

# Promoting Patient Centered Choice of Hosiery to Aid Compliance

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## Introduction

Patients with a history of chronic venous insufficiency and leg ulceration are normally advised to continue with well fitted below knee, graduated compression hosiery to help maintain venous function and reduce recurrence rates<sup>[1]</sup>.

However, in reality patients often discontinue therapy for multiple reasons, such as poor fitting hosiery or inability to apply hosiery independently.

Recent studies have shown that compression hosiery is not just suitable for maintenance therapy, but also aids healing<sup>[2]</sup>, therefore, a 2 layer system with a copper oxide impregnated yarn liner was utilised on a patient who experienced difficulties with previous hosiery products.

## Methodology

A single patient case study was used to demonstrate how the application and fit of a 2 layer hosiery system can be effective in both healing and maintaining chronic venous insufficiency.

Carolon hosiery was chosen as a two layer compression option as it utilises an advanced yarn technology ensuring a high level of compliance, comfort and accurate compression is achieved. The product claims a two-way stretch for easy independent application and a unique copper oxide impregnated yarn liner to improve the appearance of the skin and to reduce bacteria. Extensive sizing range and two-way stretch is designed to meet patient's needs.

Consent for inclusion in the poster has been obtained.

## Case Study

Mrs D is an 85 year old lady with a history of arthritis in her knees and hands, hypothyroidism, essential hypertension and varicose eczema.

In 2002, Mrs D developed two leg ulcers on her left leg. Initial assessment excluded arterial disease and identified the ulcers to be venous in origin, (Doppler results; ankle brachial pressure index, left 1.0 right 1.2). Over the next nine years Mrs D was treated with various dressings in combination with compression hosiery or bandages. Mrs D had quite large legs, and had tried multiple brands of hosiery, even "made to measure", without success. Mrs D found hosiery difficult to put on and required aids to support her with the application. Although Mrs D tried both a cage system and a glide, she was still unable to apply her hosiery independently; therefore bandages became the treatment option of choice.

In December 2010, Mrs D agreed to be part of the VenUS IV trial, (a pragmatic randomised controlled trial, comparing the clinical and cost-effectiveness of two layer hosiery with four layer bandages, in terms of time to healing of venous leg ulcers)<sup>[2]</sup>. Mrs D was randomised to the two layer hosiery group, which she was quite concerned about, however agreed to retry hosiery.

Due to Mrs D's differing limb sizes both made to measure hosiery and standard products were required, however Mrs D was unable to manage either product, even with the cage system or glide, and her 'reference' ulcer on her left lateral malleolus started to deteriorate. In August 2011, a decision was made to opt out of the treatment choice and to reapply compression bandages. Over the next eight months the ulcer slowly healed, until May 2012 when only a small superficial wound was present, (1x1cm in size).

The Practice Nurse had recently heard about Carolon hosiery and following a discussion with Mrs D she agreed to retry hosiery to aid healing of her leg ulcer.

The Carolon compression hosiery range comes in larger sizes therefore Mrs D did not require made to measure garments and due to the two-way stretch, was easier to apply.

## Results

Since May 2011, Mrs D has successfully worn her Carolon hosiery (2 layer, 35-40mmHg) every day and in November 2012 her ulcer eventually healed. The Practice Nurses initially noted that appointment times were reduced from 30 to 20 minutes, and since healing Mrs D only visits the Practice Nurse for Doppler re-assessments and to ensure her hosiery still meets her needs.

Mrs D stated that her hosiery is the 'easiest to get on and off out of all the brands tried', she states the 'first layer (liner) goes on like normal stockings'. Due to severe arthritis in her hands, occasionally Mrs D still uses the cage system to assist in the application of the top layer of hosiery when her hands are bad.

Mrs D's varicose eczema had always appeared very dry and flaky even when using emollients, she noticed an improvement in the condition of her skin on her lower limbs, which may be due to the copper oxide impregnated yarn in the liner.

## Discussion

Recently the VenUS IV trial highlighted that 2 layer hosiery systems are as effective for healing venous leg ulcers as 4 layer bandage systems, with fewer recurrence rates and is a more cost effective treatment option<sup>[2]</sup>. However we need to remember that hosiery brand sizes vary and not all stockings produce adequate pressure or pressure gradient even though they may be described as a similar class. If a patient finds stockings uncomfortable or difficult to apply independently, it is advisable to change the brand of stocking within the same class as this may improve compliance<sup>[1]</sup> as noncompliance is often due to poor fit or application difficulties, which can often be overcome by the selection of an alternative brand.

## Conclusion

This case study demonstrates that once the correct brand of hosiery was prescribed for Mrs D, she was able to come out of bulky compression bandages, self-apply her hosiery daily and her ulcer eventually went on to heal, with no recurring episodes.

As Carolon hosiery are not prescribed in 'classes' but in 'mmHg', there were some initial prescribing problems which identified training needs for clinicians and pharmacists locally, however once this was overcome Carolon has become the preferred hosiery option for the treatment and maintenance of patients with venous leg ulcers and/or chronic venous insufficiencies. Carolon hosiery is easy for the patient (even for those with poor dexterity) and the nurse to apply, reducing treatment time and associated back and/or wrist strain.

## References

1. SIGN, (2010). Management of chronic venous leg ulcers, A national clinical guideline: Scottish Intercollegiate Guidelines Network Part of NHS Quality Improvement Scotland.
2. J. Dumville. (2013) VenUS IV (Venous leg ulcer Study IV): A randomised controlled trial of compression hosiery versus compression bandaging in the treatment of venous leg ulcers. EWMA.