

# 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  $\mu$ m 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 ( $\alpha$ -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**

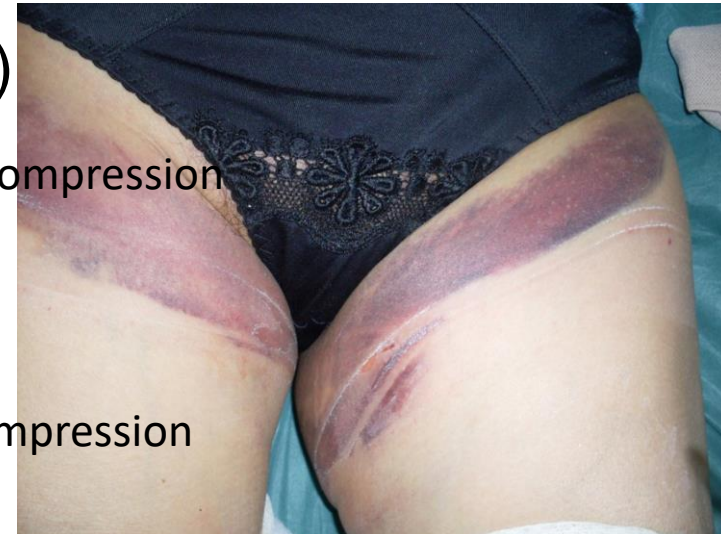


## How can we reduce post sclero inflammation :

- 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,

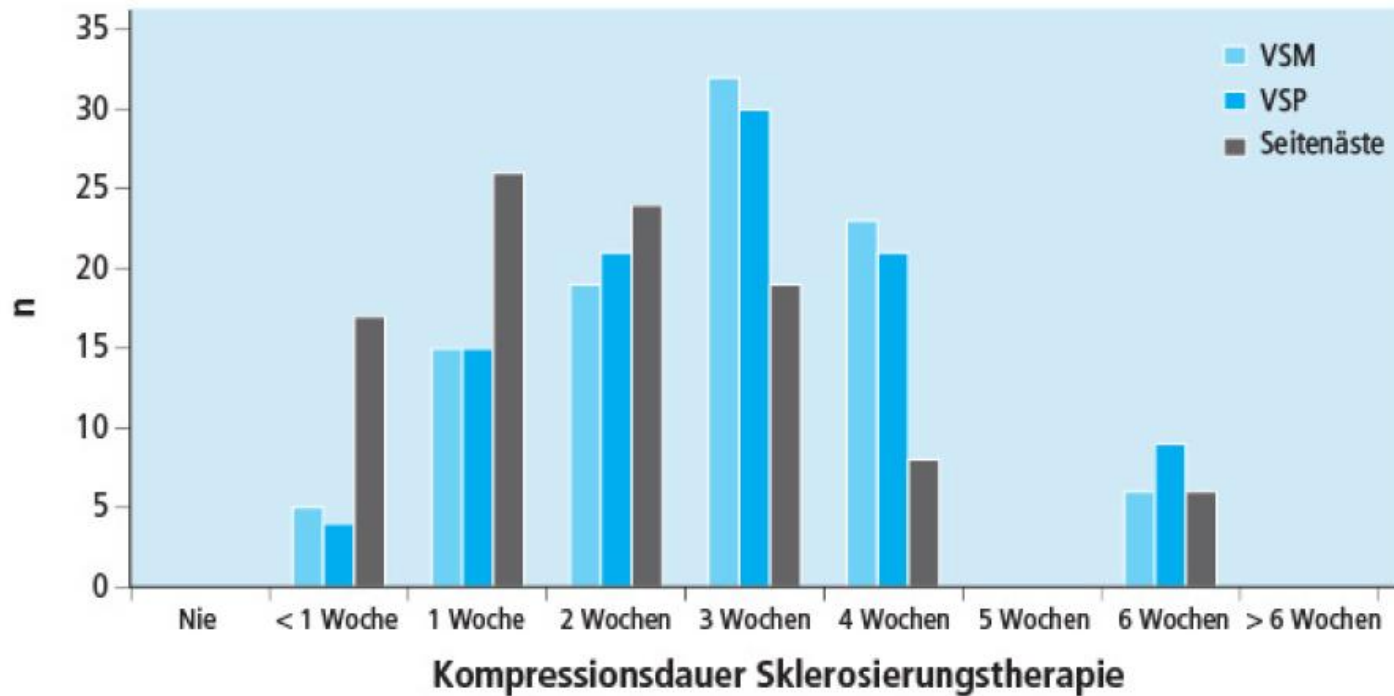
- After sclerotherapy, medical **compression may be applied** to the treated extremity. Compression can be performed using either a medical compression stockings or compression bandages (GRADE 2C)
- **Compression treatment with medical compression stockings or bandages improves the result of sclerotherapy 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:

- **Noppney 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 Komppressionsdauer nach Sklerotherapie



**WORLD  
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4-8 FEBRUARY 2018  
MELBOURNE

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

S. Guggenbichler, Munich

F.-X. Brey, 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:

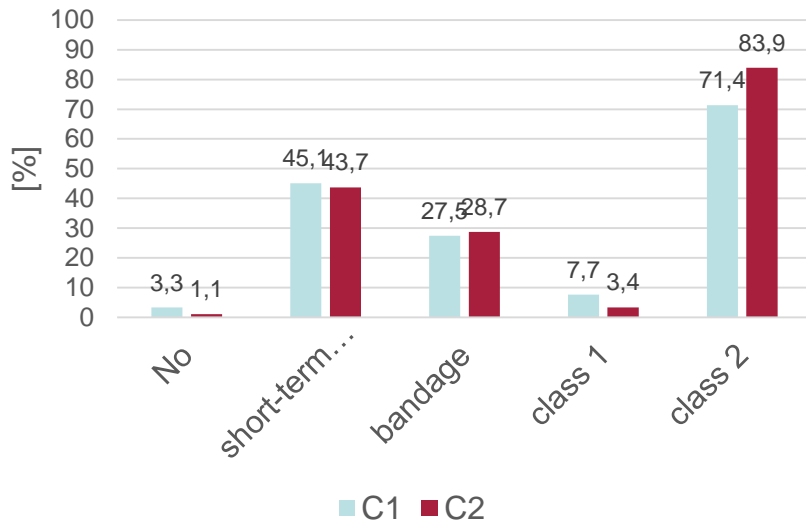
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- In D Sent to **1634 Email** addresses  
(Kreussler customer database including AG Sklerotherapie)
- **91 physicians** replied,
- In **Melbourne 73** phlebologists replied

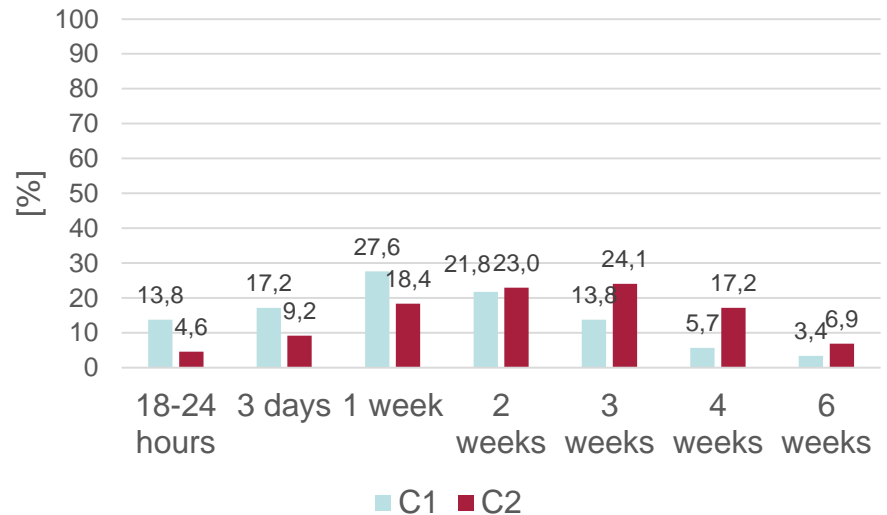
# Compression after Sclerotherapy in Germany

2015: class1 =18 mmHG, class2 =30 mmHG

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

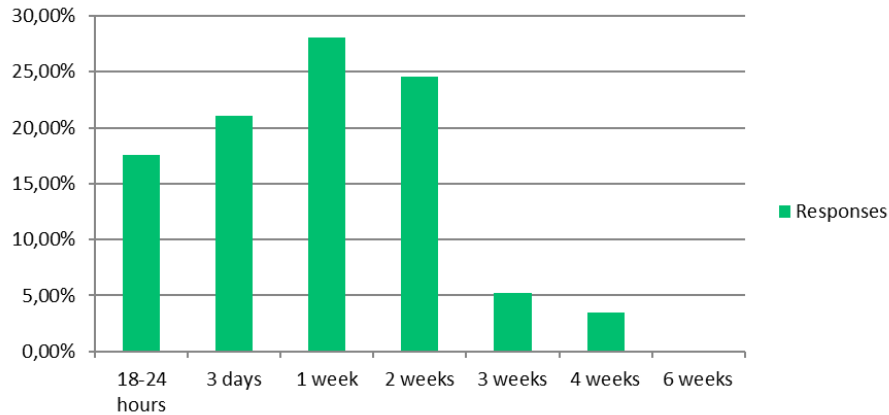


How long do you use compression after treatment of C1/C2 varices?

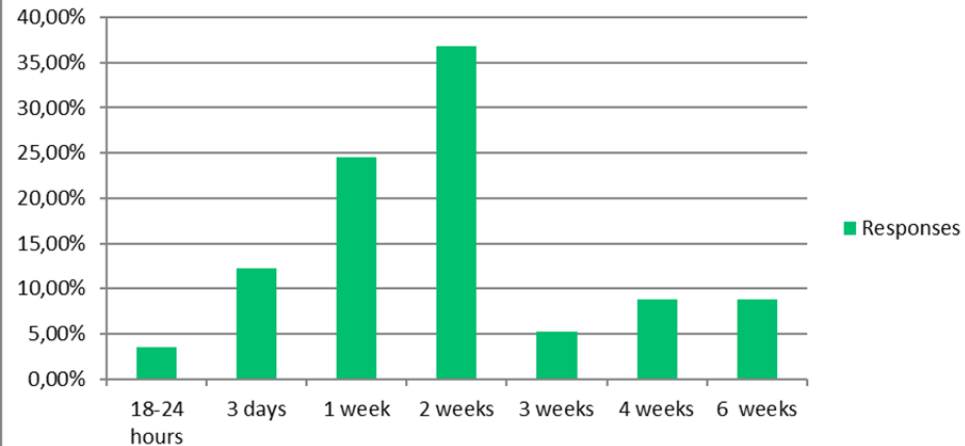


# Duration of compression C1 and C2 ( Melbourne)

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

