

Review: Debridement using hydrogel seems to be better than standard wound care for healing diabetic foot ulcer

Smith J. Debridement of diabetic foot ulcers. Cochrane Database Syst Rev. 2002;(4): CD003556 (latest version 25 Jun 2002).

QUESTION

In patients with diabetic foot ulcer, what is the effectiveness of different debridement methods?

DATA SOURCES

Studies were identified by searching the Specialised Trials Register of the Cochrane Wounds Group, which is compiled by searching MEDLINE, EMBASE/Excerpta Medica, CINAHL, and the Cochrane Controlled Trials Register (up to January 2000); scanning bibliographies of relevant studies; and contacting experts in the field.

STUDY SELECTION

Studies were selected if they were randomized controlled trials that assessed the effectiveness of treatment with any debridement method compared with no debridement or other debridement methods, included patients with type 1 or 2 diabetes mellitus with an active foot ulcer, and measured complete wound closure or rate of reduction in wound size.

DATA EXTRACTION

Data were extracted on patients, study design and quality, interventions, and outcomes (complete wound closure, rate of reduction in wound size, proportion of ulcers recurring

after healing, quality of life, and adverse events).

MAIN RESULTS

5 trials met the selection criteria. 3 trials compared hydrogel as a method of debridement with standard wound care (good wound care or gauze). 1 trial compared hydrogel with larval therapy. 1 trial compared surgical debridement with conservative care. In all 5 trials, the primary outcome was complete wound closure. Sample sizes ranged from 29 to 172 patients. In 4 trials, follow-up durations ranged from 3 to 6 months. Meta-analysis of 3 trials showed that hydrogel was associated with a greater proportion of completely healed ulcers and fewer complications than standard wound care (Table). In 1 trial, larvae and hydrogel did not differ for pro-

portion of ulcers completely healed (7% vs 3%, follow-up duration not reported). In 1 trial, surgical debridement and conservative care did not differ for proportion of ulcers completely healed (95% vs 79%, $P = 0.10$), recurrence rates (14% vs 33%, $P = 0.14$), or complication rates (5% vs 13%, $P = 0.40$) at 6 months.

CONCLUSION

In patients with diabetic foot ulcer, debridement using hydrogel seems to be more effective than standard wound care for wound healing and is associated with fewer complications.

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For correspondence: J. Smith, York District Hospital, North Yorkshire, England, UK. E-mail Judith.A.Smith@excha.yhs-tr.northy.nhs.uk. ■

Debridement using hydrogel vs standard wound care for diabetic foot ulcer at approximately 3 to 5 months (3 trials)*

Outcomes	Weighted event rates		RBI (95% CI)	NNT (CI)
	Hydrogel	Standard care		
Complete wound healing	52%	28%	84% (30 to 161)	5 (2 to 10)
RRR (CI)				
Complications	21%	36%	40% (5 to 62)	7 (4 to 31)

*Abbreviations defined in Glossary; RBI, RRR, NNT, and CI calculated from data in article using a fixed-effects model.

COMMENTARY

Foot ulceration is a common complication of diabetes and is associated with reduced quality of life, substantial health care costs, and increased risk for lower extremity amputation. Treatment recommendations (1) highlight the need for a multidisciplinary approach that can control glycemia and other vascular risk factors, aggressively manage infections, provide regular dressing changes, and optimally off-load the wound.

Clinicians have long considered debridement to be a key component of foot ulcer care. The systematic review by Smith provides important insights into our understanding of the effects of this intervention. Despite an exhaustive search of the literature, the authors were able to locate just 5 randomized trials on the effects of debridement on foot ulcer healing, 1 of which was available only in abstract form. The trials were generally small, with a median size of 42 participants, and were found to be weak in terms of methodological rigor. The method of randomization was poorly reported. No trial commented on allocation concealment. Only 2 trials reported comparability of baseline ulcer area, an important prognostic factor, and outcome assessment was not blinded to the intervention arm in 3 of the trials.

With these limitations in mind, it is worth noting that a statistically significant benefit was found with the use of hydrogel preparations, suggesting that routine use may be reasonable. Because the authors located only 1 small trial assessing the efficacy of surgical debridement, the effect of this intervention remains unclear.

Given the increasing prevalence of diabetes mellitus worldwide, this review should help to focus attention on the urgent need for larger, well-designed trials of debridement and other interventions to hasten foot ulcer healing and to protect limb integrity.

*Derek L. Hunt, MD
Henderson General Hospital
Hamilton, Ontario, Canada*

Reference

1. Consensus Development Conference on Diabetic Foot Wound Care: 7-8 April 1999, Boston, Massachusetts. American Diabetes Association. Diabetes Care. 1999;22:1354-60.