Cochrane for Clinicians

Putting Evidence Into Practice

Compression Therapy for Chronic Venous Ulcers

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Clinical Question

Is compression therapy with bandages, stockings, or other devices safe and effective for treating venous ulcers in adults?

Evidence-Based Answer

Compared with treatment featuring no compression, therapy involving compression bandages or stockings results in faster and more complete ulcer healing over 12 months, reduced pain, and improved disease-specific quality of life. It is unclear whether compression increases adverse effects or is cost-effective.[1] (Strength of Recommendation: B, inconsistent, limited-quality patient-oriented evidence.)

Practice Pointers

Leg ulcers are open skin wounds that typically develop on the medial lower leg between the ankle and knee. Chronic leg ulcers can last weeks, months, or years. They often occur due to arterial or venous insufficiency or both, or other less common conditions.[1] Prevalence is unknown, but data from the 1980s suggest that 2 to 3 per 1,000 people have an active leg ulcer, and, in the United Kingdom, the rate increases with age to approximately 20 per 1,000 people older than 80 years.[2] Venous ulcers can be associated with pain, impaired mobility, reduced quality of life, and considerable health care costs. The authors of this Cochrane review sought to determine how compression therapy with bandages or stockings affects chronic venous ulcer healing and quality of life. Secondary outcomes included adverse effects, pain scores, and the cost-effectiveness of compression therapy.

This Cochrane review included 14 randomized controlled trials with 1,391 participants between 58 and 76.5 years of age. Participants were randomized to receive compression bandages or stockings, including short-stretch bandages, four-layer compression bandages, and an Unna boot, or venous ulcer treatment without compression therapy. The studies were conducted across nine countries, including the United Kingdom, the United States, and Hong Kong, and lasted 12 weeks on average. The participants were treated in outpatient and community settings; most (65.9%) had a confirmed history or clinical evidence of chronic venous disease or an ankle-brachial index (ABI) of greater than 0.8 or 0.9 (an ABI less than 0.8 indicates significant arterial disease or mixed arterial/venous disease).[3]

Participants treated with compression therapy were nearly twice as likely to heal quickly compared with those not treated with compression therapy (pooled hazard ratio = 2.17; 95% CI, 1.52 to 3.10; n = 733). Participants who had compression therapy were also more likely to experience complete ulcer healing within 12 months compared with the control group (relative risk = 1.77; 95% CI, 1.41 to 2.21; n = 1,123).

Secondary outcomes included pain reported using a 10-point visual analog scale or similar scales. Not all data could be analyzed because of heterogeneity, although the pain scores trended lower in participants treated with compression therapy. Among patients in studies that could be analyzed, those treated with compression therapy had lower mean pain scores vs. those not treated with compression (mean difference = −1.39; 95% CI, −1.79 to −0.98). Four studies (n = 859) measured the participants' quality of life using standardized questionnaires, including the 12-item short-form health survey, the 36-item short-form health survey, the EuroQol-5 Dimension questionnaire, and the Charing Cross Venous Ulcer Questionnaire. Compression therapy helped improve disease-specific quality of life but no other aspects of general health during the 12-week to 12-month follow-up. The reviewers did not draw a conclusion about the differences

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between specific individual compression therapies. The evidence was uncertain about the risk of adverse effects and the cost-effectiveness of compression therapy.

Although additional studies to determine the relative therapeutic results and cost-effectiveness of different compression therapies will be beneficial, the Society for Vascular Surgery and American Venous Forum Joint Clinical Practice Guidelines Committee recommend that compression therapy be used for the treatment of chronic venous ulcers when there is no evidence of severe underlying arterial disease (i.e., an ABI greater than 0.5).[4] One low-cost (approximately $10 per dressing) option is the Unna boot, which can be applied in a primary care setting by trained staff supervised by the treating clinician and must be changed weekly.

The practice recommendations in this activity are available at https://www.cochrane.org/CD013397.

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Local Corticosteroid Injection vs. Placebo for Carpal Tunnel Syndrome

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Clinical Question

Are local corticosteroid injections into the carpal tunnel safe and effective for the treatment of carpal tunnel syndrome (CTS)?

Evidence-Based Answer

Local corticosteroid injection is effective for reducing symptoms and improving function and quality of life in patients with mild to moderate CTS, with benefits lasting up to six months. Patients who receive local corticosteroid injections have a reduced need for surgery at 12 months. Although serious adverse events have been reported, they are rare.[1] (Strength of Recommendation: B, limited-quality patient-oriented evidence.)

Practice Pointers

CTS is the most common peripheral nerve entrapment syndrome worldwide, affecting 1% to 5% of the adult population.[2,3] Common symptoms are numbness, tingling, and pain in the median nerve distribution. Treatment for CTS includes conservative modalities such as lifestyle modifications, splinting, oral corticosteroids, other oral medications, physical therapy, therapeutic ultrasound, and more invasive procedures such as injected corticosteroids and surgical decompression. This review evaluated the benefits of treating CTS with local corticosteroid injections.[1]

This Cochrane review included 14 randomized controlled trials (RCTs) and quasi-randomized trials involving 994 adults with CTS in hospital-based clinics across North America, Europe, Asia, and the Middle East. The treatment intervention was a local corticosteroid injection of any type or dose with or without adding a local anesthetic into or near the carpal tunnel. Many different dosing protocols and injection protocols were included. The comparison groups involved saline injection (six studies), no treatment (one study), local anesthetic injection (two studies), or a combination of local corticosteroid injections plus splinting vs. splinting alone (five studies). Symptom scores were evaluated using several validated participant-reported outcome measures for CTS, including the Boston Carpal Tunnel Questionnaire. The review did not define mild, moderate, and severe CTS.

Local corticosteroid injections improved symptom scores in the first three months (standardized mean difference [SMD] = −0.77; 95% CI, −0.94 to −0.59; eight RCTs; n = 579; moderate-certainty evidence). Local corticosteroid injections also improved symptom scores in the first six months (SMD = −0.58; 95% CI, −0.89 to −0.28; four RCTs; n = 234; moderate-certainty evidence). Improvement in function at up to three months favored local corticosteroid injections (SMD = −0.62; 95% CI, −0.87 to −0.38; seven RCTs; n = 499; moderate-certainty evidence). Quality of life, measured at up to three months using the Short-Form 6 Dimensions

questionnaire (scale from 0.29 to 1.0; higher is better), was also improved slightly in patients who received local corticosteroid injections (mean difference = 0.07; 95% CI, 0.02 to 0.12; one RCT; n = 111; moderate-certainty evidence). In addition, local corticosteroid injections slightly reduced the requirement for CTS surgery at 12 months (risk ratio = 0.84; 95% CI, 0.72 to 0.98; one RCT; n = 111; moderate-certainty evidence). Although the authors could not qualify this comment, they did note that patients who received higher doses of steroids seemed to have symptom relief that lasted longer than those who received lower doses.

Adverse events were uncommon, although only about one-half of the studies reported them. Four studies (n = 229) reported no adverse events, although three studies (n = 220) did not specifically address the occurrence of adverse events. One study reported two of the 364 injections resulted in severe pain, which resolved over several weeks, and one of the 364 injections resulted in a cool, pale hand that resolved within 20 minutes. One study (n = 111) reported no serious adverse events; however, 65% of the corticosteroid group and 16% of the placebo group experienced mild to moderate pain lasting less than two weeks, and 9% experienced localized swelling lasting less than two weeks.

Aside from no standard definition of severity, there were several other limitations to the studies in this review. All the studies excluded participants with chronic pathology such as osteoarthritis, diabetes mellitus, and tenosynovitis. In all studies, only patients with mild to moderate CTS were reviewed, although definitions varied or these terms were not defined, and none of the studies evaluated severe CTS with thenar atrophy or severe nerve conduction abnormalities. The review also included different doses and types of corticosteroids, and only about one-half of the included studies reported adverse events. Further research is necessary to assess long-term outcomes. Specifically, studies addressing whether local corticosteroid injections reduce the need for surgery. Further study is also needed to assess whether repeating local corticosteroid injections leads to successful outcomes over time, increases complications, or adversely affects outcomes from subsequent surgery. It is unclear whether a long-term strategy of repeated injections is superior or inferior to early surgery.

The findings of this Cochrane review align with recommendations from the American Academy of Orthopaedic Surgeons and the European HANDGUIDE Group, an expert panel of hand surgeons, hand therapists, and physical medicine and rehabilitation physicians who recognize corticosteroid injections as a viable, nonsurgical approach to CTS.[4,5]

The practice recommendations in this activity are available at https://www.cochrane.org/CD015148.

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