Title: Chronic pulmonary complications of patients with Covid19

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Abstract

Objective: Since the outbreak of SARS-nCoV-2 in December 2019, this pandemic has been the most significant challenge to all health systems worldwide. Although acute complications of COVID-19 attract attentions currently, studies have shown that chronic complications of the disease can also affect various aspects of patients' lives. The aim of this study was to evaluate the chronic pulmonary complications of patients with COVID-19 referred to the clinic of Imam Reza (AS) Hospital in Mashhad.

Methods & Materials:

This prospective cohort study was performed between October 2020 to the end of March 2021 in the Respiratory Diseases Clinic of Imam Reza Educational Hospital in Mashhad, Khorasan Razavi. All patients recovered from COVID-19 (diagnosis based on positive RT-PCR test of nasopharyngeal mucosa for SARS-CoV-2 genes) and consent to enter the research plan were enrolled. Information on demographic characteristics, exposure to the virus, inpatient or outpatient treatment, clinical signs, and all tests and radiographs were recorded along with their recovery time. Patients were evaluated for lung function based on spirometry and CT scan and arterial oxygen saturation with pulse oximetry. Data were analyzed using SPSS211 software and analyzed at a significance level of 0.05.

Results:

A total of 100 patients with a mean age of 49.7±15 years were studied. The most common symptoms of COVID-19 infection were cough (97 cases, 99%) and dyspnea (84 cases, 85.7%). After three months of recovery, 50% had occasionally cough and 42.4% had shortness of breath. Most of the patients were managed in an outpatient setting (55 patients, 59.8%). The severity of the disease according to the initial CT score (0-24) was 13.8 ± 6.2, which was significantly reduced to 1.7 ± 5.2 in follow-up (p <0.0001). A significant decrease in consolidation rate (19.1% vs. 3.5%, p <0.001) and ground glass opacities (80.9% vs. 18.8%, p <0.001) was also recorded in follow up CT scan. The frequency of septal thickening in CT scan increased from 21.3% to 32.9% three months later (p = 0.052). After three months, the most observed disorder was the restrictive pattern (24.7%, 20 patients) in spirometry followed by the mixed pattern (21%, 17 patients).

Conclusion:

The results of the present study showed that in the quarterly follow-up, the intensity score of lung CT scan, consolidation and ground glass opacities, which are generally observed in the acute phase of COVID-19, had a significant decrease. However, the frequency of chronic findings such as pulmonary septal thickening has increased in quarterly follow-up of patients. Therefore, it is suggested that the patients with covid 19, especially the cases with respiratory symptoms, should be followed up for a longer period time.

Keywords: COVID -19, SARS-nCOV-2, Chronic, complications, Pulmonary