

Compression Bulletin 42

SIGVARIS
GROUP

In this issue:

Compression Therapy Is Not Contraindicated in Diabetic Patients with Venous or Mixed Leg Ulcer

This study investigated if compression therapy can be safely applied in diabetic patients with Venous Leg Ulcers, even when a moderate arterial impairment occurs as in mixed leg ulcers.

Is compression therapy contraindicated in lower leg erysipelas? Results of a retrospective analysis.

The authors retrospectively analyzed clinical data of acute erysipelas patients, to assess whether clinically relevant complications occurred during medical compression therapy (CT) and whether CT is a contraindication in these patients.

Occupational leg edema – use of compression stockings

This study assessed the effectiveness of compression stockings in avoiding the formation of occupational edema of the lower limbs in jobs with prolonged orthostatism.

Twice a year, the Compression Bulletin presents a selection of the latest scientific publications in the fields of phlebology, lymphology and compression therapy. All Compression Bulletins can be downloaded from the Stemmer Medical Platform. The Stemmer Medical Platform replaces the well known, but unfortunately outdated Stemmer Library.

The Stemmer Library was originally created by Dr. Robert Stemmer who was recognized as one of the most respected phlebologists of his time. The Stemmer Medical Platform is regularly updated with the latest scientific materials produced by SIGVARIS GROUP to support medical professionals in the field of phlebology and lymphology.

www.sigvaris.group/stemmer-medical-platform

Congresses:

Many congresses have been postponed to 2021 or will be conducted as virtual congresses due to the Corona crisis. Please check the respective congress home page for further information regarding conduct.

27. Bonn Vein Days	Bonn, Germany	30. April – 01. May 2021
21. European Venous Forum (EVF)	Online Meeting	24. – 26. June 2021
10. International Lymphedema Framework (ILF)	Copenhagen, Denmark	18. – 20. November 2021

Editors

Prof. Dr. H. Partsch, Vienna
Prof. Dr. E. Rabe, Bonn

Co-Editors

Dr. F. Pannier, Bonn
Dr. B. Partsch, Vienna

SIGVARIS MANAGEMENT AG

CH-8400 Winterthur
Tel. +41 52 265 00 00
www.sigvaris.com

Stemmer Medical Platform on Phlebology and Compression Therapy
Published under the auspices of the UIP since 2001
www.sigvaris.group/stemmer-medical-platform

Compression Therapy Is Not Contraindicated in Diabetic Patients with Venous or Mixed Leg Ulcer

Journal of Clinical Medicine · November 2020 DOI: 10.3390/jcm9113709

Aim

The aim of this study was to investigate if compression therapy (CT) can be safely applied in diabetic patients with Venous Leg Ulcers (VLU), even when a moderate arterial impairment (defined by an Ankle-Brachial Pressure Index 0.5–0.8) occurs as in mixed leg ulcers (MLU).

Methods

This is a retrospective sub analysis of a previous publication, that compared the outcomes of two groups of patients with recalcitrant leg ulcers. Seventy-one patients were affected by mixed venous and arterial impairment and 109 by isolated venous disease. Both groups were treated by tailored inelastic CT (with compression pressure <40 mmHg in patients with MLU and >60 mmHg in patients with VLU) and ultrasound guided foam sclerotherapy (UGFS) of the superficial incompetent veins with the reflux directed to the ulcer bed.

For the present sub analysis, the authors compared the healing time of 107 non-diabetic patients (NDP), with the healing time of 73 diabetic patients (DP). Patients were excluded from the study if they presented with small ulcers or with an ulcer surface >100 cm²; with ulcer duration shorter than 6 months; insulin dependent diabetes mellitus (IDDM); patients on immunosuppressive drugs

therapy; active cancer; life expectancy lower than 6 months; severe PAOD (ABPI < 0.5).

All patients were treated by compression therapy (CT) using inelastic materials. In the patients with VLU the compression device consisted of a short stretch bandage (Rosidal K; Lohmann & Rauscher, Rengsdorf, Germany) on top of a sub-bandage padding layer made up of cotton padding and a multi-layer cohesive short stretch bandage (Cellona and Mollelast Haft (both Lohmann & Rauscher)).

In patients with MLU, Cellona and Mollelast Haft were applied with reduced stretch («modified compression»), and Rosidal K was not used. Bandages were exclusively applied by very well trained and experienced staff, in most cases by the doctor (GM). Compression pressure (CP) was measured by using a Picopress device in the first 4 weeks of treatment, both after application and before removal of the bandage. CP was set to the range of about 60 mmHg at application in patients with VLU both in NDP and in DP and of about 40 mmHg in patients with MLU both in NDP and in DP. Bandage removal and dressing changes were planned once a week. Patients were asked to return for additional visits in the event of unusual pain, excess exudate, or any unwanted effect.

Results

155 patients that completed the treatment protocol were included in the analysis; twenty-five patients were lost at follow up. In the VLU group median healing time was 25 weeks for NDP and 28 weeks in DP. In the MLU group median healing time was 27 weeks for NDP and 29 weeks for DP.

52 weeks was the maximal healing time in one diabetic patient with MLU. According to Kaplan–Meier analysis DP had a delayed healing time compared with NDP in both VLU and MLU groups, but the difference between the two groups was not statistically significant. In both groups, patients did not report any compression-related pain at bandage application.

Some tightness sensation due to the strong pressure was reported by patients with VLU at bandage application, and this symptom decreased overtime. Both DP and NDP with MLU tolerated the applied modified compression very well and did not complain about any compression-related discomfort.

In all patients, smaller ulcers healed faster, and females showed longer healing times, while no differences were found for age, smoking habit, BMI > 30 or arterial hypertension.

Ulcer-related pain was significantly greater in patients with MLU than in patients with VLU, but no difference was found in subgroups of NDP and DP.

Pain decreased overtime as reflected by VAS that gradually decreased to zero after 8–12 weeks in patients with MLU, and in 4 weeks in patients with VLU; in fact, no difference was found in reported pain between NDP and DP after 12 weeks.

Conclusions

When providing leg ulcer treatment by means of tailored compression regimen and foam sclerotherapy for superficial venous refluxes, diabetes has only a minor or no effect on the healing time of recalcitrant VLU or MLU. The results indicate that compression therapy may be safely applied in diabetic patients with recalcitrant ulcers, even in the presence of moderate PAOD. In addition, they show that compression in DP did not result in unwanted effects, but just a light, not significant healing delay compared to NDP even if these data need to be confirmed by prospective randomized control studies. Basically, diabetes does not represent a contraindication to compression therapy in patients with VLU even with additional arterial occlusive disease (excluding critical limb ischemia), and it does not play a negative prognostic role regarding ulcer healing.

Comments of the Editors

Some colleagues still feel that any kind of compression will reduce the arterial flow in an extremity and therefore avoid it in patients with diabetes because of the fear to create problems even in cases without clinically evident arterial pathology. Indeed, «retarded wound healing» due to diabetic small vessel disease is a well-known phenomenon explaining certain reluctance of clinicians to compress small skin vessels by our therapy. As a matter of fact, some studies from the last few years have shown more beneficial effects especially concerning edema removal in diabetic patients so that even special compression stockings were introduced on the market¹. These findings relate to patients without major pathology in the large arteries or veins and to relative mild external pressure.

In patients with venous ulcers mainly due to massive valvular reflux in major veins and to some part with additional arterial occlusive disease the question is if compression can still be advocated or if it is a clear contraindication? This was the background question of this publication.

The answer was surprising: In patients with recalcitrant leg ulcers due to venous pathology and to some extent additional arterial occlusive disease,

the median ulcer healing time was only about 2 weeks longer in diabetics compared to non-diabetics (not significant). It is important to note that all patients were treated the same way: by inelastic compression bandages exerting high pressure (60 mmHg) in the purely venous patients and reduced pressure (40 mmHg) in the patients with reduced arterial ankle pressure (ABPI 0.5-0.8) plus additional foam sclerotherapy in both groups.

In conclusion the presence of diabetes is not a contraindication for a proper compression therapy in ulcer patients with venous or mixed arterial-venous pathology.

¹Wu SC, Crews RT, Skratsky M, Overstreet J, Yalla SV, Winder M, Ortiz J, Anderson CA. Control of lower extremity edema in patients with diabetes: Double blind randomized controlled trial assessing the efficacy of mild compression diabetic socks. *Diabetes Res Clin Pract.* 2017; 127: 35-43. doi: 10.1016/j.diabres.2017.02.025.

Is compression therapy contraindicated in lower leg erysipelas? Results of a retrospective analysis.

Hautarzt 2021 · 72:34–41; <https://doi.org/10.1007/s00105-020-04682-4>

Aim

In many clinics, medical compression is one of the central roles in erysipelas therapy. Unfortunately, this practical approach is not supported much because of the limited available evidence. The aim of this study is therefore to investigate the role of compression therapy in the treatment of the acute erysipelas of the lower leg.

For this purpose, the authors retrospectively analyzed clinical data of patients that have been treated with medical compression, to assess whether clinically relevant complications have occurred and whether compression therapy is a contraindication in patients with acute erysipelas of the lower leg due to the infection situation.

Methods

The data of 56 patients with acute erysipelas of the lower leg who were admitted to two clinics in the period from 01.01.2018 to 30.06.2019 were analyzed for the present study. Both clinics apply the same conservative therapy approach with systemic antibiotic therapy, rest in elevated position, thrombosis prophylaxis and the immediate use of medical compression therapy starting from inpatient admission.

Patients with a major diagnosis of «erysipelas» with localization in the lower leg and prescribed medical compression therapy were qualified for the study. Patients with advanced peripheral arterial occlusion disease, diabetic foot syndrome or ulcer cruris venosum/mixtum of the affected side were excluded.

The compression therapy in both clinics was not identical in terms of the material used. Short stretch bandages (Comprilan®, BSN Medical, Hamburg) were applied over tubular liners and upholstery wadding (Rolta® soft, Hartmann, Heidenheim) in Villingen-Schwenningen while the multi-component compression system UrgoK2lite® (Urigo, Sulzbach) was favored in Essen. In both clinics, the applied compression pressure values were not checked with pressure measuring devices.

Results

A total of 57 patients with lower leg erysipelas and prescribed medical compression therapy were identified in both clinics. These were 30 men and 27 women with a median age of 65.9 years. The left leg was affected in 27 cases (47.4%), the right leg in 30 cases (52.6%). On average, the 56 finally evaluated patients were hospitalized for

8.2 days.

Compression therapy was started in 92.9% of patients on the day of admission (day 0) and continued until discharge. This was not possible in a total of 4 patients (7.1%).

One patient refused compression therapy due to local pain on day 0, and the compression treatment began on day one. In another 3 patients, the lower leg compression was stopped on day 1 due to pain. In these 4 patients, too, a decrease in infection parameters was documented during the inpatient stay. None of the patients were diagnosed with fever or clinical signs of sepsis during the inpatient stay. Thus, the conservative therapeutic approach for erysipelas treatment with resting in high position, anti-infective therapy and immediate onset of local medical compression therapy could be carried out without problems in 92.9 % of the patients.

Conclusions

This retrospective analysis showed no evidence of clinical deterioration or triggering of a septic disease by early implementation of medical compression therapy.

Only in a few patients, the medical compression therapy led to some pressure pain. The authors therefore conclude that a classification of the erysipelas as a contraindication for medical compression therapy is not justified. Rather, the early use of medical compression therapy could be beneficial for the reduction of inflammatory edema in the further course of the disease.

However, the authors pointed out that this observation will still have to be confirmed in larger prospective clinical trials.

Comments of the Editors

This publication nicely complements the publication of Webb et al in the *New England Journal of Medicine*¹, which showed that in edema patients with recurrent erysipelas, the recurrence incidence was significantly and impressively reduced by wearing medical compression stockings.

Contrary to the earlier approach in acute erysipelas treatment, which saw the use of medical compression as a contraindication, medical compression is now becoming a standard in the treatment of this disease in many clinics. This was also confirmed in a recently published consensus document² and in the guideline of the German Society for Phlebology on Compression Therapy³. The effectiveness of medical compression therapy in acute erysipelas treatment correlates with its anti-inflammatory properties, that have previously been demonstrated among other things⁴, in the treatment of ulcer cruris.

1. Webb E, Neeman T, Bowden FJ, Gaida J, Mumford V, Bissett B. Compression Therapy to Prevent Recurrent Cellulitis of the Leg. *N Engl J Med*. 2020 Aug 13;383(7):630-639. doi: 10.1056/NEJMoa1917197.PMID: 32786188
2. Rabe E, Partsch H, Morrison N, Meissner MH, Mosti G, Lattimer CR, Carpentier PH, Gaillard S, Jünger M, Urbanek T, Hafner J, Patel M, Wu S, Caprini J, Lurie F, Hirsch T. Risks and contraindications of medical compression treatment – A critical reappraisal. An international consensus statement. *Phlebology*. 2020 Aug;35(7):447-460. doi: 10.1177/0268355520909066. Epub 2020 Mar 2.PMID: 32122269

3. Rabe E, Földi E, Gerlach H, Jünger M, Lulay G, Miller A, Protz K, Reich-Schupke S, Schwarz T, Stücker M, Valesky E, Pannier F. Medical compression therapy of the extremities with medical compression stockings (MCS), phlebological compression bandages (PCB), and medical adaptive compression systems (MAC): S2k guideline of the German Phlebology Society (DGP) in cooperation with the following professional associations: DDG, DGA, DGG, GDL, DGL, BVP. *Hautarzt*. 2021 Jan 1. doi: 10.1007/s00105-020-04706-z. Online ahead of print.PMID: 33386416
4. Beidler SK, Douillet CD, Berndt DF, Keagy BA, Rich PB, Marston WA. Inflammatory cytokine levels in chronic venous insufficiency ulcer tissue before and after compression therapy. *J Vasc Surg* 2009;49:1013-20

Guedes, P. M., Saldanha, N. A., Matos, P. M., Carvalho, F. S., Veiga, G., & Norton, P. (2020).

Occupational leg edema – use of compression stockings

Porto Biomed J. 2020 Nov 24;5(6):e093. doi: 10.1097/j.pbj.000000000000093. eCollection Nov-Dec 2020.

Aim

Occupational edema of the lower limbs is a very common complaint among workers exposed to prolonged orthostatism. Only a few studies that investigate the effectiveness of using compression stockings to prevent chronic venous disease (CVD) in professionals exposed to prolonged orthostatism are available. The aim of this study was to assess the effectiveness of compression stockings in avoiding the formation of occupational edema of the lower limbs in jobs with prolonged orthostatism.

Methods

The authors carried out a review of the articles published in PubMed, from the 1st of January 2008 to 31st of December 2018 using the term «Occupational Leg Swelling». Only articles that met the following criteria were selected: prospective, observational, and experimental retrospective articles written in Portuguese or English.

Results

The research resulted in 23 articles. After reading the titles and abstracts and applying the inclusion and exclusion criteria, 5 were selected.

- Belczak et al, 2008: In professionals who worked 12 hours continuously, the increase in leg volume was significant, regardless of the period of the day. The rate of edema formation was higher in the morning shift.
- Blazek et al, 2013: Both groups showed decreased leg volume with the use of compression stockings. With the cessation of compression treatment, symptoms reappeared.
- Mosti et al, 2013: Both socks significantly reduced occupational edema, but the progressive ones showed a greater reduction.
- Diken et al, 2016: Changes in working conditions can contribute to the improvement of CVD symptoms; The time spent in hospital hours was associated with a higher frequency of signs of CVD symptoms.
- Wou et al, 2016: Compression stockings were the only method that effectively reduced lower limb edema.

Conclusions

Compression stockings were the preferred method for participants when asked about the effectiveness of the treatment. Prolonged orthostatism as well as sedentary work are extremely important risk factors for occupational edema. Despite the few studies carried out in this area, the use of low compression stockings seems to be the most effective method in preventing occupational edema as well as associated symptoms.

The authors stated that physicians should encourage the use of compression stockings in workers exposed to periods of prolonged orthostatism in order to prevent the development of CVD. Further they concluded that this review showed the need for further studies to assess risk factors for occupational edema, namely organizational risk.

Comments of the Editors

This review shows good evidence that occupational leg edema mainly in participants without chronic venous disease can effectively be prevented by wearing low pressure medical compression stockings. This is an important indication as it may improve quality of life and symptoms like pain and feeling of swelling. Aside from the classical occupations with prolonged orthostatism like hairdressers or nurses, we must face a recently growing number

of home office work due to Covid 19 pandemic situation. As a consequence, a growing number of people are sitting at home on their computers for more than eight hours daily. This may lead to more leg swelling and venous symptoms and could be prevented by compression stockings. However it is unclear if compression in healthy subjects without venous pathology can really prevent the development of CVD. Long-term prospective comparative studies would be needed to answer this question. We

know from several epidemiologic studies that prolonged sitting is a risk factor for an increase of signs and symptoms in patients with preexisting chronic venous disorders. Also in these cases low pressure compression stockings are the basic treatment.

STEMMER MEDICAL PLATFORM

Literatu
Phlebo

www.sigvaris.group/stemmer-medical-platform

The new Stemmer Medical Platform provides the latest scientific materials produced by SIGVARIS GROUP. The Stemmer Medical Platform is updated on a regular basis to support medical professionals in the field of vascular medicine.

- Two new Compression Bulletins published every year
- New scientific materials added on a regular basis

pression
Compre
therapy
medical



www.sigvaris.group/stemmer-medical-platform