



Children's Heart Center of Central Oregon

Postural Orthostatic Tachycardia Syndrome (POTS):

Summary of 2015 Expert Consensus Statement (Heart Rhythm Society in collaboration with ACC, AHA, and others)

Definition of POTS:

- 1) Frequent symptoms (see below)
- 2) Between age 12 and 19, an increase in heart rate of at least 40 when standing
- 3) No significant decrease in blood pressure when standing (<20 mmHg change)

Symptoms of POTS:

- 1) With standing: palpitations, lightheadedness
- 2) With any posture: bloating, nausea, diarrhea, abdominal pain
- 3) General: fatigue, poor sleep, migraines
- 4) Symptoms are commonly worsened by heat, exercise, dehydration, or alcohol.

A combination of causes (can be some or all of these):

- 1) Autonomic dysfunction (a problem of the nervous system), which causes the blood to pool in the veins of the legs and abdomen instead of being evenly distributed.
- 2) Low blood volume (this can be either from inadequate fluid intake or from the body's own regulation of fluid)
- 3) Sensitivity to adrenaline, causing palpitations, anxiety, or tremor
- 4) Deconditioning (can be from illness, or lack of exercise), leading to reduced heart muscle mass and effectiveness.
- 5) Hypervigilance: the affected person often has a careful focus on bodily sensations

Treatment:

- 1) Fluid intake of 2-3 L per day
- 2) Salt consumption of 10-12 g of NaCl (sodium) per day
- 3) Compression stockings or tights
- 4) Progressive exercise program to include aerobic training and resistance training for thighs; start with rowing machines, recumbent bicycle, swimming
- 5) Medications:
 - a. Fludrocortisone (Florinef): helps retain sodium and expands blood volume
 - b. Midodrine: constricts blood vessels, helps blood return from legs to heart
 - c. Propranolol: helps with high heart rates (low doses only – 10-20 mg)
 - d. Other possible choices have significant side effects
- 6) Intravenous “rescue” therapy with saline infusions can improve symptoms for hours to days.

Epidemiology/Natural History:

- 1) Onset of symptoms can be anytime, but typically age around 15; symptoms start to improve around age 20
- 2) 75% females

Related syndromes:

- 1) Inappropriate sinus tachycardia: a heart rate of >100 at rest, and average heart rate >90 over 24 hours, with no obvious cause.
- 2) Vasovagal syncope: fainting in response to a trigger such as prolonged standing, exercise, or pain, usually associated with low heart rate.