

## Common Musculoskeletal Disorders in Patients with Covid-19

### ARTICLE INFO

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**SARS-CoV-2** is a coronavirus belonging to the betacoronavirus category <sup>[1]</sup> that targets the respiratory system and Causes symptoms similar to pneumonia <sup>[2]</sup>. The patients with-covid 19 do not only suffer from respiratory problems and their clinical symptoms range from no symptoms to severe pneumonia. In fact, they may have a variety of symptoms including fever, shortness of breath, dry cough, nasal congestion, sore throat, nausea, vomiting, myalgia, arthralgia, fatigue (muscular and mental), joint swelling (as reactive arthritis), headache, diarrhea and rarely arthritis <sup>[3]</sup>. The major musculoskeletal symptoms which might be appeared include arthralgia, myalgia, chronic fatigue, and joint swelling (as reactive arthritis) <sup>[4]</sup>. These symptoms are mainly due to inflammatory or immune responses <sup>[5]</sup>. The following is a brief overview of some of the major musculoskeletal problems in these people:

### Myalgia

Myalgia is a common symptom in patients with viral infections. In fact, myalgia reflects general inflammation and the cytokine response (an immune response) <sup>[6]</sup>. Covid-19 induced myalgia is longer and more severe

than the myalgia of other viral infections. It may not respond to conventional analgesics. Usually when the viral load pressure is reduced by treating the virus, muscle pain may also be reduced. In addition to the known classical mechanisms of myalgia in viral infections, Covid-19 can cause musculoskeletal pain through completely different mechanisms <sup>[7]</sup>. In hyperlactatemia, the ability to carry oxygen to the tissue cells is disrupted and the tissues remain hypoxic <sup>[7]</sup>. This condition in the musculoskeletal system may cause ischemia. Therefore, pain may occur in ischemic muscle tissue. Also, during hypoxic ischemia, increased growth factors, cytokine levels, ischemic conditions, and microvascular changes can cause pain by overexpression in the dorsal root ganglion <sup>[8]</sup>. As a result, due to increased lactate levels, low PH and low oxygen levels, there may be more muscle pain. Therefore, it is necessary to eliminate the cause of hypoxia to treat this type of pain. In these pains, the use of analgesics may not be effective. When the viral load decreases, the red blood cell oxygenation level increases, and the muscle lactate level decreases, the pain disappears spontaneously with viral treatment.

### Muscle fatigue

In people with Covid-19, symptoms such as excessive fatigue, heart beat, muscle aches, feeling of tingling, and some other symptoms have been reported as side effects of the virus <sup>[9]</sup>. The World Health Organization (WHO) report showed that 38% of patients developed fatigue due to Covid-19. The Wuhan China study found that this symptom was more common and 70% of these patients had fatigue <sup>[10]</sup>. We have very little information about what can cause fatigue after getting Covid-19. The presence of a persistent viral infection in the lungs, brain, fat or other tissues may be one of the mechanisms. Prolonged and inappropriate immune response after clearing an infection called cytokine storm (cytokine storm is a kind of overreaction of the immune system, in that the immune system itself attacks the tissues of the body and causes significant damage even more than coronary damage Virus) may also be another cause <sup>[11]</sup>.

There are now tips for people with chronic fatigue, how to manage fatigue and how to save energy. Therefore, low activities (mental or physical) should be done with rest. Return to work should also be a gradual and graded process <sup>[9]</sup>.

### Arthralgia

Causes of arthralgia joint pain is diverse <sup>[12]</sup>. Arthralgia is an important clinical complaint seen in many people with viral infections, including the emerging disease of Covid 19 <sup>[13]</sup>. In Thailand, 2.5% of people with covid 19 complained of joint pain <sup>[14]</sup>. This may indicate the importance of rheumatoid arthritis. Low joint pain can be treated with Over-the-counter medications, rub ice, take a hot bath, and do stretching. However, more severe cases of joint pain may require special medical procedures such as steroid injections, the use of nonsteroidal anti-inflammatory

drugs, joint aspiration, or physical therapy (such as physiotherapy, splints, etc.).

### Joint swelling or reactive arthritis

Usually occurs shortly after infection, and usually resolves within three to six months, and does not cause a particular long-term problem. Regarding the mechanism of its creation, the immune system seems to react against excessive infection, and attacks healthy tissue and causes inflammation in it, but the exact cause is not yet known. Women and men can get it at any age, but it is more common in men and people between the ages of 20 and 40 years old.

Reactive arthritis can affect any joint, but is more common in the knees, feet, toes, buttocks, and ankles, and has symptoms such as pain (tenderness and swelling in the joints), pain, and tenderness in some tendons (especially in the heels), pain in the back and buttocks, sausage-like swelling in the toes, joint stiffness (especially in the morning) <sup>[15]</sup>. There are no specific tests to diagnose reactive arthritis.

Treatment usually includes the following: use of antibiotics (to clear up any factor that may be causing reactive arthritis), use of painkillers such as ibuprofen (to relieve joint pain and stiffness), and manage and treatment of any severe or persistent arthritis. (using drugs such as steroids or anti-rheumatic drugs) <sup>[15]</sup>.

In view of the above, rehabilitation of patients with Covid-19 does not only include attention to respiratory, infectious or neurological problems <sup>[16]</sup>. In fact, Covid 19 patients recover with the aim of improving respiratory function, coping with immobility and its complications, reducing long-term complications, and improving cognitive and emotional areas to improve quality of life <sup>[17]</sup>. Accordingly, the existence of a multi-purpose approach to strategic rehabilitation is important and

fundamental, and each disease requires a specific musculoskeletal and respiratory rehabilitation program that should be tailored to its characteristics <sup>[16]</sup>.

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