

**Low iron storage and mild anemia in postural tachycardia syndrome in adolescents.**

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**Abstract**

**OBJECTIVE:** We reported low iron storage in neurally mediated syncope (NMS). While reduced red cell mass indicative of anemia has been reported in POTS, iron indices and hemoglobin (Hb) data were not reported. We investigated whether POTS, like NMS, is associated with low iron storage and anemia.

**METHODS:** Thirty two children evaluated in 2007 and 2008 for probable POTS by a standing or tilt test or both at Texas Children's Hospital were included in a retrospective study. We measured serum ferritin (SF) and Hb values. We defined iron deficiency as SF < 12 µg/L, low iron storage as SF ≤ 25 µg/L, anemia as low Hb values for age and sex, and POTS as ≥2 symptoms of orthostatic intolerance >3 months and increased HR of >30 BPM or HR of >120 BPM within 10 min of standing or 70° tilt.

**RESULTS:** Twenty four children had POTS, ages 12-18 years, 17 (71 %) were females. Value range (median) of SF 2-289 µg/L (25), Hb 11.5-14.6 (12.5) in females and 12-15.9 g/L (13.6) in males. Patients with POTS, when compared with normal US pediatric population had higher prevalence of low iron storage (50 vs. 14 %), iron deficiency (25 % of teenage girls vs. 9 %, and 16 % of teenage boys vs. 1 %), and anemia (18 % of teenage girls vs. 1.5 %, and 43 % of teenage boys vs. 0.1 %).

**INTERPRETATION:** Low iron storage and mild anemia are associated with POTS suggesting that low iron storage is a potentially pathophysiologic factor in both POTS and NMS.

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