

Donning Devices (Foot Slips and Frames) Enable Elderly People with Severe Chronic Venous Insufficiency to put on Compression Stockings

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WHAT THIS PAPER ADDS

This study is the first to examine the ability of “real” elderly patients with chronic venous insufficiency to don compression stockings, and the first to demonstrate the benefits of donning devices. The results might contribute to improving the implementation of compression therapy carried out by patients.

Objective/background: Compression therapy is highly effective in the treatment of post-thrombotic syndrome and venous leg ulcer. On average, 50–60% of the patients cooperate with compression therapy. Therefore, it is necessary to improve the user-friendliness. This prospective study investigated whether the use of donning devices can contribute to improving user-friendliness.

Methods: Forty patients aged >65 years with severe chronic venous insufficiency (CVI; C4–C6) successively donned compression stockings in a randomized order: one 40 mmHg (CS40) or two superimposed 20 mmHg (CS20+20), each with open toe (CS-o-t) and closed toe (CS-c-t), using donning devices (three foot slips for CS-o-t; two foot slips and three frames for CS-c-t). The study endpoint was that the stocking was completely donned and correctly positioned on the patient’s leg. The success rate and its association with age, sex, first time versus second time user, body mass index, abdominal circumference, ability to reach the forefoot with the hand, and hand grip strength were analyzed. Additionally, subjective evaluation by the patients was performed.

Results: Without donning devices, success with CS40-c-t was 60% (24/40 patients) and with CS20+20-c-t 70% (28/40 patients) ($p = .220$). Using donning devices increased success rates significantly. With CS40-o-t the success rate was 88% (35/40 patients; $p = .001$) and with CS40-c-t it was 90% (36/40 patients; $p = .002$). With CS20+20-o-t and CS20+20-c-t, the success rate was 88% (35/40 patients; $p = .016$). The proportion of patients who successfully used either CS40 or CS20+20 increased from 73% to 93%. Relevant for the patients’ success was the ability to reach the forefoot with the hand, and hand grip strength. Subjectively, donning with a device was rated significantly better than without.

Conclusion: Donning devices significantly improve the ability of elderly patients with CVI to don compression stockings successfully. However, there are differences in user-friendliness among the devices.

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INTRODUCTION

Medical compression therapy of the lower leg is effective for the treatment, and perhaps also in the prevention, of post-thrombotic syndrome (PTS),^{1–4} for the treatment of active venous leg ulcer (VLU),^{3–5} and in preventing the recurrence of VLU.^{3,4,6} Compression of the lower leg is also effective in the improvement of symptoms of chronic venous insufficiency (CVI), reduction of edema, tension and pain, and in improving quality of life.^{7–11}

According to the literature, compression stockings are not inferior to compression bandages in effectiveness for most indications. Compression stockings offer the advantage that patients can apply them on their own leg more easily than bandages. Once applied, they guarantee a pre-determined pressure, which remains constant throughout the day. Although the application of a medical compression stocking seems to be simple, approximately 40% (range 20–80%) of patients with a clear indication for compression therapy did not carry out the treatment.^{6,12,13} When asked why, the patients gave different reasons for not wanting or not being able to implement compression therapy. The main reasons given were difficulties in donning the stocking, eczema, dry skin, itchiness, constriction, and laziness. With regard to difficulties in donning the stockings, common

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