

Diabetic Foot Injuries Carry High Risk of Foot Loss



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MedPage Today Action Points

- Explain to patients with diabetes the critical importance of foot care and regular foot examinations.
- Advise diabetic patients who develop ulcers or sustain penetrating foot wounds to seek professional medical attention.

Review

TEMPLE, Tex., June 2 — Diabetics who develop foot infections have a 55-fold greater risk of being hospitalized than diabetics without foot infections and a 154-fold higher risk of losing the affected foot, found a multicenter study.

In the results of a longitudinal study of 1,666 patients with diabetes, published in the June issue of *Diabetes Care*, Lawrence A. Lavery, D.P.M., M.P.H., of the Texas A&M Health Science Center here, and colleagues at other centers, found that the rate of foot infection was 9.1% over two years.

All the patients' infections but one was from a penetrating wound or ulcer. The infections were often the first episode in a downward spiral leading to the loss of the foot itself.

The investigators designed the study to get a prospective overview of risk factors for foot infection in a cohort of people. said David G. Armstrong, D.P.M., Ph.D., a co-author at the Rosalind Franklin University of Medicine and Science in North Chicago, Ill. "It is infection that is the spark that led to nearly all amputations in this study."

"Poor circulation, while critically important, did not necessarily cause amputation," he added. "It determined the level of amputation. This subtlety makes a significant difference when designing strategies for prevention."

The investigators evaluated at baseline 1,666 consecutive patients who were enrolled in a program to prevent and treat diabetic foot complications.

"Foot wounds are now the most common diabetes-related cause of hospitalization and are a frequent precursor to amputation," the investigators wrote.

"Individuals with diabetes have a 30-fold higher lifetime risk of undergoing a lower-extremity amputation compared with those without diabetes. An infected foot wound precedes about two-thirds of lower-extremity amputations, and infection is surpassed only by gangrene as an indication for diabetic

lower-extremity amputation."

Patients underwent a standardized general medical examination and detailed foot assessment and were educated about proper foot care at enrollment, and were then seen at scheduled intervals, or if they developed any foot problems.

During the two-year longitudinal study, 151 of the 1,666 patients (9.1%) developed a total of 199 foot infections. All but one of the infections resulted from a wound or penetrating injury to the foot. Nearly one-fourth of the patients with foot infections had recurrent infections at the same or different site. In all 24 of the 151 patients had two infections, nine had three infections, and two had four infections.

"Most infections involved only soft tissue, but 30 (19.9%) patients with foot infection had bone culture-proven osteomyelitis," the authors reported.

They found that the risk of developing an infection was 2,193 times greater among patients who sustained a foot wound compared with those without a wound (95% confidence interval, 303.6 - 15,837.6; $P < 0.0001$). Infection occurred 60.7% of patients with a wound versus 0.07% of patients without a wound.

"During the study period, 69 people were hospitalized for 85 separate lower-extremity-related events. Foot infection was a contributing factor for hospitalization in 71.7% (61 of 85) of these events," they wrote.

The risk of hospitalization among those with foot infections was 55.7 times greater than it was for diabetics without foot infection, and the risk for amputation was 154.5 times greater among those with lower-extremity infections, they reported.

In a logistic regression analysis excluding ulcers (because of their frequent association with infections), the authors found that independent risk factors for foot infection in the cohort included wounds penetrating to bone (OR 6.7; $P < 0.001$), wound duration of more than 30 days (OR 4.7; $P < 0.004$), a history of recurrent wounds during the study period (OR 2.4; $P < 0.006$), wounds with a traumatic etiology (OR 2.4; $P < 0.02$), and the presence of peripheral vascular disease (OR 1.9; $P < 0.04$).

"The incidence of foot infections in these patients was surprisingly high," the authors wrote. "Despite being extensively educated, provided with therapeutic shoes and insoles when indicated, followed in a foot clinic, and having ready access to podiatric care, 9.1% of enrolled patients developed a foot infection during just over two years of follow-up."

They went on to note, however, that patients at risk for foot infections can be spotted easily with screening foot examinations, allowing more targeted prevention efforts that could help to reduce the incidence of infection and amputation.

Primary source: Diabetes Care

Source reference:

Lavery LA et al. " Risk Factors for Foot Infections in Individuals With Diabetes." *Diabetes Care* 29:1288-1293, 2006

