

FINDING RELIEF FOR PERIPHERAL NEUROPATHY

by Nancy Bohannon, M.D.

You wake up in the middle of the night with burning and tingling in your feet. The weight of the sheets makes things worse, so you can forget about falling asleep again. When you visit your doctor and describe your symptoms, he tells you the problem is your nerves. Does he mean that you're under too much stress or that the problem is all in your mind? Absolutely not. You are suffering from a very real condition known as neuropathy, which is damage to the nerves caused by diabetes. Symptoms of diabetic neuropathy are more likely to occur if diabetes has been present for many years, and prevalence increases with increasing duration of diabetes. Symptoms are often related to both short-term and long-term blood sugar control. Sixty percent of people with poor diabetic control have symptoms of neuropathy after 20 years, whereas only 15% of people with good control for 20 years have these symptoms.

Neuropathy may take many forms. Mononeuritis simplex involves a single nerve with severe pain, and mononeuritis multiplex involves several nerves. Cranial nerve neuropathies may cause facial or eye abnormalities. Autonomic neuropathies disrupt the working of internal organs, causing diarrhea, impotence, stomach bloating, constipation, bladder dysfunction and similar problems in diabetics.

Peripheral neuropathy, discussed here, may affect only one nerve but more often affects many. It usually starts at the toes, feet, and then legs and spreads to the fingers, hands, and arms in a "glove and stocking" distribution. Peripheral neuropathy may affect only the sensory nerves (which give us the sense of touch) but may also affect motor nerves, which control movement and strength. Pain may be severe or absent, and such sensations as taste may also be affected. This decreased sense of taste may cause a person to add salt and sugar to his diet in an attempt to regain flavor which, of course, can be harmful to blood pressure and blood sugar control.

CAUSES

Metabolic factors probably lead to the development of this neuropathy and are probably closely related to diabetic control. There are complex relationships between high blood sugar levels, the enzyme aldose reductase, the formation of sorbitol in the cells, and myoinositol in the tissues, which have been implicated in the development of neuropathy. Poor blood sugar control may also lead to glycosylation (attachment of glucose molecules to proteins) of the myelin coating nerve fibers, and this may contribute to the development of neuropathy.

Not all cases of peripheral neuropathy in people with diabetes are caused by the diabetes itself. Other disorders may cause it and your physician should look for them. These include nutritional disorders (especially vitamin B deficiencies), alcoholism, collagen vascular diseases (such as lupus), some infectious diseases (such as leprosy), kidney failure, and disorders of the pituitary and thyroid glands. There are also many drugs that can cause peripheral neuropathy, including allopurinol (used for gout), vinblastine and vincristine (anti-cancer drugs), hydralazine (used for high blood pressure), isoniazid (for tuberculosis), nitrofurantoin (often used for bladder and kidney infections), some sulfanilamides (a class of antibiotics), and others. If you have symptoms of neuropathy and are taking any of these medications, your physician may be able to prescribe alternative drugs.

Research published last year using healthy, nondiabetic individuals showed that they could not tolerate as much pain when they were given an injection of glucose before a pain-perception and pain-tolerance test. In another study, 13 men with Type II (non-insulin-dependent) diabetes were tested for their perception of pain. It was found that compared with nondiabetic individuals, they could not sense nonpainful electrical stimulation until it was at a much higher level--yet they perceived pain at a much lower level than nondiabetics. These findings again suggest that good blood sugar control may decrease the symptoms of peripheral neuropathy.

SYMPTOMS

Peripheral neuropathy may occur suddenly but more often occurs gradually. Symptoms vary from individual to individual. The more common

symptoms are sensations described as dull, aching, tingling, numbness, itching, crawling, formication (like worms crawling in the legs), supersensitivity, burning, stabbing, "dead," "woody," "asleep," or "walking on air or cotton." These symptoms are typically worse at night in people with diabetes, and often cause them to become depressed because of constant discomfort and sleepless nights. Loss of sensation may make a person incapable of telling where his feet are if he can't see them, which may cause him to fall when walking in the dark or on stairs. Generally, a numb foot may result in more serious consequences than a painful one, since the numbness may prevent him from feeling foot injuries and taking prompt action to prevent infection or gangrene. (See "Side-stepping Foot Problems" in the Spring 1985 issue of Diabetes Self-Management.)

Sometimes people will think that their neuropathy is getting better because the pain gives way to numbness. This is not an improvement--it is a worsening of the condition. The loss of pain is a good sign only if normal sensation returns.

TREATMENT

Four out of five people with neuropathy will have some improvement in their symptoms in 6-18 months. Nonetheless, that seems a long time to wait if you are feeling discomfort. The best course would be to try to avoid it in the first place by getting your blood sugar into control and keeping it there.

Therapy for peripheral neuropathy should include good nutrition to avoid vitamin deficiencies, avoiding alcohol and, perhaps, selecting foods that are rich in myoinositol--one of the chemicals that may be important for preventing the development of neuropathy. These foods include nuts, whole grains, cherries, and melons. Do not take myoinositol tablets, since this may cause an overdose, making neuropathy worse.

There are several drugs your physician may prescribe for diabetic peripheral neuropathy. One is Benadryl, a drug which can be taken at bedtime to help alleviate the discomfort and ensure a good night's sleep. The antidepressant class of drugs, such as amitriptyline (Elavil), trazadone (Desyrel), and fluphenazine (Prolixin), may be useful in treating neuropathy as well as depression. Anticonvulsants such as phenytoin (Dilantin) are often helpful, especially for stabbing pain and, if effective, usually gives good results within two

weeks. Carbamazepine (Tegretol) is often successful in two weeks. Phenazopyridine (Pyridium) and aspirin together have also worked for some patients. If you take one of these medications and it fails to work, let your physician know--an alternative drug may turn out to be more effective.

A promising new drug which you might have read about is sorbinil, which might prove to help the discomfort and may be available for general use within the next few years. One of the problems with sorbinil is a high incidence of intolerable side effects. Sorbinil may prove to be more useful in preventing neuropathy than treating it.

Another experimental treatment for neuropathic pain is to interrupt the "gate" that allows pain impulses to pass from the spinal cord into the brain. This treatment, transcutaneous electronic nerve stimulation (TENS) uses a small device with electrodes that send impulses from the skin into the spinal cord to block these pain signals. Other attempts at blocking pain messages include hypnosis, acupuncture, relaxation techniques, rhythmic breathing, biofeedback, self-distraction, and imagery. When applied by trained professionals, these techniques are successful in some patients. Other methods some patients have tried successfully for temporary relief include dipping the affected part of the body in warm (not hot) or cool water, wearing a body stocking or panty hose to decrease sensation from other objects, using a foot cradle over the bed to keep sheets from touching the feet at night, and rubbing the affected area with analgesic balm such as Ben Gay. It is very important to wear good, deep shoes with appropriate padding, closed toes, and well-fitting socks, and observe good nail hygiene. Exercises may help to strengthen some of the muscles that have been weakened by neuropathy. Avoid heating pads on areas that are numb, because you may get burned without realizing it. Likewise, you should not test the water in your bathtub or shower with your foot or hand if their sensation of temperature is impaired. Rather, you should dip in the upper arm to test the temperature before climbing in. Although peripheral neuropathy is currently the most common complication of diabetes, most people can find relief from the symptoms--through good blood sugar control and the many modes of therapy available.