Scientific Understanding of Postural Orthostatic Tachycardia Syndrome (POTS)

POTS, like all forms of dysautonomia, is characterized by dysfunction of the autonomic nervous system. It affects blood pressure, heart rate, blood vessel and pupil diameter, peristaltic movements of the digestive tract, and body temperature. POTS is characterized by orthostatic intolerance. When standing, a lack of vessel constriction leads to blood pooling in the legs and abdomen. The shortage of blood in the brain upon standing can result in dizziness, light-headedness, and possibly fainting.[1] Other symptoms include tachycardia, chest pain, nausea, gastrointestinal issues, abnormal sweating, and cognitive impairments. Many symptoms are decreased by lying down, and returning blood to the heart and brain.

While anyone can develop postural orthostatic tachycardia syndrome, approximately 75% of those diagnosed are women between the ages of 15 and 50.[2] POTS can be triggered by a variety of life stressors including pregnancy, major surgery, trauma, or a viral infection like mononucleosis or Lyme disease.[2]

Postural orthostatic tachycardia syndrome is not a rare disorder. It is estimated that 170/100,000 in the US have POTS[4] as do 1/100 teenagers.[5] Common forms of primary postural orthostatic tachycardia syndrome include partial dysautonomic POTS, immune mediated pathogenesis, adolescent, and hyperadrenergic state.[3] Others develop POTS secondary to diabetes, amyloidosis, heavy metal poisoning, Sjogren syndrome, Ehlers-Danlos Syndrome, or paraneoplastic syndrome.[3]

A person with POTS uses three times more energy to stand than normal. Even minor movements around the house can be exhausting and increase symptoms.[6] Their quality of life of compares to those with congestive heart failure or chronic obstructive pulmonary disease (COPD).[7] Some people with POTS are so disabled that they cannot work or attend school.

The long term prognosis varies based on the underlying cause and overall severity of symptoms. POTS doesn't simply go away, and most teens don't outgrow this disorder. In fact, only 20% of teens made a full recovery within 10 years, 60% had improved symptoms but still met the POTS criteria, and the remaining 20% either maintained their level of severity or declined further.[8] Only 50% of people who develop POTS after a viral infection recover in two to five years[3] while those with the primary hyperadrenergic form will require lifelong treatment. For individuals with POTS secondary to another illness, treatment of the underlying disorder is critical in order to control POTS symptoms.[3] Compassionate, continuing care is critical to achieve a decent quality of life for these chronically ill patients.

[1] http://www.mayo.edu/research/departments-divisions/department-neurology/programs/autonomic-nerve-disorders?_ga=1.174470183.485403793.1420299086

[2] http://www.ninds.nih.gov/disorders/postural_tachycardia_syndrome/postural_tachycardia_syndrome.htm

[3] http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2600095/

[4] Schondorf R, Low PA. Idiopathic postural tachycardia syndrome. Ann Neurol 1990; 28:271

[5] Fischer, P. Postural orthostatic tachycardia syndrome. Mayo Clinic Podcast. 2007. http://www.podcastingnews.com/details/www.mayoclinic.org/rss/heart-podcast.xml/view.htm

[6] Grubb, BP, Kanjwal, Y, Kosinski, DJ. The postural tachycardia syndrome: A concise guide to diagnosis and management. J Cardiovasc Electrophysiol 2006; 17:108-112.

[7] Benrud-Larson, LM, Dewar, MS, Sandroni, P, Rummans, TA, Haythornthwaite, JA, Low, PA. Quality of life in patients with postural tachycardia syndrome. Mayo Clinic Proceedings 2002; 77:531-537.

[8] Kizilbash SJ, Ahrens SP, Bhatia R, Killian JM, Kimmes SA, Knoebel EE, Muppa P, Weaver AL, Fischer PR. Long-term outcomes of adolescent-onset postural orthostatic tachycardia syndrome. Presented at the 24th International Symposium on the Autonomic Nervous System, Kohala Coast, Hawaii, October 23, 2013.