

Respiratory support for patients with COVID-19 infection

As of Feb 27, 2020, coronavirus disease 2019 (COVID-19) has affected 47 countries and territories around the world.¹ Xiaobo Yang and colleagues² described 52 of 710 patients with confirmed COVID-19 admitted to an intensive care unit (ICU) in Wuhan, China. 29 (56%) of 52 patients were given non-invasive ventilation at ICU admission, of whom 22 (76%) required further orotracheal intubation and invasive mechanical ventilation. The ICU mortality rate among those who required non-invasive ventilation was 23 (79%) of 29 and among those who required invasive mechanical ventilation was 19 (86%) of 22.²

Jonathan Chun-Hei Cheung and colleagues³ do not recommend use of a high-flow nasal cannula or non-invasive ventilation until the patient has viral clearance. Supporting the recommendation of the authors, I would like to add some points in

relation to the use of high-flow nasal oxygen therapy and non-invasive ventilation in patients with COVID-19 infection:

First, although exhaled air dispersion during high-flow nasal oxygen therapy and non-invasive ventilation via different interfaces is restricted, provided that there is a good mask interface fitting,⁴ not all hospitals around the world have access to such interfaces or enough personal-protective equipment of sufficiently high quality (ie, considered fit-tested particulate respirators, N95 or equivalent, or higher level of protection) for aerosol-generating procedures, and several hospitals do not have a negative pressure isolation room. Of 1688 health-care workers who have become infected with COVID-19, five (0.3%) have died;⁵ a sign of the vastly difficult working conditions for health-care workers.

Second, the fundamental pathophysiology of severe viral pneumonia is acute respiratory distress syndrome (ARDS).² Non-invasive ventilation is not recommended for patients with viral infections complicated

by pneumonia because, although non-invasive ventilation temporarily improves oxygenation and reduces the work of breathing in these patients, this method does not necessarily change the natural disease course.⁶

Finally, the application of non-invasive ventilation in patients with COVID-19 in the ICU is controversial. Considering the above factors, clinicians might not use non-invasive ventilation for critically ill patients with ARDS due to COVID-19 until further data from the COVID-19 epidemic are available.

I declare no competing interests.

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- 4 Hui DS, Chow BK, Lo T, et al. Exhaled air dispersion during high-flow nasal cannula therapy versus CPAP via different masks. *Eur Respir J* 2019; **53**: 1802339.
- 5 Novel Coronavirus Pneumonia Emergency Response Epidemiology Team. The epidemiological characteristics of an outbreak of 2019 novel coronavirus diseases (COVID-19) in China. *Zhonghua Liu Xing Bing Xue Za Zhi* 2020; **41**: 145–51.
- 6 Namendys-Silva SA, Hernández-Garay M, Rivero-Sigarroa E. Non-invasive ventilation for critically ill patients with pandemic H1N1 2009 influenza A virus infection. *Crit Care* 2010; **14**: 407.



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