

Below-knee elastic compression stockings reduced development of the postthrombotic syndrome in proximal deep venous thrombosis

Prandoni P, Lensing AW, Prins MH, et al. Below-knee elastic compression stockings to prevent the post-thrombotic syndrome: a randomized, controlled trial. *Ann Intern Med.* 2004;141:249-56.

QUESTION

In patients with a first episode of acute symptomatic proximal deep venous thrombosis (DVT), do below-knee elastic compression stockings prevent the postthrombotic syndrome (PTS)?

METHODS

Design: Randomized controlled trial.

Allocation: {Concealed}†.*

Blinding: Blinded {data collectors, outcome assessors, and monitoring committee}†.*

Follow-up period: Mean 49 months (range 6 to 60 mo).

Setting: University hospital in Padua, Italy.

Patients: 180 patients (mean age 62 y, 57% women) with a first episode of acute symptomatic proximal DVT (confirmed by ultrasonography) who were receiving conventional anticoagulant treatment. Exclusion criteria were recurrent ipsilateral DVT, preexisting leg ulcers or signs of chronic venous insufficiency, bilateral thrombosis, a short life expectancy, or contraindication for use of stockings.

Intervention: Daily wearing of below-knee, graded, elastic compression stockings on the

affected leg (30 to 40 mm Hg of pressure at the ankle) for 2 years ($n = 90$) or not wearing elastic compression stockings ($n = 90$).

Outcomes: PTS on the side of the index DVT. PTS was defined by assessing the presence and severity of 5 leg symptoms and 6 objective signs. For each symptom or sign, a score of 0 to 3 was assigned using the contralateral unaffected leg as the denominator. A score ≥ 15 on ≥ 2 consecutive visits assessed ≥ 3 months apart was defined as severe PTS. A score of 5 to 14 on 2 consecutive visits assessed ≥ 3 months apart was defined as mild PTS. A lower-limb venous ulcer was consistently classified as severe PTS. **Patient follow-up:** 100% (intention-to-treat analysis).

MAIN RESULTS

Patients in the stocking group had a lower rate of PTS than did those in the no-stocking group (Table).

CONCLUSION

In patients with a first episode of acute symptomatic proximal deep venous thrombosis, below-knee elastic compression stockings reduced the development of the postthrombotic syndrome.

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*See Glossary.

†Information provided by author.

Elastic compression stockings vs no elastic compression stockings to prevent the postthrombotic syndrome in acute symptomatic proximal deep venous thrombosis (DVT) at mean 49 months‡

Outcome	Elastic stockings	No elastic stockings	Adjusted hazard ratio (95% CI) [§]	NNT (CI)
Postthrombotic syndrome	26%	49%	0.49 (0.29 to 0.84)	5 (3 to 11)

‡CI and NNT defined in Glossary.

§Hazard ratio adjusted for age, sex, clinical presentation of DVT, thrombophilic status, extent of the index thrombotic episode, and use of unfractionated or low-molecular-weight heparin for initial treatment of thrombosis.

COMMENTARY

PTS is a complication of DVT and is characterized by swelling, pain, discoloration, and in some cases, venous ulcer formation. Often the sequelae of PTS are irreversible. The study by Prandoni and colleagues adds to previously published evidence suggesting that the risk for PTS may be reduced by wearing elastic compression stockings (1). Patients with a first episode of proximal DVT were assigned to wear or not to wear elastic compression stockings (30 to 40 mm Hg at the ankle) for 12 years. The primary outcome, a composite of "mild" or "severe" PTS, was defined by a standardized score determined (at least once annually for 5 y) by the patient's symptoms and the physical examination findings of an investigator blinded to treatment assignment. The approximately 50% reduction in PTS among patients in the stocking group is noteworthy and consistent with previously published data (1).

Unfortunately, this study, much like previous studies, is limited by the lack of a placebo control group. Because about half the score used to determine whether a patient had PTS was assessed by the presence and severity of symptoms, the potential for reporting bias was substantial. The authors' acknowledgment that elastic compression stockings "seem to affect clinical symptoms more than objective signs" empha-

sizes the need for a trial with a double-blind design or a trial with more objective outcome measurements.

These methodological flaws notwithstanding, PTS is common, and below-knee elastic stockings are an inexpensive, well-tolerated intervention (2). Although the 30- to 40-mm Hg pressures used in this study may be intolerable for some patients, Prandoni and colleagues report that only 2 of the 90 patients assigned to stockings withdrew because of discomfort. Mounting, albeit imperfect, evidence suggests clinicians should have a low threshold to use elastic compression stockings to reduce the risk for PTS in patients with proximal DVT.

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References

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