

Paolo Prandoni

La compressione elastica dopo TVP: Necessaria, utile, inutile?



Disclosures of: Paolo Prandoni

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Major stockholder	No conflict of interest to disclose
Patents	No conflict of interest to disclose
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Other	No conflict of interest to disclose

Presentation includes discussion of the following off-label use of a drug or medical device: N/A

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Prandoni P, Frulla M, Marchiori A, et al

Below-knee compression elastic stockings for prevention of PTS in patients with proximal DVT

Ann Intern Med 2004

PTS development during the study period

Features	Control (N=90)	Elastic stockings (N=90)
Overall PTS	44 (48.9%)	22 (24.4%)
Severe PTS	9	3

Prandoni et al, ISTH 2003

Amsterdam Post-Thrombotic Syndrome Study: Results

After a mean follow-up of 76 months in each group:

	No Stockings (N=97)	Stockings (N=97)
Mild-to-moderate PTS	47.0%	20.0%*
Severe PTS	23.5%	11.5%*

*P<0.001

Brandjes et al, Lancet 1997

Compression stockings to prevent post-thrombotic syndrome: a randomised placebo-controlled trial

Susan R Kahn, Stan Shapiro, Philip S Wells, Marc A Rodger, Michael J Kovacs, David R Anderson, Vicky Tagalakis, Adrielle H Houweling, Thierry Ducruet, Christina Holcroft, Mira Johri, Susan Solymoss, Marie-José Miron, Erik Yeo, Reginald Smith, Sam Schulman, Jeannine Kassis, Clive Kearon, Isabelle Chagnon, Turnly Wong, Christine Demers, Rajendar Hanmiah, Scott Kaatz, Rita Selby, Suman Rathbun, Sylvie Desmarais, Lucie Opatrny, Thomas L Ortel, Jeffrey S Ginsberg, for the SOX trial investigators

The Lancet 2013

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	Active stockings group (n=409)	Placebo stockings group (n=394)
Age, years	55.4 (15.3)	54.8 (15.8)
Age category		
<40 years	67 (16.4%)	67 (17.0%)
40-65 years	222 (54.3%)	217 (55.1%)
>65 years	120 (29.3%)	110 (27.9%)
Men	255 (62.4%)	228 (57.9%)
Outpatients	355 (86.8%)	344 (87.3%)
White ethnic origin	371 (90.7%)	354 (89.9%)
Body-mass index, kg/m ²	29.0 (6.1)	28.9 (6.1)
Time from DVT diagnosis to randomisation, days	4.8 (4.1)	4.6 (3.8)
Characteristics of DVT		
Right	180 (44.0%)	173 (43.9%)
Left	222 (54.3%)	216 (54.8%)
Bilateral	7 (1.7%)	5 (1.3%)
Most proximal extent of DVT*		
Iliac vein	44 (10.8%)	49 (12.4%)
Common femoral vein	109 (26.7%)	107 (27.2%)
Femoral vein	128 (31.3%)	123 (31.2%)
Popliteal vein	128 (31.3%)	115 (29.2%)
Villalta score at baseline	8.2 (4.4)	8.7 (4.8)

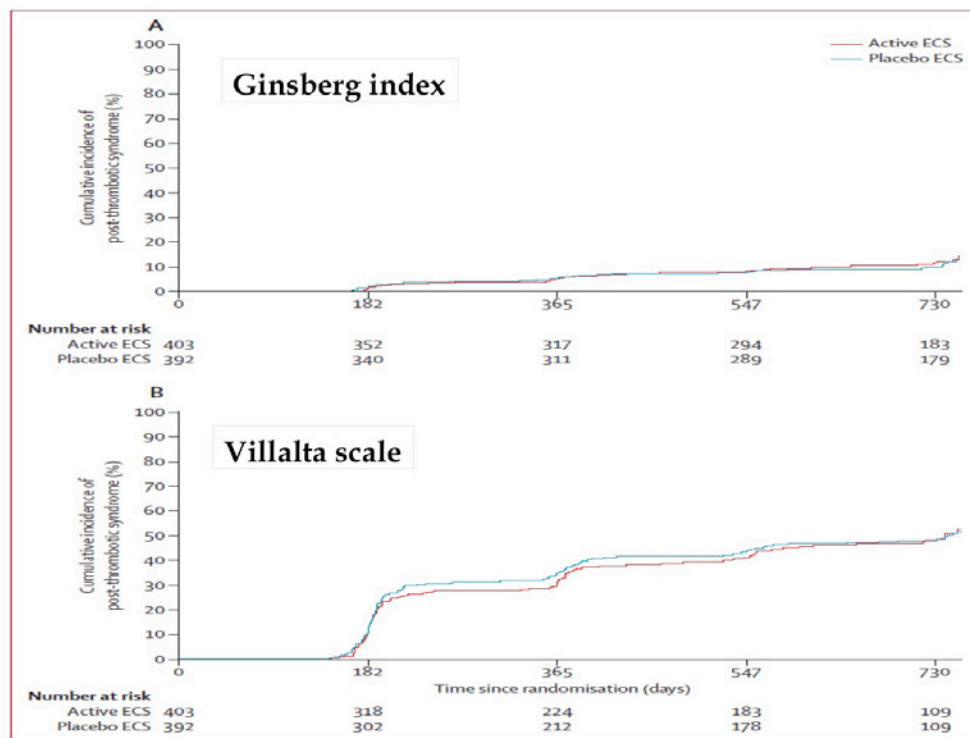


Figure 2: Cumulative incidence of post-thrombotic syndrome

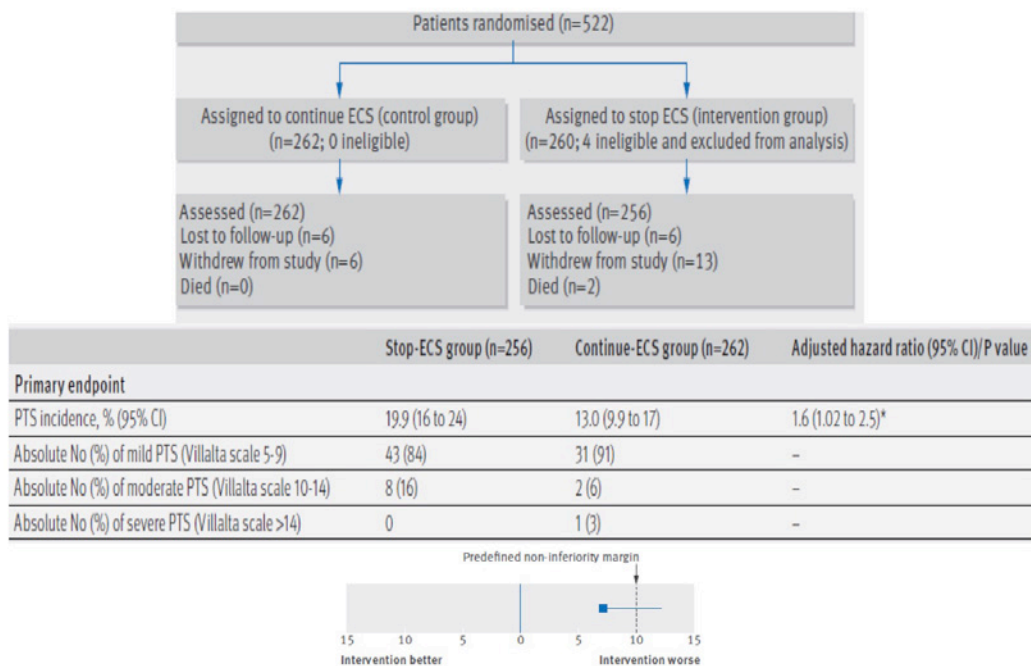
SOCS features

- Compliance lower than 50%
- Allocation to elastic stockings two weeks after the acute episode
- The problem of the “false” elastic stockings
- The substantial (up to 20%) rate of inpatients

One versus two years of elastic compression stockings for prevention of post-thrombotic syndrome (OCTAVIA study): randomised controlled trial

G C Mol,^{1,2,3} M A van de Ree,¹ F A Klok,⁴ M J A M Tegelberg,⁵ F B M Sanders,⁶ S Koppen,⁷ O de Weerd,⁸ T Koster,⁹ M M C Hovens,¹⁰ H A H Kaasjager,² R E Brouwer,¹¹ E Kragten,¹¹ C G Schaar,¹² W Spiering,³ W P Arnold,¹³ D H Biesma,⁸ M V Huisman⁴

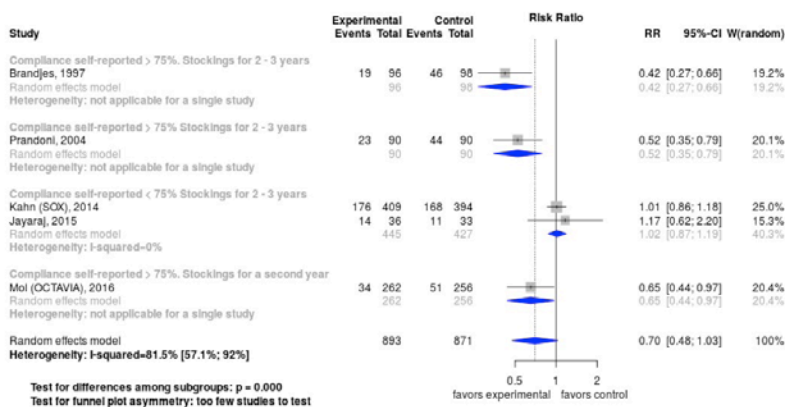
BMJ 2014



BMJ, 2016

Compression Stockings to Prevent Post-flebitic Syndrome: Open Metanalysis

High pressure compression stockings to prevent post-phlebotic syndrome



Subbiah R et al. Lancet Haematol 2016

DISCUSSIONE (1)

**Sono efficaci le calze elastiche
per la prevenzione della PTS?**

AHA Consensus Statement Circulation 2014

The effectiveness of ECS to prevent PTS is uncertain, but ECS may be reasonable to consider after diagnosis of proximal DVT to reduce swelling (Class IIb; Level of Evidence A).

Amin EE, Bistervels IM, Meijer K, et al
 (subanalysis of the IDEAL study in a cohort of 592 patients)

Residual vein occlusion in relation to immediate compression and post thrombotic syndrome in deep vein thrombosis

Blood 2018;132:2298-304

RVO and acute Compression

	RVO /n (%)	OR (95%CI)	P-value
No compression	48/72 (66.7)	ref	-
Compression	241/520 (46.3)	0.46 (0.27-0.80)	0.005

Absolute difference is -20.4% RVO for compression

DISCUSSIONE (2)

**Sono ragionevoli comunque a
scopo sintomatico nella fase
acuta della TVP?**

CANANO Study

blood

Prepublished online December 16, 2011;
doi:10.1182/blood-2011-11-391961

Thigh-length versus below-knee compression elastic stockings for prevention of the post-thrombotic syndrome in patients with proximal-venous thrombosis: a randomized trial

Paolo Prandoni, Franco Noventa, Roberto Quintavalla, Carlo Bova, Benilde Cosmi, Sergio Siragusa, Eugenio Bucherini, Francesco Astorri, Stefano Cuppini, Fabio Dalla Valle, Anthonie WA Lensing, Martin H Prins and Sabina Villalta

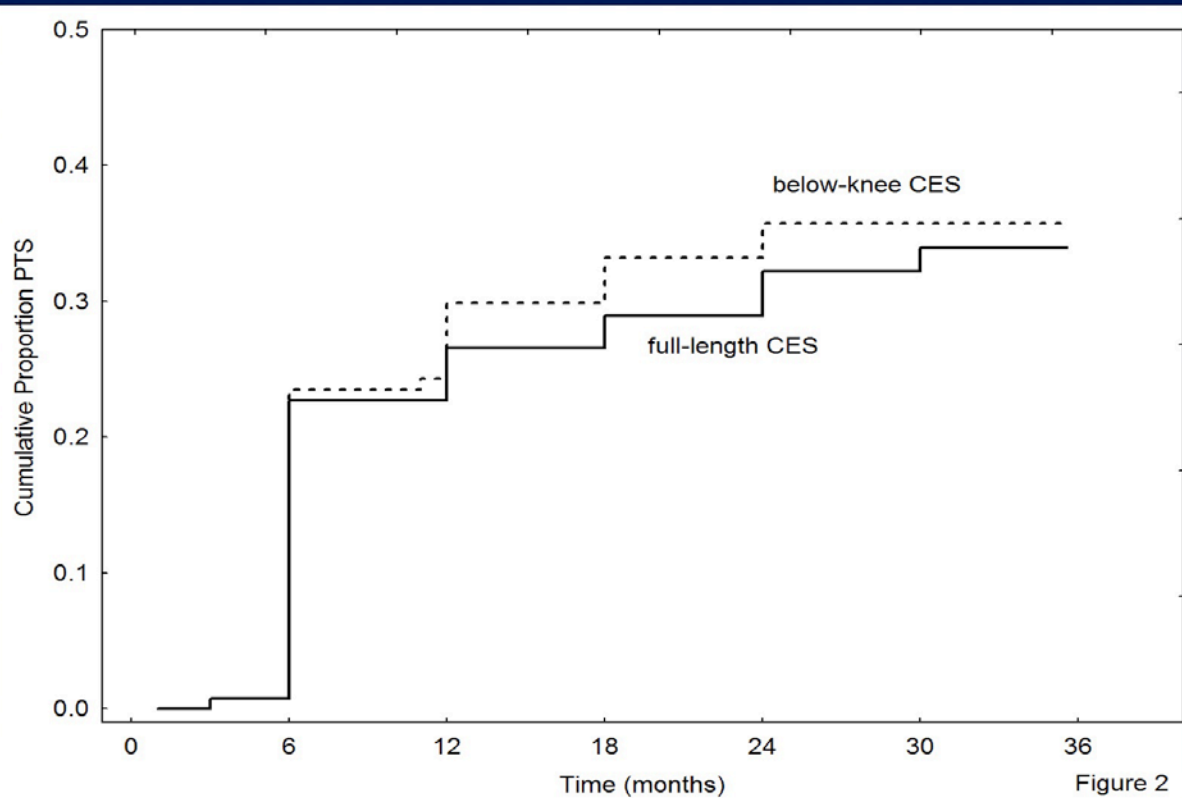
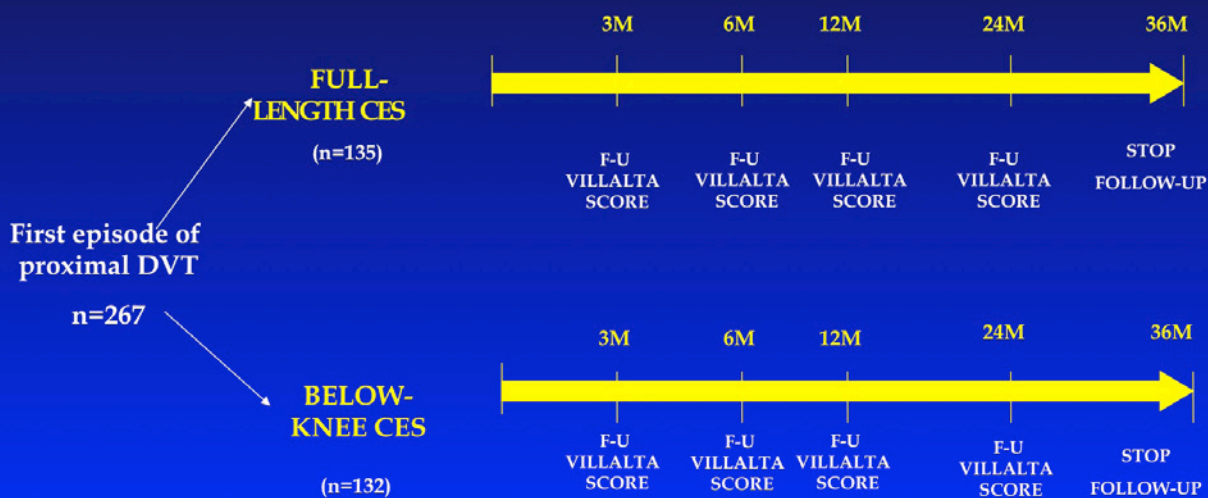
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Study Design

MULTICENTRE, RANDOMIZED CLINICAL TRIAL



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Study results: compliance and tolerability

	FULL-LENGTH CES	BELOW-KNEE CES
SIDE EFFECTS	40.7%	27.3%
WITHDRAW	21.5%	13.6%
COMPLIANCE	66.7%	82.6%

DISCUSSIONE (3)

Calze elastiche sotto il ginocchio a tutti?

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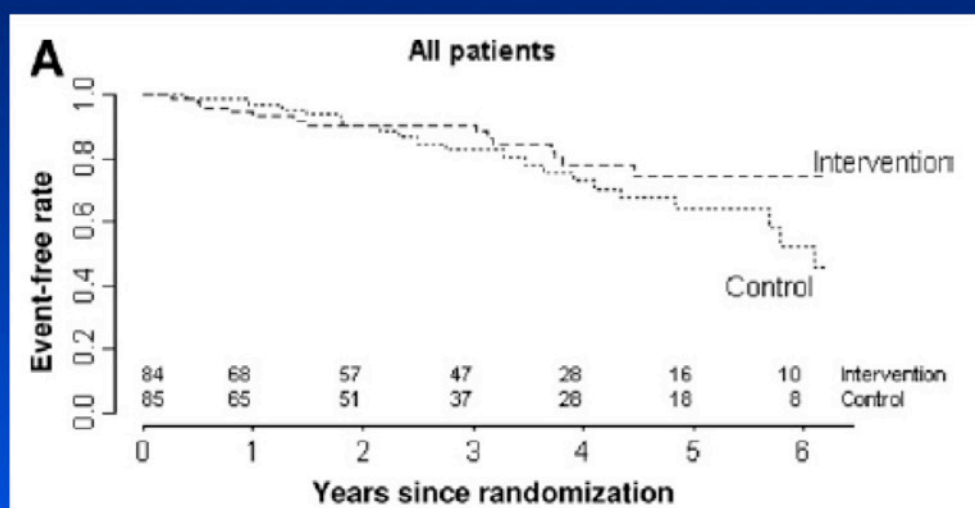
**Aschwanden M, Jeanneret C, Koller MT,
Thalhamme C, Bucher HC, MD, Jaeger KA**

**Effect of prolonged treatment with
compression stockings to prevent post-
thrombotic sequelae**

A randomized controlled trial

J Vasc Surg 2004

**Kaplan-Meier estimates of survival without
post-thrombotic skin changes (CEAP classif.)**



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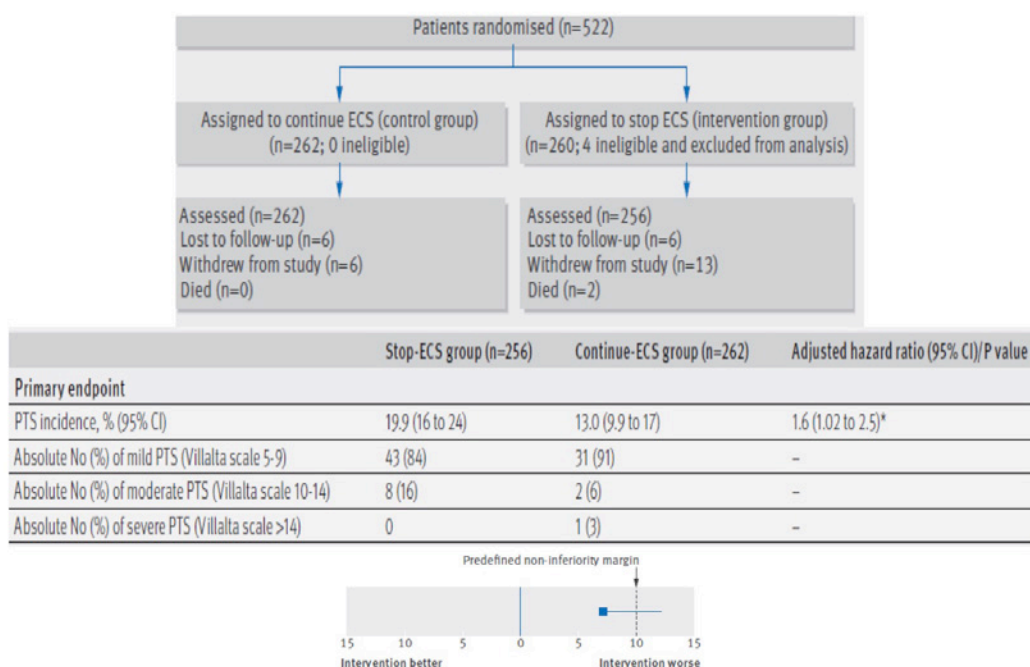
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BMJ 2014



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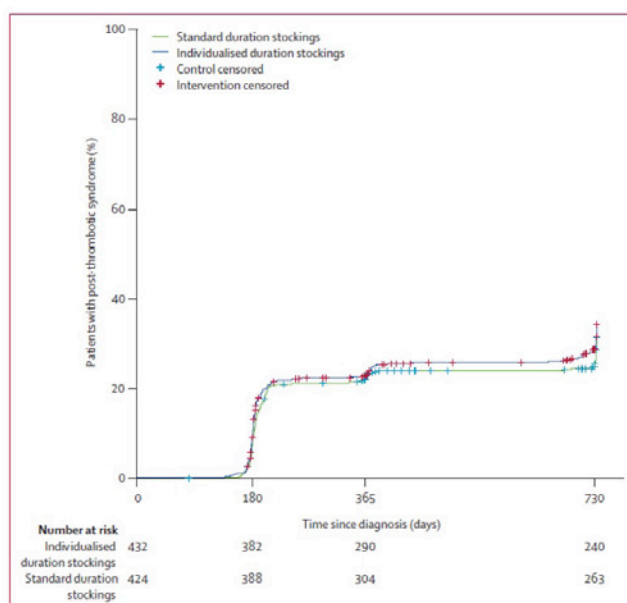
The IDEAL DVT study

Individualised versus standard duration of elastic compression therapy for prevention of post-thrombotic syndrome (IDEAL DVT): a multicentre, randomised, single-blind, allocation-concealed, non-inferiority trial



Arina J ten Cate-Hoek, Elham E Amin, Annemieke C Bouman, Karina Meijer, Lidwine W Tick, Saskia Middeldorp, Guy J M Mostard, Marije ten Wolde, Simone M van den Heiligenberg, Sanne van Wissen, Marlène HW van de Poel, Sabina Villalta, Erik H Serné, Hans-Martin Otten, Edith H Klappe, Ingrid M Bistervels, Mandy N Lauw, Margriet Piersma-Wichers, Paolo Prandoni, Manuela A Joore, Martin H Prins, Hugo ten Cate, for the IDEAL DVT investigators*

Lancet Hematology 2017



Added value of this study

We found that it is possible to select patients based on their Villalta score to stop treatment as early as 6 months without increasing the incidence of post-thrombotic syndrome at 24 months. This strategy proved to be highly efficient as treatment could be stopped in 55% of patients at 6 months and in an additional 11% of patients at 12 months. No serious adverse events related to individualised duration of treatment occurred.

Implications of all the available evidence

Apart from one negative trial, overall current evidence suggests a beneficial effect of therapy with elastic compression stockings to prevent post-thrombotic syndrome in patients after DVT. Therefore we conclude that individualised therapy duration with elastic compression stockings shortens duration of therapy, is effective, and is likely to reduce health-care costs, although we did not do a formal cost-effectiveness analysis.

LancetHaematol2017

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DISCUSSIONE (4)

Qual è la durata ottimale delle calze elastiche dopo una TVP?

Punti per discussione

- **Sono efficaci le calze elastiche per la prevenzione della PTS?**
- **Sono ragionevoli comunque a scopo sintomatico nella fase acuta della TVP?**
- **Calze elastiche corte (sotto il ginocchio) a tutti?**
- **Qual è la durata ottimale dell'elastocompressione dopo una TVP?**
- **Utilità di criteri (quali il residuo trombotico ed il reflusso venoso) per identificare i possibili beneficiari**