

Foot Care and Diabetes Mellitus

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Aretaeus The Cappadocian, (A.D. 81-138) stated: "Diabetes is a wonderful affliction...being the melting down of the flesh and limbs into urine."

Often, Diabetes Mellitus is visualized as a disorder of the "blood sugar." Although the elevated level of glucose in the blood is a sign of this disorder, the awareness of immediate and long term effects upon all body systems is an important process for the patient to understand in the daily management of this disease.

The role of the foot surgeon should be one of examination, regulation, education and co-ordination with other specialists as a team approach to maintain overall foot health.

As early as the 1930's, a prominent New England diabetic clinic found that the amputation rate for diabetics was reduced by fifty percent with the inception of a podiatry service.

The initial examination by the foot surgeon includes a full review of the patient's medical history. Examination of the blood and nerve supply, function, shape and structure of bones and joints in the foot, condition of skin, nails and hair distribution can help the podiatric surgeon evaluate the status of the patients pedal health. Simply by feeling the pulses in the

foot, awareness of diminished sensation to vibratory sensations of a tuning fork or pressure from a blunt piece of wire to the sole of the foot can give the foot surgeon a better appreciation of the circulatory and neurologic parameters to the lower extremities.

After a thorough history and examination, it may be necessary to order more advanced testing to confirm a diagnosis or its extent. Blood and urine examinations, x-rays, doppler flow studies (a noninvasive test to determine the relative flow of blood into the foot), bone scans, MRI's (Magnetic Resonance Imaging) and CT scans (Computerized Tomography) may help in the diagnosis and establishing of a treatment plan.

It has been well documented that diabetics have an early onset of arteriosclerosis ("hardening of the arteries"). This can affect the blood supply to the feet and subtle changes such as cramps in the legs when walking (claudication) may be a sign of this. The changes in the thickness of the toe nails, texture of the skin, fungal infections, thinning of the fat pad on the sole of the foot can all affect the stability and long term health of the foot. Simple aseptic reduction of the nails by the podiatrist, prescription oral and/or topical antifungal agents, and the use

of supportive shoe gear and appliances (orthotics) can all help in reducing the long term effects of diabetes on the feet.

Sensory complaints are common in diabetes. The loss of feeling or "funny sensations" to the feet and legs (paresthesias) are a common complaint. This can compound the underlying vascular problems since the protective mechanisms of pain are lost. Simple problems that do not hurt are often left untreated until they are noticed as a stain on the sock or an odor develops. New topical agents derived from the peppercorn are available to help reduce the pain associated with these abnormal sensations.

These neglected feet can present the foot surgeon with more challenging problems that can include surgical intervention and hospitalization. Nail and skin infections that do not respond to oral antibiotics and local care, deep infections including the involvement of bone (osteomyelitis), foot ulcers, the collapse and deterioration of the joints and the supportive mechanism of the foot (Charcot Foot) may lead to difficult management of the diabetic state and control of infection. Resultant gangrene (death of tissues) and loss of the foot, extremity or life is



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possible. Early detection of infection and coordination with other specialists including vascular and infectious disease specialists can attempt to salvage a limb. Once the infection is controlled, the patient can be rigorously monitored and administered I.V. antibiotics as an outpatient with the help of a home nursing service.

Education of the patient and recognition of subtle changes in the feet can prevent a large number of these advanced foot problems. Simple daily inspection (using a mirror if it is difficult to

bend) and washing of the feet with particular attention to the toe web spaces can visualize any changes in skin texture, sores, cracks, etc.

The selection of sensible shoe gear that fit the contour of the foot will avoid cramping of parts sensitive to pressure. In the winter months a fleece lined boot will protect the feet and keep them warm. During the summer months swimming with sneaker like shoes made especially for protecting the feet are readily available. The use of heating pads, ice packs and over the

counter corn cures and "ingrown toe nail preparations" can cause havoc with the local circulation and lead to the breakdown of skin, ulceration & infection.

Smoking must be stopped in the diabetic! The adverse effects on the circulation is well documented. Exercise such as walking or tandem bicycle riding can get other family members or friends involved. Education through the American Diabetes Association and support groups held at the hospital can all help avoid problems and allow the diabetic patient to walk that extra mile.

