Abstracts *(Oral Presentation)*

Pulmonary Function Among COVID-19 Patients in Home Isolation Program

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Abstract

Introduction: Patients with mild coronavirus 2019 disease (COVID-19) are usually treated in an outpatient setting. Pulmonary functions in this setting have not been observed. This study aimed to determine abnormal lung functions in COVID-19 patients under a home isolation program.

Methods: A prospective study was conducted in COVID-19 patients with asymptomatic or mild disease at Thammasat-Khukot Medical Center and Thammasat University Hospital, Thailand, between November 2021 and May 2022. Demographics, smoking, symptoms, pulmonary functions including forced expiratory volume in 1 second (FEV_1), forced vital capacity (FVC), forced expiratory flow at 25 - 75% of FVC (FEF_{25-75}), and bronchodilator test were collected. Spirometry was performed after disease resolution at baseline and 3-month follow-up. Abnormal lung functions were defined as restrictive lung pattern (FVC < 80%), airway obstruction (FEV_1/FVC < 70%), small airway disease (FEF_{25-75} < 65%), or bronchodilator response (increase in FEV_1 or FVC ≥ 12% and 200 mL).

Results: A total of 199 patients (56% female) were included. Mean age was 39.8 ± 15.4 years. Smoking history was 22% (6.8 ± 9.1 pack-years). Asymptomatic patients were 8.5%. Common symptoms were fever (53.5%), cough (55.0%), and dyspnea (30.5%). Abnormal lung functions were restrictive lung pattern in 15.5%, airway obstruction in 3.5%, small airway disease in 20.0%, and bronchodilator response in 3.0%. There was significant decrease in FEV_1 (40 mL), FEV_1/FVC (0.93%), and FEF_{25-75} (6.7%) between baseline and 3-month follow-up. Linear regression analysis showed that age, sex, body weight, height, smoking history, and previous respiratory diseases were not associated with lung function decline.

Conclusions: Abnormal pulmonary functions, especially, small airway disease, were common among COVID-19 patients under a home isolation program. There was significant reduction in FEV_1, FEV_1/FVC, and FEF_{25-75}, regardless of age, sex, weight, height, smoking, and previous respiratory diseases. These findings indicate that mild COVID-19 patients might develop airway obstruction in the future.

Keywords: COVID-19, Home isolation program, Pulmonary function, Small airway disease
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