

# Small Diabetic Foot Burns Turn Into Big Challenges

BY PATRICE WENDLING  
Chicago Bureau

CHICAGO — Patients with diabetes have an increased risk for foot burns, and once a burn occurs the morbidity and mortality are quite high, Dr. David Greenhalgh said at the annual meeting of the American Burn Association.

A patient might sustain a foot burn without being aware of the injury because of impaired sensation in the feet. In-

sensate feet lead to prolonged exposure and deeper burns. Walking on hot surfaces, soaking in hot water, and even car heaters can cause foot burns.

"You don't feel the pain after soaking your feet for a half-hour, and that leads to the problem," he said. "This is a duration-of-contact problem."

The neurovascular changes associated with diabetes might also lead to impaired burn wound healing. Impaired healing leads to higher graft loss and an increased

risk of amputation, said Dr. Greenhalgh, professor and chief of burn surgery, University of California Davis Medical Center, Sacramento.

Dr. Greenhalgh described his own experiences treating small foot burn cases, including a patient with insensate feet who had been admitted for walking on hot asphalt, which resulted in transmetatarsal and below-knee amputations.

Another patient with insensate feet returned home from a walk over hot rocks

at a river bed to discover blood oozing from his feet. After lengthy treatment, four of the patient's toes were amputated.

"This is not only a disease that leaves a scar, but a disease that won't heal," he said. "These are high-risk patients and once you have a wound, it can lead to a cascade of events."

"One minute you've got a patient with ulcers between the toes, the next you're sticking a hemostat up their foot draining pus out of their plantar, and then you're doing a below-the-knee amputation," said Dr. Greenhalgh.

He reported on a chart review of 27 patients, mean age 52 years, with diabetes who sustained foot burns from January 2000 to December 2005.

Of these, 22 (81%) had burns resulting from insensate feet. In 16 patients, including 15 with insensate burns, the patients were unaware of their feet having been injured, he said.

Burns were caused by soaking feet in hot water (7), putting feet near a heater or



A minor foot burn in a diabetes patient could lead to below-the-knee amputation.

a radiator (6), walking on a hot surface (2), having contact with a heating pad (1), and being exposed to other sources (11).

Most (93%) of the patients were male, 16 were taking insulin, and 6 were diagnosed as having insulin-dependent diabetes.

Mean burn size was 4.7% of total body surface area (range 0.5%-15%), and 69% were full-thickness burns. Despite the small burn size, the mean length of hospital stay was 10 days (range 1-25) and 11 days for the insensate burns.

Skin grafting was required in 14 patients (52%). Five patients needed to be regrafted at least once, and one patient required four grafting procedures. Six patients required readmission, and three patients underwent amputations.

There were 16 complications, with 11 episodes of infections, mostly cellulitis. Three patients died.

"All diabetic patients should be taught about the risk of foot burns," Dr. Greenhalgh concluded.

"All patients with loss of sensation should never be exposed to heated water, heating pads, or heaters, or walk outside with bare feet," he said.

An audience member remarked that she's treated several burn injuries among her patients as a result of home treatment of chronic diabetic foot ulcers. Dr. Greenhalgh said he has not observed this, but said it is possible with extended foot soaks, as it takes just 6-8 hours at 43.5° C or 109° F to create a superficial burn. ■

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