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## JS Ginsberg, J Hirsh, J Julian, M Vander LaandeVries, D Magier, B MacKinnon, M Gent Prevention and Treatment of Postphlebotic Syndrome. Results of a 3-Part-Study

Arch Intern Med 2001;161:2105-09

### Background

Insufficient data exist on the frequency of postphlebotic syndrome (PPS) after proximal deep vein thrombosis (DVT) and on the prevention and treatment of PPS by graduated compression stockings.

### Methods

202 patients, all of them without any kind of compression therapy before, were evaluated in a 3-part study one year after proximal DVT using a standardized questionnaire, photoplethysmography and venous Doppler examination. 82 patients originally had asymptomatic DVT found on routine phlebography after major orthopedic surgery. PPS defined by chronic pain and swelling was present in 35 patients who were enrolled into study 3, being randomized into a compression stockings group (n=18) or a «placebo-stocking group» (n=17). From 167 patients without PPS 120 had no valvular incompetence (study 1) and did not receive stockings. 47 patients without symptoms but with signs of valvular incompetence (study 2) were randomized into a stocking group (n=24) or a placebo-stocking group (n=23).

In study 3 below knee or thigh length compression stockings (30-40 mm Hg) were administered depending on the localisation of complaints, the patients in study 2 got below knee stockings (20-30 mm Hg). As «placebo-stockings» 1-2 sizes too large stockings were taken («without a hemodynamic effect»). The stockings were replaced every 3 months.

Patients in study 1 and study 2 were followed every 6 months, the mean follow-up time was 55 and 57 months respectively. Study 3 patients were followed up every 3 months for treatment failure (no improvement or deterioration), defined a priori.

### Results

30/110 patients with symptomatic DVT (27%), but only 3/82 patients with asymptomatic DVT (4%) ( $p < 0.001$ ) had PPS after 1 year. Treatment failures were as follows: 6/120 patients (5%) in study 1 without compression, 0/24 (0%) in the compression arm of study 2, 1/23 (4,3%) in the placebo arm of study 2, 11/18 (61%) in the compression arm of study 3 and 10/17 (59%) in the placebo arm of study 3. There was no statistically significant difference between compression and placebo in study 2 and 3.

### Conclusions

3 important conclusions are made by the authors:

1. Most patients (83 %) do not have PPS 1 year after proximal DVT and they rarely develop it within the next 5 years.
2. Patients with asymptomatic DVT have a significantly lower incidence of PPS (3/82 = 3,7%; 95%CI 0,8-10,3) than patients with symptomatic DVT (30/110 = 27,3%; 95% CI 19,9-35,6).
3. «In all patients who do not meet the criteria for PPS 1 year after proximal DVT, regardless of the presence or absence of venous valvular incompetence, stockings are not justified». In patients with established PPS (study 3) no benefit of graduated compression stockings could be demonstrated. It is conceded that this conclusion is limited by the relatively small numbers.

Chapter: 10

Lit.: 22/4

Lang.: ENG

Sum.: ENG

### Comment

The results of this study are in conflict with a previous trial from the Netherlands, in which patients had been randomized some days after their proximal DVT to either a stocking or no treatment. It was shown that the frequency of postthrombotic syndrome some years later could be reduced to one half by wearing compression stockings (Brandjes DPM, Buller HR, Heijboer H et al. Lancet 1997;349:759-62).

The Canadian study questions a beneficial effect of compression therapy even in symptomatic patients with postthrombotic syndrome and is therefore in considerable disagreement with European treatment standards.

The authors state that in their experience «the acute symptoms resolve within 1 to 3 months after DVT» and that simple manoeuvres, such as elevating the leg and avoiding aggravating positions and activities should be strongly recommended in order to relieve pain and swelling in the acute stage of DVT. We have shown that in the acute stage of proximal DVT immediate compression and walking is able to reduce pain and swelling much faster than bed rest and have documented this by measuring these parameters (Partsch H, Blättler W. J Vasc Surg 2000;32:861-9).

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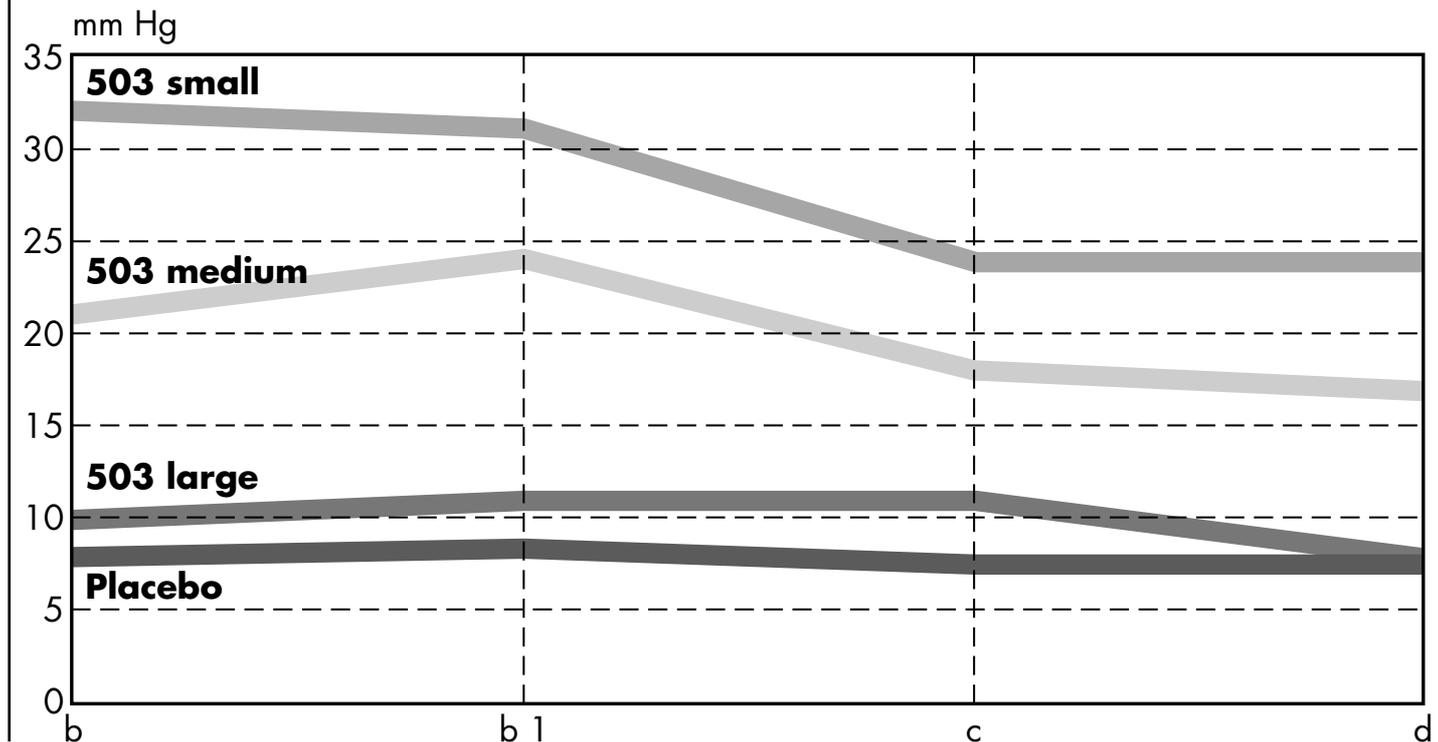
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From 35 patients presenting with chronic pain and swelling one year after proximal DVT 18 patients got a 30-40 mmHg stocking and 17 a placebo stocking. Unfortunately no attempt has been made to measure the pressure of the placebo-stocking in comparison with the real stocking or to give a quantitative evaluation of pain and swelling. This could have been done by very simple methods like visual analogue scale and measurement of leg circumference. Instead, the authors relied completely on ratings from their questionnaire. Answering the global rating questionnaire about 40% in both groups improved and 60% were worse or unchanged, without a significant difference between the stocking- and the placebo-group.

One explanation for this lacking difference between the stocking and the placebo-group could be that the «oversized» placebo stocking might still have been effective. The following figure show the subbandage pressure measured on different levels of the lower leg in the lying position of an individual whose size fits to a Sigvaris 503 small (upper curve). (b=ankle level, b1 muscular insertion of Achilles tendon, c=maximum girth of calf, d=below knee). A Sigvaris 503 medium, which is one size too large, still exerts considerable pressure and may not be taken as a sham stocking. Also a 503 large stocking, which is two sizes too large still has a higher pressure than a placebo-stocking (lowest curve) at the bottom.

## Subbandage pressure of different stocking sizes

503 small fits, medium and large 1-2 sizes too large



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## H. M. Häfner, M. Eichner, M. Jünger Medizinische Kompressionstherapie

Zentralbl. Chir. 2001;126:551-556

### Background

To evaluate the correlation between the pressure exerted by compression stockings and the improvement in venous hemodynamics.

### Subjects and Methods

An open randomised prospective study on 22 patients with chronic venous insufficiency (CVI) in the clinical stages C1-4, Ep, AS, AP, PR (Ceap Classification). Dynamic strain gauge plethysmography was used to measure the acute effect on venous hemodynamics of 9 different knee length compression stockings in compression class 2. The pressure exerted by the compression stockings during rest and exercise was also measured.

### Results

1. With compression stockings the resting pressure in reclined patients fulfilled the specifications for compression class 2 in all the stockings.

2. The compression stockings lengthened the venous refilling time tO in a statistically significant degree. The improvement in venous function was correlated with the ratios of max. working pressure to resting pressure while standing.

### Conclusions

Compression stockings of the same compression class vary in their acute effect on venous hemodynamics. The efficiency was largely dependent on the amount of fabric stretch. The knowledge of the hemodynamic effectivity of the various compression stockings allows the optimal selection for each patient and his individual CVI.

Chapter: 9  
Lit.: 19/0  
Publ.: Klin  
Lang.: GERMAN  
Sum.: ENG

## T. J. Phillips Current approaches to venous ulcers and compression

Dermatol Surg 2001;27 :611-621

### Background

The prevalence of venous ulcers in the United States has been estimated at up to 2,5 Million people. The causes of leg ulcers are different.

### Objective

To review current approaches to venous ulcers and compression.

### Subjects and Methods

Finding different treatment options in the literature utilizing the Cochrane Library, database, Medline and the authors clinical experience.

### Results

Diagnostics findings and management strategies for venous ulcers are reviewed.

### Conclusions

The available studies show that good wound care and compression therapy alone will heal the majority of small ulcers of short duration. Elevation and compression are the deciding measures for ulcer-healing. Occlusive dressings and skin grafting may also play an additional role in treatment.

Chapter: 8+10  
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