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Fact Sheet: Diabetic Foot Conditions

More than 25 million Americans have diabetes and seven million Americans are undiagnosed, according to the American Diabetes Association (ADA). The most common form of the disease, Type 2 (adult onset) diabetes, accounts for 90 to 95 percent of the cases and is caused by the body's resistance to insulin at the cellular level and a relative insulin deficiency. This disease is nearing epidemic proportions due to an increased number of older Americans and a greater prevalence of obesity and sedentary lifestyles.

Several systemic disorders occur from diabetes, including heart disease, stroke, high blood pressure, blindness, kidney disease, and sensory neuropathy. Peripheral neuropathy is a common complication of the disease in which patients lose nerve sensation in their extremities. The loss of feeling at the bottom of the feet creates a situation where patients are unable to react to pain and pressure. Another complication of diabetes affecting the foot is compromised circulation. Poor circulation to the feet can cause foot ulcers and prevent timely healing of wounds and injuries in the patient with diabetes.

Diabetic Lower Extremity Ulcers

According to published studies, 15 percent of Americans with diabetes will develop a serious foot ulcer during their lifetime. Repetitive trauma or pressure that goes unnoticed due to sensory neuropathy produces calluses that, without proper attention, eventually progress to ulcers. Chronic ulcers can become seriously infected if they are unnoticed or untreated. More than half of all foot ulcers (wounds) will become infected, requiring hospitalization, and one in five will require an amputation. Diabetes contributes to approximately 80 percent of the 120,000 non-traumatic amputations performed yearly in the United States. Early detection of risk factors associated with ulcer formation is essential in the overall management of patients living with diabetes and can significantly reduce the incidence of ulcers and amputation. Prompt and aggressive treatment of foot ulcers can prevent worsening and can help accelerate healing. Diligent self-care is a key component for early detection.

Patients living with diabetes should inspect their feet every day, wear shoes that fit properly and minimize pressure, and maintain their blood glucose levels within the desired range. Regular visits to a foot and ankle surgeon provide an opportunity to reinforce self-care behavior and to detect new or impending foot problems.

Foot and Ankle Deformities

Patients with a long history of diabetes may experience changes to their feet, such as limited joint mobility, muscle atrophy, reduced sensation, and diminished fat padding, that contribute to foot deformities and foot ulcers. For example, diabetes-induced atrophy of the small muscles in the foot can cause a hammertoe deformity with subsequently increased pressure points on the toe. The resulting constant pressure on the toes makes them susceptible to ulcers.



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Foot deformities can also be the result of Charcot neuroarthropathy. Charcot foot deformity typically occurs in patients living with diabetes and neuropathy. The first symptoms of Charcot foot include a warm, red and swollen foot that is sometimes painful. As the condition progresses, the bones and joints in the foot microfracture and collapse, resulting in a foot that is abnormally shaped.

Treatments

Conservative offloading techniques using orthotics and special shoes/braces can help minimize pressure and prevent ulcers associated with deformity. Optimal care of chronic foot ulcers also requires supportive home and work environments that allow patients to be compliant with an offloading treatment regimen. This must be combined with appropriate glucose control through diet and medication, aggressive wound care, adequate treatment of infection and use of custom-fitted shoe gear and orthotics to prevent recurrence of these ulcers.

For patients with chronic foot ulcers, promising new treatments are becoming available to improve long-term outcomes. One example is bioengineered human tissue that has been used successfully in clinical trials to heal foot ulcers. The implantation of the bioengineered human tissue—produced by seeding human skin cells onto an absorbable mesh—supplies growth factors and structural proteins conducive to wound healing.

Treatment of Charcot deformity includes an extended period of non-weight bearing cast immobilization to protect the foot from further structural collapse and deformity. Assisted devices and rigid weight bearing leg braces also are effective for maintaining the desired non-weight bearing regimen.

In some cases, however, surgery may be the best option to relieve ulcer-causing pressure from Charcot foot. An ostectomy procedure to decompress foot ulcers is an effective conservative surgical option. More intensive procedures involve surgical restructuring of the foot to realign and fuse it in a more anatomic position.

If you would like more information regarding diabetic foot conditions, contact Shoal Creek Foot & Ankle Center by phone at (417) 622-0648 or visit www.shoalcreekfac.com.