

세포교정영양요법(OCNT)을 이용한 코로나바이러스감염증-19로 인한 호흡기 후유증 개선 증례 보고

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A Case Report on the Improvement of Respiratory Sequelae Caused by COVID-19 Using Ortho-Cellular Nutrition Therapy (OCNT)

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ABSTRACT

Objective: The coronavirus disease 2019 (COVID-19), first reported in Wuhan, China, is caused by the COVID-19 virus, which triggers acute respiratory symptoms. This virus spreads rapidly through droplets and contact, leading to a global pandemic. The disease presents a variety of symptoms, such as fever, chills, cough, and chest pain, and it can cause sequelae in multiple organs, potentially leading to chronic conditions. Therefore, research into management methods for this disease is urgently needed.

Case Reports: The patient in this case is a woman in her 80s, after recovering from COVID-19, developed respiratory sequelae such as cough, phlegm, chest pain, and shortness of breath. Despite taking related medications, her symptoms did not improve, and the quality of her sleep was affected, leading to a decline in her overall quality of life. Therefore, Ortho-Cellular Nutrition Therapy (OCNT), which included anthocyanins, fucoidan, zinc, selenium, and polysaccharides, was prescribed along with lifestyle modifications. As a result, approximately three months later, the patient reported improvement in the symptoms that had caused discomfort, and her quality of life increased as she was able to sleep well.

Conclusion: This case report confirms a significant improvement in the sequelae that occurred after the recovery from COVID-19, demonstrating that OCNT may help alleviate the patient's symptoms. However, this case has limitations as it was conducted on a single patient, and the improvement was only observed in respiratory sequelae. Therefore, future large-scale and multifaceted studies are needed to confirm and validate methods for alleviating these sequelae.

Keywords Ortho-Cellular Nutrition Therapy (OCNT), COVID-19, sequelae, immune function

Introduction

COVID-19 is an acute respiratory disease caused by infection with the Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2), also known as the COVID-19 virus. This virus was first identified in Wuhan, China, in late 2019, and due to its rapid transmission rate, the World Health Organization (WHO) declared a pandemic three months after the initial report. As of now, more than 770 million confirmed cases have been reported worldwide, and the death toll has

surpassed 7 million.^{1,2}

The COVID-19 virus is most commonly transmitted through droplets or contact, and it begins to replicate after binding to respiratory epithelial cells. Most patients show symptoms after an incubation period of up to two weeks, including fever, chills, cough, sore throat, chest pain, headache, diarrhea, and loss of appetite. COVID-19 affects individuals of all age groups, and the clinical manifestations vary according to age. Studies have shown that older individuals or those with underlying health conditions are more likely to experience severe respiratory symptoms and complications.³

The reason COVID-19 has garnered significant attention is not only due to the unprecedented pandemic it caused but also because it may lead to long-term sequelae after infection. These sequelae can be identified during or after infection and often persist for over 12 weeks. They can affect various organs, including the respiratory, cardiovascular, and nervous systems,

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with potential sequelae listed in Table 1. Multiple studies have suggested that autoimmune responses and persistent inflammation due to the COVID-19 virus infection are significant causes of these sequelae, although the exact cause has not yet been determined. These sequelae are not merely symptoms of fatigue post-infection but may lead to chronic diseases, highlighting the urgent need for management and treatment development for these long-term effects.⁴

Table 1. Possible sequelae due to COVID-19 infection

Respiratory	- Chest pain	- Shortness of breath
	- Pulmonary dysfunction	- Lung tissue damage, pulmonary fibrosis
Cardiovascular	- Arrhythmia	- Shock
	- Increased thrombosis	- Myocarditis, pericarditis
Nervous	- Neuralgia	- Memory impairment
	- Cognitive dysfunction	- Autonomic dysfunction
Others	- Kidney damage	- Liver damage, liver dysfunction
	- Menstrual irregularities	- Hormonal imbalances

In this case, the patient was experiencing respiratory sequelae after COVID-19 infection and complained of discomfort due to these symptoms. Therefore, Ortho-Cellular Nutrition Therapy (OCNT) was implemented, and significant improvement in respiratory symptoms and daily life discomfort was observed, which is reported here.

Case Study

1. Subject

This case involved one patient who experienced respiratory sequelae following a COVID-19 infection.

- 1) Name: OOO (83 years old / F)
- 2) Diagnosis: Respiratory symptoms due to post-COVID-19 sequelae
- 3) Date of onset: Unknown
- 4) Treatment duration: October 20, 2024 to January 20, 2025
- 5) Chief complaints: Cough, phlegm, chest discomfort and pain, shortness of breath, insomnia
- 6) Medical history: Lung cancer surgery 10 years ago, COVID-19 infection 2 years ago
- 7) Social history: None
- 8) Family history: Husband with colon cancer
- 9) Current illness and medications: None

2. Methods

The following OCNT was prescribed:

Cyaplex F Capsule (222, three times a day, 2 capsules per dose)
Viva Immune F Capsule (101, twice a day, 1 capsule per dose)

The above OCNT was prescribed in combination with the following lifestyle modifications:

- The patient was advised to have regular meals, increase the intake of foods such as tofu, seaweed, shellfish, and octopus, and consume fresh vegetables and fruits in small, frequent amounts.
- The patient was instructed to avoid consuming foods made with flour, deep-fried, or stir-fried in cooking oil.
- The patient was encouraged to frequently drink water with a small amount of salt (bamboo salt) to ensure proper hydration.
- The patient was recommended to ventilate the indoor space and take light walks frequently. If going outside was difficult, the patient was advised to get ample sunlight indoors.

Results

The patient, in this case, complained of respiratory discomfort as a sequela of COVID-19, which became chronic, leading her to visit a pharmacy. Therefore, OCNT was prescribed to improve the patient's respiratory symptoms.

After administering OCNT for 3 months, a significant reduction in the primary symptoms reported by the patient, such as cough and phlegm, was observed. According to the patient's report, breathing became more manageable, chest pain significantly decreased, and insomnia symptoms disappeared.

Discussion

The patient, in this case, is a Korean woman in her 80s who was diagnosed with COVID-19 approximately two years ago. After recovering from COVID-19, she continued to experience persistent cough, and despite visiting the hospital and being prescribed medications, there was no improvement. Further investigation revealed that the patient underwent lung cancer surgery 10 years ago and was declared to be in remission. Considering all of these factors, it was determined that the patient's overall immune function was weakened, and her antioxidant capacity had diminished, making her prone to inflammation. Therefore, the main focus of the OCNT was to improve inflammation through enhanced antioxidant capacity and immune function, promote smooth oxygen supply via improved blood circulation, and ultimately alleviate shortness of breath.

To ensure the overall proper functioning of the body, it is important to promote smooth blood circulation, which allows for the efficient delivery of oxygen and nutrients, and to restore balance by eliminating reactive oxygen species through enhanced antioxidant capacity. The anthocyanins contained in Cyaplex F Capsule are optimized nutrients for performing this role.

Anthocyanins are a type of polyphenol found abundantly in berries such as aronia. Various studies have shown this compound to exhibit high antioxidant activity, particularly in Aronia berries. One study measured the antioxidant capacity and immune activity of various polyphenols extracted from Aronia. The results indicated that the antioxidant capacity was the second highest among the polyphenols found in aronia, and

it was confirmed that it could influence the activation of immune cells, particularly neutrophils.⁵ It has also been shown to inhibit inflammation markers such as Interleukin-6 (IL-6) and TNF- α .⁶ In addition to the above roles, it also increases the production of nitric oxide (NO), which helps dilate blood vessels and inhibits vasoconstrictors such as Endothelin-1 (ET1) and Angiotensin II, thereby promoting smooth blood flow.

Fucoidan is a polysaccharide derived from brown seaweed, known for its potential to improve anti-inflammatory responses and immune function. Notably, in a double-blind, randomized controlled trial involving asthma patients, fucoidan was found to increase the ratio of helper T cells (Th cells) and cytotoxic T cells, both of which are important for immune responses. Additionally, a decrease in the neutrophil-inducing inflammatory cytokine Interleukin-8 (IL-8) was observed, suggesting that fucoidan positively affects both immune response and inflammation. Furthermore, the FEV/FVC ratio, an indicator of obstructive pulmonary disease, significantly increased, suggesting that fucoidan could improve respiratory function.⁷ Therefore, this nutrient likely played a role in enhancing respiratory function and improving the patient's symptoms.

Cyaplex F Capsule and Viva Immune F Capsule contain minerals, such as zinc and selenium, that help boost immune function. Zinc contributes to the regulation of both innate and adaptive immunity. It is particularly important in the functional regulation of NK cells and CD4⁺ T cells. Zinc deficiency is common in the elderly, weakening bodily and immune functions.⁸ Therefore, proper supplementation is essential to maintain appropriate zinc levels in the body. When consumed, selenium is used to synthesize selenoproteins in the body, which impact both innate and adaptive immunity, helping improve immune function. In particular, selenium is involved in initiating immune responses, but it also plays a vital role in suppressing excessive immune reactions, thereby maintaining an appropriate level of immune activity.⁹ Thus, these two mineral components likely enhanced the patient's immune function.

Recently, the physiological activity of polysaccharides derived from nature has been gaining attention, and they are being highlighted as raw materials for various supplements, functional foods, and pharmaceuticals. These raw materials can be obtained from multiple organisms, including plants, marine life, and microorganisms.¹⁰ Viva Immune F Capsule contains beneficial polysaccharides extracted from various plants, such as mushrooms, aloe vera, *Panax notoginseng*, and *Panax ginseng*. In particular, mushroom polysaccharides contribute to activating various immune cells, including macrophages, dendritic cells, and NK cells. Some mushroom polysaccharides have also been found to aid in cancer support.¹¹ Polysaccharides extracted from aloe vera have been shown to contribute to antioxidant function, as evidenced by DPPH radical scavenging tests and the measurement of hydroxyl and alkyl radical scavenging activity. These tests revealed IC₅₀ values, indicating the concentration required to inhibit 50% of specific compounds' biological or biochemical function, confirming their antioxidant properties.¹² Polysaccharides extracted from red *Panax ginseng* and *Panax notoginseng* show significant immune response and antioxidant activity, with particular benefits in restoring vitality.¹³ It is believed that these polysaccharides, derived from various plants, have positively

influenced the patient's overall immune function and physical well-being.¹³

In this case, OCNT using the various components above is considered to have significantly helped alleviate the patient's respiratory sequelae symptoms. In particular, although there had been no notable changes despite various medications and hospital treatments, OCNT led to significant improvements, ultimately resulting in a marked enhancement in the patient's overall quality of life. However, as this case involves a single patient, there are limitations to applying this to all patients with respiratory sequelae. Additionally, its applicability to other post-COVID-19 sequelae outside respiratory symptoms remains limited. Nevertheless, the fact that simple OCNT helped induce symptom improvement and enhance the patient's quality of life is noteworthy, and this report is made with the patient's consent.

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