

PULMONARY, CARDIAC AND NEUROLOGIC FOLLOW-UP AFTER SEVERE COVID-19 PNEUMONIA

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Background: Since December 2019 COVID-19 has been burdening all health systems worldwide. However, pulmonary and extrapulmonary sequelae of COVID-19 after recovery from the acute disease are still under study.

Purpose: The aim of this study was to investigate pulmonary impairments, neurologic disorders and the prevalence of right ventricle dysfunctions in patients with severe COVID-19 pneumonia, almost six months after discharge from hospital.

Material and methods: Hospitalized COVID-19 patients with severe pneumonia, requiring mechanical ventilation were included in the study and evaluated at about 6 months after hospital discharge. Pulmonary function tests, echocardiography, EMG were performed to all patients, and a sitting psychotherapy was proposed.

Results: A total of 56 patients (median age 64 years) with severe COVID-19 pneumonia were included in the study. The disease was complicated by pulmonary embolism in 5 patients, by cerebral stroke in 1 patient, by bacterial infections in 4 patients, by pericarditis in 1 patient, by Guillain Barré syndrome in 2 patients.

At almost 6 months after hospital discharge, 17 patients (30%) had dyspnea NYHA II, 1 was in NYHA III (1.8%), and 4 (7%) suffered from symptoms of fatigue.

Pulmonary function tests did not reveal any significant limitation (FVC: 96.9% {78-101}; FEV1: 99% {72-103}; FEV1/FVC 81.3% {76-85}; except for slightly reduced DLCO (61% {69-95}). Only 3 (5%) patients developed a severe DLCO alteration, among them only one patient had acute pulmonary embolism.

There were no echocardiographic impairments, in particular right chambers were normal in size and function (median TAPSE=23 mm, median $S^1 = 12$ cm/sec) and there were no cases of pericardial effusion.

From the neurological point of view, in addition to the 2 patients who have developed a Guillain Barré syndrome, the patients recovered from COVID-19 who have left the Resuscitation of our Hospital have manifested after-effects of Critical Illness Myopathy and Neuropathy (CRIMYNE), a form of neuromuscular pathology considered in all respects an "organ failure" linked to the stay in intensive care caused by inflammatory mediators.

Conclusions: Hospitalized patients with severe COVID-19 pneumonia, requiring mechanical ventilation, are unlikely to develop pulmonary long-term impairments or cardiac dysfunction after discharge, but frequently suffer from symptoms of fatigue and persisting dyspnea on effort, due to CRIMYNE syndrome.