

Title: Prospective Evaluation of Autonomic Function in Individuals With “Post COVID-19 Syndrome”

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Background: There is increasing recognition of a debilitating “Post COVID-19 Syndrome” occurring well after recovery from the initial acute illness. Symptoms may include palpitations, fatigue, and perceived heart rate increase upon standing or on minimal exertion. Autonomic dysfunction may be a potential etiology of these findings, as individual cases of new onset postural orthostatic tachycardia syndrome (POTS) have been described. No prospective autonomic evaluation of patients with “Post COVID-19 Syndrome” is available.

Objective: We sought to characterize symptoms and investigate the presence of dysautonomia in “Post COVID-19 Syndrome.” We report our initial findings.

Methods: This was an IRB approved, prospective, longitudinal, observational study. We included patients demonstrating “Post-COVID-19 Syndrome” who reported experiencing tachycardia with standing or minimal activity, palpitations, and exertional fatigue. Inclusion criteria included normal chest x-ray, LVEF>50% by echocardiogram, normal hemoglobin/hematocrit and TSH. Individuals with pre-existing dysautonomia were excluded. Subjects underwent non-invasive tests including orthostatic vital signs and head-up tilt table (HUTT) testing using a standard protocol.

Results: We report demographics, orthostatic vital signs and HUTT results of 7 consecutively enrolled patients (6 females, ages 30-64 years). Subjects reported current “Post COVID-19 Syndrome” symptoms of 8 ± 2 months (range 6-10). Two had single day hospitalizations during COVID-19 infection, while 3 were on betablockers during evaluation. Orthostatic vital signs were obtained in 5; 4/5 met criteria for probable or true POTS. All 7 underwent HUTT. One demonstrated a neurocardiogenic pattern and 6 a POTS pattern. Four demonstrated POTS during passive tilt

and 2 after administration of sublingual nitroglycerine. All 6 POTS patients were females and 5 reported loss of taste and smell during active COVID-19 infection. Overall, clinical symptoms and HUTT findings were consistent with the diagnosis of POTS in 6/7 subjects.

Conclusion: In patients with "Post COVID-19 Syndrome," new onset autonomic dysfunction is common, occurring in all study subjects. POTS pattern is most often demonstrated on HUTT.

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