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Peripheral Neuropathy

By Ruth Werner, LMP, NCTMB

This month, we continue our survey of neurological issues with a topic that has generated a lot of questions from concerned bodyworkers - peripheral neuropathy (PN). This rather ambiguous umbrella term refers to virtually any damage to nerve tissue outside the central nervous system. While we often associate PN with symptoms in the feet, it can likewise affect cranial nerves - in particular the vagus nerve - with serious or even life-threatening consequences.

Types of Peripheral Neuropathy

PN often is classified by what types of peripheral nerves have been affected. You may remember that peripheral nerves (which include spinal and cranial nerves) have some fibers dedicated to the somatic nervous system (having to do with conscious processing of sensory input and voluntary muscle activity) and others dedicated to the autonomic nervous system (mostly motor fibers that control heart rate, blood pressure, digestion and other involuntary functions). PN can affect any of these fibers. In other words, it can be primarily sensory, it can affect voluntary motor control, it can affect autonomic function, or any combination of the three. Furthermore, PN may be described by the tissue that is damaged: the neurons themselves, which is called an axonal injury, or the myelin surrounding the neurons in the peripheral nervous system.

PN often is classified according to its cause. Here is a short list of some possibilities:

- *Autoimmune disease:* In some rare cases, the immune system attacks nerve tissue and causes mild or extreme symptoms; these are usually various forms of Guillain-Barre syndrome, which is typically temporary. Other more common autoimmune diseases that can damage or irritate peripheral nerves include lupus and rheumatoid arthritis.
- *Toxic exposures:* A history of exposure to certain toxins can cumulatively damage peripheral nerves. Examples include some of the organic and inorganic chemicals used in fertilizers and pesticides; heavy metals such as arsenic, mercury or lead; and toxins encountered in glue-sniffing and other solvent-based substance abuse. In addition, chronic alcoholism can lead to PN both from direct toxic exposure and because of vitamin deficiencies that it can cause.
- *Nutritional deficiencies:* Some vitamins and nutrients are critical to maintaining a healthy nervous system. People who are extremely deficient in vitamin E and/or B vitamins (especially B1, B3, B6 and B12) may develop PN. These deficiencies often accompany extensive alcohol abuse.
- *Metabolic diseases:* In the United States, more than half of all people with PN developed it as a complication of type 2 diabetes mellitus. This disorder can damage nerves in a number of ways, from chemical imbalances related to hyperglycemia, to impairment of blood flow to important nerve bundles. Diseases of the liver, kidneys and thyroid also can lead to peripheral nerve damage.
- *Inherited diseases:* Rarely, an inherited problem can have PN among its signs or complications. In the U.S., a group of conditions collectively known as Charcot Marie Tooth disease lead to the largest portion of genetically programmed cases of PN.

Injury and infection also can cause peripheral nerve damage. Examples include carpal tunnel syndrome, thoracic outlet syndrome, Bell's palsy, HIV, herpes simplex and shingles. In these cases, however, symptoms are usually unilateral rather than symmetric. This is a diagnostic clue to the cause of the pain.

Signs and Symptoms of Peripheral Neuropathy

The signs and symptoms associated with PN vary according to the cause of the problem and which types of neurons have been affected. Obviously, sensory neuron damage leads to changes in sensation. This may reflect as tingling, shooting or burning pain, or numbness. Often people with PN describe a feeling of "stockings" or "gloves" with symptoms that begin bilaterally at the extremities and work proximally up the limbs.

Motor neuron damage leads to poor coordination and specific muscle weakness, which can lead to local atrophy as muscle fibers degenerate in the absence of stimulation. Perhaps the most alarming and dangerous symptoms of PN occur when cranial nerves, especially the vagus nerve, are affected. Autonomic symptoms can vary from occasional

dizziness to changes in respiration and blood pressure. Reduced sweating with resulting hyperthermia may occur, gastric motility and digestion may be impaired, and bowel and bladder control may be lost.

Treating PN

Treatment options for PN are determined by the cause and severity of symptoms. Peripheral neurons have the amazing capacity to regenerate, so if the irritation is stopped and blood flow is returned, the nerve tissue may regain function. The prognosis is most hopeful when damage only affects the myelin sheath rather than the neuron tissue itself.

Analgesics (painkillers), antiseizure medications, lidocaine patches and antidepressants sometimes are prescribed to mitigate the symptoms of PN. These work with pain management, but don't target rebuilding the myelin sheath or damaged nerve tissue, for which exercise and good nutrition are generally the best options.

Massage?

When we have a client who reports unexplained alternating periods of numbness and sharp shooting pains in the feet, the first thing we need to recommend is that they see a doctor. While we obviously don't want to exacerbate pain, in many ways numbness is a more serious symptom in terms of bodywork, because it prevents our client from telling us when our pressure is too intense.

Many people find relief with the gentle circulatory stimulus massage gives to limbs that are tingling and painful. Clients who have been diagnosed with PN may benefit from massage as long as sensation is intact and as long as cautions concerning their underlying disease or injury process are understood and respected. These are situations during which we definitely want to be in communication with a client's health care team, and it is important to avoid any radical changes in external environment - going from a hot soak to a cold plunge, for instance.