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 colleagues[2] 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 colleagues[3] 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.

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I declare no competing interests.

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