

Compression stockings in post-sclerotherapy inflammation

Bologna CIRC meeting Oct 2019

What is post -sclerotherapy inflammation clinically?

- Edema
- Bruising - ecchymosis
- Superficial vein thrombosis - sclerophlebitis
- Matting? still reflux?
- Hyperpigmentation /staining



Complications of foam sclerotherapy

A Cavezzi K Parsi Phlebology 2012;27 Suppl 1:46–51

Cavezzi A, Frullini A, Ricci S, Tessari L. Treatment of varicose veins by foam sclerotherapy. Phlebology/

Venous Forum R Soc Med 2002;17:13–8



Histologically: Detergent sclerosants causes vein wall damage of endothelium and media wall

Incomplete loss of endothelial cells and penetration of the sclerosant effect up to 250 µm into the media suggest that medial damage is crucial to the success of sclerotherapy

Fresh human varicose veins were treated ex vivo with either 1% or 3% sodium tetradecyl sulphate or 3% POL(STS) for 1 or 10 minutes. The effect of the sclerosant on the vein wall was investigated by immunofluorescent labelling of transverse vein sections using markers for endothelium (CD31), smooth muscle (α-actin), apoptosis (p53) and **inflammation** (intercellular adhesion molecule-1 [ICAM-1]).

- Media Damage Following Detergent Sclerotherapy Appears to be Secondary to the Induction of Inflammation and Apoptosis: An Immunohistochemical Study Elucidating Previous Histological Observations M. Whitley Eur J Vasc Endovasc Surg (2016) 51, 421e428

Reasons for postsclerotherapeutic compression:

- Increase of the tissue pressure
- Reduction of «sclerothrombus»
- Increase of venous and lymphatic drainage
- Activation of the muscle pump and induction of contractility of lymphatic vessels
- Increase of fibrinolysis
- Thrombosis prophylaxis
- Increase of the blood velocity in the deep veins
- Reduction of pain and less haematomas-bruising
- **Reduction of post sclerotherapeutic inflammation**

Reduction of inflammation :



Thrombectomy: Minincisions
after aprox .6 weeks with needle
(G18)



Compression after sclerotherapy :
little evidence – a lot of experience
dosage: How strong should compression be ?
duration: For how long should compression be worn ?

Little Evidence



**A lot of
Experience**

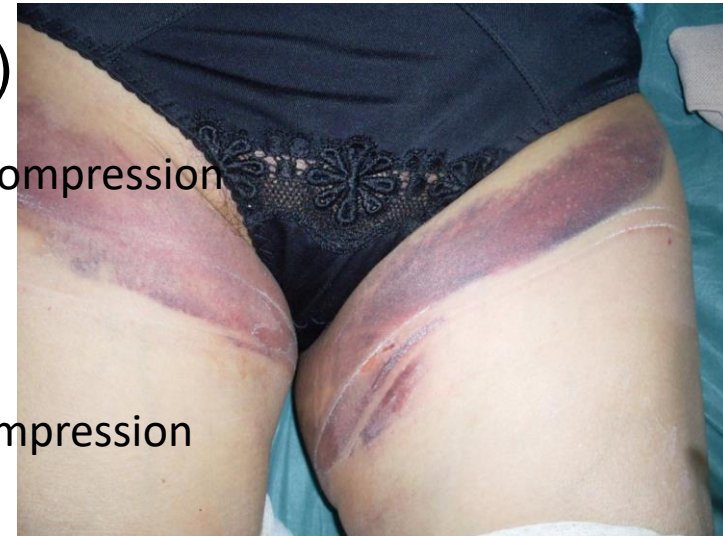


How can we reduce post sclero inflammation :

- NSAR drugs
- Local antiflogistic cremes
- Anticoagulation? (LMH or NOAKS?)
- **COMPRESSION**

No compression

Compression



Courtesy Prof H.Partsch

Compression reduces post sclerotherapy inflammation

acc to European Guidelines on Sclerotherapy 2013 and the updated German **guideline** 2019 : Sclerotherapy of VV

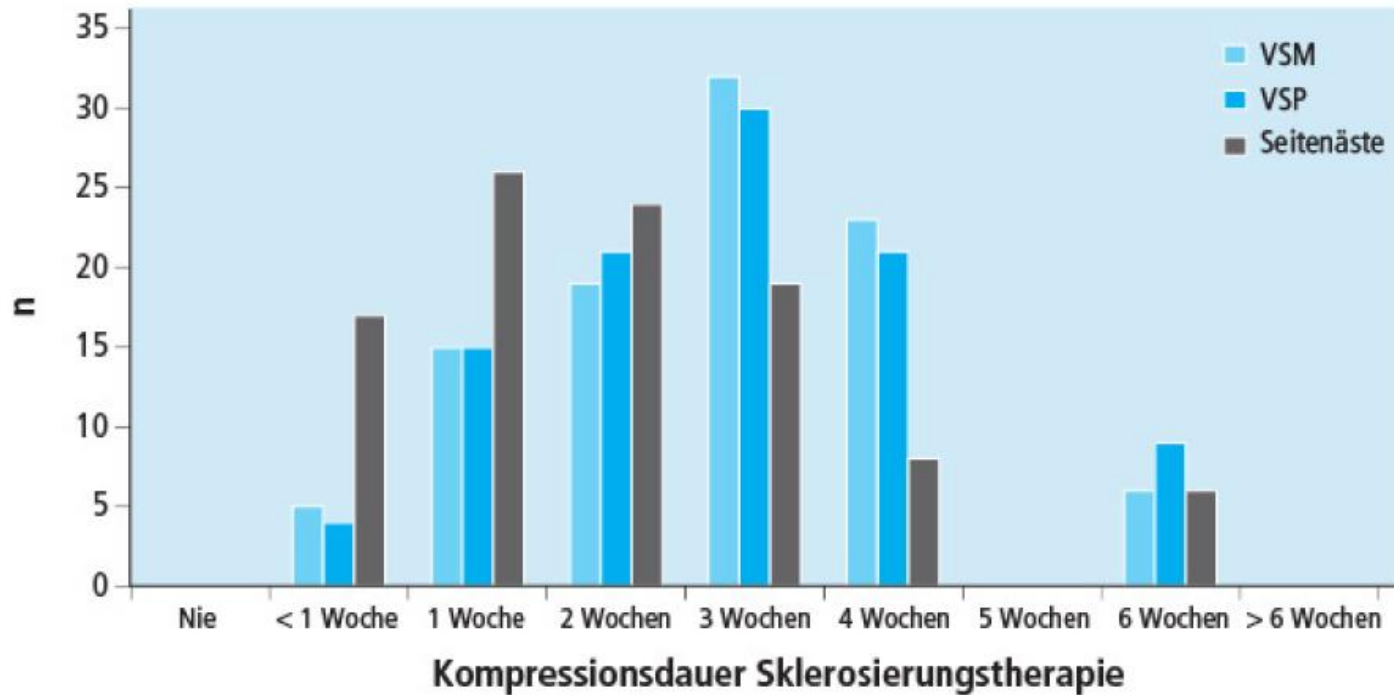
E. Rabe, H. Gerlach, F.X. Breu, S. Guggenbichler,

- After sclerotherapy, medical **compression may be applied** to the treated extremity. Compression can be performed using either a medical compression stockings or compression bandages (GRADE 2C)
- **Compression treatment with medical compression stockings or bandages improves the result of sclerotherapy for spider veins** (Goldman 1990, Weiss 1999, Kern 2007, Nootheti 2009) and the incidence of pigmentation may decrease (Weiss 1999, Goldman 1990).
- **Evidence of efficacy for compression** after sclerotherapy of saphenous veins is **still lacking** (Hamel-Desnos 2010).

New papers about compression after sclerotherapy in Germany:

- **Noppeney 2018** in Phlebologie: **No evidence** for Compression after liquid and foam sclerotherapy
- **Mühlberger 2017** in Phlebologie : **survey** in Germany about compression therapy result: after sclerotherapy of the great or short saphenous vein and side branches **most** of the participants **recommend a compression** therapy for 2–3 weeks. Mainly used are compression stockings of the german class 2 with a pressure of 23–32 mmHg.

Mühlberger et al : duration of compression therapy after venous ablation Phlebologie 5/2017



b. 3 Kompressionsdauer nach Sklerotherapie



Perisclerotherapeutic management – patient's behaviour after sclero-sessions results of a survey

S. Guggenbichler, Munich

F.-X. Breu ,Tegernsee Germany



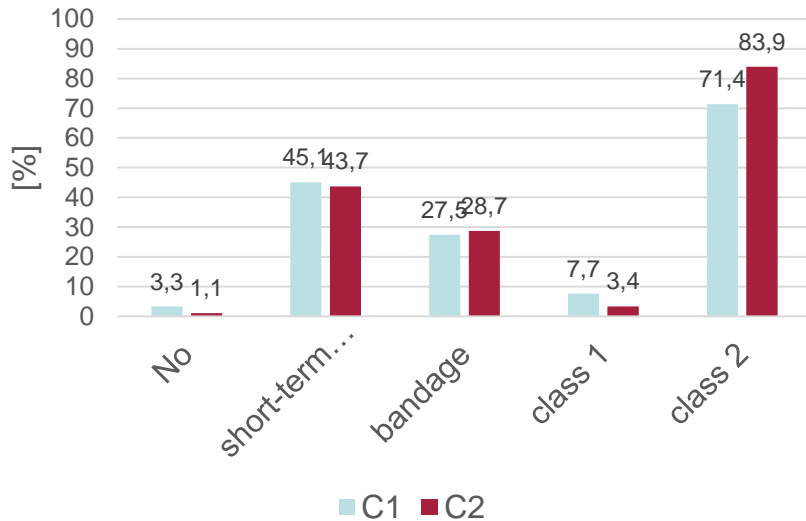
We started a survey together with the German sclerotherapy working group in 2015 and among phlebologists at the UIP congress in Melbourne 2018:

- In D Sent to **1634 Email** addresses
(Kreussler customer database including AG Sklerotherapie)
- **91 physicians replied,**
- In **Melbourne 73** phlebologists replied

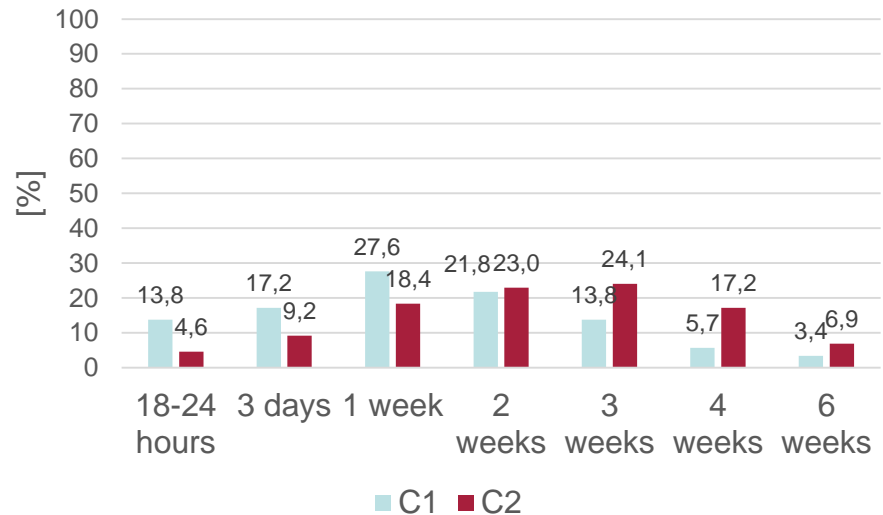
Compression after Sclerotherapy in Germany

2015: class1 =18 mmHG, class2 =30 mmHG

Do you do compression after treatment of C1/C2 varices and if so, how?

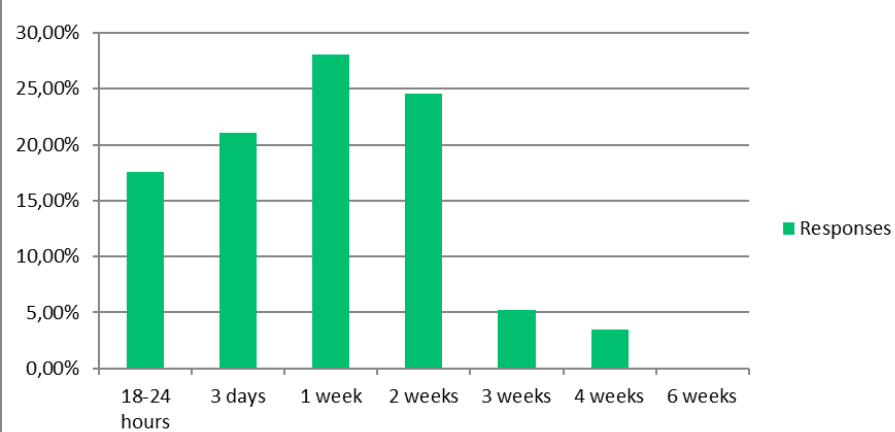


How long do you use compression after treatment of C1/C2 varices?

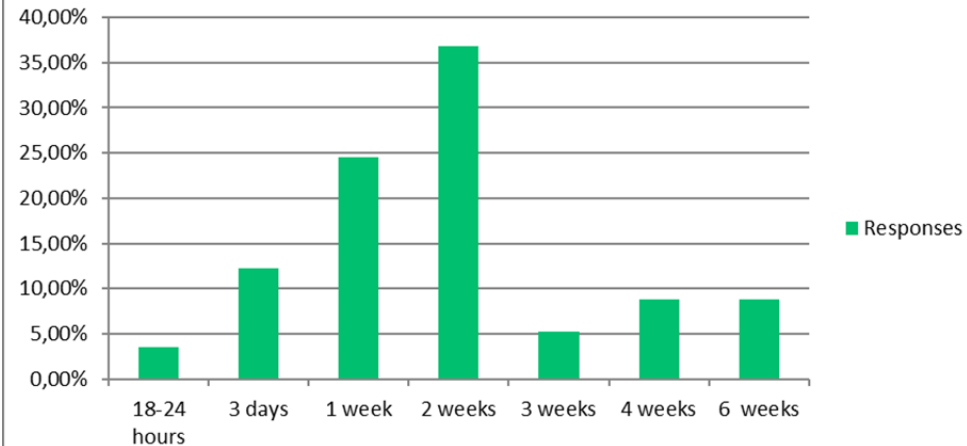


Duration of compression C1 and C2 (Melbourne)

How long is compression maintained after treatment of C1 varicose veins?



How long is compression maintained after treatment of C2 varicose veins?



El-Sheika et al: Systematic review of compression following treatment for varicose veins.

Br J Surg. 2015 Jun;102(7):719-25

- **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

C. Hamel-Desnos: Foam Sclerotherapy of the Saphenous Veins: Randomised Controlled Trial with or without Compression. Eur J Vasc Endovasc Surg (2010) 39, 500-507

- Prospective open randomised study, 60 patients foam sclerotherapy of GSV
- Group A: compression (15-20 mmHg) 3 weeks, n=31 Group B: no compression, n=29
- Follow-up: day 14 and day 28
- **No significant differences for outcome and symptoms or complications**

The Optimal Duration of Compression Therapy following **Varicose Vein Surgery**: A Meta-analysis of Randomized Controlled Trials

Huang TW et al. (Taiwan): Europ J Vasc Endovasc Surg 2013; 45,4

- Outcomes from short duration (3-10 d) and long duration (3-6 wk) of compression.
- **No benefits of 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.
- We therefore recommend **short-duration compression** after varicose vein surgery in routine practice.

Sometimes local compression by transfixation with 3 M blister is an alternative: single spider veins



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Conclusions:

- The majority of phlebologists in Germany and Europe apply compression (dosage:30 mm /Hg in the mean) after sclerotherapy unless little evidence
- Compression is the best tool to reduce post sclerotherapy inflammation
- Surveys show high acceptance of compression therapy among phlebologists
- Exact duration of compression is unknown : probably a shorter time e.g 1 week could be sufficient and also a lower dosage may be 18 mmHG?
- Further studies would be interesting

Thanks for listening

