

Dressing Selection in the Diabetic Foot Ulcer

Incorporate dressing choice into the overall management strategy of the patient.

BY JEFFREY A. NIEZGODA, MD, FACHM, FACEP

Choosing the proper dressing is critical when dealing with a diabetic foot ulcer. Dressing selection is an integral part of overall wound management, and it plays a definitive role in achieving successful outcomes.

It is important to consider several factors when selecting the appropriate dressing for an individual patient. Some main considerations include both primary and secondary therapeutic effect and off-loading.

Basic wound care. When considering a dressing to provide basic wound care, we must evaluate the wound for issues of moisture, drainage control, minimization of dead space, autolytic debridement, thermal protection and the external barrier.

Available dressing types provide varying degrees of wound fluid, moisture and drainage control. Transparent films and hydrogels offer a low level of fluid management, while hydrocolloids offer a low-to-moderate level of absorption. Foams offer a wide range of moisture control from low to high, and calcium alginates/absorptive fillers provide moderate-to-high levels of fluid management.

Transparent films offer some limited moisture maintenance and protection, but are primarily used to accomplish autolysis. Hydrogels provide moisture maintenance; they fill dead space while providing limited wound protection and autolysis. The calcium alginates/absorptive fillers maintain moisture, control exudates, fill dead space and provide protection and some autolysis. The hydrocolloids maintain moisture and provide protection while providing limited autolysis. Foam dressings maintain moisture and provide some protection.

Advanced wound care. The secondary therapeutic considerations in dressing selection related to the goal of achieving various advanced wound care objectives, including enzymatic debridement, decreasing the bioburden, stimulation of cellular signaling and angiogenesis, and wound closure utilizing skin substitutes/replacements.

Topical ointments, such as papain-urea, papain-urea copper chlorophyllin and collagenase, are examples of enzymatic

debridement agents (Panafil; Healthpoint, Fort Worth, Texas). In order to decrease the bioburden, look for strategies to limit the biofilm. These agents can decrease the potential for critical colonization which will in turn enhance granulation and promote epithelialization (Iodosorb; Smith & Nephew, Hull, UK). Growth factors and antiprotease agents may be used for cellular stimulation and signaling (Regranex [becaplermin] and Promogran matrix dressing; Johnson & Johnson, New Brunswick, NJ).

An important secondary therapeutic effect of certain dressings can be to achieve dermal replacement. In a chronic wound, the dermis is damaged or nonexistent and thus the chronic wound lacks collagen, fibroblasts, keratinocytes, glycosaminoglycans and cytokines. In select patients, cellular transplantation may be an option to correct these deficiencies. These advanced cellular-based wound therapies originate from an autologous/neonatal/allogenic source cell, such as keratinocytes and fibroblasts. Cellular transplantation technology typically also utilizes a tissue differentiation inducing substance or a matrix. Some examples of these therapeutic dressings include skin substitutes or replacements, such as collagen, xenogenic extracellular matrix agents (Oasis Wound Matrix; Healthpoint) and allogenic cellular implant grafts (Apligraf; Organogenesis, Canton, Mass).

Adequate off-loading is paramount to achieving success in the management of the patients with a diabetic foot ulcer. The many choices for off-loading of the diabetic foot wound include DH off-loading shoes (Royce Medical, Camarillo, Calif), inserts and orthotics; the CamWalker (Zinco Industries, Pasadena, Calif), and Bledsoe Boot (Bledsoe Brace Technology, Grand Prairie, Texas); or total contact casting. ■

Jeffrey A. Niezgoda, MD, FACHM, FACEP, is medical director of the Center for Comprehensive Wound Care and Hyperbaric Oxygen Therapy at the Aurora Health Care System, Milwaukee, Wisc. He may be reached at niezgoda@execpc.com.

Niezgoda JA. Dressing selection in the diabetic foot ulcer. Presented at the DFCon 06 Diabetic Foot Global Conference. March 25, 2006. Los Angeles.