

# Consider Conservative Management of Limb Ulcers

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NEW YORK — Conservative management of arterial insufficiency and limb ulceration results in complete wound closure in slightly more than half of patients and limb amputation in less than a quarter, Dr. Blair A. Keagy said at the Veith symposium on vascular medicine sponsored by the Cleveland Clinic.

"Many lower grade Wagner lesions can be successfully given conservative management, while lower extremity revascularization may be overused," said Dr. Keagy, chief of the division of vascular surgery at University of North Carolina Hospitals in Chapel Hill.

There are several methods of percutaneous revascularization, but not all patients are good candidates for such procedures.

**At 1 year follow-up, 147 limbs were evaluated. Amputation was required for 23%, but 52% had complete closure with epithelial coverage and without drainage.**

Very little is known about the natural history of arterial insufficiency and limb ulceration.

Dr. Keagy and his colleagues conducted a retrospective review of patients with

arterial insufficiency (defined as ankle-brachial index less than 0.7 or a toe pressure less than 50 mm Hg) and full-thickness limb ulcers of at least 6 weeks in duration. Wounds had to measure at least 1 cm in any dimension at the initial visit. Patients determined to be poor candidates for revascularization because of severe medical comorbidity, nonambulatory status, inadequate outflow vessels, or patient/family refusal were treated using a wound management protocol only.

A total of 169 limbs in 142 patients were treated with wound management alone. More than half of these patients (70%) had diabetes. Most wounds (76%) were classified as Wagner grade 1. The average wound size was 8 cm<sup>2</sup>. The average ankle-brachial index (ABI) was 0.48, and the average toe pressure was 33 mm Hg.

Wounds were graded using the six-grade Wagner scale. Grade 0 wounds are defined as preulcerative, healed ulcers, or bony deformities. Grade 1 wounds are defined as superficial ulcers with no subcutaneous tissue exposure; grade 2 wounds involve penetration through the subcutaneous tissue (and may expose bone, tendon, ligament, or joint); grade 3 wounds involve osteitis, abscess, or osteomyelitis; grade 4 wounds involve gangrene of the forefoot; grade 5 wounds involve gangrene of the entire foot.

Patients were excluded if they had grade 4 wounds with extensive tissue loss, grade 5 wounds, necrotizing foot infections, or other major infections.

Patients came in for weekly outpatient visits for the first 4 weeks, followed by visits every 1-3 weeks thereafter. The wound management protocol focused on de-

bridement, pressure relief, infection control, and creating and maintaining moist wound healing environments. Wounds were documented using digital photography and wound planimetry.

The primary end point was the incidence of major limb amputation at 1 year. The secondary end point was the incidence of wound closure at 1 year. Wound closure was defined as complete epithelial coverage with no drainage at two consecutive visits. At 1 year follow-up, 147 limbs were evalu-

ated. Of these, 23% of patients required amputation and 52% had complete closure.

ABI was independently associated with amputation at 1 year, based on multivariate analysis. Of patients with an ABI less than 0.5, 34% had amputations at 1 year, compared with 15% of those with ABI greater than 0.5.

In addition, an initial wound grade of 1 or 2 resulted in amputation less frequently (19%) than wound grades of 3 or 4 (27%), though there were few patients

with wound grades 3 or 4. The only significant predictor of amputation was the initial wound size.

Advanced healing techniques were used at the physicians' discretion and included platelet-derived growth factor (12% of limbs), negative pressure therapy (4% of limbs), and bioengineered living dermis (9% of limbs). Overall, 19% of patients received one or more of these treatments.

Dr. Keagy disclosed that he has no conflicts of interest. ■



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1. Hanefeld M, Schaper F. Prandial hyperglycemia: is it important to track and treat? *Curr Diab Rep.* 2005;5:333-339.  
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