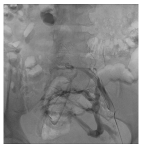
VEITH SYMPOSIUM
Connecting The Vascular Community

Update Of Post-Thrombotic Syndrome Prevention



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Disclosure

AlfaSigma – Speaker bureau, Research grant, Advisory board member

Bayer – Speaker bureau

Pfizer – Speaker bureau

Balton – Research grant

Medi – Speaker bureau

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PTS risk factors - risk factors related to the patient initial status:

Age*	++
Obesity**	++
Preexisting varicose veins ***	++
Trombophilia presence	-

***Older age: ↑ PTS risk from 30% to 3 fold**
**** BMI>30: More than 2-fold ↑ PTS risk**
***** Preexisting varicose veins – up to 2-fold ↑risk of PTS**

Kahn SR. et al. Determinants and time course of the postthrombotic syndrome after acute deep venous thrombosis. Ann Intern Med 2008; 149: 698–707.
Galanaud JP et al. Predictors of post-thrombotic syndrome in a population with a first deep vein thrombosis and no primary venous insufficiency. J Thromb Haemost 2013; 11: 474–80.
Kahn SR et al. American Heart Association Council on Peripheral Vascular Disease, Council on Clinical Cardiology, and Council on Cardiovascular and Stroke Nursing. The postthrombotic syndrome: evidence-based prevention, diagnosis, and treatment strategies: a scientific statement from the American Heart Association. Circulation 2014; 130: 1636–61.
Kahn SR, Galanaud JP, Vedantham S, Ginsberg JS. Guidance for the prevention and treatment of the post-thrombotic syndrome. J Thromb Thrombolysis 2016; 41: 144–53.
Rabinovich A. et al. Journal of Thrombosis and Haemostasis, 2017; 15: 230–241
Baldwin MJ. et al. Post-thrombotic syndrome: a clinical review. J Thromb Haemost 2013; 11: 795–805

PTS risk factors related to the initial DVT characteristics:

Symptomatic DVT vs Asymptomatic	+/-
Provoked DVT vs Unprovoked	-
DVT location /massive proximal vs. distal/*	++

***But distal DVT does not exclude PTS occurrence (PTS Rate 14-47%)**
/Prandoni P. (1996), Browse NL.(1980), Strandness DE (1983), Philbrick JT (1988), Kakkar V. (1985),

Kahn SR. et al. Determinants and time course of the postthrombotic syndrome after acute deep venous thrombosis. Ann Intern Med 2008; 149: 698–707.
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Baldwin MJ. et al. Post-thrombotic syndrome: a clinical review. J Thromb Haemost 2013; 11: 795–805
Bikdeli B et al.: Clinical Presentation and Short- and Long-term Outcomes in Patients With Isolated Distal Deep Vein Thrombosis vs Proximal Deep Vein Thrombosis in the **RIETE Registry**. JAMA Cardiol. 2022; 7: 857-86
Galanaud JP. Long-term risk of postthrombotic syndrome after symptomatic distal deep vein thrombosis: The CACTUS-PTS study. J Thromb Haemost. 2020; 18: 857-864

Post-thrombotic syndrome prediction models

SOX – PTS index /range 0-5/

High risk predictors at baseline:

1 point: iliac vein DVT
2 points: BMI>35
1 point: Vialta score 9-14 at baseline /moderate PTS/
1 point: Villata score >`14 at baseli

scor

Rabino

MEAN model (proximal or distal DVT age >65):

Mean M et al. 2018

	score
Age ≥ 75	1
NSAID/antiplatelet	1
Multilevel thrombosis	1
Prior varicose vein surgery	
	4
Smoking	1
Provoked DVT	1
Iliofemoral DVT	1
History of DVT	1

Several factors studied and proposed but still very difficult to predict on the individual basis which patients will develop and which one will do not develop prothrombotic syndrome ....

HUANG model (Chinese cohort, firts proximal or distal DVT)

Iliac vein compression	Severe	2.5
	Occlusion	5.5
Residual iliac – femoral vein thrombosis		3
Residual femoral – popliteal vein thrombosis		3
Insufficient anticoagulation		6

Rabinovich A, Ducruet T, Kahn SR, Sox Trial investigators. Development of a clinical prediction model for the postthrombotic syndrome in a cohort of patients with proximal deep vein thrombosis. J Thromb Haemost. 2018; 16: 262–70; Mean M, Limacher A, Alatri A, Aujesky D,
Mazzolai L. Derivation and validation of a prediction model for risk stratification of post-thrombotic syndrome in elderly patients with a first deep vein thrombosis. Thromb Haemost. 2018;118: 1419–27; Amin EE, van Kuijk SMJ, Joore MA, Prandoni P, Ten Cate H, Ten Cate-Hoek AJ.
Development and validation of a practical two-step prediction model and clinical risk score for post-thrombotic syndrome. Thromb Haemost. 2018; 118:1242–9; Huang H, Gu JP, Shi HF, Shi WY, Lu JY, Chen L, et al. Assessment of the probability of post-thrombotic syndrome in patients with lower extremity deep venous thrombosis. Sci Rep. 2018; 8: 12

PTS risk factors related to the treatment phase

Poor INR control in the treatment phase /especially within first 3 months/	++
LMWH vs VKA (in favor to LMWH)	+
„Residual thrombosis" /non complete recanalisation and thrombus resolution/	+
Incomplete resolution of the symptoms within 1st month of the treatment	+

Kahn SR. et al. Determinants and time course of the postthrombotic syndrome after acute deep venous thrombosis. Ann Intern Med 2008; 149: 698–707, Galanaud JP et al. Predictors of post-thrombotic syndrome in a population with a first deep vein thrombosis and no primary venous insufficiency. J Thromb Haemost 2013; 11: 474–80, Kahn SR et al. American Heart Association Council on Peripheral Vascular Disease, Council on Clinical Cardiology, and Council on Cardiovascular and Stroke Nursing. The postthrombotic syndrome: evidence-based prevention, diagnosis, and treatment strategies: a scientific statement from the American Heart Association. Circulation 2014; 130:
1636–61. Kahn SR, Galanaud JP, Vedantham S, Ginsberg JS. Guidance for the prevention and treatment of the post-thrombotic syndrome. J Thromb Thrombolysis 2016; 41: 144–53, Rabinovich A. et al. Journal of Thrombosis and Haemostasis, 2017; 15: 230–241; Jeraj L. et al. Insufficient Recanalization of Thrombotic Venous Occlusion-Risk for Postthrombotic Syndrome. J Vasc Interv Radiol. 2017; 29: 914-944,Hull RD. et al. Long-term low-molecularweight heparin and the post-thrombotic syndrome: a systematic review. Am J Med 2011; 124: 756–65, Hull RD. Effect of long-term LMWH on post-thrombotic syndrome in patients with iliac/noniliac venous thrombosis: a subanalysis from the home-LITE study. Clin Appl Thromb Hemost. 2013; 19; 476-81

Anticoagulant therapy duration in PTS prevention ?

ExACT study

Extended AntiCoagulation Treatment for venous thromboembolism

281 patients with unprovoked proximal DVT after 3 months of anticoagulation

anticoagulation vs anticoagulation continuation

Follow up - 24 months

Mean Villalta score: 5.09 vs 5.0; p=0.9

No difference in the VEINES-QoL and EQ-5D-3L quality of life scores

Conclusion: No direct influence of the anticoagulation duration on the PTS occurrence.

VTE recurrence rate 13.54 vs 2.75 events/100 patients years

Bradbury C, Fletcher K, Sun Y, Henreghan C, Gardiner C, Roalfe A, et al. A randomised controlled trial of extended anticoagulation treatment versus standard treatment for the prevention of recurrent venous thromboembolism (VTE) and post-thrombotic syndrome in patients being treated for a first episode of unprovoked VTE (the ExACT study). Br J Haematol. 2020; 188: 962-975

DVT recurrence (ipsilateral)

Post – thrombotic syndrome risk 2-6x .

Optimal duration and quality of antithrombotic VTE treatment

Risk of recurrence **Risk of bleeding**

Kahn S, Comerota A, Cushman M, Evans N, Ginsberg JS, Goldenberg NA, Gupta DK, Prandoni P, Vedantham SM, Walsh ME, Weitz JI; on behalf of the American Heart Association Council on Peripheral Vascular Disease, Council on Clinical Cardiology and Council on Cardiovascular and Stroke Nursing. **The post-thrombotic syndrome: evidence – based prevention, diagnosis and treatment strategies: a scientific statement from The American Heart Association.** Circulation 2014

DVT recurrence prevention options:

- **Full anticoagulation**
  VKA, DOACS **/high efficacy, continuous risk of bleeding/**
- **Reduced doses of anticoagulants**
  VKA INR 1.5-2.0,
  Rivarioxaban 10 mg **/EINSTEIN CHOICE/**
  Apixaban 2x 2,5 mg **/AMPLIFY EXTENSION/**
- **Sulodexide** **/SURVET/**
  Sulodexide 2x500 LSU
- **ASA** **/WARFASA, ASPIRE/**

DOAC's in PTS prevention ?

- **DOACs* improve the compliance to the effective anticoagulant treatment**
  - no need of INR control
  - simplified therapy
  - high clinical efficacy and safety
- **DOACs and PTS rate decrease ? Do all DOACs works in the same way?**

*DOACs - Direct Oral Anticoagulants

Rivaroxaban DVT treatment in PTS rate reduction

Karathanos C. et al. Efficacy of rivaroxaban in prevention of post-thrombotic syndrome: A systematic review and meta-analysis. J Vasc Surg Venous Lymphat Disord. 2021; 9: 1568-1576.e1.

6 retrospective studies, 2 RCT; 59199 patients

PTS rate reduction in rivaroxaban group (vs warfarin treated patients)
OR 0.52; 95% CI 0.43-0.63; (p < 0.001)

Severe PTS reduction: 3.7% (rivaroxaban) vs 6.4% (warfarin); OR = 0.55; 95% CI, 0.36-0.85; p= 0.024

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Jeraj L, Jezovnik MK, Poredos PI. Rivaroxaban versus warfarin in the prevention of post-thrombotic syndrome. Thromb Res. 2017; 157: 46-48

/prospective RCT/

Rivaroxaban (61 pts.) vs Warfarin (39 pts.)
Follow up: 23 months (median) after DVT episode

PTS (Villalta scale): 25% - rivaroxaban vs. 49% - warfarin /p=0.013/

OR 2.9 (1.2-6.8; p=0.014) for PTS development in warfarin group /compared to rivaroxaban/

adjusted OR 3.5 (1.1-11.0; p=0.035).

PTS patients: more frequently recurrent DVT 15% vs 3% (no PTS); p = 0.03

CONCLUSIONS:

Treatment of DVT with rivaroxaban might be associated with a lower risk for PTS development. A larger randomized trial would be needed for stronger evidence.

/prospective RCT/

de Athayde Soares R, Matielo MF, Brochado Neto FC, Nogueira MP, Almeida RD, Sacilotto R

Comparison of the recanalization rate and postthrombotic syndrome in patients with deep venous thrombosis treated with rivaroxaban or warfarin. Surgery. 2019;166:1076-1083.

Prospective, consecutive, randomized, blind cohort study - 84 DVT patients

Oral anticoagulation for 6 months:

rivaroxaban vs warfarin

/follow up 12 months/

PTS rate 8.7% vs 28.9% (P < .001; OR 4.278)

Total venous recanalization @ day 360: 13.2% vs 76.1%; (P < .001).

Five patients in the total cohort (6%) showed no venous recanalization - all of them in the warfarin

PTS rate reduction by DOACs?

Unknown for other DOACs - very limited data, no prospective dedicated studies

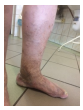
Dabigatran data (no effect on PTS occurrence proved) – RECOVER study patient follow up

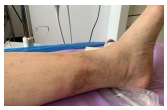
Wik HS, Kahn SR, Eriksson H, et al. Post-thrombotic syndrome in patients with venous thromboembolism treated with dabigatran or warfarin: a long-term cross-sectional follow-up of RE-COVER study patients. J Thromb Haemost. 2021; 19: 2495-2503

Edoxaban data (no effect on PTS occurrence proved) – HOKUSAI – VTE substudy: 316 patients, mean time since randomisation 7.0 yrs.

Bistervels I. et al. Postthrombotic syndrome and quality of life after deep vein thrombosis in patients treated with edoxaban versus warfarin.

Res Pract Thromb Haemost. 2022; 6: e12748





Post – thrombotic syndrome

– probably not only vein obstruction or vein valve incompetence

CVD SYMPTOMS

CVD SIGNS

VENOUS HYPERTNESION

MICROCIRCULATION INJURY

LARGE VEIN PATHOLOGY

Reflux and/or RVO

VEIN FIBROSIS

INFLAMMATION

RVO - Residual vein obstruction

PTS and anti-inflammatory tretment ?

801 consecutive patients with proximal DVT and no active cancer

Including 82 patients with Chronic Inflammatory Disease (CID)

/Inflammatory bowel disease, systemic rheumatid disease, gout/.

2 year prospective follow-up

PTS (Villata score), Residual Venous Obstruction – RVO (US based evaluation)

PTS rate: CID patients 35.4% vs. No CID 18.9 % (p < 0.001) HR 1.72 [1.15–2.58])

Residual Venous Obstruction /Less commonly in antiinflammatory treated CID patients/

CID treated 26.7% vs CID with no antinflammatory treatment 51.6% (p<0.05)

PTS in CID DVT patients in relationship to the antiinflammatory treatment:

CID treated 26.1% vs CID with no antiinflammatory treatment 47.2% p=0.047

Local anti-inflammatory treatment in PTS prevention ?

DEXTERITY AFP TRIAL

Local perivenous injection of dexamethasone sodium phosphate after sucessfull vein thrombectomy

1st phase trial /21 patients/

6 month follow up (20 pts.): **mild PTS 5% /no moderate to severe PTS reported/**

Vilalta score reduction /from baseline to 6 months/ 7.3 ± 0.7 → 1.6 ± 0.4)

2nd phase /60 participants/ RCT on the local drug delivery

D. Dexter @VEINS 2023 Las Vegas October 28-30

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Cathegory	Venoactive drugs
Plant deriven	
Gamma-benzopyrones (flavonoids)	Micronised purified flavonoid fraction
	Diosmin
	Rutin, Rutosides
	O-(beta-hydroxyethyl)-rutosides
	Kaempferol glucoside, Quercetine glucuronide
	Proantocyanidins
	Anthocyans
Alpha-benzopirones	Cumarin
Saponins	Ruscus extract
	Horse chestnut seed extract, Escin
Other plant extracts	Ginko Biloba extracts
Chemical synthesis	
Synthetic products	Calcium dobesilate
	Naftazone
	Banzarone
Animal deriven	
Glycosaminoglycans	Sulodexide

VENOACTIVE DRUGS IN PTS PREVENTION

?

Statins in PTS prevention

RCT: 234 DVT patients

LMWH vs LMWH + rosuvastatin

CRP levels after 3 months	22.39 vs 4.17	p=0.018
Villalta score after 3 months	7.79 vs 3.45	p = 0.035
PTS rate	**48.5% vs 38.3%**	**p = 0.019**

Conclusion: *adjuvant rosuvastatin treatment in patients diagnosed of DVT improve CRP level and reduce PTS incidence*

San Norberto EM et al. Effects of rosuvastatin as an adjuvant treatment for deep vein thrombosis. Vasa 2016; 45: 133–140

SAVER Study

Statins for Venous Event Prevention

SAVER study results

312 pts – RCT rosuvastatin 20 mg (180 days) vs no rosuvastatin

Overal PTS rate (Villalta >4): 29.7% (rosuvastatin) vs 25.5% (control arm) p=0.04

Severe PTS @ day 180: 2.0% vs 2.7% (control arm) p=1

Deliuc A, Ghanima W, Kovacs M. et al. Prevention of post-thrombotic syndrome with rosuvastatin: A multicenter randomized controlled pilot trial (SAVER). Thromb Res. 2022; 213: 119-124

/randomisation and begining of rosuvastatin therapy up to 30 days from DVT diagnosis ?/

Statins in PTS prevention – the hypothesis has to be confirm in further trials !

Caiano L. Role of statins in the prevention of post-thrombotic syndrome after a deep vein thrombosis event: a systematic review and meta-analysis. J Thromb Haemost. 2023; 21(4): 944-952.

5 studies (2 retrospective cohorts/3 randomized controlled trials [RCTs])

The pooled PTS incidence:

34.8% per patient-year (95% CI, 9.5-127.4) (statins) vs 41.6% per patient-year (95% CI, 13.2-132) (control)

[22% PTS rate reduction with statins in systemic review]

Meta-analysis of 2 retrospective cohorts: significant reduction in the risk of developing PTS (IRR, 0.68; 95% CI, 0.51-0.91)

Meta–analysis of 3 RCTs: no reduction in PTS occurrence (IRR, 0.92; 95% CI, 0.68-1.25)

Conclusions: Although this systematic review suggests that statins may reduce PTS incidence by 22% after deep vein thrombosis, meta-analysis of RCTs showed no risk reduction. Confirmation of the efficacy of statins on the prevention of PTS should be assessed in larger RCTs.

Archives of Academic Emergency Medicine. 2023; 11(1): e43 OPEN ACCESS
ORIGINAL RESEARCH

The Effects of 3-Month Rosuvastatin Adjuvant Therapy on Post Thrombotic Syndrome following Deep Vein Thrombosis; a Randomized Clinical Trial

Mehdi Pishgahi[1], Shirin Ghane Ford[2], Rahil Lak Tabriz[1], Kimia Karimi Yeadeshki[1,*], Zahra Talebi[3]

Prospective RCT

3 months follow up (PTS rate – Brandjes critera)
182 patients: overall PTS rate 17%

	severe PTS	Moderate PTS	Mild PTS
Warfarin	8%	12%	12%
Warfarin + Rosuvastatin	0	4.0%	10.2%
Rivaroxaban	4.5%	6.8%	9.1%
Rivaroxaban + Rosuvastatin	0	2.5%	10%

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Warfarin + Rosuvastatin	**0**	**4.0%**	**10.2%**
Rivaroxaban	4.5%	6.8%	9.1%
Rivaroxaban + Rosuvastatin	**0**	**2.5%**	**10%**

Conclusion: Rosuvastatin administration can significantly reduce the incidence of PTS and cause a difference in the size of the lower limbs within 3 month. Rosuvastatin administration in combination with rivaroxaban or warfarin significantly reduces the level of inflammatory factors including CRP and D-dimer, compared to patients receiving anticoagulants alone.

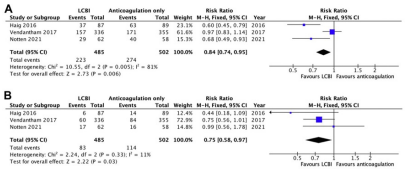
Early thrombus removal in PTS prevention ?

- Surgical thrombectomy
- Endovascular /CDT, pharmacomechanical, mechanical/ methods

„Open vein" concept

Javed A. et al. Meta-analysis of lytic catheter-based intervention for acute proximal deep vein thrombosis in the reduction of post-thrombotic syndrome. J Vasc Surg Venous Lymphat Disord 2023;11:866-75

CAVENT
ATTRACT
CAVA



A/ PTS rate reduction: **RR 0.84; 95% CI 0.74-0.95; P = 0.006**
B/ Severe and moderate PTS rate reduction: **RR 0.75; 95% CI 0.58-0.97; P = 0.03**

LCBI – Lytic catheter based intervention

Conclusions: Pooling of current best evidence suggests that LCBIs in acute proximal DVT ***decreases the rate of PTS and moderate to severe PTS with a number needed to treat of 12 and 18, respectively. However, this is complicated by a significantly higher rate of major bleeding with a number needed to treat of 37.*** *This evidence supports the use of LCBIs in selected patients, including those who are at low risk of major bleeding.*

The CLOUT (ClotTriever Outcomes) registry /ClotTriever for DVT: CLOUT Registry/

Prospective, multicenter study evaluating patient outcomes for proximal lower extremity deep vein thrombosis (DVT) treated with mechanical thrombectomy (MT) using the ClotTriever system

Mechanical methods of thrombus removal

PTS occurence (overall): 19.3%
Moderate-to-severe post-thrombotic syndrome (PTS; Villalta score ≥ 10): 8.8%
Venous patency /presence of flow with normal or partial compressibility on duplex US/ - 94.2%

D. Dexter @ VIVAOctober 28-30 2023, Las Vegas, Nevada.

Published: Bisharat MB et al. One-Year Clinical Outcomes Following Mechanical Thrombectomy for Deep Vein Thrombosis: A CLOUT Registry Analysis J Soc Cardiovasc Angiogr Interv. 2024 Feb 15;3(3Part A):101307.

RCT: ClotTriever vs anticoagulation /DEFIANCE TRIAL/

MEDICAL COMPRESSION in PTS PREVENTION

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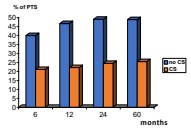
Compression stocking use after DVT episode for post-thrombotic syndrome prevention



Proximal DVT
Knee-lengh elastic CS /30 – 40mmHg/ - 2 yrs.
Follow up - 5 yrs

PTS /after 49 months (mean)/: CS - 26% vs Control - 49% **NNT 5 (3-11)**

Prandoni P. et al.: Below – knee elastic compression stocking to prevent the post-thrombotic syndrome. Ann Int Med. 2004; 141: 4: 249-256

Class II ECS vs „Placebo stockings"
Post-thrombotic syndrome /Ginsberg Criteria/

SOX TRIAL

Randomization

ECS - 410 pts vs Placebo ECS

Primary outcome - the cumulative incidence of PTS from 6 to 24 months follow-up

Cummulative incidence of PTS
14.2% /active ECS/ vs. 12.7% /placebo ECS/ (HR 1. 13; 95% CI 0.73-1.76; p=0.58)

Most proximal extent of DVT

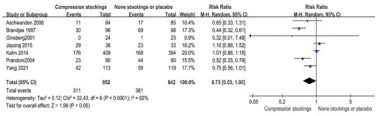
	Active ECS	Placebo ECS
Iliac	10.8%	12.4%
Common femoral	26.7%	27.2%
Femoral	31.3%	31.2%
Popliteal	31.3%	29.2%

Active ECS:
Knee – length
30-40 mm Hg compression.

Kahn S. et al. Compression stokings to prevent post-thrombotic syndrome: a randomised placebo controlled trial. Lancet 2014; 383:880-88

Meng J et al. It is necessary to wear compression stocking and how long they should be worn for prevention of post thrombotic syndrome? A meta –analysis of radomized controlled trials. Thrombosis Research. 2023; 225: 79-86

9 RCT (including 2 studies concerning treatment duration)
Elastic Compression Stocking in acute DVT patients vs no compression or placebo



Post thrombotic syndrome (overall) rate reduction (RR 0.73, 95 % CI 0.53 to 1.00; p = 0.05)

But ….no significant difference in severe post thrombotic syndrome rate

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DVT patient

compression or no compression (in 2024)
in DVT patients in acute DVT treatment and PTS prevention?

Be carefull with final conclusion!

MEDICAL COMPRESSION in PTS PREVENTION

or rather …

Immediate MEDICAL COMPRESSION and early MOBILISATION …

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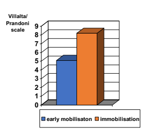
DVT treatment – **early mobilisation and ambulation decrease the Postthrombotic Syndrome occurence**

- Immobilisation (9 days) without compression stocking - 17
- Unna boots + early mobilisation - 18
- Elastic compression + early mobilisation - 18

Follow up 28,9 (+/- 4,9) months



Assessement of PTS severity

Villata scale: < 5 points (no PTS)

- Walking patients - 46%
- Immoblisation - 18%

Partsch H. et al. Immediate mobilisation in acute vein thrombosis reduces post thrombotic syndrome. Int Angiol 2004; 23: 206 -12

Reduced incidence of vein occlusion and postthrombotic syndrome after immediate compression for deep vein thrombosis
Blood 2018; 132: 2298–2304.

No compression vs acute compression within 24 hours of diagnosis of DVT with either multilayer bandaging or compression hosiery (pressure...

Nielsen JD. et al. Graduated elastic compression stockings in the prevention of post-thrombotic syndrome: A systematic review and meta-analysis.
Phlebology. 2023 Dec 28:2683555231225268

4 RCT studies/1467 patients/ which met inclusion criteria for early initiation and consistent use of ECS in patients with acute proximal DVT/

ECS significantly reduced the incidence of mild-moderate PTS (OR: 0.48; 95% CI: 0.36-0.63)
ECS significantly reduced severe PTS (OR: 0.44; 95% CI: 0.28-0.58)

/Risk Reduction 20.4% (OR, 0.46; 95% CI, 0.27-0.80; $P = 0.005$)/

...thrombotic syndrome rate (after 24 months)

No Residual Venous Obstruction	46.0%
Residual venous obstruction	54.0%

/OR, 0.65; 95% confidence interval, 0.46-0.92; $P = 0.013$/

Compression in PTS prevention

Consensus Statement for compression stockings in venous & lymphatic disorders
International Consensus Group: E. Rabe, H. Partsch, J. Hafner, Ch. Lattimer, G. Mosti, M. Neumann, T.Urbanek, M. Hüebner, S. Gaillard, P. Carpentier
Phlebology 2018

Recommendation 18

Use of medical compression stocking as early as possible after diagnosis of DVT in order to prevent PTS

/1B*/

**downgraded from 1A in the 2008 consensus document*

CHAPS
Compression Hosiery to Avoid Post-Thrombotic Syndrome

Objective
To measure the difference in incidence of post-thrombotic syndrome at a median of 18 months follow up after first, acute DVT between standard clinical care (anticoagulation) and the intervention arm (a graduated compression stocking and the standard clinical care (anticoagulation)).

Inclusion Criteria
- Symptomatic presentation of first deep vein thrombosis, <2 weeks from diagnosis
- Imaging confirmed, lower limb deep vein thrombosis (popliteal, femoral, iliac or combination)

Primary endpoint: incidence of Post Thrombotic Syndrome (PTS) using the validated Villalta criteria over a median 18 month follow up (range 6 to 30 months).

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CHAPS
Compression Hosiery to Avoid Post-Thrombotic Syndrome (CHAPS) Trial

European Venous Forum in Cracov/Poland (26-28.06.2025)

Call for abstract – deadline 14th Februarry 2025