Effect of compression bandaging on wound healing and psychosocial outcomes in older people with venous ulcers: a randomised controlled trial

WKW So *, IKY Wong, DTF Lee, DR Thompson, YW Lau, DVK Chao, NF Heung, WL Au

KEY MESSAGE

Compression bandaging achieved a higher proportion of complete ulcer healing, reduced ulcer size, and improved psychosocial outcomes in venous ulcer patients. The four-layer bandaging and short-stretch bandaging systems achieved a similar effect on both ulcer healing and other psychosocial outcome measures.

Hong Kong Med J 2014;20(Suppl 7):S40-1
HHSRF project number: 04060481

[1] WKW So *, [2] IKY Wong, [1] DTF Lee, [3] DR Thompson, [4] YW Lau, [5] DVK Chao, [5] NF Heung, [6] WL Au

[1] *The Chinese University of Hong Kong*
[2] *Hong Kong Sanatorium & Hospital*
[3] *University of Leicester, UK*
[4] *Prince of Wales Hospital, Hong Kong*
[5] *United Christian Hospital, Hong Kong*
[6] *North District Hospital, Hong Kong*

* Principal applicant and corresponding author: winnieso@cuhk.edu.hk

Venous ulcer is the most serious clinical consequence of chronic venous insufficiency. It is also known as varicose ulcer or stasis ulcer. Venous blood refluxes to the superficial venous system, resulting in abnormal elevation of venous pressure within the vein and eventually damages the skin. Venous ulcer affects approximately 1% to 2% of the total population in western countries,[1] and tends to increase with age.[2,3] It increases nurses' workloads and health costs and affects patients' physiological and psychosocial wellbeing. Compression bandaging is the mainstream treatment for venous ulcer, but it is not widely known and practiced by nurses in Hong Kong. The proportion of complete ulcer healing increases with compression bandaging, compared with no compression. Nonetheless, the effectiveness of the four-layer compression bandaging (4LB) versus the short-stretch compression bandaging (SSB) has not been determined. The effect of compression bandaging on the pain severity and pain interference, health-related quality of life (HRQOL), and functional status affects patients' participation in venous ulcer care and treatment choice. This study aimed to compare the 4LB, SSB, and usual care in terms of the time to complete ulcer healing, ulcer size, ulcer-related pain, functional status, and HRQOL in community-dwelling elderly patients with chronic venous ulcers.

A total of 321 patients aged ≥60 years who presented with a single unilateral venous ulcer with partial- or full-thickness skin integrity, in which the wound bed was free from necrotic tissue were randomised to receive SSB, 4LB, or usual care (without compression bandaging). Outcomes at 12 and 24 weeks were assessed.

Respectively for patients treated with SSB, 4LB, and usual care, 73.0%, 72.6%, and 30.8% achieved ulcer healing at week 12 (P<0.001, log-rank test), whereas 85.8%, 86.3%, and 33.5% achieved ulcer healing at week 24 (P<0.001, log-rank test). The median times for ulcer healing in the SSB and 4LB groups were 7.0 (standard error [SE], 0.61) weeks and 8.0 (SE, 0.38) weeks, respectively, which were shorter than >24 weeks in the usual care group (P<0.001, log-rank test). However, no significant difference was noted between the SSB and 4LB groups (P=0.578, log-rank test).

Respectively for patients treated with SSB, 4LB, and usual care, the mean ulcer size was 7.56 (SD, 10.43) cm^2, 7.54 (SD, 9.95) cm^2, and 9.23 (SD, 12.50) cm^2 at baseline (P=0.493, analysis of variance), and reduced to 3.00 (SD, 8.40) cm^2, 3.48 (SD, 8.54) cm^2, and 7.54 (SD, 12.45) cm2 at week 12, and further reduced to 2.85 (SD, 8.18) cm^2, 3.39 (SD, 8.64) cm^2, and 6.90 (SD, 10.62) cm^2 at week 24. Greater reductions were noted in patients treated with the SSB or 4LB. The reduction in ulcer size from baseline to week 12 was significant in all three groups (P≤0.001), whereas the reduction in ulcer size from week 12 to week 24 was significant in the SSB group only (P=0.047), but not in the 4LB group (P=0.67) and the usual care group (P=0.16).

For the psychosocial outcomes, changes in ulcer-related pain, functional status, generic and disease-specific HRQOL were compared among the three groups in a 24-week period. Age, ulcer duration, and ulcer size were controlled in the analysis. The rates of reduction in pain severity and interference,

and improvement in disease-specific HRQOL in the SSB and 4LB groups were greater than those in the usual care group.

Compression bandaging achieved significantly better healing and psychosocial outcomes than no compression. The choice of treatment for venous ulcer may depend on several factors such as clinical effectiveness, patient preference, and patient concordance.[4] Venous ulcer care is not merely about reduction of ulcer size, but also about reduction of pain and its interference in daily living, maintenance of HRQOL, and functional status. A holistic approach of biopsychosocial care is suggested for community-dwelling older patients with venous ulcer.

Acknowledgements

This study was supported by the Health and Health Services Research Fund, Food and Health Bureau, Hong Kong SAR Government (#04060481). We thank the physicians and nursing staff at the various general outpatient clinics for their support. We also thank all the venous ulcer patients who contributed their time and effort to participate in this study. Special thanks are given to Profs Kelvin Tsoi and KC Choi for their statistical advice.

Results of this study have been published in: Wong IK, Andriessen A, Charles HE, et al. Randomized controlled trial comparing treatment outcome of two compression bandaging systems and standard care without compression in patients with venous leg ulcers. J Eur Acad Dermatol Venereol 2012;26:102-10.

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