AMERICAN PARKINSON DISEASE ASSOCIATION
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Neurogenic Orthostatic Hypotension in Parkinson's Disease

If you are experiencing symptoms of low blood pressure upon standing, you may have neurogenic orthostatic hypotension (NOH). In this factsheet, you will learn about what NOH is, how it is diagnosed, and how it is treated. There are treatments that can help lessen the symptoms and improve the quality of life for those experiencing NOH.

What is NOH?

Neurogenic orthostatic hypotension is a neurologic condition that prevents your body from properly regulating your blood pressure when you change position, particularly when you go from lying or sitting to standing up. "Neurogenic" means related to the nervous system, "orthostatic" means standing upright, and "hypotension" means low blood pressure.

What are the symptoms of NOH?

NOH can cause:

- Dizziness
- Light-headedness
- A feeling like you are going to black out or faint

Other symptoms may include headache, difficulty concentrating, impaired vision, neck and shoulder pain, shortness of breath, chest pain, weakness, fatigue, and nausea.

Symptoms typically begin within a few seconds to a few minutes of standing upright. Not everyone with NOH has symptoms, and symptoms may vary from person to person and from day to day.

In addition, not everyone with these kinds of symptoms has NOH. An accurate diagnosis is important for determining the right treatment.

What causes NOH?

Blood pressure is simply the pressure exerted by the blood within the blood vessels, like the water pressure in the pipes of your house. When you stand, gravity tends to pull blood toward your lower extremities, depriving your brain of the blood it needs to function, which can cause light-headedness and other symptoms.

NOH affects about 1 in 5 people with Parkinson's disease.

To prevent that, your autonomic nervous system releases a chemical called norepinephrine that constricts the blood vessels, increasing pressure and delivering more blood to the brain. The autonomic nervous system is the portion of your nervous system that controls blood pressure, among other functions. In NOH, norepinephrine is not released properly, and so blood pressure in your brain falls.

Blood pressure is described by two numbers, called systolic and diastolic. (The unit of measurement of blood pressure is "millimeters of mercury," or mm Hg.) The "systolic" is the pressure in your arteries when your heart beats. The heart contracts, pushing out blood, raising pressure. The "diastolic" is the pressure in the arteries between beats, when the heart relaxes. Normal systolic blood pressure is less than 120 mm Hg, and normal diastolic blood pressure is less than 80 mm Hg. This is written as 120/80, and read as "120 over 80."

NOH is a reduction in the systolic pressure of at least 20 mm Hg or a reduction in the diastolic pressure of at least 10 mm Hg within 3 minutes of standing up.

How is NOH diagnosed?

Your doctor will check your blood pressure while lying down, sitting, and standing, to determine how it changes. He or she will ask you about your medical history, and ask you about your symptoms, including when they occur and how often they occur. You may be asked to keep a symptom diary, to record what you were doing just before each episode occurs. Your doctor will likely order a variety of tests, which may include blood tests and cardiac (heart) tests.

There are a wide variety of non-neurogenic causes of orthostatic hypotension, and it is important to rule these out before arriving at the correct diagnosis. Other causes include dehydration, diabetes, several classes of prescription drugs, heart problems, fever, and certain vitamin deficiencies. The tests and examinations your doctor performs are essential for taking all these possible causes into account.

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What are the consequences of NOH?

NOH can reduce your ability to perform the normal activities of daily living, including exercise, hobbies, and housework. Because it can cause dizziness or fainting, NOH increases the chances of falling, causing serious injury. Treatment may help to lessen the effects of NOH.

How is NOH treated?

The goal of treatment of NOH is to reduce your symptoms and improve your quality of life. Treatments may include prescription medications and non-drug approaches.

Non-drug approaches are designed to increase your blood pressure, minimize the changes in blood pressure when you stand, and reduce the effects of NOH. Methods include:

- Dietary changes, to increase salt and fluid intake (60–80 ounces per day), in order to raise your blood pressure
- Avoidance of substances and eating habits that may lower blood pressure, including caffeine, carbohydrate-rich meals and alcohol
- Wearing compression stockings or an abdominal binder, which reduce the amount of blood that can flow to your lower extremities
- Avoiding standing for long periods, which can cause blood to pool in your legs
- Avoiding hot environments, including hot showers, which expand the blood vessels and lower blood pressure
- Rising slowly when standing, to allow more time for blood pressure to adapt to your new position
- Raising the head of your bed, to reduce blood pressure changes upon standing
- Getting regular exercise, to improve general health and performance of the autonomic nervous system.

Medications that may improve NOH symptoms include:

- Fludrocortisone (Florinef), which increases sodium retention, thereby increasing blood volume and raising blood pressure
- Midodrine (Overten, ProAmatine), which causes blood vessels to contract, increasing blood pressure
- Droxidopa (Northera®), which the body converts into norepinephrine, increasing blood pressure

All medications have side effects. In some people with NOH, the side effects of some of these drugs may be intolerable, or worsen other conditions. Talk with your doctor about what combination of medications and non-drug approaches is right for you.

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