Review: High-compression bandages, stockings, and Unna's boot improve healing rates in venous leg ulcers

Main results

24 RCTs evaluated different forms of compression therapy: compression compared with no compression, high compared with low compression, different types of high compression, stockings compared with bandages, and intermittent pneumatic compression treatment. In addition, 7 RCTs compared interventions to prevent recurrence of venous ulceration. 4 of 6 studies that compared compression with no compression therapy showed that compression therapy using Unna's boot, 4-layer bandages, or short-stretch bandages improved healing rates of venous ulcers (P < 0.01). 3 of 4 RCTs that compared high-compression with low-compression bandaging showed increased healing rates with high compression, but only 1 study reached statistical significance. In studies comparing various types of high-compression bandages, no difference in healing rates was shown when 4-layer bandaging, short-stretch bandaging, or Unna's boot were compared. 1 study of high-compression bandages showed that 4-layer bandaging was superior to single-layer systems in healing rate (69% vs 49%). In 1 RCT, an increased healing rate was seen with compression stockings compared with short-stretch bandages (84% vs 52%, P < 0.05). RCTs showed that intermittent pneumatic compression plus compression stockings or Unna's boot promote healing better than stockings or Unna's boot alone (combined odds ratio 2.95; CI 1.3 to 3.4). Studies of pharmacological and surgical interventions to prevent recurrence were inconclusive. 2 placebo-controlled RCTs with ezetimibe and rutoside showed no effect of the drugs on healing rate. Combined results were shown in 2 trials that included surgery.

Conclusions

Venous leg ulcer healing is improved when high-compression multilayer bandages, short-stretch bandages, Unna's boot, or compression stockings are used. The addition of intermittent pneumatic compression may enhance the effect.

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Commentary

The systematic review of trials from the NHS Centre for Reviews and Dissemination (and a complementary review in BMJ [1]) shows that high-compression bandaging increases the chance of complete venous ulcer healing at least twofold compared with either no or low-compression treatment. Multilayer compression bandaging seems to be superior to single-layer, but drug therapy adds little benefit. Compression stockings reduce recurrence.

In a Western population of 1 million, 1000 to 3000 persons will have active lower leg ulceration, and 50% to 75% of these will have isolated venous disease (2-4). Many venous leg ulcers occur at sites other than over the medial malleolus (3). The treatments used are quite variable. High compression is used in only 40% of those who might benefit (5). The potential for improved management is great.

The trials in this review are generally small and of poor quality, and the extent of publication bias has not been assessed. Nonetheless, I recommend that older persons with below-knee ulcers of ≥ 6 weeks duration in whom arterial disease is excluded by an ankle:brachial systolic pressure ratio of ≥ 0.9 (mean of 2 readings measured by hand-held Doppler) should receive high-compression bandaging (6, 7). The most cost-effective way of delivering this treatment and the optimal pressure regimen (8) remain uncertain.

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References