Evidence based Compression after varicose vein procedures

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DISCLOSURE

* Medi covered my travel and accommodation costs

* No interference on the material presented here
Rationale for compression after ablation of varicose veins

1. To optimise the result
   - to reduce and keep the vein diameter smaller prior to and after the treatment, to stop/reduce blood flow; to increase fibrosis and decrease thrombosis; to reduce recurrence

2. Reduction of side effects
   - Hematoma, pain (surgery, RF, Laser)
   - Clot retention
   - Prevention of DVT /PE
   - Hyperpigmentation, superficial phlebitis, matting
   - Lymphedema
The Evidence from Literature

but...different surgeons, different procedures, different regimes, different material, different patients.....
Which procedures?

- Procedures with vein removal
  - Saphenous vein stripping
  - Phlebectomy
- Procedures with vein occlusion
  - Endovenous procedures
    - Radiofrequency
    - Laser, Glue, etc.
  - Sclerotherapy
Endovenous Laser ablation
M. Lugli et al Effects of eccentric compression by a crossed-tape technique after endovenous laser ablation of the great saphenous vein: a randomized study.
Phlebology 2009; 24: 151-156

<table>
<thead>
<tr>
<th></th>
<th>Group A ($n = 100$) (eccentric compression)</th>
<th>Group B ($n = 100$) (no eccentric compression)</th>
<th>$P$</th>
</tr>
</thead>
<tbody>
<tr>
<td>LEED (J/cm)</td>
<td>78.7 ± 13.1 [48.4–105.8]</td>
<td>75.2 ± 11.0 [56.3–101.5]</td>
<td>0.218</td>
</tr>
<tr>
<td>Anaesthetic solution (mL)</td>
<td>110.0 ± 20.9 [50.0–160.0]</td>
<td>94.8 ± 15.4 [70.0–130.0]</td>
<td>0.003</td>
</tr>
<tr>
<td>Pain (7-day check)</td>
<td>4.9 ± 1.6 [0–8]</td>
<td>1.4 ± 1.6 [1–8]</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

• LEED = linear energy density; NRS = numerical rating scale

<table>
<thead>
<tr>
<th>Complications</th>
<th>Compression 0 Days</th>
<th>Compression 7 Days</th>
<th>Compression 28 Days</th>
</tr>
</thead>
<tbody>
<tr>
<td>Major</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DVT</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Minor</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Paresthesias</td>
<td>7</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Hyperpigmentation</td>
<td>7</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Phlebitis</td>
<td>2</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Bleeding</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Infection</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
Venous Clinical Severity Score

Before

1 month

Compression 0 Days
Compression 7 Days
Compression 28 Days
Role of compression stockings after endovenous laser therapy for primary varicosis.

- Elderman JH\textsuperscript{1}, Krasznai AG\textsuperscript{2}, Voogd AC\textsuperscript{3}, Hulsewé KW\textsuperscript{2}, Sikkink CJ\textsuperscript{4}. J Vasc Surg Venous Lymphat Disord. 2014 Jul;2(3):289-96

METHODS:
- The study randomized 111 patients undergoing EVLT to receive either 2 weeks of elastic stockings (class II, thigh length) or no elastic stockings after an initial 24-hour period of wearing bandages.

RESULTS:
- Small but significant differences in pain scores during the first week after laser surgery, with more favorable scores in the group wearing stockings. Patients not wearing stockings used more analgesics (P < .05).
- Patients wearing stockings reported a statistically significantly higher score of satisfaction at 2 days (4.44 vs 4.15) and 6 weeks (4.59 vs 4.18).
- No significant differences were found regarding time to return to work, Aberdeen Varicose Vein Questionnaire scores, RAND 36-Item Health Survey scores, leg circumference measurements, and risk of complications.
Post-operative Benefit of Compression Therapy after Endovenous Laser Ablation for Uncomplicated Varicose Veins: A Randomised Clinical Trial

Ye K\textsuperscript{1}, Wang R\textsuperscript{1}, Qin J\textsuperscript{1}, Yang X\textsuperscript{1}, Yin M\textsuperscript{1}, Liu X\textsuperscript{1}, Jiang M\textsuperscript{1}, Lu X\textsuperscript{2}. Eur J Vasc Endovasc Surg. 2016 Dec;52(6):847-853.

RESULTS
A total of 400 patients (200 patients in each group) were included and analyzed. In the first week after EVLA, patients in the compression group experienced less pain ($p < .001$) and edema ($p = .01$), but by 2 weeks these variables were similar between the groups. There were no significant differences in the quality of life or in the mean time to return to work.
Crossectomy and stripping
Varicose Veins: optimum compression after surgery and sclerotherapy

- prospective randomised trial
- 99 patients with GSV incompetence
- 6 weeks of compression stockings,
  - low pressure (15 mmHg) n= 48 versus
  - high pressure (40 mmHg) n= 51
- follow up: 6 weeks
- No differences in complications but better comfort for low compression
The optimal duration of compression therapy following varicose vein surgery: a meta-analysis of randomized controlled trials.

Huang TW\(^1\), Chen SL, Bai CH, Wu CH, Tam KW. Eur J Vasc Endovasc Surg. 2013 Apr;45(4):397-402

RESULTS:
- We observed non-significant differences in postoperative pain scores between the long-duration and short-duration groups.
- We also observed non-significant differences in the incidence of postoperative complications and changes in leg volume, 4 weeks postoperatively (P = .18) between the groups.

CONCLUSION:
- Our study results indicate that there are no benefits to long-term compression therapy after varicose vein surgery of the GSV regarding postoperative pain, leg volume, incidence of complications, and duration of absenteeism from work.
Efficacy and comfort of medical compression stockings with low and moderate pressure six weeks after vein surgery.


**CONCLUSION:**

- Compression stockings with a pressure of 23-32 mmHg facilitate a faster resolution of clinical and ultrasound verified edema and the subjective feelings of pain, tightness, and discomfort of the leg in the early period after surgery but have no difference in the longer post-surgical period compared to stockings with a pressure of 18-21 mmHg
Sclerotherapy
Compression after sclero PRO

- Kern et al: **23-32 mmHg** stockings for 3 wks:
  
  Better results in spider veins

- Nootheti et al: 3 wks **Class I** in addition to 1 wk class II less bruising and pigmentation

- Thomasett et al.: **Successful outcome of USGF is associated with compliance with compression hosiery**
Compression after sclero CONTRA

- Hamel-Desnos et al: 15-20 mm Hg stockings for 3 wks: **no benefit** after sclerotherapy of GSV

- O'Hare et al.: Compression bandages 1 vs 5 days, then 10-20mm Stockings 2 weeks: **no benefit** of bandaging for 5 days.
European guidelines for sclerotherapy in chronic venous disorders

E Rabe¹, FX Breu², A Cavezzi³, P Coleridge Smith⁴, A Frullini⁵, JL Gillet⁶, JJ Guex⁷, C Hamel-Desnos⁸, P Kern⁹, B Partsch¹⁰, AA Ramelet¹¹, L Tessari¹² and F Pannier¹³; for the Guideline Group
Compression after foam sclerotherapy: guidelines

After sclerotherapy, medical compression may be applied to the treated extremity. Compression can be performed using either a medical compression stocking or compression bandages (Grade 2C).

Wearing compression stockings (23-32 mm Hg) after sclerotherapy of telangiectasias daily for three weeks improves results (Grade 2B).
If offering compression bandaging or hosiery for use after interventional treatment, do not use for more than 7 days.

As there was no convincing evidence ...no recommendation not to use stockings at all post intervention

people who have had foam sclerotherapy for truncal reflux may get better results with a period of compression therapy, not recommended for a long time
CONCLUSIONS:

- higher levels of compression are more effective than lower levels in moderating postoperative pain and complications.
- Strong compression can be achieved by inelastic bandaging or by eccentric compression systems.
- Far fewer data are available to indicate the duration for which postoperative compression is required.

- **Methods:** Systematic review of MEDLINE, Embase and CENTRAL to identify RCTs investigating different compression strategies following treatment for superficial venous insufficiency.

- **Results:** 7 RCTs (open surgery 3 RCTs, foam sclerotherapy 2 RCTs, EVLA 2 RCTs)
  - Quality was variable, significant sources of potential bias. Both the studies and compression regimens used were heterogeneous.
  - Ten products were used in six general regimens for a duration of 0-42 days.

- **CONCLUSION:** There is currently little quality evidence upon which to base any recommendations concerning compression following treatment for varicose veins.
Indications for medical compression stockings in venous and lymphatic disorders: An evidence-based consensus statement.


- Recommendations for stocking-use after great saphenous vein interventions were limited to the first post-interventional week.
Summary

- Venous procedures have become less traumatic, leading to less post-interventional discomfort, pain and complications.
- The main benefit of post-interventional compression if the saphenous vein is treated seems to be limited to the first week.
- Minor varicosities (C1) seem to benefit more from longer compression.
- Non uniform data: different products, different pressures, different regimes.
- Lack of data on pressure measurements.
- Data on reduction of recurrence rate after interventions by compression is not available.
STRUVA 35 vs. STRUVA 23
in post-operative compression
after catheter foam sclerotherapy
+ mini-phlebectomy
A Randomized clinical trial
Cavezzi A, Mosti G and coll.
PARAESTHESIAS

- \( p = 0.040 \)
- \( p = 0.069 \)
- \( p = 0.16 \)

- Media: 0.68
  - D.S.: 1.32
- Media: 0.05
  - D.S.: 0.21
- Media: 0.50
  - D.S.: 1.22
- Media: 0.00
  - D.S.: 0.00
- Media: 0.22
  - D.S.: 0.65
- Media: 0.00
  - D.S.: 0.00
SWELLING SENSATION

T3

struva 23
media 1,18
D.S. 2,56

struva 35
media 0,00
D.S. 0,00

T7

struva 23
media 1,32
D.S. 1,91

struva 35
media 0,59
D.S. 0,85

p = 0,042

p = 0,046
ECCHIMOSIS

T7

struva 23
media 3,86
D.S. 2,05

struva 35
media 3,23
D.S. 0,61

T40

struva 23
media 0,44
D.S. 1,20

struva 35
media 0,44
D.S. 0,51

p = 0,20

p = 1
SKIN INFLAMMATION

p = 0.058

- media 1.00
- D.S. 2.20

- struva 23

T7

p = 0.10

- media 1.06
- D.S. 1.35

- struva 23

T40
Thanks
Vielen Dank
Grazie
Gracias
Merci
Obrigado
Dzięki
Благодаря
谢谢
Bedankt
Hvala
Tak
Vd’aka
Teşekkürler