

IV: POST COVID-19 "LONG" SYNDROME SYMPTOMS:

Clues that one may have autonomic dysfunction after having a viral infection with COVID-19 is usually the emergence of new symptoms. Generally, symptoms are prevalent that pertain to orthostatic intolerance, which is difficulty in standing or even sitting upright for any period of time without needing to lie down. Brain fog is often associated with this as are other cognitive dysfunction symptoms. Gastrointestinal difficulties, such as constipation, diarrhea, heartburn, and indigestion, difficulty eating more than a small meal, drinking fluids or postprandial (after eating) pain may be clues. Bladder difficulties with urine incontinence or urine retention may become prevalent. Secretomotor abnormalities with sweating or making tears may also become prevalent. Abnormal blood vessel functioning can cause what we call vasomotor symptoms and can cause slushing, cold extremities, or difficulty dealing with temperature changes. Abnormalities with the pupil and its motor function with autonomic dysfunction post-viral syndrome can cause difficulty with vision. Occasionally, hearing will fade when one is standing for a prolonged period of time, and we see this in conjunction with orthostatic intolerance symptoms.

Symptoms may persist after a COVID-19 infection for approximately three weeks. Oftentimes, these symptoms are fatigue, lassitude and weakness of muscles. However, if symptoms persist longer than 12 weeks, one may be going into a chronic post-covid phase.

Enclosed is a grid which we use in our autonomic office setting to screen for autonomic dysfunction (Table 1). If one answers several of these items positively, there is a good likelihood that they have autonomic dysfunction or dysautonomia.

One of the clues to the fact that a COVID-19 virus has produced new adverse effects, especially when one gets past three or four weeks, is difficulty standing still. Also, fatigue and lightheadedness are very common. Patients may have nausea, weight loss and inability to eat a full meal. Brain fog and mental clouding are common cognitive dysfunction features, especially when sitting or standing and may be associated with the inability to find words when one is speaking, or with short-term memory loss.

Palpitations, chest discomfort, chest pain and shortness of breath as well as difficulty breathing are seen in post-covid syndromes. It is imperative that the physician rule out a structural abnormality causing shortness of breath or chest pain, as it is known that the COVID-19 virus enters the cells through the angiotensin receptor 2, and that there are many of these receptors on the heart and lung. The heart and lung could be left with damage long-term or with malfunction. This can cause shortness of breath or chest discomfort.

Arrhythmias may cause palpitations, and this is often seen when there is an imbalance between the sympathetic and parasympathetic nervous systems after post-covid infections, especially if there is a high sympathetic and low vagal profile. Long-term, we have found patients with high vagal profiles or vagal-type excess aspects to their dysautonomia, and these are often associated with headache, fatigue, sleep disturbances and even migraine syndromes. More commonly, however, patients with post-COVID-19 syndrome have chest pain shortness of breath and palpitations as the result of orthostatic intolerance where they are pooling blood in their lower extremities when they stand. The blood does not get to the heart and then to the brain effectively due to various problems with vasomotor autoregulatory abnormalities and with venous pooling. These patients experience shortness of breath with minimal activity, fatigue with minimal exertion, chest discomfort, and palpitations as the heart rate often races in an attempt to increase the cardiac output because of low venous return to the heart from the venous pooling. We have found compression stockings, medicines, such as midodrine and Fludrocortisone, fluids, salt and electrolytes, and even various isometric exercises are helpful in alleviating these symptoms. Long-term, however, treatment with antioxidant cocktails, which we have specifically developed in our clinic, and various types of exercise programs tailored to one's disabilities have been found to be valuable therapeutic agents in many patients going forward along with life-style changes and a proper adjusted diet.