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Thank you for entrusting in the compounding services at Madison Medical Compounding Pharmacy to help meet the unique medication needs of your patients. We are excited to share our monthly newsletter with you and look forward to working with you. Please don't hesitate to let us know how we can assist you and your practice.

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Post-COVID Syndrome/Long COVID

Post-COVID syndrome or Long COVID is an increasingly recognized complication of acute SARS-CoV-2 infection. A significant proportion of patients infected with SARS-CoV-2 experience new, recurring, or persistent symptoms, often beginning 3 months after infection and lasting for weeks, months, or longer. The clinical manifestations include multisystem complications of the disease, specifically cardiovascular, neurologic and psychologic, hematologic, pulmonary, and dermatologic. Most frequent neurological symptoms include fatigue, memory/attention deficits, cognitive slowing, sleep disorders, myalgias, and hyposmia (loss of smell). Other symptoms include reduced exercise tolerance, chest pain, and shortness of breath. The occurrence of Long COVID is not associated with the severity of foregoing acute COVID-19. This condition may be related to a virus- or immune-mediated disruption of the autonomic nervous system resulting in orthostatic intolerance syndromes.

To better understand the predictors and impact of symptom persistence, a prospective cohort of 465 patients who were infected with COVID-19 (54% males, 51% hospitalized) were followed for 9 months after COVID-19 onset. Duration and predictors of persistence of symptoms, physical health, and psychological distress were assessed. 37% presented with at least 4 symptoms and 42% complained of symptoms lasting more than 28 days. At month 9, 20% of patients were still symptomatic, showing mainly fatigue (11%) and breathlessness (8%). Patients with age > 50 years, ICU stay, and multiple symptoms at onset were more likely to suffer from long-term symptoms, which had a negative impact on both physical and

mental wellbeing.

People with Long COVID may have unexplained symptoms that are misunderstood by their healthcare providers, which can result in a delay in diagnosis and appropriate care or treatment. Clinical evaluations and results of routine blood tests, chest x-rays, and electrocardiograms may be normal. After COVID-19 illness, some people may experience new health conditions including multiorgan effects or autoimmune conditions, and may be more likely to develop diabetes, heart conditions, or neurological conditions compared with people who have not had COVID-19.

Verma et al. showed “that Epstein-Barr virus, which infects and persists in >90% of adult humans, increases the susceptibility of epithelial cells to infection by SARS-CoV-2. EBV, when it reactivates from latency or infects epithelial cells, increase expression of ACE2, the cellular receptor for SARS-CoV-2, enhancing infection by SARS-CoV-2. Inhibiting EBV replication with antivirals may therefore decrease susceptibility to SARS-CoV-2 infection.” In a small study, Gold et al. found that 66.7% of long COVID subjects versus 10% of control subjects were positive for Epstein Barr Virus (EBV) reactivation. “These findings suggest that many long COVID symptoms may not be a direct result of the SARS-CoV-2 virus but may be the result of COVID-19 inflammation-induced EBV reactivation.”

While it is very rare, some people, mostly children, experience multisystem inflammatory syndrome (MIS) during or in a short time after a COVID-19 infection. Multisystem inflammatory syndrome in children (MIS-C) is a serious condition associated with COVID-19 where different body parts can become inflamed, including the heart, lungs, kidneys, brain, skin, eyes, or gastrointestinal organs.

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Low Dose Naltrexone: A Potential Therapy for COVID-19

“Like other coronaviruses, SARS-CoV-2 relies on the surface Spike glycoprotein to access the host cells, mainly through the interaction of its Receptor Binding Domain (RBD) with the host receptor Angiotensin-Converting Enzyme2 (ACE2). SARS-CoV-2 infection induces a profound downstream pro-inflammatory cytokine storm. This release of the pro-inflammatory cytokines is underpinning lung tissue damage, respiratory failure, and eventually multiple organ failure in COVID-19 patients. The phosphorylation status of ERK1/2 is positively correlated with virus load and ERK1/2 inhibition suppressed viral replication and viral infectivity. Therefore, molecular entities able to interfere with binding of the SARS-CoV-2 Spike protein to ACE2, or damping hyperinflammatory cytokines storm, blocking ERK1/2 phosphorylation have a great potential to inhibit viral entry along with viral infectivity.” Naltrexone, an FDA-approved opioid antagonist drug, “suppresses high fat/LPS induced pro-inflammatory cytokine release both from macrophage cells and Adipose Tissue Macrophage. Moreover, Low Dose Naltrexone (LDN) also showed its activity as an ERK1/2 inhibitor. Notably, virtual docking and simulation data also suggest LDN may disrupt the interaction of ACE2 with RBD.” LDN may be considered as a treatment and/or adjuvant therapy for coronavirus infection.

J Biomol Struct Dyn. 2022 Feb;40(3):963-970.

Ask our compounding professionals about customized medications and dosing for LDN.