Diabetic Neuropathy

Diabetic neuropathy is a common complication caused by diabetes. Neuropathy is a term that means nerve disease or damage. If your diabetes is uncontrolled and you have high blood glucose (*sugar*) levels, over time, this can lead to damage to nerves throughout your body. There are three types of diabetic neuropathy:

- **Peripheral.**
- **Autonomic.**
- **Focal.**

PERIPHERAL NEUROPATHY

Peripheral neuropathy is the most common form of diabetic neuropathy. It causes damage to the nerves of the feet and legs and eventually the hands and arms.

SYMPTOMS

Peripheral neuropathy occurs slowly over time. The peripheral nerves sense touch, hot and cold, and pain. When these nerves no longer work:

- Your feet become numb.
- You can no longer feel pressure or pain in your feet.
- You may have burning, stabbing or aching pain.

This can lead to:

- Thick calluses over pressure areas.
- Pressure sores.
- Ulcers. Ulcers can become infected with germs (*bacteria*) and can even lead to infection in the bones of the feet.

DIAGNOSIS

The diagnosis of diabetic neuropathy is difficult at best. Sensory function testing can be done with:

- Light touch using a monofilament.
- Vibration with tuning fork.
- Sharp sensation with pin prick

Other tests that can help diagnose neuropathy are:

- Nerve Conduction Velocities (NCV). This checks the transmission of electrical current through a nerve.
- Electromyography (EMG). This shows how muscles respond to electrical signals transmitted by nearby nerves.
- Quantitative sensory testing, which is used to assess how your nerves respond to vibration and changes in temperature.

AUTONOMIC NEUROPATHY

The autonomic nervous system controls functions that you do not think about. Examples would be:

- Heart beat.
- Regulation of body temperature.
- Blood pressure.
- Urination.
- Digestion.
- Sweating.
- Sexual function.

SYMPTOMS

The symptoms of autonomic neuropathy vary depending on which nerves are affected.

- There can be problems with digestion such as:
  - Feeling sick to your stomach (*nausea*).
  - Vomiting.
  - Bloating.
  - Constipation.
  - Diarrhea.
  - Abdominal pain.
- Difficulty with urination may occur because of the inability to sense when your bladder is full. You may have urine leakage (*incontinence*) or inability to empty your bladder completely (*retention*).
- Palpitations or a feeling of an abnormal heart beat.
- Blood pressure drops on arising (*orthostatic hypotension*). This can happen when you first sit up or stand up. It causes you to feel:
  - Dizzy.
  - Weak.
  - Faint.
- Sexual functioning:
  - In men, inability to attain and maintain an erection.
  - In women, vaginal dryness and problems with decreased sexual desire and arousal.

DIAGNOSIS

Diagnosis is often based on reported symptoms. Tell your medical caregiver if you experience:

- Dizziness.
- Constipation.
- Diarrhea.
- Inappropriate urination or inability to urinate.
- Inability to get or maintain an erection.

Tests that may be done include:

- An EKG or Holter Monitor. These are tests that can help show problems with the heart rate or heart rhythm.
- X-rays can be used to find if there are problems with your ability to properly empty food from your stomach into the small intestine after eating.

FOCAL NEUROPATHY

Focal neuropathy affects just one nerve tract and occurs suddenly. However, it usually improves by itself over time. It does not cause long term damage, and treatments are usually needed only until the problem improves.

SYMPTOMS

Examples include:

- Abnormal eye movements or abnormal alignment of both eyes.
- Weakness in the wrist.
- Foot drop, which results in inability to lift the foot properly. This causes abnormal walking or foot movement.

DIAGNOSIS

Diagnosis is made based on your symptoms and what your caregiver finds on your exam. Other tests that may be done include:

- Nerve Conduction Velocities (NCV). This checks the transmission of electrical current through a nerve.
- Electromyography (EMG). This shows how muscles respond to electrical signals transmitted by nearby nerves.
- Quantitative sensory testing, which is used to assess how your nerves respond to vibration and changes in temperature.

TREATMENT OF NEUROPATHIES

Once nerve damage occurs it cannot be reversed. The goal of treatment is to keep the disease from getting worse. If it gets worse, it will affect more nerve fibers. Controlling your blood (*sugar*) is the key. You will need to keep your blood glucose and A1c at the target range prescribed by your caregiver. Things that will help control blood glucose levels include:

- Blood glucose monitoring.
- Meal planning.
- Physical activity.
- Diabetes medication.

Over time, maintaining lower blood glucose levels helps lessen symptoms.

Sometimes, prescription pain medicine is needed. Focal neuropathy can be painful and unpredictable and occurs most often in older adults with diabetes.

SEEK MEDICAL CARE IF:

- You develop peripheral nerve symptoms such as burning, numbness, or pain in your feet, legs or hands.
- You develop autonomic nerve symptoms such as:
  - Dizziness.
  - Abnormal urinary control.
  - Inability to get an erection.
- You develop focal nerve symptoms such as sudden abnormal eye movements or sudden foot drop.

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