SIGVARIS
Knowledge Management

Compression Bulletin 06
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Robert Stemmer Library on Compression Therapy

Compression Therapy of the Extremities

This book, available in English, French and German, contains the most complete collection of compression references.

Continuous literature update

Scientific articles on compression therapy worldwide are collected and quoted on Internet **www.sigvaris.com**

Compression Bulletin

A selection of some interesting articles is extracted and discussed in the Compression Bulletin (available by fax or e-mail)

Table of contents:

Identical chapter-titles in the continuous literature update and in the Compression Bulletin

with questionnaire
hoping for your cooperation

Meyer FJ, McGuiness CL, Lagattolla NR, Eastham D, Burnand KG.

Randomized clinical trial of three-layer paste and four-layer bandages for venous leg ulcers.

Br J Surg 2003;90:934-40

Background: To compare the efficacy of two bandaging regimes in venous leg ulcers in a randomized and stratified open trial.

Methods: 133 consecutive patient with venous ulcers were stratified by ulcer size into one of three groups and were randomized within each group to receive either three-layer paste or four-layer bandages. Three-layer bandages consisted of a hypoallergenic paste bandage (Steripaste®), a Setopress®-compression bandage and a Tubigrip. Four-layer bandages comprised orthopaedic wool, a crepe bandage, an Elset® and a Coban® bandage.
Primary endpoint was the time taken to complete ulcer healing. The time to apply the bandages, comfort, tolerability and cost were also assessed. Initially patients were reviewed weekly, and every fortnight if the ulcer healing was well. All patients were followed for 1 year. Analysis was performed on the basis of intention to treat.

Results: 51 from 64 patients (80%) in the three layer paste group and 45/69 patients (65%) with the four-layer regimen healed (p=0,031). This difference developed only after 20 weeks of treatment to be significant. The median times to complete healing were 12 weeks for the paste bandages and 16 weeks for the four layer-group (p=0,040). The mean time taken to apply the bandages was 4,6 minutes for the paste and 5,5 minutes for the four layer bandages (p=0,008). There was no difference concerning venous function tests, including half-refilling times, scores for comfort, pain on bandaging and reduction of ankle circumference over time.

Conclusion: Three-layer paste bandages were significantly more effective at healing venous ulcers than the four-layer regimen.

Comment: This study is remarkable because it included also large and long standing ulcers (mean duration up to 14 and 19 months) and it was performed for a whole year. Although the Kaplan-Meier curves of ulcer-healing show some superiority of the paste bandages already after 12 weeks of treatment, significant differences occurred only after 32 weeks. Unfortunately neither local dressings nor the pressure used at application of the bandages are mentioned.

Randomized controlled trial
Chapter: 8
Lang.: Eng.
Lit.: 32/3
Sum. Eng

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M. Guest, J.J. Smith, G. Tripuraneni, A. Howard, P. Madden, R. M. Greenhalgh, A.H. Davies.

Randomized clinical trial of varicose vein surgery with compression versus compression alone for the treatment of venous ulceration

Phlebology 2003;18:130 – 136

Background:
No randomized controlled trials exist to show whether varicose vein surgery improves healing of venous ulcers in addition to compression therapy.

Material and methods:
In this randomized prospective study 121 consecutive patients with venous ulceration were included. 45 were unwilling to take part in the study. The remaining 76 patients were randomized in two groups. One received four-layer-bandaging (n = 39), the other superficial venous surgery (long and short saphenous with or without perforator surgery) and four layer bandaging (n = 37). Ulcer healing and quality of life (HRQL) were assessed.

Results:
In the compression treatment group the healing rate was 64%. In the surgical treatment group the healing rate was 68%. This difference was not statistically significant. There was also no significant difference between the time to ulcer healing between the two treatment groups. In addition there was no difference in quality of life between the two groups using the scores of a disease-specific questionnaire.

Conclusion:
This study suggests that for venous ulceration superficial venous surgery gives no additional benefit to compression therapy from the point of view of healing rate and quality of life.

Commentary:
This first randomized prospective study on ulcer healing comparing compression therapy alone and compression plus superficial venous surgery underlines the role of compression as the basis of venous ulcer treatment. Sufficient compression therapy is able to correct impaired venous function and leads to venous ulcer healing. Venous surgery has no significant additional effect on healing rate and quality of life.
That does not mean that venous surgery of superficial insufficient veins makes no sense in these patients. As we know from other studies the ulcer recurrence rate can be reduced by venous surgery correcting superficial venous insufficieny in patients without postthrombotic syndrome.

Controlled clinical study
Chapter: 8 /10
Lit: 12/0
Language: ENG
Summary: ENG

C.V. Ruckley, J.J. Dale, B. Gibson, D. Brown, A.J. Lee, R.J. Prescott.

Multilayer compression: Comparison of four different four-layer-bandage systems applied to the leg

Phlebology 2003;18:123- 129

Background:
To compare on standardized laboratory models the performance of four commercially available four-layer-bandage systems.

Methods:
Four experienced bandagers applied each of the four systems (Profore® regula, Ultra Four, System 4 and K-Four® to two models: a padded cylinder and a padded cone. Bandages were applied individually in single layers and as a completed system using standard application techniques. Pressures were measured by the Borgnis Medical Stocking Tester at positions corresponding to ankle, gaiter and mid-calf areas as determined by the pressure sensor.

Results:
A total of 786 observations were made: 384 for each model, 192 for each bandaging system. The increasing pressure produced by each additional layer was in the range of 50 – 60% of the pressure achieved by the same bandage when used as a single layer. There was no significant difference in the gradient between the four bandage systems or between the four bandagers. But there were significant differences in the final pressures achieved among the bandage systems when applied as complete systems (mean: Profore® 42 mmHg, System 4 45 mmHg, K-Four® 48 mmHg, Ultra-Four 51 mmHg).

Conclusions:
The results challenge commonly held assumption concerning the additive effect of pressure generated by successive bandage layers. When applied as a part of a multi-layer system each bandage adds just over half the pressure achieved by the same bandage when applied alone. The four completed systems produced pressures within a range appropriate for ulcer therapy although there were differences in mean pressures. This capability of the system to produce different pressures could be clinically important in the hands of inexperienced bandagers or in patients with risk of pressure damage.

Comment:
This study shows the additional effect of single bandages applied in a multi-layer-system. It also demonstrates the high pressures which are produced by these systems and shows that ulcer therapy with these bandage systems needs experienced bandagers to avoid pressure damages in risky patients or even to avoid ineffective bandaging in ulcer treatment.

Clinical study
Chapter: 8
Lit: 8/1
Language: ENG
Summary: ENG

Koksal C, Bozkurt AK.

Combination of hydrocolloid dressing and medical compression stocking versus Unna's boot for the treatment of venous leg ulcers

Swiss Med Weekly 2003;133:364-68

Aim of this randomised controlled trial was to compare Unna boot bandages (group A) with hydrocolloid dressings (Comfeel®) in addition to elastic class II compression stockings (group B) for the treatment of venous leg ulcers.

Material and Methods:
From a total of 60 patients 27 cases in group A and 26 in group B completed the study. Basic characteristics in the two groups were comparable, including ulcer-size (6,38 ± 1,2 versus 6,19 ± 0,8 cm^2), ulcer duration (16,6 ± 5,8 versus 16,9 ± 6,2 weeks), and previous ulcer recurrence (74% versus 73%). Dressing changes were performed every 3-7 days. The stockings were removed by the patients upon going to bed. Efficacy parameters were complete healing, weekly wound surface reduction, time to complete healing, performance characteristics (ease-to-use-score), pain during application and at home and application time.

Results:
There was no significant difference in the healing rate after 16 weeks (group A: 74,07%, group B: 80,76%) and in the healing time (6,85 ±3,31 weeks in group A and 6,65 ±3,31 weeks in group B). Highly significant differences in favour of group B were found for the ease-of- use- score and for the pain level during application and at home. The average time spent on Unna boot changes was 150,59 ± 34,73, compared with 134,54 ± 43,93 minutes in the stocking group.

Conclusion:
The results demonstrate superiority of hydrocolloid dressings plus elastic stockings in terms of patients convenience.

Comment:
Obviously no local dressings were used under the zinc plaster layer of the Unna boot bandage. This might explain the higher pain level with Unna boots. The average time for bandage changes, which is not explained in detail, seems amazingly long.

Randomized controlled trial
Chapter 9
Lit.: 20/0
Lang.: ENG
Sum.: ENG

Questionnaire

Use of compression stockings after deep vein thrombosis

(with kind permission of Dr. S.R. Kahn and co-workers, McGill University, Center for clinical Epidemiology and community Studies, Montreal, Canada)

Dear readers,

At present Compression Bulletin by Fax is available in English, French, Italian, German and Japanese and received by interested doctors worldwide. The easy way to transmit information by fax is not necessarily a one way route only, but offers also the possibility to get a rebound from the readers. The following questionnaire as prepared and sent out by Dr. Susan Kahn in Canada contains questions of considerable practical importance. It would certainly be very interesting to learn how the problems under discussion are handled in other parts of the world.

Please fill out the following questionnaire based on your own experience and fax it back to:
Ganzoni/SIGVARIS ***fax number +41 (0)71 274 29 75.*** *(Deadline: March 31st 2004). All incoming answers will be evaluated and printed in one of the next issues of the Compression Bulletin.*

Do you ever prescribe compression stockings to patients after DVT?

❑ Yes ❑ No

If No, why not? _____

If Yes. Does site of DVT influence your decision to prescribe stockings?

❑ Proximal DVT only ❑ Distal DVT only ❑ Other

Does presence of symptoms/signs influence your decision? (choose one)

❑ I only prescribe them to patients with venous symptoms/signs

❑ I prescribe them to patients whether or not they have symptoms/signs

When do you recommend patients start wearing stockings?

❑ As soon as DVT is diagnosed ❑ Other (please specify) _____

For how long do you recommend they be worn?

❑ Until symptoms/swelling improve

❑ For a defined time period, regardless of symptoms/swelling: ____ mths or ____ yrs

❑ Indefinitely ❑ Other (please specify) _____

What length stocking do you typically prescribe?

❑ Calf ❑ Half-thigh ❑ Thigh ❑ Thigh with waist attachement ❑ Panty

What compression strength do you typically prescribe? (please choose one, decide for line a) or b))

Line a) contains the original wording of the Canadian questionnaire, line b) gives the "translation"according to the European CEN document:

a) ❑ light (< 20mmHg) ❑ Class 1 (20 – 30mmHg) ❑ Class 2 (30 – 40mmHg) ❑ Class 3 (40 – 50mmHg)

b) ❑ Ccl I (15 – 21mmHg) ❑ Ccl II (23 – 32mmHg) ❑ Ccl III (34 – 46mmHg) ❑ Ccl IV (>49mmHg)

Please estimate among patients for whom you prescribe stockings, the % who wear them:

❑ Daily _____ %, ❑ Occasionally _____ %, ❑ Never/rarely _____ %

Among your patients who don't comply with use of stockings, what are the main reasons given? (please mark all that apply)

❑ Expense ❑ Discomfort ❑ Appearance of stocking ❑ Difficult to put on ❑ Don't help

❑ Make leg worse ❑ Other (please specify) _____

Based on your experience caring for DVT patients, do you believe that stockings are of benefit for: (mark all that apply)

❑ Symptom control ❑ Edema control ❑ Cosmetic appearance of leg ❑ Preventing recurrent DVT

❑ Preventing post-thrombotic syndrome ❑ Treating post-thrombotic syndrome ❑ Other ❑ I don't believe stockings are of benefit

Remarks

_____

_____

_____

Name _____

Fax No. _____

(your name will be montioned in the evaluation)

Thank you very much for your cooperation!

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