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Relief of Symptoms Associated with Long COVID After Prolonged Water-Only Fasting: A Case Report

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Abstract

Long COVID is a broad range of symptoms that develop in a subset of people after acute SARS-CoV-2 infection. Current treatment options are investigational, not yet standardized, and aimed at symptomatic management of individual organ systems. This report presents the case of a 73-year-old male patient who achieved sustained improvements in symptoms associated with long COVID after two prolonged water-only fasting and refeeding interventions.

Keywords: long COVID, prolonged water-only fasting, immunity

Introduction

Long COVID refers to a broad range of persistent physical and psychological manifestations, which are estimated to arise in 5%–30% of patients after an acute SARS-CoV-2 infection.¹ Primary findings indicate that symptoms include dyspnea, fatigue, post-exertional malaise and/or poor endurance, and cognitive impairment (i.e., “brain fog”).² There is limited understanding of the mechanisms regulating long COVID, and the current treatment strategy is symptom management with multiple medications. Due to inadequate outcomes with standard care, some patients seek alternative approaches to achieve symptom relief.¹ Here we present a case of a 73-year-old male who elected to undergo two water-only fasting and refeeding interventions to manage symptoms associated with long COVID.

Case Presentation

A 73-year-old male presented to the residential fasting center with the intention of treating sinus congestion, fatigue, post-exertional malaise (PEM), and cognitive impairment that had dramatically diminished his quality of life and impacted his activities of daily living (ADL). He reported that the symptoms began two years earlier, approximately three to four months after he developed severe fatigue, chest congestion with cough, diarrhea and gas, brain fog, light-headedness, elevated temperature, and minor sore throat in December 2019. The symptoms lasted for six weeks during which he tested negative for influenza virus. The timing of the illness, the type of symptoms, and that he tested negative for influenza led him to believe that he had contracted an early case of SAR-CoV-2 and then developed long COVID.

His medical history also included inherited sensorineural hearing loss for which he wore cochlear implants, alpha-1 antitrypsin deficiency, megaloblastic anemia for which he received monthly intramuscular B12 injections, and chronic diarrhea due to irritable bowel syndrome (IBS). He did not consume alcohol, had never smoked, and ate a whole-plant-food diet. His weight was 66.8 kg, body mass index (BMI) was 22.4 kg/m², systolic/diastolic blood pressure was 116/63 mmHg, and heart rate was 54 beats per minute (bpm) (Table 1).

On arrival, the patient underwent a full medical examination, which included a complete blood count and comprehensive metabolic panel, and was approved to undergo 14 days of water-only fasting followed by 15 days of refeeding using an established protocol.³ Briefly, he prepared by consuming a whole-plant-food diet free of added salt, oil, or sugar (SOS-free diet) and then transitioned to water-only fasting. During the

Table 1. Outcomes After Fasting and Refeeding Interventions

	Before fast	After fast	After refeed	Before fast	After fast	After refeed	6-Month follow up
	First fast			Second fast			
Weight (kg)	66.8	58.4	62.2	66.6	57.2	61.2	66.2
Body mass index (kg/m ²)	22.4	19.6	20.8	22.3	19.2	20.5	22.3
Systolic/diastolic blood pressure (mmHg)	116/63	108/66	114/69	107/67	119/73	106/63	—
Heart rate (bpm)	54	61	60	63	69	59	—
Fatigue intensity ^a	Severe	Mild	Mild	Moderate	Mild	Mild	Mild
Fatigue frequency ^b	Always	Often	Sometimes	Often	Often	Sometimes	Sometimes
Brain fog intensity ^a	Severe	Mild	None	Moderate	Mild	None	None
Brain fog frequency ^b	Always	Sometimes	Rarely	Often	Rarely	Never	Never

The second fasting intervention occurred 15 months after first fasting intervention.

^aUsing a scale of severe, moderate, mild, and none.

^bUsing a scale of always, often, sometimes, rarely, never.

fast, he consumed a minimum of 1.2 L of distilled water and received 24-hour medical supervision. He received clinical examinations twice daily during which vitals were measured and the patient verbally reported his symptoms. Serology and urinalysis were measured weekly and as medically indicated. While fasting, he reported experiencing ongoing fatigue that varied from moderate to mild, light-headedness, and heartburn. On the 11th day of fasting, he also experienced moderate muscle weakness, particularly in the lower limbs, which resolved after the addition of 350 mL of vegetable broth four times daily for the next four days. He terminated the 14 day fast with eight days of restricted refeeding followed by seven additional days of unrestricted feeding on an SOS-free diet.

As previously described, refeeding occurs in five phases and lasts at least half of the fast length.³ This patient followed a food-sensitivity refeeding protocol that consisted of fresh fruit and vegetable juices, followed by stemmed zucchini or squash, then the addition of unrestricted raw fruits and vegetables, then the addition of unrestricted steamed vegetables, then the addition of cooked gluten-free, whole grains, and ending with an exclusively SOS-free diet.³ After refeeding, his weight was 62.2 kg, BMI was 20.8 kg/m² and systolic/diastolic blood pressure was 114/69 mmHg, and heart rate was 60 bpm (Table 1). At his exit examination, the patient reported improvements in sinus congestion, fatigue, PEM, and brain fog as well as total resolution of diarrhea (Table 1). After returning home, he reported that he continued eating the SOS-free diet and all symptoms remained stable except for brain fog and fatigue, which reportedly worsened from mild to moderate between 6 and 12 weeks after departure from the residential fasting center.

Fifteen months after the first fast, the patient returned to the residential fasting center to undergo a second water-only fast to improve the persistent fatigue and brain fog (Table 1). On arrival, his weight was 66.6 kg, BMI was 22.3 kg/m², systolic/diastolic blood pressure was 107/67 mmHg, and heart rate was 63 bpm. He reported that approximately nine months after his first visit he

developed another acute infection, which was confirmed to be SARS-CoV-2 infection by antigen testing. During the second infection, he reported experiencing “splitting” headaches, “deep” fatigue, and fever, but that the symptoms were milder in comparison to the first illness. He also did not experience PEM, sinus congestion, loss of taste or smell, or any worsening of his existing fatigue and brain fog after the infection. Additionally, his IBS associated diarrhea had remained in remission.

He completed 10 days of water-only fasting and 10 days of refeeding as described above. While fasting the patient reported mild light-headedness and general muscle weakness. After fasting and refeeding, his weight was 61.2 kg, BMI was 20.5 kg/m², systolic/diastolic blood pressure was 106/63 mmHg, and heart rate was 59 bpm (Table 1). By the end of refeeding, his light-headedness, muscle weakness, and brain fog had fully resolved, and he described his fatigue as mild and infrequent (Table 1). At a remote six-month follow-up visit, the patient reported following an SOS-free diet. He still had mild but infrequent fatigue, particularly at the end of the day, which recovered after nightly sleeping. However, he was able to strength train three times per week and walk over 7000 steps several days per week without PEM. Notably, he had sustained recovery of brain fog and was able to complete instrumental ADLs, which greatly improved his quality of life.

Discussion

This patient experienced symptoms associated with long COVID after developing a severe acute illness before SARS-CoV-2 diagnostic testing was available.² He opted to treat these symptoms with a medically supervised, prolonged water-only fast that correlated with a long-term resolution of chronic diarrhea, sinus congestion, and PEM, but moderate brain fog and fatigue returned a few months later, prompting his decision to undertake another prolonged fast. Six months after the

second intervention, he reported that the brain fog resolved completely and the fatigue was mild and infrequent. The patient's reports of brain fog and fatigue were not substantiated with validated questionnaires and therefore, the magnitude of change cannot be objectively reported.

The pathogenesis of long COVID is yet to be fully understood, but may involve immune and nervous system dysregulation, persistence of the SARS-CoV-2 virus in certain tissue types, and/or potential autoimmunity via molecular mimicry.⁴ One study showed that although most symptoms resolve after 24 months, neuropsychological symptoms, including fatigue, amnesia, concentration difficulties, insomnia, and depression, persisted longer.⁵ Options to address the neurological involvement and cognitive impairment experienced in long COVID range from cognitive behavioral methods such as cognitive pacing, pharmaceuticals, and even surgical stellate ganglion blockade, which have varying degrees of efficacy.¹ The mechanisms by which prolonged water-only fasting combined with an SOS-free diet may affect symptomatic relief of long COVID are unknown. However, there is some evidence that fasting may promote immune remodeling, reduce risk of thrombosis, and improve markers of cardiometabolic risk, all of which may impact long COVID symptomology.^{6–8} Accordingly, research is needed to determine the potential of prolonged water-only fasting as a treatment option for long COVID.

Authors' Contributions

C.A.R. and S.G. prepared the original draft and collected/interpreted data. T.R.M. collected/interpreted data as well as critically revised. A.C.G. critically revised the final version of this report. All authors approved the final version of this manuscript.

Author Disclosure Statement

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