

Long COVID: A Bane of Previously Infected COVID-19 Patients

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'Long COVID' is also commonly known as 'Post-COVID-19 Condition' (PCC) or Post-Acute Sequelae of SARS-CoV-2 infection. This unfortunate condition, which truly is a bane of patients infected previously with the COVID-19 virus, usually results in multisystem symptoms and clinical signs which persist or recur after acute COVID-19 infection. Long COVID may present with clinical features which may be continuous, progressive or of a remitting and relapsing nature, usually setting in about 3 months after the acute infection. While most patients who recover after an acute COVID-19 infection recover fully, a significant percentage (roughly between 10%-30%) develop at least one or more persistent symptom which continues to remain beyond a period of 3 months. The exact prevalence varies depending on the severity of the original infection (and whether the patient is hospitalised or not), presence of comorbidities, age of the patient and vaccination status.

Most clinicians have observed that while many of these persistent symptoms improve gradually over a period of the next 6-12 months and finally disappear, some persist even beyond 2 years.

Higher incidence of 'long COVID' has been observed mostly in patients who have had a severe COVID-19 infection requiring hospital admission, elderly individuals, presence of comorbidities such as diabetes, prior respiratory conditions such as COPD, hypertension and obesity. However, vaccination has shown to reduce the incidence of Long COVID in most patients.

Patients affected by Long COVID usually present with a myriad of symptoms ranging from low fever, generalised malaise and weight loss to more severe constitutional symptoms such as reduced effort tolerance, breathlessness, persistent cough and chest discomfort. Cardiovascular symptoms such as tachycardia, palpitations, arrhythmias and sometimes myocarditis have been observed in patients with Long COVID. Some patients have experienced cognitive decline with an impairment of memory and lack of concentration accompanied by headache and sleep disturbances. Loss of appetite, abdominal discomfort diarrhoea, joint pains, myalgia and muscle weakness have also been reported in a subset of patients. Psychological manifestations such as depression, mood disturbances and chronic anxiety have also been observed. This wide range of symptoms is especially annoying and disturbing for the patients who have recently recovered from acute COVID-19 infection.

Many scientists have tried to determine the exact cause behind Long COVID, but the exact pathophysiology behind the process still remains elusive. Some believe there are persistent viral antigens and viral reservoirs in bodily tissues as shown by the presence of SARS-CoV-2 RNA and protein fragments which drive immunological activation. Also, since COVID-19 is a multisystem disease, damage to multiple organs may result in long-lasting structural and functional impairments.

Long COVID is usually suspected based on multiple wide-ranging symptoms and signs while other causes are simultaneously excluded. These patients usually have symptoms persisting for more than 3 months after an acute infection with COVID-19, which was followed by about 4 weeks of a recovery phase.

It has been observed that some people experiencing Long COVID may have symptoms similar to patients having myalgic encephalomyelitis/chronic fatigue syndrome (ME/CFS) or other chronic illnesses, making the clinical diagnosis difficult in some cases. Investigations usually include complete blood profiling including full blood count, inflammatory markers, liver function test, renal function test and thyroid function test.

Radiological investigations include chest radiography and CT scan. Other investigations include pulmonary function testing, exercise testing for oxygen desaturation and echocardiography. While this list of investigations is not exhaustive, select testing can be done based on the patient's symptoms and clinical findings.

Due to a wide spectrum of clinical symptoms and signs, the treatment of Long COVID is usually multipronged. The patient should be assured that his symptoms are not purely psychological post-COVID, but that they are valid and relevant. In order to combat fatigue, patients must be encouraged to gradually pace their activities and avoid overexertion. Patient should be referred to a respiratory therapist for breathing exercises and gradual pulmonary rehabilitation. Emphasis should also be made on proper nutritional support, stress management and social support.

For psychological symptoms such as mood changes, coping and anxiety, the patient may be referred for cognitive behavioural therapy (CBT).

The patient's comorbidities must also be adequately treated, including hypertension, diabetes and dyslipidaemia.

At present, there is no pharmacological therapy that 'cures' or 'slows' the progression of Long COVID. The patient's symptoms and clinical signs need to be treated based on their severity and clinical importance.

In conclusion, we can state that Long COVID is a multisystem disorder of complex aetiology which usually affects patients who have had severe acute COVID-19 infection in the recent past. It is a condition with a wide spectrum of clinical symptoms and signs which may be persistent, progressive or remitting-and-relapsing in nature. It is indeed quite challenging to treat Long COVID, as it presents with a wide variety of symptoms and clinical signs which makes it difficult to distinguish it from other clinical conditions. Treating the relevant symptoms with a multidisciplinary and patient-centred approach is cornerstone in the successful management of patients affected by Long COVID.

Current research is ongoing, which suggests that vaccination against COVID-19 is the best possible line of defence as yet available, to prevent the development of Long COVID, in both adults and children.

However, the struggle to identify Long COVID and successfully manage the condition with a multipronged approach continues, and we can only hope that with time we are able to successfully manage and contain the condition, if not radically treat it, so as to significantly reduce morbidity and improve the quality of life in these patients.

Research is ongoing to better understand the mechanism behind Long COVID and how to prevent it from developing. Various studies at CDC are ongoing to determine which groups of the general population are adversely impacted by Long COVID, how new variants may affect the incidence of Long COVID in future and the role of COVID-19 vaccination in the prevention of Long COVID.

Recommended Reading

- Long COVID Workbook: Early Support and Symptom Management, by SIGN: Comprehensive workbook, from the Scottish Intercollegiate Guidelines Network (SIGN). November 2023.
- The Long COVID Handbook: A definitive guide to understanding, managing and treating the condition. Authored by Professor Danny Altmann.
- Long COVID: Advice from Diagnosis to Treatment and Recovery. Authored by Professor Steven Faux. September 2024.
- CDC Science and the Public Health Approach to Long COVID. Public Health, September 3, 2025.

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