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Diffusion capacity abnormalities for carbon monoxide in patients with COVID-19 at 3-month follow-up

Wei Qin^{1,11}, Shi Chen^{1,11}, Yunxia Zhang^{2,3,4,11}, Fen Dong^{5,11}, Zhu Zhang^{2,3,4,11}, Bingzhu Hu¹, Ziyang Zhu¹, Fajiu Li¹, Xiaojiang Wang¹, Yimin Wang^{2,3,4}, Kaiyuan Zhen^{2,3,4}, Jing Wang⁶, YuLei Wan⁷, Hongbo Li⁷, Ismail Elalamy^{8,9}, Chenghong Li^{1,12}, Zhenguo Zhai^{2,3,4,12} and Chen Wang^{2,3,4,10}

Affiliations: ¹Dept of Pulmonary and Critical Care Medicine, Affiliated Hospital of Jiangnan University, Wuhan, China. ²Dept of Pulmonary and Critical Care Medicine, Center of Respiratory Medicine, China–Japan Friendship Hospital, Beijing, China. ³Institute of Respiratory Medicine, Chinese Academy of Medical Sciences, Beijing, China. ⁴National Clinical Research Center for Respiratory Diseases, Beijing, China. ⁵Institute of Clinical Medical Sciences, China–Japan Friendship Hospital, Beijing, China. ⁶Institute of Basic Research, Chinese Academy of Medical Sciences, Beijing, China. ⁷Dept of Radiology, Affiliated Hospital of Jiangnan University, Wuhan, China. ⁸Hematology and Thrombosis Center, Tenon University Hospital, INSERM UMRS 938, Sorbonne University, Paris, France. ⁹The First I.M. Sechenov Moscow State Medical University, Moscow, Russia. ¹⁰Peking Union Medical College, Chinese Academy of Medical Sciences, Beijing, China. ¹¹These authors contributed equally as co-first authors. ¹²These authors contributed equally to this article as lead authors and supervised the work.

Correspondence: Zhenguo Zhai, Institute of Respiratory Medicine, Chinese Academy of Medical Sciences, 2 East Yinghua Road, 100029 Beijing, P.R. China. E-mail: zhaizhenguo2011@126.com



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COVID-19 patients present with impaired D_{LCO} at 90 days after discharge, particularly severe patients. Chest CT TSS >10.5 and ARDS occurrence are associated with impaired D_{LCO} . Pulmonary interstitial damage may contribute to the impaired D_{LCO} . <https://bit.ly/2JevUtm>

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ABSTRACT

Objective: To evaluate pulmonary function and clinical symptoms in coronavirus disease 2019 (COVID-19) survivors within 3 months after hospital discharge, and to identify risk factors associated with impaired lung function.

Methods and material: COVID-19 patients were prospectively followed-up with pulmonary function tests and clinical characteristics for 3 months following discharge from a hospital in Wuhan, China between January and February 2020.

Results: 647 patients were included. 87 (13%) patients presented with weakness, 63 (10%) with palpitations and 56 (9%) with dyspnoea. The prevalence of each of the three symptoms were markedly higher in severe patients than nonsevere patients (19% *versus* 10% for weakness, $p=0.003$; 14% *versus* 7% for palpitations, $p=0.007$; 12% *versus* 7% for dyspnoea, $p=0.014$). Results of multivariable regression showed increased odds of ongoing symptoms among severe patients (OR 1.7, 95% CI 1.1–2.6; $p=0.026$) or patients with longer hospital stays (OR 1.03, 95% CI 1.00–1.05; $p=0.041$). Pulmonary function test results were available for 81 patients, including 41 nonsevere and 40 severe patients. In this subgroup, 44 (54%) patients manifested abnormal diffusing capacity of the lung for carbon monoxide (D_{LCO}) (68% severe *versus* 42% nonsevere patients, $p=0.019$). Chest computed tomography (CT) total severity score >10.5 (OR

10.4, 95% CI 2.5–44.1; $p=0.001$) on admission and acute respiratory distress syndrome (ARDS) (OR 4.6, 95% CI 1.4–15.5; $p=0.014$) were significantly associated with impaired D_{LCO} . Pulmonary interstitial damage may be associated with abnormal D_{LCO} .

Conclusion: Pulmonary function, particularly D_{LCO} , declined in COVID-19 survivors. This decrease was associated with total severity score of chest CT >10.5 and ARDS occurrence. Pulmonary interstitial damage might contribute to the impaired D_{LCO} .