



Lung Pathology

TOPIC: Lung Pathology

TYPE: Original Investigations

ASSESSMENT OF RESPIRATORY FUNCTION IN PATIENTS AFTER SARS-COV-2 LUNG DISEASE

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PURPOSE: The study aims to evaluate the respiratory function of a patients' cohort with previous SARS-COV-2 pneumonia, admitted to the ASST-Spedali Civili of Brescia, after hospital discharge.

METHODS: 88 patients were analyzed 4-6 months after hospital discharge. 40 had been admitted to Internal Medicine Department (IMD) for mild or moderate disease, and 48 to Intensive Care Unit (ICU) for severe disease. All patients underwent spirometry with maximal flow-volume curve and lung volumes and diffusion lung capacity (DLCO) measurements. All parameters were assessed in percent of predicted.

RESULTS: In the cohort discharged from the IMD, 38% of patients showed at least one altered respiratory function parameter. In contrast, in the cohort of patients discharged from the ICU, 62% showed at least one altered parameter ($p < 0.01$). In both the cohorts, DLCO was the most frequently altered parameter (33% of the patients discharged from the IMD, and 50% of the patients discharged from the ICU, respectively). The patients were then divided into 3 groups: patients with only Total Lung Capacity (TLC) $< 80\%$ pred.; patients with DLCO $< 80\%$ pred.; patients with both TLC and DLCO $< 80\%$ pred. 5% of patients discharged from the IMD had only restrictive deficit, 20% had only lung diffusion impairment, and 10% had both restrictive deficit and lung diffusion impairment. 8% of patients discharged from the ICU had only restrictive deficit, 27% had only lung diffusion impairment, and 23% showed both restrictive deficit and lung diffusion impairment.

CONCLUSIONS: After 4-6 months from hospital discharge, approximately two-third of patients recovered completely from mild-to-moderate COVID-19 lung disease, but this was the case only in 38% of patients after severe SARS-COV-2 pneumonia. The coexistence of both restrictive deficit and lung diffusion impairment was more frequent in patients discharged from the ICU. While residual lung volume reduction alone was infrequent in both cohorts, lung diffusion impairment alone was often observed in both cohorts without significant differences.

CLINICAL IMPLICATIONS: Complete respiratory function tests performed as a follow-up in patients hospitalized for moderate to severe COVID-19 lung disease are needed to provide an accurate description of their residual respiratory condition.

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