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Long COVID-19: An emerging pandemic in itself

To the Editor

The novel coronavirus SARS-CoV-2 disease is predominantly a respiratory illness that is highly contagious and is spread by droplet transmission. It causes a spectrum of illnesses from a mild sore throat to serious viral pneumonia requiring hospitalisation [1]. It is estimated that about 80% of people infected with COVID-19 have a mild course of illness. About 20% of the remaining patients require hospitalisation to treat their pneumonia and may need therapeutic assistance with oxygen. In about 5% of cases, the pneumonia becomes so severe that patients may need to be admitted to the intensive care unit for ventilatory support [2]. Currently, the majority of attention has been focused on the management of critical cases. Patients who experience only mild symptoms are being managed on an outpatient basis. However, it has become increasingly recognised that a sizeable third group of people seem to be demonstrating ongoing symptoms pertaining to COVID-19 far longer than expected for the disease pattern. This has raised concern amongst the health community due to the anticipated long-term effect on health care systems [3].

Prevalence is unknown but not uncommon

“Long COVID” is a term being used to describe the long-term effects of COVID-19 in people who have had either suspected or confirmed COVID-19. These people are reporting lasting effects of the infection [4]. Data from the COVID-19 symptom tracker app developed by

Kings College London/ZOE COVID Symptom Study estimates that up to 10% of people with COVID-19 take at least three weeks to recover with some experiencing symptoms for 30 days or more [5]. A team of researchers from Italy reported that nearly nine in 10 patients (87%) discharged from a Rome hospital after recovering from COVID-19 were still experiencing at least one symptom 60 days after onset [6].

Presentations are variable and non-specific

The characteristic symptoms of COVID-19 include fever, dry cough, and shortness of breath. Some people also experience aches and pains, a sore throat, and loss of taste and/or smell. Patients suffering from a mild form of the disease might expect to get better after a few weeks. There is growing evidence that, in some patients, the symptoms persist longer than expected. Besides the well-described symptoms of COVID-19, the British Lung Foundation and Asthma UK’s post-COVID survey of over 1000 patients (of which over 800 had not been admitted to hospital) found that the top five reported symptoms of long COVID were breathing problems (90%), extreme tiredness (64%), sleeping problems (22%), cough (22%), and changes in mood involving anxiety or depression (22%) [7]. The majority of these people had not experienced these symptoms before COVID. The initial findings from the survey showed that many people who had a mild to moderate course of disease are now on a long road to recovery that is affecting both their physical and mental health. The Italian study from Rome found

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Table 1. Reported clinical characteristics of long COVID

General	<ul style="list-style-type: none"> • Fatigue • Tiredness • Sleep disturbances
Respiratory	<ul style="list-style-type: none"> • Dyspnoea • Exacerbation of Asthma or COPD • Persistent cough
Mental Health	<ul style="list-style-type: none"> • Emotional Disturbances • PTSD • Anxiety • Depression • Mood disturbances
Musculo-skeletal	<ul style="list-style-type: none"> • Joint pain • Myalgia • Arthritis of small joints
Cardiovascular	<ul style="list-style-type: none"> • Chest pain • Palpitations
Neurological	<ul style="list-style-type: none"> • Pins and needles' sensation • Headache • Dizziness

COPD — chronic obstructive pulmonary disease; PTSD — post-traumatic stress disorder

that, in patients recovering from COVID-19, many still reported fatigue (53%), dyspnoea (43%), joint pain (27%), and chest pain (22%) even though none of the patients had fever or any signs or symptoms of acute illness. Two-fifths of patients reported a worsened quality of life [6]. The reported clinical features affect multiple parts of the body and are highlighted in Table 1.

An unknown pathophysiology that will be deciphered with time

As the understanding of COVID-19 is unravelling, it has been acknowledged that COVID-19 is associated with inflammation and a prothrombotic state [8]. People with severe COVID-19 seem to show an altered immune response and suffer an exaggerated inflammatory response (the “cytokine storm”). Whether the triggering of the immune system has any role in the features of long COVID is unclear and hence, the exact underlying pathophysiology of long COVID is still not known. It is evident that clinical features seen in this cohort of long COVID patients is not restricted to patients who had been hospitalized, but is also being observed in patients who have had an initial mild illness.

Huge impact in all dimensions of life

There is a growing body of evidence that a significant minority of patients are suffering

from persisting and distressing symptoms that, under normal circumstances, would represent ‘red-flag’ symptoms requiring urgent investigation. Many people report an emergence of new symptoms late in the course of their illness. They state that these symptoms exhibit a relapsing-remitting pattern even though many had reported a mild initial illness. These factors combine to add to the distress and uncertainty of the condition. The long-term effects of COVID-19, even on people who suffered a mild infection, could be far worse than were originally anticipated according to researchers and doctors in Lombardy, Italy (the worst affected region in the country) [9]. The doctors warn that some victims may never recover from the illness and that all age groups are vulnerable. Some people may find that their ability to properly work, concentrate, and even take part in physical activities will be severely impaired. In the United Kingdom (UK), similar findings seem to have been found in a recent survey conducted by the British Lung Foundation and Asthma UK in people recovering from mild to moderate COVID-19. These patients had reported to have been struggling for weeks with symptoms, raising concerns that there is not adequate support for people who have not been treated on an inpatient basis with the illness [7]. The post-COVID-19 period was also found to be taking its toll on patient’s mental health. Over one-half of the people surveyed said that they did not feel they can cope well after the illness. There have been some patients that have reported symptoms of post-traumatic stress disorder.

Strategies

Recognising the growing concerns of patients, medical professionals, and medical organisations, the National Health Service (NHS) of England has launched a new service titled “Your COVID Recovery” in order to support, expand, and provide access to COVID-19 rehabilitation treatments for those who have survived the virus but still have problems with breathing, mental health, or other complications [11]. This post-COVID-19 support program idea can be extrapolated to support people in other countries. This support system consists of:

Multi-disciplinary support plans are being put into place to support patients who have been in hospitals or suffered at home with the virus with access to a face-to-face consultation with their local rehabilitation team (usually comprising of physiotherapists, nurses, and mental

health specialists). The multi-disciplinary team will be able to assess the needs and provide an appropriate level of support.

Online Support: Peer-to-peer community and mental support groups have been developed (e.g. Long Covid.org) to provide online resources and exercise tutorials to help in the post-COVID recovery period.

Social Media Support: Organisations and social media platforms (e.g. Facebook and Twitter) have created virtual support groups such as the “Long COVID Support group” for peer to peer support and information exchange.

Future directions

As we learn more about COVID-19, dealing with the emerging problem of long COVID will require a coordinated response from the government, public health bodies, healthcare systems, scientists, and the medical society in general. Research into the long term effects of COVID-19 on both hospitalized patients and those who initially only had mild symptoms and were treated on an outpatient basis will be necessary to understand and unravel the pathophysiology of long COVID. The Post-hospitalisation COVID-19 Study (PHOSP-COVID) that is being planned in order to assess the long-term effects of COVID-19 in hospitalized patients should be extended to include milder cases in order to understand the full spectrum of the disease [12].

Conclusion

It is important to acknowledge that the effects of COVID-19 are not only acute, but that the disease has long-term consequences as well. The recognition and increased awareness of long COVID is necessary to manage this illness effec-

tively. Rehabilitation, counselling, and mental health support form cornerstones of treating this condition. Establishing scientific studies and research will help us to keep an open mind when dealing with this new disease.

Conflict of interest

None declared.

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