

## Orthostatic Intolerance Overview

Orthostatic Intolerance (OI) is characterized by symptoms of autonomic dysfunction triggered by or worsened by upright positioning and improved in supine positioning. Several conditions fall under this broad term, including but not limited to postural orthostatic tachycardia syndrome (POTS), neurocardiogenic syncope, orthostatic hypotension, and inappropriate sinus tachycardia.

Evaluation often includes the following:

- Passive standing (NASA Lean) test
- Electrocardiogram (EKG)
- Echocardiogram
- Event monitor
- Complete blood count (CBC)
- Electrolyte levels
- Thyroid function tests
- Morning cortisol levels (AM cortisol)
- Adrenocorticotropic hormone (ACTH) levels
- Comprehensive history and a thorough physical examination

You may consider a referral to cardiology or autonomic neurology (if available) based on the severity of a patient's symptoms or consult occupational therapy (OT) to recommend restorative or adaptive therapy to help improve quality of life.

### **Non-Pharmacological Treatment**

- Salt supplementation: 7 to 10 grams (2.8 to 4 milligrams of sodium) per day. Caution is advised in patients with heart failure, renal dysfunction, and older patients.
- Increased water consumption: At least 3 liters per day, ideally combined with salt intake.
- Waist-high lower body compression garments and/or abdominal binders (20-40 mm Hg), worn during the day and removed at night.
- Dietary adjustments: low-histamine, gluten-free, dairy-free, low FODMAP, and plant-based diets may be beneficial. Emphasize organic, fresh fruits, and vegetables, avoiding processed foods. Consider individualized diets based on specific symptoms and food sensitivities. Be mindful of mast cell activation syndrome and food/dietary triggers.
- Meal frequency: Small, frequent meals may be better tolerated due to a reduction in postprandial autonomic symptoms and heart rate and blood pressure variability. (2)
- Counterpressure maneuvers: isometric maneuvers or crossing legs when sitting or standing.
- Bed position: Raising the head of the bed 3-6 inches for patients with orthostatic hypotension.

### **Pharmacological Treatment**

- A good treatment plan can be guided by a patient's NASA Lean Test (passive standing) results.
- Starting with low doses and advancing as tolerated has been helpful in our clinical practice. For more medication and management specifics, references resource links below.
- Note: this does not represent a complete list of contraindications for these drugs.

#### First Line

Beta Blockers – especially helpful for autonomic overdrive, avoid if patient has asthma  
Fludrocortisone – can cause depression  
Midodrine – can cause supine hypertension

#### Second Line

Pyridostigmine – may cause GI distress  
Ivabradine – be aware of drug interactions  
Methylphenidate – can cause or worsen tachycardia  
Alpha Blockers - may increase fatigue  
Droxidopa – may cause supine hypertension  
Selective serotonin reuptake inhibitors (SSRI)  
Serotonin-norepinephrine reuptake inhibitors (SSnRI)

#### Third Line

Desmopressin

### **Resources and References**

#### **NASA Lean Test Instructions**



#### **Diagnosis & Management Lectures**



#### **OI Management Guidance**



#### **Rehydration Solution Options**



1) Blitshteyn S, Whiteson JH, Abramoff B, Azola A, Bartels MN, Bhavaraju-Sanka R, Chung T, Fleming TK, Henning E, Miglis MG, Sampsel S, Silver JK, Tosto J, Verduzco-Gutierrez M, Putrino D. Multi-disciplinary collaborative consensus guidance statement on the assessment and treatment of autonomic dysfunction in patients with post-acute sequelae of SARS-CoV-2 infection (PASC). *PM R.* 2022 Oct;14(10):1270-1291. doi: 10.1002/pmrj.12894. Epub 2022 Oct 8. PMID: 36169154; PMCID: PMC9538426

2) Multi-Disciplinary Collaborative Consensus Guidance Statement on the Assessment and Treatment of Cardiovascular Complications in Patients with Post-Acute Sequelae of SARS-CoV2 Infection (PASC) Blitshteyn S, et al. (2022).

3) Puvirajasingham S, Mathias CJ. Effect of meal size on post-prandial blood pressure and on postural hypotension in primary autonomic failure. *Clin Auton Res.* 1996 Apr;6(2):111-4. doi: 10.1007/BF02291232. PMID: 8726096.

