

Evaluation of a muscle pump-activating device for non-healing venous leg ulcers

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Abstract

Objectives

This evaluation involves an innovative muscle pump-activating device (geko™) as an adjunctive therapy with best practices for non-healing venous leg ulcers (VLUs). Stimulating the common peroneal nerve (at the fibular head), the geko™ device creates a response that acts as foot and calf muscle pumps, increasing venous, arterial and microcirculatory flow.

Aims

The aim was to evaluate and determine if the geko™ is effective in this population and if it should be added to the medical supply formulary.

Methods

In all, 12 patients with 18 recalcitrant VLUs (defined as less than 30% reduction in wound size in 30 days with best practices) in two community settings in Ontario consented to the evaluation and were treated with the geko™ for up to 20 weeks.

Results

A total of 44% of wounds healed, and 39% decreased in size. One patient non-adherent with the geko™ and best practices had deterioration in his or her wounds. With the patients as their own control, the mean weekly healing rate with the geko™ was 9.35% (\pm SD 0.10) compared to 0.06% (\pm SD 0.10) prior to baseline, which was statistically significant ($P < 0.01$). Three patients not in optimal therapy increased compression due to decreased pain, further enabling healing. This study was not a randomised investigation, although the patients acted as their own controls. A pragmatic evaluation reflects the reality of the community sector; in spite of best practices or evidence-based care, therapy is not uniformly applied, with some participants unable to tolerate or indeed comply with optimal compression therapy. Rash occurred under the devices in 7 of 12 (58%) patients. One patient stopped the device due to rash, while another had to take breaks from using the device. Subsequently, the manufacturer (Firstkind Ltd) has developed a new device and protocol specific to the requirements of wound therapy to minimise this response.

Conclusions

This small case series demonstrated the highly significant effectiveness of the geko™ device in these hard-to-heal VLUs. Further evaluations to determine dose and patient selection criteria are underway.

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