HEALING POINTS

A PUBLICATION DEDICATED TO WOUND HEALING

Spring 2006

Offloading:

an essential component to an overall treatment plan

OFFLOADING IS A KEY COMPONENT OF WOUND TREATMENT AND PREVENTION

Skin ulceration can be a complication of diabetes, vascular disease, a foot deformity, and/or pressure related to limited joint mobility. Pressure ulcers often associated with neuropathy are among the most common types of skin ulcers. For these lesions, offloading is an essential component of an overall treatment plan. The process of redistributing pressure to areas under less physical stress is a highly effective means of preventing ulcerations in at-risk patients, facilitating wound healing, and managing care post-wound closure. Offloading may be accomplished using both surgical and non-surgical methods.

SURGICAL OFFLOADING TO PREVENT DIABETIC FOOT ULCERS

Steven Kravitz, D.P.M., executive director of the American Professional Wound Care Association, assistant professor in the department of orthopedics at Temple University School of Podiatric Medicine (TUSPM), and faculty physician at the Advanced Wound Healing Center at TUSPM, says, "Identifying an area of the skin under pressure and preventing an ulceration from developing or recurring is the best-case scenario. Oftentimes, this can be accomplished with appropriate padding or customized footwear. If pressure is caused by a foot condition or deformity such as a bunion, hammertoe or Charcot Foot, performing proactive surgery to correct the condition and redistribute weight should be considered."

The National Diabetes Education Program Web site, sponsored by the U.S. Department of Health and Human Services' National Institutes of Health and the Centers for Disease Control and Prevention, notes the following [1, 2].

- A diabetic patient with no other health problems has no increased risk of developing a foot ulcer than a patient who does not have diabetes.
- A patient who has diabetes who has lost protective sensation has a 1.7 percent greater chance of developing a foot ulcer than a person who does not have diabetes.
- A diabetic patient with a foot deformity, such as hammertoe or Charcot Foot, has a 12.1 percent greater chance of developing a foot ulcer than a person who does not have diabetes.
- A diabetic patient who has neuropathy, a bony protrusion, and who has previously had an ulcer has a 36.1 percent greater chance of developing a foot ulcer than a person who does not have diabetes.

Dr. Kravitz notes, "Proactive surgery to correct conditions such as hammertoe and Charcot Foot decreases the likelihood of ulcer development six-fold."

Research also indicates that surgically lengthening the Achilles tendon reduces the recurrence of diabetic foot ulcers. A study conducted at Washington University School of Medicine in St. Louis and published in the August, 2003 issue of the Journal of Bone and Joint Surgery placed 64 participants with ulcers on the ball of the foot into two treatment groups. One group was treated with a foot cast only. The other was treated with the Achilles tendon lengthening procedure and a foot cast. Follow-up at seven months indicated that members of the group that underwent surgery were 75 percent less likely to have an ulcer recurrence. Follow-up after two years showed they were 52 percent less likely to have a recurrence[3]. In October, 2005, the American College of Foot and Ankle Surgeons announced that diabetic patients prone to foot ulcers may benefit from tendon-lengthening surgery.

Dr. Kravitz says, "The decision to implement surgery as a preventive measure should only be made after a thorough assessment and an accurate diagnosis based on the patient's medical history, current condition, physical examination of the at-risk area, and laboratory and imaging tests."

INSIDE THIS ISSUE

Important information that can benefit your practice and patients!

EXTERNAL OFFLOADING DEVICES

The Wound Management Program℠ managed by Wound Care Centers, Inc. has established evidence-based treatment protocols for the treatment of neuropathic ulcers and pressure ulcers. Although treatment plans are based on the individual patient's condition and needs, offloading is always a crucial element.

OFFLOADING DEVICES FOR THE AMBULATORY PATIENT

For an ambulatory patient, use of a wheelchair or crutches is the most effective method of pressure relief. However, their use is too restrictive for most patients to tolerate over time. Second to total non-weight bearing, the most effective offloading device for ulcerations on the plantar area of the foot is a total contact cast (TCC). Research to compare the effectiveness of TCCs to that of removable cast walkers (RCWs) indicates that TCCs heal a higher proportion of wounds faster than RCWs[4]. Although devices such as RCWs, canes and walkers may be just as effective as TCCs, many patients are noncompliant, which impedes or delays healing[5]. In-depth patient education is recommended to improve the effectiveness of these offloading methods.

CROW BOOT USED IN OFFLOADING

That said, this research can be misleading. Recent research suggests that healing and rate of healing with TCC and RCW are equivocal when compliance is ensured by applying the RCW in a manner that prevents the patient from removing the device. A 2005 study compared the effectiveness of a TCC with that of an RCW made irremovable (iTCC) by wrapping it with a single layer of fiberglass material. Results concluded that an irremovable RCW may be equally effective, faster to place, easier to use, and less expensive than the TCC[6]. Another study compared the iTCC to the RCW and yielded results indicating that modifying an RCW to increase patient compliance may increase both the proportion of ulcers that heal and the rate of healing[7]. Half shoes are not recommended, especially for neuropathic patients, due to shear that occurs on the anterior edge and resultant risk of ulcers at the site. They also cause greater risk of falling and patients developing injuries. The modified RWC (iTCC) is Dr. Kravitz's most common treatment regimen. However, he says, "We at TUSPM use a simple hose clamp to secure the RCW. The clamp has to be cut and removed to remove the RCW, so it is a simple method to ensure patient compliance. The foot pads are modified in the device to enhance offloading."

Preventive measures to reduce pressure, shock and shear, and avert the development of ulcerations include appropriate and/or custom footwear such as shoes, boots or soles that slow propulsion, allow room for padding around the area at risk, and control heel or ankle movement.

OFFLOADING SURFACES FOR PATIENTS WITH LIMITED MOBILITY

According to Ron Dziedziula, director of marketing at Kinetic Concepts, Inc. (KCI), a global corporation that provides a broad range of innovative therapeutic specialty beds, surfaces, and related devices, examples of offloading surfaces include framed therapies (beds), mattress replacement systems and therapeutic overlays.

Mr. Dziedziula notes that pressure ulcers and venous stasis ulcers are the two most common types of slow-healing, chronic wounds. Pressure ulcers often form on the heel, elbow, sacral or occipital areas in patients with limited or no mobility, such as the elderly, quadriplegics, those recovering from surgery or stroke, and people who are morbidly obese. On the other hand, venous stasis ulcers are typically found in the lower legs and are caused by disease of the vascular system.

He goes on to say that offloading surfaces reduce pressure (to promote healing) and help manage pain by redistributing forces away from bony prominences and wound sites through immersion of the patient into a support medium such as foam, air or fluid. In addition, some surfaces provide moisture control by flowing air and/or additional offloading by suspending a bony prominence, such as a heel, by sloping or cutting away the end of the bed, which shifts pressure to the calf.

"Different surfaces and technologies are effective for different wounds and/or patients," says Mr. Dziedziula. "As offloading technologies evolve, simpler, less expensive, yet highly effective surfaces and devices continue to become available."

OFFLOADING AS PART OF THE OVERALL TREATMENT PLAN

To wound care professionals, the importance of offloading is second nature. However, in cases in which offloading is a crucial part of the treatment plan, its importance and effectiveness should be as strongly emphasized with the patient as all other aspects of treatment.

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Wound Case Study

This sample case study is presented on behalf of Barry G. Bernstein, DPM, C.W.S., and the Mercy Special Care Hospital Wound Care Center®, Nanticoke, PA.

ASSESSMENT

A 51 year-old male was initially seen for ulceration secondary to Charcot deformity of the right foot. After course of treatment the wound healed and the patient was awaiting Charcot reconstruction. The patient was placed into a total contact cast and CROW walker. The patient broke compliance with follow up visits until he called indicating a foot problem that began after he attempted to remove dry skin from between his toes.

The patient had acquired an infection of the right foot and presented with gas gangrene with advanced necrosis of the first inner space, plantar space and dorsal of the right foot.

Length : 110mm **Width**: 70mm **Depth**: 15mm

TREATMENT SUMMARY

The patient was immediately taken to the operating room for incision and drainage followed by hospitalization and IV antibiotics. The hospitalization was then followed by a treatment plan that included serial debridements, V.A.C.® Therapy™, offloading with a wheelchair, a modified Bledsoe and protection of contra-bilateral limbs with a CROW walker.

CASE STUDY OVERVIEW

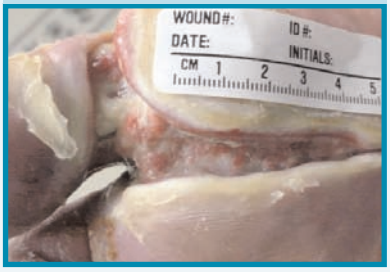
PATIENT	51 year-old male
WOUND LOCATION	1st center space, plantar space, dorsal space and medial of the right foot
SIZE (L/W/D)	110mm x 70mm x 15mm
ETIOLOGY	Acute I&D space infection
HISTORY	Type 2 Diabetes and Charcot deformity
TREATMENT	Debridement V.A.C.® Therapy™ Modified Bledsoe CROW walker Total Contact Cast

SYNOPSIS

The dorsal wound resolved in twelve weeks and the plantar multiple connected wounds and plantar retained flap closed in twenty-seven weeks. The patient received education on prevention.

INITIAL VISIT

WEEK 4



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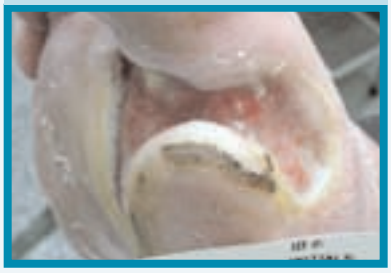
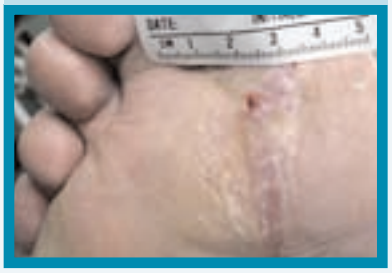


WEEK 27



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To request more information, call 800.373.HEAL, email your request to *healingpoints@wccs.com* or return this business reply card.

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TAG F-314 COMPLIANCE

In 2004 The Centers for Medicare & Medicaid Services (CMS) completely revised the guidelines for pressure ulcer assessment and treatment referred to as F-Tag 314.[1]

Every year more than 1 million patients develop pressure ulcers.[2] 15 to 20% of these occur in long term care.[3] Pressure ulcers increase health risks, from decreased mobility to increased infection, mortality, and morbidity. Pressure ulcer care is costly. Treatment of a single pressure ulcer has been estimated at between 5 and 60 thousand dollars.[4, 5, 6]

Non-compliance with the CMS Standards for pressure ulcers can be: citations, criminal liability, civil monetary penalties, or revoking of certification.

CMS defines two categories of pressure ulcers: avoidable and unavoidable.

Avoidable is defined as FAILURE to: evaluate the resident's clinical condition, define and implement interventions, monitor and evaluate interventions, revise interventions.
Unavoidable is defined as a pressure ulcer that occurs even when CMS guidelines are followed, but the burden of proof is on the facility.

F-Tag 314 mandates that facilities assess for risk factors that can increase a resident's susceptibility to pressure ulcer development or interfere with wound healing.[1]

The second requirement of F-Tag 314 maintains that facilitates will "treat pressure ulcers that are present."[1]

An interdisciplinary team approach to preventing and/or treating pressure ulcers is essential and continuous reassessment during the care process is critical to change the necessary treatment plan to affect a positive outcome for the resident.

1. As posted on http://new.cms.hhs.gov/transmittals/Downloads/R4SOM.pdf. Department of Health and Human Services (DHHS) Centers for Medicare and Medicaid Services (CMS). 2004 2. Clinical Practice Guideline Number 3: Pressure Ulcers in Adults: Prediction and Prevention. Rockville, MD: Agency for Health Care Policy and Research. 1992, AHCPR publication 92-0047. 3. Kaltenhaler E, Whitfield MD, Walters SJ, Akehurst RL, Paisley S: UK, USA and Canada: How do their pressure ulcer prevalence and incidence data compare? J Wound Care 2001;10(1):530-535. 4. Baker J: Medicaid claims history of Florida long-term care facility residents hospitalized for pressure ulcers. J Wound Ostomy Continence Nurs 1996;23(1):23-25. 5. Carroll P; Pressure ulcers and materiel management: Cost-effective prevention and care. Hosp Mater Manage Q 1993;15(2):38-49. 6. Olson B, Langemo D, Burd C, Hanson D, Hunter S, Cathcart-Silberberg T: Pressure ulcer incidence in an acute care setting. J Wound Ostomy Continence Nurs 1996;23(1):15-22.