

EXTRA-PULMONARY OUTCOMES AFTER SARS-CoV-2: A CASE REPORT

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Introduction

Coronavirus Disease 2019 (COVID-19) may result in pneumonia and Acute Respiratory Distress Syndrome (ARDS) [1]. While the primary concern of physicians is rightly to restore pulmonary function, the possible sequelae of COVID-19 may include a **broad spectrum of functional impairments and physical disabilities**, mostly deriving from **peripheral and central nervous system involvement** [2].

Early recognition of these conditions may lead to earlier treatment and rehabilitation and consequently improve the recovery.

In this report, we describe a case of a patient with extra-pulmonary sequelae after a Severe Acute Respiratory Syndrome Coronavirus (SARS-CoV-2) infection.

Case Report

A 64-years-old gentleman was admitted to the intensive care unit (ICU) for acute hypoxemic respiratory failure leading to invasive mechanical ventilation (tracheostomy).

He had a history of hypertension, dyslipidemia, chronic atrial fibrillation and occipital ischemic stroke. Severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2) infection was confirmed.

After two weeks, he was weaned from mechanical ventilation and transferred to a sub-intensive care unit.

Once he reached clinical stability, he was discharged to our rehabilitation department.

On initial examination he presented mild disorientation, hyposmia, hoarseness, dysphagia, diffuse muscle wasting and weakness and hyporeflexia of lower limbs.

Muscle strength was assessed using the Medical Research Council Scale (MRC) sum score. A moderate impairment of dorsal flexion of the left foot was observed (MRC sum-score 3), while the other muscle groups of upper and lower limbs were all scored 4.

The patient complained of fatigue and mood deflection.

Nerve conduction studies and electromyography findings were consistent with Critical Illness Polyneuromyopathy (CIPNM) and left peroneal nerve palsy.

The tracheostomy tube was removed and gradual weaning from oxygen therapy was performed within a few days. The patient received nutritional supplements including proteins, vitamins and minerals. He underwent a rehabilitation program aimed at recovery of swallowing, standing, walking and performing activities of daily living. Furthermore, he benefited from psychological support.

Discussions

Similar to other ARDS survivors, the patient presented clinical symptoms and electromyographic findings compatible with Intensive Care Unit-Acquired Weakness (ICUAW) [3].

Muscle atrophy from disuse, CIPNM and the hypercatabolic state following critical illness all contribute in various proportions to ICUAW.

Thus, early recognition of this condition may lead to a tailored rehabilitative treatment, which may portend a better functional outcome [4].

Early physical therapy is indeed a key target to improve functional outcomes and autonomy in activities of daily living. In this case, entrapment neuropathy worsened the functional impairment and affected both balance and gait.

Dysphagia is a common condition occurring after invasive Mechanical Ventilation (MV) and it may be associated with adverse clinical outcomes [5].

Since a consistent share of hospitalized patients with COVID-19 requires tracheal intubation, it becomes crucial to evaluate swallowing to include specific rehabilitation exercises and proper selection of food consistencies.

In this regard, nutritional supplementation should not be overlooked, as it may improve muscular trophism and enhance recovery of physical and cognitive function.

Cognitive impairment after ARDS may occur with different degrees of severity and may affect a wide variety of cognitive domains.

In this case, we observed a transient confusional state at admission, although cognitive abilities were preserved at subsequent assessments.

Emotional distress is frequent in ARDS survivors, including mood disturbances, like depressive and non-specific anxiety phenomena [6].

As observed in our patient, psychological support has proven to be helpful for coping with post-ICU.

Conclusions

This case highlights the wide spectrum of clinical outcomes after SARS-CoV-2 infection, which may often include extra-pulmonary sequelae.

Therefore, the clinical evaluation of COVID-19 patients should not focus on respiratory function alone. All patients should undergo a thorough and early assessment of physical, neurocognitive and emotional functions, since a prompt recognition of impairment may prevent long-term disabilities and improve patients' quality of life.

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