1 -0.5 0 0.5 Favors thromboprophylaxis Favors control

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	Thromboorool	vlaxis	Contr	ol		Risk Ratio	Risk Ratio
Study or Subgroup	Events	Total	Events	Total	Weight	M-H, Fixed, 95% CI	M-H, Fixed, 95% CI
Agnelli 2009 PROTECHT	7	199	7	80	4.6%	0.40 [0.15, 1.11]	
Agnelli 2012 SAVE-ONCO	9	591	25	589	11.4%	0.36 [0.17, 0.76]	_ _
Alexander 2023 TARGET-TP	2	46	13	46	5.9%	0.15 [0.04, 0.64]	
Altinbas et al 2004	0	42	1	42	0.7%	0.33 [0.01, 7.96]	
Ek 2018 RASTEN	5	186	16	191	7.2%	0.32 [0.12, 0.86]	
Haas 2012 TOPIC-2	12	268	22	264	10.1%	0.54 [0.27, 1.06]	
Lecumberri 2013 ABEL	0	20	4	18	2.2%	0.10 [0.01, 1.75]	· · · · · · · · · · · · · · · · · · ·
Macbeth 2016 FRAGMATIC	61	1101	107	1101	48.9%	0.57 [0.42, 0.77]	+
Meyer 2018 TILT	18	269	20	280	9.0%	0.94 [0.51, 1.73]	-
Total (95% CI)		2722		2611	100.0%	0.51 [0.41, 0.64]	•
Total events	114		215				
Heterogeneity: Chi ² = 10.17, df	= 8 (P = 0.25); I ²	= 21%					
Test for overall effect: Z = 5.95	(P < 0.00001)						Eavors thromboprophylaxis Favors control
	Thromboproph	wlaxis	Contr	rol		Risk Difference	Risk Difference
Study or Subgroup	Events	Total	Events	Total	Weight	M-H, Fixed, 95% CI	M-H, Fixed, 95% CI
Agnelli 2009 PROTECHT	7	199	7	80	4.3%	-0.05 [-0.12, 0.01]	-
Agnelli 2012 SAVE-ONCO	9	591	25	589	22.3%	-0.03 [-0.05, -0.01]	
Alexander 2023 TARGET-TP	2	46	13	46	1.7%	-0.24 [-0.38, -0.10]	
Altinbas et al 2004	0	42	1	42	1.6%	-0.02 [-0.09, 0.04]	+
Ek 2018 RASTEN	5	186	16	191	7.1%	-0.06 [-0.100.01]	-
Haas 2012 TOPIC-2	12	268	22	264	10.1%	-0.04 [-0.08, 0.00]	-
Lecumberri 2013 ABEL	0	20	4	18	0.7%	-0.22 [-0.42, -0.02]	
Macbeth 2016 FRAGMATIC	61	1101	107	1101	41.7%	-0.04 [-0.06, -0.02]	
Meyer 2018 TILT	18	269	20	280	10.4%	-0.00 [-0.05, 0.04]	+
Total (95% CI)		2722		2611	100.0%	-0.04 [-0.05, -0.03]	•
Total events	114		215				

Heterogeneity: Chi² = 16.02, df = 8 (P = 0.04); l² = 50%

Test for overall effect: Z = 6.09 (P < 0.00001)

Keywords: Chemotherapy, Thromboprophylaxis, Lung cancer, Meta-analysis