

Classification of Diabetic Foot Wounds

Epidemiological studies have shown that a foot ulcer precedes and is responsible for ~85% of all lower-extremity amputations in patients with diabetes (1,2). The risk factors for ulceration of the foot in patients with diabetes are primarily peripheral neuropathy, foot deformities, high plantar pressures, infection, and previous ulcer. Lavery et al. (3), in a multivariate model, have also demonstrated that poor glucose control, duration of diabetes over 10 years, and male sex are also significant risk factors for foot ulceration.

In view of the many factors contributing to foot ulceration, it is important to establish a classification system, which will help health care providers to predict the outcome, healing, or amputation. A number of wound care centers have established their own classification. The classification system that has been used most often and the one with the longest track record is Wagner's system (4). However, this classification system is basically anatomical with gradations of superficial ulcer, deep ulcer, abscess osteitis, gangrene of the forefoot, and gangrene of the entire foot. Only grade 3 addresses the problem of infection.

Armstrong et al. (5) in this issue of *Diabetes Care* have provided an excellent new grading and staging classification of diabetic foot ulcers (5). I believe this classification will be most helpful for the clini-

cian in evaluating a foot ulcer based not only on the anatomical size and depth of the ulcer but also on the presence of infection, ischemia, and a combination of ischemia and infection. This combination of staging and grading provides an excellent prediction of the eventual outcome, healing or amputation.

The only thing I would have liked the authors to have considered adding to their classification would be the effect of the location of the ulcer on the outcome. This might have been an important indicator of successful healing and/or the probability of amputation. However, if the statistical analysis did not show this to be a significant factor, it would not need to be included. I would have liked the authors to comment on this.

Because of the variability of a variety of classifications, it is difficult for investigators and physicians caring for patients with diabetic foot problems to accurately compare various studies. It would be most helpful if these ulcers had a uniform classification so that published papers can accurately be compared.

I would therefore suggest that the American Diabetes Association provide a consensus statement on classification of diabetic foot ulcers so that when reading an article, comparison of the data, using such a classification system, will be universally

the same. All investigators and physicians caring for the patient with a diabetic foot can use this classification system to predict probable outcome.

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