UT News
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November 22, 1985

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**** Old technique gives new hope for putting patients "back on their feet"

The next time your feet hurt -- be thankful.

There are hundreds of thousands of people in the United States with neuropathic, or insensitive, feet. And because their feet cannot feel pain, whether it be from fatigue or an actual wound, they are at high risk of losing a limb or even their lives.

When such a patient develops a blister on his foot, he will continue to walk on it because it does not hurt him. He may not even be aware that the wound exists. By continually exerting pressure on the wound, infection can develop in the soft tissue and can be driven further up into the foot. When the infection reaches a tendon or bone, a condition known as osteomyelitis can occur -- often leading to amputation.

But doctors and clinicians at The University of Texas Health Science Center at Dallas are reducing these risks with an old technique used for treating lepers that has been modified for treating the insensitive foot patient.

People who are most likely to lose feeling in their extremities are those with Hansen's disease (leprosy), alcoholism or diabetes. In fact, one of the greatest fears of diabetes patients is the loss of a lower extremity.

Dr. Phala A. Helm, chairman of the Department of Physical Medicine and Rehabilitation at The University of Texas Health Science Center at Dallas and director of the Problem Foot Clinic at Parkland Memorial Hospital, says this fear is well-founded. Nationally, 50 to 75 percent of nontrauma-related lower extremity amputations are due to complications of diabetes. More than 35,000 major amputations occur each year as a result of diabetes complications.

In addition, mortality rates both immediately following and up to three years after amputation are high, and the chances for a patient to require an additional amputation also are great. Twenty percent of all amputations result in death. About 50 percent of amputees can be expected to die within three years after surgery. Of those who survive, there is about a 67 percent chance that the remaining limb will be amputated, with 45 percent of those being lost within five years.

A majority of these amputations can be traced to the patient's inability to feel he is inflicting undue pain or pressure on the foot.

"Whereas you and I would sit down and rest our feet or change our shoes after a day at the fair or a long day's work, the neuropathic foot patient won't and he'll keep right on walking until he literally wears a hole in his foot," says Helm.

"And traditional methods of treatment, such as bedrest, elevation of extremity and topical medications, have not been effective, particularly with indigent patients, in part because these methods rely heavily on patient compliance," Helm says.

(more)

Helm's treatment method, total contact casting, is successful partly because it does allow the patient to walk, thus increasing patient cooperation. Taken from a practice traditionally used to treat foot ulcer patients with leprosy, this method has had, until now, only limited application among diabetics with neuropathies, she says.

The casting process involves fitting the patient with a walking cast molded to the leg and foot like a second skin. Helm explains that this cast is not like those used for fractures, which often allow too much movement of the extremity within the cast. After the wound is cleaned and dressed with a fine mesh covering, the cast is applied with a "rocker bottom" that evenly distributes body weight as the patient walks on the foot.

Research shows that the treatment is effective because it protects the wound, promotes fluid exchange in the limb and allows the patient to continue his daily routine, for the most part. Patients are then seen on an outpatient basis.

Helm and Steve Walker, research associate in the Department of Physical Medicine and Rehabilitation at UTHSCD, have collected data on patients they have treated with the total contact cast and have recorded impressive recovery results. Of the 77 patients treated between June 1983 and March 1985, 55--or 74.1 percent--of the wounds were healed in an average of 35.8 days. Twenty-two of the 77 wounds failed to receive full treatment due to patient non-compliance.

The recovery period of slightly more than a month with the casting compares to a recovery period of between one and five years with traditional treatment methods.

Another study done by Helm and Walker showed that the single most difficult case involving casting took less time to heal--3.8 months--than the most successful average healing time reported with other methods.

In addition to its effectiveness, the total contact casting method is considerably less expensive. Costs for treating one patient with a neuropathic foot ulcer can run between $8,000 and $12,000 for a four- to six-week hospital stay when following traditional treatment prescriptions of bedrest and antibiotics. With total contact casting, the only costs incurred are for casting materials and the occupational and physical therapists' time. Including the original casting and follow-up clinic visits, Helm estimates the average cost to be $600 to $800.

"It's cost effective, that's for sure," says Gerry Pullium, chief occupational therapist in the Problem Foot Clinic. "Surgeons are beginning to realize that the hospital beds being taken up by these patients can be saved for other patients who really need them, while the neuropathic foot patients can be sent back to work with total contact casting.

"Casting is somewhat of a scary concept for surgeons because it is so new," she says. "And that's understandable since you are sealing off the wound."

But the results speak for themselves, and the new concept is catching on among orthopedists and surgeons, says Walker. When national costs for major amputations top $1 billion, any treatment method that can successfully reduce the need for amputations is worth noting -- especially when considering the high mortality rates associated with amputation.

Helm and Walker hope to begin a study on the treatment's impact on amputation rates in the near future.

Dr. Paul W. Brand, who originally used total contact casting for treating Hansen's disease patients, will present grand rounds on the management of foot ulcers in the insensitive foot at UTHSCD on Dec. 6. Brand is chief of the Rehabilitation Branch of the National Hansen's Disease Center in Carville, La.

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