Severe Symptomatic Postural Orthostatic Tachycardia Syndrome in a Pregnant Patient

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BACKGROUND

Postural Orthostatic Tachycardia Syndrome (POTS)

- Upright positioning → excessive tachycardia without hypotension → lightheadedness, palpitations, chest pain, syncope[1]

Prevalence in the U.S.

- 0.2-1% of the population
- Women of reproductive age most predominantly affected[2]

Pathophysiological Subtypes[2]

- Hyperadrenergic
- Neuropathic
- Hypovolemic

Box 2: Diagnostic criteria for postural orthostatic tachycardia syndrome

All of the following criteria must be met:

- Sustained heart rate increase of ≥ 30 beats/min (or ≥ 40 beats/min if patient is aged 12–19 yr) within 10 minutes of upright posture.
- Absence of significant orthostatic hypotension (magnitude of blood pressure drop ≥ 20/10 mm Hg).
- Very frequent symptoms of orthostatic intolerance that are worse while upright, with rapid improvement upon return to a supine position. Symptoms vary between individuals, but often include lightheadedness, palpitations, tremulousness, generalized weakness, blurred vision and fatigue.
- Symptom duration ≥ 3 months.
- Absence of other conditions that could explain sinus tachycardia (Box 3).

Raj SR, Fedorowski A, Sheldon RS. Diagnosis and management of postural orthostatic tachycardia syndrome. CMAJ. 2022 Mar 14;194(10):E378-E385. doi: 10.1503/cmaj.211373. PMID: 35288409; PMCID: PMC8920526.

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CASE

Patient

- 26 y/o G5P3 at 37w GA presented for IOL

Past Medical Hx

- Severe symptomatic POTS with symptoms beginning 5 weeks into current pregnancy
- Wheelchair-bound
- Propranolol 10 mg BID & Enoxaparin 40 mg daily
- Frequent OB triage visits

L&D Planning

- Admission ECG → sinus tachycardia 119 bpm
- Telemetry monitoring
- Continuation of propranolol
- Anticoagulation held appropriately for epidural placement
- Adequate co-loading with crystalloid for epidural placement in the sitting position

Delivery

- SVD with adequate epidural analgesia without complications

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DISCUSSION

Neuraxial analgesia considerations

- Positioning for epidural placement
- Holding anticoagulation per SOAP guidelines
- IV Fluid administration

Potential for unpredictable tachycardic responses[1]

- Beta agonist agents
  - Epinephrine for epidural test dose
- Increased catecholamine release
  - From labor or inadequate analgesia

Association with Ehlers-Danlos syndrome (EDS)[3]

- The hypermobile EDS patient population have an increased prevalence of POTS[4,5]
  - Likely due to autonomic dysfunction

Future Steps for This Patient

- Continues to have ED visits for chest pain, inappropriate tachycardia, and episodes of seizure-like activity
- Referral to Cleveland Clinic for more specialized POTS management
- Planning for future deliveries
- Ivabradine therapy initiated

References