A new approach to combining moist wound care and compression therapy for successful venous leg ulcer treatment

James McGuire, DPM, PT, CPed, FAPWCA, FAPWHc

*Associate Professor, Department of Podiatric Medicine and Director of the Leonard Abrams Center for Advanced Wound Healing, Temple University School of Podiatric Medicine, Philadelphia, Pennsylvania (jmCGuire@temple.edu)

Introduction

Successful healing of venous leg ulcers depends on the consistent application of both compression therapy and balanced moist wound healing. According to the Cochran review: Compression therapies increase the healing of venous leg ulcers compared with no compression. High compression (30-40 mmHg) is more effective than low compression.

- The use of any correctly applied high compression therapy results in improved healing.

Simple as it seems, implementing combined treatment in daily practice can be difficult. Recurrence rates for leg ulcers are high, due often to the fact that there is a lack of adherence to compression programs. Any approach that leads to a high patient compliance and acceptance achieves better overall results. Wound care products must maintain a moist wound environment, under reliable compression systems that maintain compressions of up to 40 mmHg. Several compression tools are available for reduction of extensive edema, i.e. long stretch, short stretch, multilayer compression dressings, and stockings. Two-layer stocking systems are often easier to apply and are easily accepted. In a trial of 50 patients, Horakova found that 84% of those receiving a combination of two compression stockings healed completely at 3 months compared with 52% in those receiving a short stretch bandage.1,2 In a two-layer stocking system the contact layer exerts only 15 mmHg pressure, which makes it easier to apply and allows for continuous night wear. The outer stocking can then be added to achieve a combined 40 mmHg pressure for added day time compression. In a recent multi-center study Brambilla demonstrated 85% improvement and 52% healing by 12 weeks using a hydrophilic contact layer for microbe trapping, a phase adaptive dressing and a two layer compression stocking as the treatment modalities.3 The compression stocking systems, have been demonstrated to deliver even, constant pressure, and are better accepted by patients and physicians because of their ease of application and the ability to allow for daily cleaning and dressing application during compression.

VLU Symptoms

- Burning
- Swelling
- Throbbing
- Cramping
- Aching
- Heavyness
- Restless legs
- Leg fatigue

Stockings vs. Compression the Data

Compression increases ulcer healing rates compared with no compression [6,7].

- It is evidenced that to improve the healing of venous or mixed venous ulcers (ABI 0.7 > or < 1.0) a pressure between 30 and 40 mmHg should be obtained at the ankle. Multicomponent systems are more effective than single-component systems and those containing an elastic bandage appear more effective than those composed mainly of inelastic constituents.

- Two-layer stockings appear more effective than the short-stretch bandage [8]. In fact, there are no clear differences in the effectiveness of different types of high compression. Bandaging requires experience and a pressure level from 30 to 40 mmHg may not be easy to achieve. Slippage, the main criticism of multilayer or short stretch bandages, is of the cause of most problems: pain, aggravation of ulcer, secondary ulcerations, and necrosis [8].

- The advantage of compression stockings is that the pressure exerted is operator independent.

- 30-40 mmHg compression stockings are difficult to put on and may require a donning and doffing aid.

- Applying two lower pressure compression stockings achieves the desired pressure level with improved ease of application.

- Compression stockings have an advantage over bandages in terms of healing process, pain perception and nursing care [10].

- In-vito the pressure under 2 stockings is equal to or slightly inferior to the sum of the pressures that each stocking induces separately. And those pressures change in vivo [11,12, 13, 14].

Temple Treatment Protocol

Management of Wound Bioload via Hydrophilic Microbe Trapping dressing

Management of Exudate via Hydroconductive, Super-absorbent or Phase Adaptive Dressings

Management of Edema by Initial use of a Multilayer Compression Dressings, 2x per week followed by transition to a Two Layer Stocking System for compression provided the patient can demonstrate the ability to don and doff the garments with a reduction to weekly visits

Home care nursing it needed for assistance with dressings

Advantages

Consistent compression with no complications from slippage.

High patient acceptance if donning and doffing can be performed.

Ability to balance between hydrophilic contact layer, a phase adaptive foam dressing and a two-layer compression stocking for wound bed optimization.

Reduced odor and bacterial buildup.

Improved skin appearance, particularly in the per-wound area.

Use of Stockings for Compression

Disadvantages

Proximal cuff rolling.

Difficult to fit large limbs.

Donning and Doffing in obese or poorly motivated patients.

Adherence to the use of the stockings.

Problems with marked edema or high exudate production.

Cases

S B y0 female with a 2 month history of a VLU treated with simple ESDF and OTC compression hose. Initiated therapy with the use of a hydroconductive contact layer, a phase adaptive foam dressing and a two layer compression stocking for edema reduction. The patient was allowed to remove the outer stocking for sleeping and shower daily. Photo 1 is one week after initiating the protocol 8-16-13 and Photo 2 is 9-4-13.

Author

Author: James McGuire DPM, PT, Cped, FAPWCA, FAPWHc

Temple University School of Podiatric Medicine, 148 N 8th St. Philadelphia, PA jmCGuire@temple.edu

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