



## A Call to Action: The Role of Healthcare Providers in Reducing the Burden Associated With Neurogenic Orthostatic Hypotension

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## Abbreviations

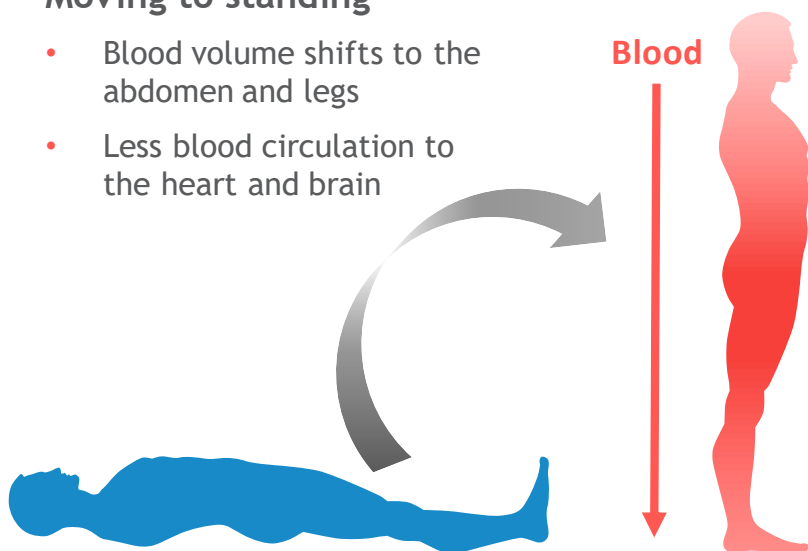
- BP=blood pressure
- DBP=diastolic blood pressure
- HCP=healthcare provider
- HR=heart rate
- nOH=neurogenic orthostatic hypotension
- OH=orthostatic hypotension
- SBP=systolic blood pressure

## What is neurogenic orthostatic hypotension?

- Orthostatic hypotension (OH) is a sustained blood pressure drop that occurs when standing up
- When OH occurs because of a neurologic condition that is associated with autonomic nervous system dysfunction (eg, Parkinson disease or other synucleinopathies), it is called neurogenic orthostatic hypotension or nOH

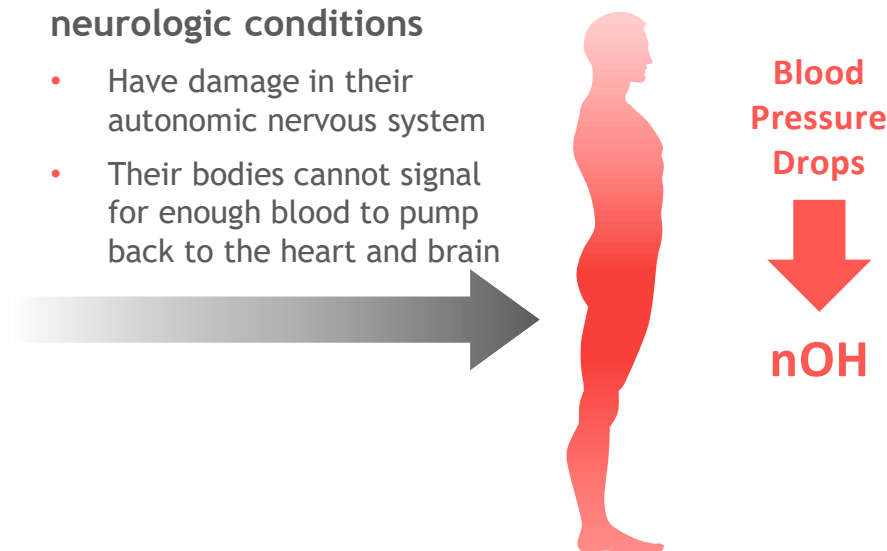
### Moving to standing

- Blood volume shifts to the abdomen and legs
- Less blood circulation to the heart and brain



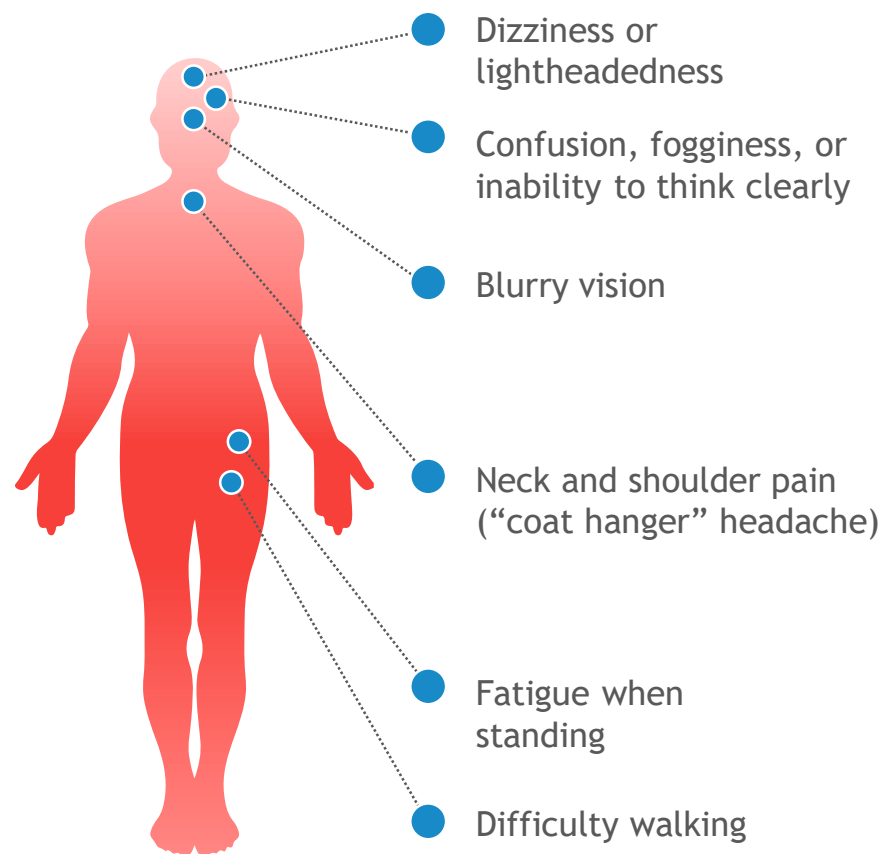
### Persons with certain neurologic conditions

- Have damage in their autonomic nervous system
- Their bodies cannot signal for enough blood to pump back to the heart and brain



## What are the symptoms of nOH?

- nOH causes a variety of symptoms that occur upon standing



- Patients may not know that nOH symptoms are from a condition that is separate from the underlying neurodegenerative disease

### Patient Perspective

*"Initially, I did not realize that I had nOH."*

*"I attributed all of [the symptoms] to PD [Parkinson disease]"*

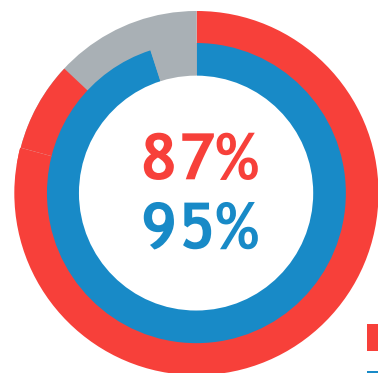
*"It became evident that the nOH was causing me to feel more 'stuck' or 'frozen' than I would otherwise feel as a Parkinson's patient."*

nOH=neurogenic orthostatic hypotension

## How can nOH symptoms affect patients?

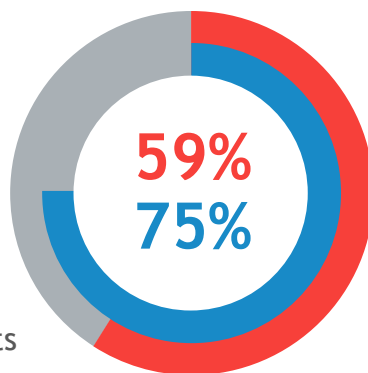
- nOH symptoms have a substantial effect on a patient's ability to perform daily activities and reduce quality of life<sup>1</sup>

Reduced Ability to Perform Daily Activities\*



■ Patients  
■ Caregivers

Reduced Quality of Life\*



### Patient Perspective

*"[Difficulty with] movement, putting my clothes on, getting out of bed or a chair, things that it was embarrassing in public to have happen - it affects your mental outlook."*

*"I would try to do projects around the house...and not complete it. I didn't have the energy."*

*"It was difficult to plan things for the evening after work...[I had] a desire to just go to bed."*

*"This leads to depression, loss of sleep, anxiety, and overall malaise."*

nOH=neurogenic orthostatic hypotension

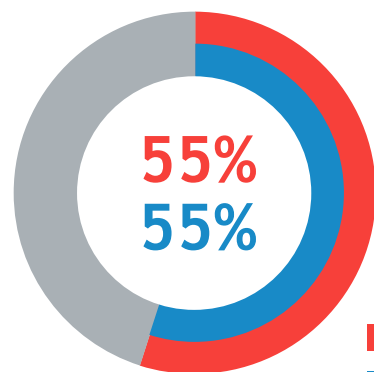
\*Percentages represent respondents agreeing with the statement in a survey of patients and caregivers. Patient and caregiver respondents were not paired

1. Claassen DO, et al. *BMC Neurol.* 2018;18(1):125

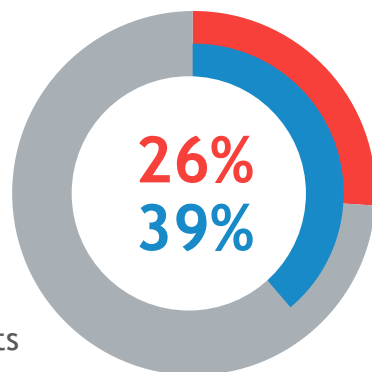
## What challenges do patients have when discussing nOH with their healthcare providers?

- Patients may not share information about the nOH symptoms they experience with their healthcare providers (HCPs)<sup>1</sup>

Patients Do Not Discuss nOH Symptoms With HCPs Unless Severe\*



Patients Are Uncomfortable Talking With HCPs About Impact of nOH Symptoms\*



■ Patients  
■ Caregivers

### Patient Perspective

*"There is so much information that [my HCPs] had, and you just get overwhelmed... and you don't... connect the dots that [blood pressure] may be an issue."*

*"As a nonmedical person, I don't know what factors matter and what to tell [my HCPs]. Or I might get confused as to why something is happening."*

*"So I just am very careful not to put any judgment on what I'm feeling when I'm telling them my symptoms. [My HCPs] are very good at asking the same question several different ways to clarify the answers."*

HCP=healthcare providers; nOH=neurogenic orthostatic hypotension

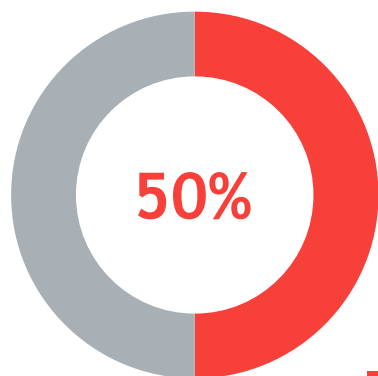
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1. Claassen DO, et al. *BMC Neurol.* 2018;18(1):125

## What are patient experiences with nOH diagnosis and management?

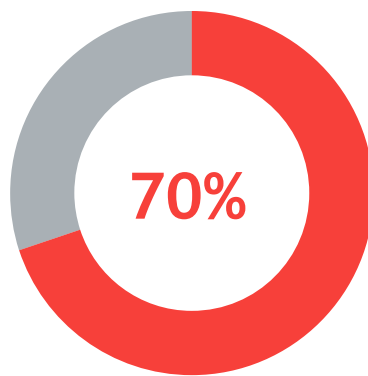
- Patients can find getting a diagnosis of nOH frustrating, but they also report improved management of their symptoms after diagnosis<sup>1</sup>

Patients Finding the Path to nOH Diagnosis Very Frustrating\*



■ Patients

Patients Reporting Improved Management of nOH Symptoms After Formal Diagnosis\*



### Patient Perspective

*“Once we were able to recognize that nOH was an issue [and treatment was initiated],... within a few days, I began to perk up, had a bounce in my step, felt overall motivated to exercise and take on projects, slept better, and felt very encouraged....You begin to have hope...”*

*“The improvement in energy levels and the decline of depression and anxiety were great... I felt like my cognitive skills were returning to pre-Parkinson’s level.”*

### Caregiver Perspective

*“I notice a huge difference... his attitude, the way he’s getting up and down; he’s been much better. I think he was beginning to think he couldn’t do stuff. Once [his HCPs] figured it out, I think his attitude changed.”*

HCP=healthcare provider; nOH=neurogenic orthostatic hypotension

\*Percentages represent respondents agreeing with the statement in a survey of patients.

Caregiver data not available due to small sample size

1. Claassen DO, et al. *BMC Neurol.* 2018;18(1):125

## How is nOH diagnosed and treated?<sup>1-4</sup>



### Recognize Risk<sup>1</sup>

#### Certain medical conditions

- Parkinson disease
- Multiple system atrophy
- Pure autonomic failure
- Other neuropathies

#### Persons who

- Are older ( $\geq 70$  years)
- Are frail
- Take multiple medications
- Have unexplained falls or fainting

### Discuss Symptoms<sup>1</sup>

#### When standing, do you experience

- Falls?
- Dizziness?
- Confusion/“not thinking clearly”?
- Neck pain/aching?
- Blurry vision or other vision problems?
- Leg buckling/weakness?
- Other symptoms or “not feeling right”?

### Diagnose nOH

#### Measure BP and HR supine (lying down) and standing

- OH: SBP drop  $\geq 20$  mmHg (or DBP drop  $\geq 10$  mmHg) within 3 min of standing<sup>2</sup>
- nOH: small HR increase upon standing ( $< 15$  bpm)<sup>1</sup>

#### Look for neurogenic cause<sup>1</sup>

- Exclude other causes for BP decreases (eg, medications)
- Physical exam, patient history, or other testing if needed

### Manage Symptoms<sup>1</sup>

#### Lifestyle changes

- Increased fluid/salt intake
- Compression garments/abdominal binders
- Gentle recumbent exercise

#### Medications

- Droxidopa<sup>3\*</sup>
- Midodrine<sup>4†</sup>

#### Patient BP/symptom diary

- Use to track nOH symptoms and treatment response

BP=blood pressure; DBP=diastolic blood pressure; HR=heart rate; nOH=neurogenic orthostatic hypotension; OH=orthostatic hypotension; SBP=systolic blood pressure

\*Approved to treat the symptoms of nOH due to autonomic dysfunction

†Approved to treat symptomatic OH

1. Gibbons CH, et al. *J Neurol*. 2017;264(8):1567-1582; 2. Freeman R, et al. *Clin Auton Res*. 2011;21(2):69-72; 3. NORTHERA® (droxidopa). Full Prescribing Information, Lundbeck NA Ltd., Deerfield, IL, 2017; 4. ProAmatine® (midodrine hydrochloride tablets). Full Prescribing Information, Shire US Inc., Lexington, MA, 2017

## Key Points

- nOH commonly occurs in patients with disorders that affect the autonomic nervous system, such as Parkinson disease
- Patients with nOH
  - May have severe symptoms that can make doing daily activities difficult and decrease their quality of life
  - May not know that they have nOH
    - May think that their symptoms are due to the underlying neurologic condition
  - May not share their concerns about nOH symptoms with their healthcare providers
- Increased awareness about the recognition, diagnosis, and options for management of nOH symptoms can lead to improved patient outcomes

HCP=healthcare provider; nOH=neurogenic orthostatic hypotension

## Disclosures

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