Antibiotics and antiseptics for venous leg ulcers

O'Meara Susan, Al-Kurdi Deyaa, Ologun Yemisi, Ovington Liza G, Martyn-St James Marrissa, Richardson Rachel

Authors' objectives

Background: Venous leg ulcers are a type of chronic wound affecting up to 1% of adults in developed countries at some point during their lives. Many of these wounds are colonised by bacteria or show signs of clinical infection. The presence of infection may delay ulcer healing. Two main strategies are used to prevent and treat clinical infection in venous leg ulcers: systemic antibiotics and topical antibiotics or antiseptics.

Objectives: The objective of this review was to determine the effects of systemic antibiotics and topical antibiotics and antiseptics on the healing of venous ulcers.

Search methods: In May 2013, for this second update, we searched the Cochrane Wounds Group Specialised Register (searched 24 May 2013); the Cochrane Central Register of Controlled Trials (CENTRAL 2013, Issue 4); Ovid MEDLINE (1948 to Week 3 May 2013); Ovid MEDLINE (In-Process & Other Non-indexed Citations, 22 May 2013); Ovid EMBASE (1980 to Week 20 2013); and EBSCO CINAHL (1982 to 17 May 2013). No language or publication date restrictions were applied.

Selection criteria: Randomised controlled trials (RCTs) recruiting people with venous leg ulceration, evaluating at least one systemic antibiotic, topical antibiotic or topical antiseptic that reported an objective assessment of wound healing (e.g. time to complete healing, frequency of complete healing, change in ulcer surface area) were eligible for inclusion. Selection decisions were made by two review authors while working independently.

Data collection and analysis: Information on the characteristics of participants, interventions and outcomes was recorded on a standardised data extraction form. In addition, aspects of trial methods were extracted, including randomisation, allocation concealment, blinding of participants and outcome assessors, incomplete outcome data and study group comparability at baseline. Data extraction and validity assessment were conducted by one review author and were checked by a second. Data were pooled when appropriate.

Main results: Forty-five RCTs reporting 53 comparisons and recruiting a total of 4486 participants were included. Many RCTs were small, and most were at high or unclear risk of bias. Ulcer infection status at baseline and duration of follow-up varied across RCTs. Five RCTs reported eight comparisons of systemic antibiotics, and the remainder evaluated topical preparations: cadexomer iodine (11 RCTs reporting 12 comparisons); povidone-iodine (six RCTs reporting seven comparisons); peroxide-based preparations (four RCTs reporting four comparisons); honey-based preparations (two RCTs reporting two comparisons); silver-based preparations (12 RCTs reporting 13 comparisons); other topical antibiotics (three RCTs reporting five comparisons); and other topical antiseptics (two RCTs reporting two comparisons). Few RCTs provided a reliable estimate of time to healing; most reported the proportion of participants with complete healing during the trial period. Systemic antibiotics: More participants were healed when they were prescribed levamisole (normally used to treat roundworm infection) compared with placebo: risk ratio (RR) 1.31 (95% CI 1.06 to 1.62). No between-group differences were detected in terms of complete healing for other comparisons: antibiotics given according to antibiogram versus usual care; ciprofloxacin versus standard care/placebo; trimethoprim versus placebo; ciprofloxacin versus trimethoprim; and amoxicillin versus topical povidone-iodine. Topical antibiotics and antiseptics: Cadexomer iodine: more participants were healed when given cadexomer iodine compared with standard care. The pooled estimate from four RCTs for complete healing at four to 12 weeks was RR 2.17 (95% CI 1.30 to 3.60). No between-group differences in complete healing were detected when cadexomer iodine was compared with the following: hydrocolloid dressing; paraffin gauze dressing; dextranomer; and silver-impregnated dressings. Povidone iodine: no between-group differences in complete healing were detected when povidone-iodine was compared with the following: hydrocolloid; moist or foam dressings according to wound status; and growth factor. Time to healing estimates for povidone-iodine versus dextranomer, and for povidone-iodine versus hydrocolloid, were likely to be unreliable. Peroxide-based preparations: four RCTs reported findings in favour of peroxide-based preparations when compared with usual care for surrogate healing outcomes (change in ulcer area). There was no report of complete healing. Honey-based preparations: no between-group differences in time to healing or complete healing was detected for honey-based products when compared with usual care. Silver-based preparations: no between-group differences in complete healing were detected when 1% silver sulphadiazine ointment was compared with standard care/placebo and tripeptide copper complex; or when different brands of silver-impregnated dressings were compared; or when silver-impregnated dressings were compared with non-antimicrobial dressings. Other topical antibiotics: data from one RCT suggested that more participants healed at four weeks when treated with an enzymatic cleanser (a non-antibiotic preparation) compared with a chloramphenicol-containing ointment (additional active ingredients also included in the ointment): RR 0.13 (95% CI 0.02 to 0.99). No between-group differences in complete healing were detected for framycetin sulphate ointment versus...
enzymatic cleanser; chloramphenicol ointment versus framycetin sulphate ointment; mupirocin ointment versus vehicle; and topical antibiotics given according to antibiogram versus an herbal ointment. Other topical antiseptics: data from one RCT suggested that more participants receiving an antiseptic ointment (ethacridine lactate) had responsive ulcers (defined as > 20% reduction in area) at four weeks when compared with placebo: RR 1.45 (95% CI 1.21 to 1.73). Complete healing was not reported. No between-group difference was detected between chlorhexidine solution and usual care. Authors’ conclusions: At present, no evidence is available to support the routine use of systemic antibiotics in promoting healing of venous leg ulcers. However, the lack of reliable evidence means that it is not possible to recommend the discontinuation of any of the agents reviewed. In terms of topical preparations, some evidence supports the use of cadexomer iodine. Current evidence does not support the routine use of honey- or silver-based products. Further good quality research is required before definitive conclusions can be drawn about the effectiveness of povidone-iodine, peroxide-based preparations, ethacridine lactate, chloramphenicol, framycetin, mupirocin, ethacridine or chlorhexidine in healing venous leg ulceration. In light of the increasing problem of bacterial resistance to antibiotics, current prescribing guidelines recommend that antibacterial preparations should be used only in cases of clinical infection, not for bacterial colonisation.


Bibliographic details
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