











## Availability of Data and Materials

The dataset used analyzed during the current study is available from the corresponding author on reasonable request.

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## References

1. Wang D, et al. "Clinical Characteristics of 138 Hospitalized Patients With 2019 Novel Coronavirus-Infected Pneumonia in Wuhan, China," (in eng), *Jama* 323 (2020): 1061-1069.
2. "https://covid19.who.int./."
3. Yang X, et al. "Clinical course and outcomes of critically ill patients with SARS-CoV-2 pneumonia in Wuhan, China: a single-centered, retrospective, observational study" (in eng) *Lancet Respir Med* 8 (2020): 475-481.
4. Wu Z and McGoogan JM. "Characteristics of and Important Lessons From the Coronavirus Disease 2019 (COVID-19) Outbreak in China: Summary of a Report of 72 314 Cases From the Chinese Center for Disease Control and Prevention," (in eng), *Jama* 323 (2020): 1239-1242.
5. Zou X, Chen K, Zou J, Han P, Hao J, and Han Z. "Single-cell RNA-seq data analysis on the receptor ACE2 expression reveals the potential risk of different human organs vulnerable to 2019-nCoV infection," (in eng), *Front Med* 14 (2020): 185-192.
6. Wrapp D, et al., "Cryo-EM structure of the 2019-nCoV spike in the prefusion conformation," (in eng), *Science* 367 (2020): 1260-1263.
7. Corrêa TD, et al. "Coagulation profile of COVID-19 patients admitted to the ICU: An exploratory study," (in eng), *PLoS One* 15 (2020): e0243604.
8. Vincent JL and De Backer D. "Microvascular dysfunction as a cause of organ dysfunction in severe sepsis," (in eng), *Crit Care* 9 (2005): S9-12.
9. Vellinga NA, et al., "International study on microcirculatory shock occurrence in acutely ill patients," (in eng), *Crit Care Med* 43 (2015): 48-56.
10. Masip J, et al. "Near-infrared spectroscopy StO<sub>2</sub> monitoring to assess the therapeutic effect of drotrecogin alfa (activated) on microcirculation in patients with severe sepsis or septic shock," (in eng), *Ann Intensive Care* 3 (2013): 30.
11. Creteur J, Carollo T, Soldati G, Buchele G, De Backer D and Vincent JL. "The prognostic value of muscle StO<sub>2</sub> in septic patients," (in eng), *Intensive Care Med* 33 (2007): 1549-56.
12. Sakr Y, Dubois MJ, De Backer D, Creteur J and Vincent JL. "Persistent microcirculatory alterations are associated with organ failure and death in patients with septic shock", *Crit Care Med* 32 (2004): 1825-31.
13. De Backer D, Creteur J, Dubois MJ, Sakr Y and Vincent JL. "Microvascular alterations in patients with acute severe heart failure and cardiogenic shock," (in eng), *Am Heart J* 147 (2004): 91-9.
14. Orbegozo Cortés D, et al. "Microvascular reactivity is altered early in patients with acute respiratory distress syndrome", *Respir Res* 17 (2016): 59.
15. Mesquida J, et al. "Peripheral microcirculatory alterations are associated with the severity of acute respiratory distress syndrome in COVID-19 patients admitted to intermediate respiratory and intensive care units," *Crit Care* 25 (2021): 381.
16. Corman VM, et al., "Detection of 2019 novel coronavirus (2019-nCoV) by real-time RT-PCR," (in eng), *Euro Surveill* 25 (2020).
17. Filho RR, et al. "Assessment of the peripheral microcirculation in patients with and without shock: a pilot study on different methods," (in eng), *J Clin Monit Comput* 34 (2020): 1167-1176.
18. Moreno RP, et al. "SAPS 3--From evaluation of the patient to evaluation of the intensive care unit. Part 2: Development of a prognostic model for hospital mortality at ICU admission," (in eng), *Intensive Care Med* 31 (2005): 1345-55.
19. Vincent JL, et al. "The SOFA (Sepsis-related Organ Failure Assessment) score to describe organ dysfunction/failure. On behalf of the Working Group on Sepsis-Related Problems of the European Society of Intensive Care Medicine," (in eng), *Intensive Care Med* 22 (1996): 707-10.
20. Lima A, van Genderen ME, van Bommel J, Klijn E, Janssen T and Bakker J. "Nitroglycerin reverts clinical manifestations of poor peripheral perfusion in patients with circulatory shock," *Crit Care* 18 (2014): R126.

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21. Lima AP, Beelen P and Bakker J. "Use of a peripheral perfusion index derived from the pulse oximetry signal as a noninvasive indicator of perfusion," *Crit Care Med* 30 (2002): 1210-3.
22. Gómez H, et al. "Use of non-invasive NIRS during a vascular occlusion test to assess dynamic tissue O<sub>2</sub> saturation response," *Intensive Care Med* 34 (2008): 1600-7.
23. Lima A and Bakker J. "Near-infrared spectroscopy for monitoring peripheral tissue perfusion in critically ill patients," *Rev Bras Ter Intensiva* 23 (2011): 341-51.
24. Korkut M, Bedel C, Selvi F, Zortuk Ö. Can Peripheral Perfusion Index (PPI) Predict Disease Severity in COVID-19 Patients in the Emergency Department? *Ibnosina Journal of Medicine and Biomedical Sciences* (2022).
25. Akdur G, et al. "Prediction of mortality in COVID-19 through combing CT severity score with NEWS, qSOFA, or peripheral perfusion index," (in eng), *Am J Emerg Med* 50 (2021): 546-552.
26. Favaron E, et al. "Capillary Leukocytes, Microaggregates, and the Response to Hypoxemia in the Microcirculation of Coronavirus Disease 2019 Patients," *Crit Care Med* 49 (2021): 661-670.
27. Hutchings SD et al. "Microcirculatory, Endothelial, and Inflammatory Responses in Critically Ill Patients With COVID-19 Are Distinct from Those Seen in Septic Shock: A Case Control Study," *Shock* 55 (2021): 752-758.
28. Abou-Arab O, et al., "Microvascular flow alterations in critically ill COVID-19 patients: A prospective study", *PLoS One* 16 (2021): e0246636.
29. Corrêa TD, et al. "Clinical characteristics and outcomes of COVID-19 patients admitted to the intensive care unit during the first year of the pandemic in Brazil: a single center retrospective cohort study," *Einstein (Sao Paulo)* 19 (2021): eAO6739.