

Systematic review of antimicrobial interventions for diabetic foot ulceration

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Background: Diabetic foot ulcers (DFU) are associated with increased mortality, illness and reduced quality of life. DFU infection is thought to impair healing and antimicrobial interventions may cure infection, aid healing and reduce amputation rates. The impact of antimicrobials on ulcer infection or healing needs to be assessed alongside costs and adverse effects.

Objectives : To systematically review the evidence for antimicrobial interventions for DFU.

Methods: We searched 19 databases, 11 Internet sites, three books, conference proceedings, Diabetic Foot journal, and bibliographies up to November 2002. We included randomised controlled trials (RCTs) or controlled clinical trials (CCTs) evaluating antimicrobials in populations including people with diabetic foot ulceration.

Results: Twenty-three studies investigated the effectiveness or cost-effectiveness of antimicrobial agents: eight studied intravenous antibiotics; five studied oral antibiotics; four evaluated topical antimicrobials; four evaluated subcutaneous granulocyte colony stimulating factor (G-CSF); one study included Ayurvedic preparations (n=1); and one compared sugar versus antibiotics versus standard care. The majority of trials were small and they were too dissimilar (clinically or methodologically) to be pooled. A large number of outcome measures were used to report effectiveness.

There is no strong evidence for any particular antimicrobial agent for the prevention of amputation, resolution of infection, or ulcer healing. Pexiganan cream is as effective as oral ofloxacin for resolution of infection. Ampicillin and sulbactam cost less than imipenem / cilastatin, G-CSF cost less than standard care, and cadexomer iodine dressings may cost less than daily dressings.

Conclusions: The evidence is too weak to determine how the administration of an antimicrobial affects outcomes, or if any particular agent, or combination of agents is more effective than another. It is not possible to recommend any particular antimicrobial agent. Large studies are needed of the effectiveness and cost-effectiveness of antimicrobial interventions.