

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 callused 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.

DISCLAIMER: The information in this Report in Brief is intended to help health care decision-makers, patients, health care professionals, health systems leaders, and policy-makers make well-informed decisions and thereby improve the quality of health care services. The information in this Report in Brief should not be used as a substitute for the application of clinical judgment in respect of the care of a particular patient or other professional judgment in any decision-making process nor is it intended to replace professional medical advice. While CADTH has taken care in the preparation of the Report in Brief to ensure that its contents are accurate, complete, and up-to-date, CADTH does not make any guarantee to that effect. CADTH is not responsible for any errors or omissions or injury, loss, or damage arising from or as a result of the use (or misuse) of any information contained in or implied by the information in this Report in Brief.

CADTH takes sole responsibility for the final form and content of this Report in Brief. The statements, conclusions, and views expressed herein do not necessarily represent the view of Health Canada or any provincial or territorial government. Production of this Report in Brief is made possible through a financial contribution from Health Canada.