

PATIENTS WITH VENOUS ULCERS TREATED WITH THE 4-LAYER COMPRESSION BANDAGING SYSTEM: THE IMMEDIATE HAEMODYNAMIC EFFECT OF THE ADDITIONAL USE OF A SEQUENTIAL COMPRESSION DEVICE*

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Aim: To test the hypothesis that the sequential compression device* applied in combination with a four-layer bandage in patients with venous ulcers increases popliteal vein volume flow and velocity. In theory this could promote the healing of venous ulcers.

Patients and Method: Twenty limbs of 18 patients (9 male and 9 female) with venous leg ulcers were studied. The Total Volume Flow (TVF) and the Peak Systolic Velocity (PSV) were recorded in the popliteal vein using duplex ultrasonography. Measurements were made (i) without bandage, (ii) with four layer bandage and (iii) following the application of the sequential compression device* on top of a four-layer bandage for at least 15 min.

Results: The median age was 76 years (range, 47-85). The median VCSS was 17 (range, 12-22) while the median VSDS for reflux was 4.5 (range, 1-7.5). The median TVF was 71 mL/min (interquartile range 57-101) without bandage, 112 (89-148) with four-layer bandage and 291 (241-392) with the addition of the SCD ($P < .001$, Wilcoxon signed ranks test). The median PSV was 8.4 cm/sec (6.8-14) without bandage, 13 (9.0-19) with four-layer bandage and 27 (21-31) with the addition of the sequential compression device* ($P < .001$, Wilcoxon signed ranks test). Both TVF and PSV increased slightly with the addition of the four-layer bandage. However, with the addition of the sequential compression device these parameters increased three fold.

Conclusions: The sequential compression device* accelerates venous flow in the legs of patients with venous ulcers already treated with a four-layer bandage. The combination of four-layer compression with the sequential compression device* on healing venous ulcers needs to be tested by a clinical effectiveness study.

*SCD EXPRESS TM