

Long-term symptoms of coronavirus infection (COVID-19)

Essentials

- At least one in three patients with COVID-19 will have some symptoms persisting for more than 3 months.
- Long-term symptoms may affect their ability to work or study and cause difficulty taking care of daily tasks.
- Three months after falling ill, 1–5% of patients have symptoms significantly affecting their functional capacity.
- It is essential for treatment that patients are heard, symptoms are validated, information is shared, and symptomatic treatment and, as far as possible, multiprofessional help for rehabilitation are provided.

Epidemiology

- Prolonged symptoms are common after viral infections. Earlier SARS and MERS epidemics caused by coronaviruses caused long-term symptoms in about one patient in three.
- Autonomic nervous system disturbances are typical for postviral syndromes and may cause postural tachycardia (POTS), for example, as in the chronic fatigue syndrome (ME/CFS).
- Long-term symptoms caused by coronavirus occur in all age groups and also in people who had only mild symptoms of disease.
- The SARS-COVID-19 virus is known to be capable of causing tissue and organ damage, particularly endothelial changes and thrombosis. The mechanism behind long-term symptoms is still unclear but may involve, in addition to organ damage, features of chronic inflammation, autoimmune reactions and other immunological disturbances.
- Coronavirus infection has affected vulnerable population groups most severely. Long-term symptoms are often most severe in those with the most pre-existing health problems.

Symptoms

- The most common residual symptom is fatigue, which is not just tiredness but lack of energy, incapability of coping with normal chores, an unpleasant state that is usually not alleviated by rest.
- The second most common symptoms are cognitive dysfunction, memory problems and concentration problems, which patients describe as brain fog.
- In addition, patients may have chest sensations, dyspnoea, headaches, muscle pain and other chronic pain, dizziness and palpitations.
- Numerous other cardiac and respiratory tract, nervous system, abdominal, olfactory, eye or skin symptoms have also been described. Symptoms typically occur in several organ systems.
- In addition, mental disturbances, particularly anxiety, have been described. Socioeconomic consequences may increase anxiety symptoms.
- Symptoms typically vary, and relapses are common.
- Physical and cognitive exertion, stress and lack of sleep aggravate symptoms.

Diagnosis

- There are no uniform diagnostic criteria for the long-term symptoms yet. The term "post-acute COVID" has been used for symptoms continuing for more than 4 weeks, and long-term COVID symptoms or "long COVID" for symptoms continuing for more than 3 months.
 - The following ICD-10 codes are being used:
 - U08.9 Personal history of COVID-19, unspecified
 - U09.9 Post COVID-19 condition, unspecified

- Many patients with long-term coronavirus symptoms were not initially tested but this should not prevent the treatment of long-term symptoms and rehabilitation.
- Diagnosis is based on symptoms and on the exclusion of other diseases.
- As in chronic fatigue syndrome, laboratory tests such as the following may be performed after due consideration, as necessary: ESR, CRP, basic blood count with platelet count, K, Na, creatinine, CK, TSH, free T4, Ca, fasting plasma glucose, HbA1c, transcobalamin II-bound B12, ferritin, vitamin D-25, ALP, ALT, cortisol, ANAAb, albumin and prealbumin, ECG.

Treatment and rehabilitation

- Even though this is a new syndrome that is poorly known as yet, symptoms should be taken seriously, the patient should be heard and the total situation assessed.
- We know from previous postviral syndromes that in most patients symptoms improve over several months.
- Even though the disease mechanisms are poorly known as yet, they are reversible in nature. Patients need positive messages and hope.
- Symptomatic medication can be tried, such as a beta blocker for palpitations.
- Stressors must be addressed, as stress aggravates the symptoms. Some patients may benefit from treatments calming down autonomic nervous system activity, such as mindfulness or meditation.
- Internet therapies aimed for long-term harmful somatic symptoms may also be suitable for patients suffering from long-term symptoms of coronavirus infection.
- As the syndrome is multifactorial, a multiprofessional approach is useful. A physiotherapist can guide physical exercises, and a mental health professional can support mental coping. It may be necessary for the patient to change to part-time work for some time. Patients often also need help from social services to apply for social insurance benefits.

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