NEUROLOGY GROUP of BERGEN COUNTY

Neuropathy
(also called Peripheral Neuropathy or Polyneuropathy)

Neuropathy is a term that refers to various conditions affecting peripheral nerves (those nerves that are outside of the brain or spine). Peripheral nerves branch out from the spinal cord and travel to all parts of the body. Peripheral neuropathy affects about 40 million people in the United States, and is more common in people as they get older.

Nerve cells are made up of several parts:

1. **Cell body** - the "brains" of the nerve cell
2. **Axons** - cables to transmit the nerve signals to another location
3. **Dendrites** - connections to other nerves, glands and muscles
4. **Myelin** - coating around the axon to facilitate nerve signals

There are three major types of nerves:

1. **Motor nerves** - responsible for voluntary movement
2. **Sensory nerves** - responsible for feeling touch, temperature, pain and joint position
3. **Autonomic nerves** - responsible for regulating involuntary functions such as breathing, blood pressure and digestion

SIGNS AND SYMPTOMS:

Neuropathies can cause a variety of different symptoms, depending on whether motor, sensory and/or autonomic nerves are affected. Sensory symptoms include numbness, tingling sensations, aching or soreness, burning pain, shooting pain, pressure, hypersensitivity or just a strange feeling. When motor nerves are affected, weakness typically develops. These symptoms generally begin in the toes and feet, and can progress to involve the legs, hands and arms. Walking or balance difficulties can develop from problems with motor nerves, sensory nerves, or both. Autonomic symptoms are very different, sometimes including lightheadedness, blood pressure fluctuations, passing out, temperature dysregulation, absent or excessive sweating, dry mouth, gastrointestinal motility problems or bladder problems.

DIAGNOSIS:

There are many causes of neuropathy, although in many cases no specific cause is identified. Diabetes is the most common identified cause of peripheral neuropathy, affecting about 60% of people with diabetes and 25% of people with pre-diabetes. Other common causes include nutritional deficiencies, some medications including some types of chemotherapy, infections such as Lyme or HIV, alcohol, cancer, environmental toxins and genetic conditions. There are numerous less common causes as well. When no cause is identified, it is referred to as an **idiopathic polyneuropathy**, which is actually quite common.

Because of the wide variety of conditions that can affect nerves, diagnosing the cause of a peripheral neuropathy can be challenging. Definitive diagnosis of a neuropathy involves getting a detailed history, doing a physical and neurological examination, having a number of specific blood tests, and doing an **EMG test**. This is an electrical nerve and muscle test which gives additional information about the nature and severity of the neuropathy. The test consists of two parts: nerve conduction velocity studies (NCS), and electromyography (EMG).

Nerve conduction studies record the speed at which impulses travel through nerves and measure electrical responses. **EMG** records electrical activity in muscle tissue and is used to distinguish neuropathy from muscle disorders (myopathy). These tests often are used in combination and are referred to as **EMG/NCS studies**. When EMG/NCS studies are inconclusive, nerve, skin, or muscle biopsy may be performed to confirm the neuropathy diagnosis. Biopsies involve removing nerve, skin, and/or muscle tissue for microscopic evaluation and chemical analysis. Sometimes other tests are necessary to determine the underlying cause of the neuropathy and to rule out other conditions.

TREATMENT:
Some forms of neuropathy are treatable, while others are irreversible. Even if no cause is identified, there are treatments that can help to control many of the symptoms of neuropathy. A variety of different medications can often reduce the discomfort associated with neuropathy. Physical therapy is often helpful in dealing with the balance problems often seen in people with neuropathy. Some people also derive benefit from alternative therapies such as biofeedback therapy, acupuncture or yoga.

This information is meant for informational purposes and is not meant to replace a conversation with your physician about the specifics of your condition.