Debridement Procedures for Managing Diabetic Foot Ulcers: A Review

Context
The rising prevalence of diabetes and its associated complications represent a global public health care problem and financial burden. The estimated prevalence of diabetes in Canada is 6.8% — roughly 2.4 million Canadians — and it is increasing, with a 280% increase from 1998. Diabetic foot ulcers (DFUs) are the most common chronic complication, affecting 4% to 10% of patients with diabetes. DFUs can become infected and lead to osteomyelitis (bone infection), cellulitis (skin infection), and even amputation, resulting in significant morbidity, mortality, and costs to the health care system.

Technology
Debridement — the removal of dead, damaged, infected, or calloused tissue — is a common treatment for DFUs. Because callused tissue may eventually lead to the formation of DFUs, callus debridement is used as a preventive measure as well. Debridement methods can be autolytic (hydrogels, hydrocolloids, and transparent films), biological (maggots), mechanical (irrigation), enzymatic, or surgical.

Issue
A review of the comparative clinical effectiveness and cost-effectiveness of various debridement procedures for the treatment of DFUs, of the clinical effectiveness of callus debridement for the prevention and treatment of DFUs, and of the evidence-based guidelines will help to inform decisions about foot care in these patients.

Methods
A limited literature search was conducted of key resources, and titles and abstracts of the retrieved publications were reviewed. Full-text publications were evaluated for final article selection according to predetermined selection criteria (population, intervention, comparator, outcomes, and study designs).

Key Messages
- Of the available debridement techniques, hydrogels and enzyme preparations appear to be more effective than no debridement for the treatment of DFUs (based on limited evidence).
- Clostridial collagenase ointment (an enzymatic method) appears to be more cost-effective than saline moist gauze for the debridement of DFUs (based on limited evidence).
- No evidence was found on the effectiveness of callus debridement for the prevention and treatment of DFUs.
- The guidelines are inconsistent with one another with respect to their recommendations for the debridement of DFUs.

Results
The literature search identified 132 citations, with 7 additional articles identified from other sources. Of these, 12 articles met the criteria for inclusion in this review: 1 systematic review, 1 meta-analysis, 2 randomized controlled trials, 1 randomized controlled trial with a cost-effectiveness analysis, and 7 guidelines.

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