Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

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Letter to the editor

High-flow nasal oxygen in severe COVID-19 pneumonia and tocilizumab

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We have read with great interest the study by Ouissa R et al. [1] where the authors establish that during treatment of severe COVID-19 pneumonia a higher success rate of high-flow nasal oxygen (HFNO) therapy was associated with tocilizumab administration. This observation has great clinical and prognostic impact. However, the authors would need to establish other aspects influencing the success of HFNO. We consider the following aspects should be addressed for better understanding of their study.

First, age and comorbidities were already found to be independently associated with higher risk of poor outcomes [2], but in the study by Ouissa R et al. the higher mean age in the 'without tocilizumab' group compared with the 'tocilizumab treatment' group (61 vs. 53, respectively) could be a confounding factor for higher percentage of HFNO failure. We therefore think this needs further explanation.

Second, while analyzing the outcome of COVID-19 pneumonia patients, it would have been better to have information about certain indexes which can predict effectiveness of HFNO therapy such as PaO2/FiO2 ratios (mild/moderate/severe), ROX index [3,4], and modified ROX index (mROX) by incorporating the heart rate (ROX-HR) [5] and HACOR score [4,5]. Use of these scores can detect the subset of patients with severe pneumonia for whom tocilizumab would have more benefits, and consequently set a series of cut-off for its standardized use in COVID-19 patients. Experience of this pandemic has taught us that early administration of this drug in severe cases can yield maximum benefit.

Third and interestingly, the HFNO was immediately started with oxygen flow rate of 40 l/min and FiO2 of 60% [1]. It would have been interesting to know what parameters led to such flow rate choice, as the authors classified the highest degree of severity of their patients using these data alone ("a severe form of confirmed SARS-CoV2 infection, defined by a failure of oxygen therapy using a facial mask and consequently necessitating HFNO"). It is not mentioned whether there was a subgroup of COVID-19 pneumonia patients treated with FiO2 <60% and oxygen flow <30-40 l/min; the reason they did not receive tocilizumab and why they were excluded from the study is also not explained.

Fourth, it would have been interesting to clarify the causes of HFNO failure and to show whether they used, as alternatives to HFNO, non-invasive or invasive mechanical ventilation. This aspect would allow for a better practical recommendation [6,7].

Further clinical trials are needed to define the best cut-off based on an appropriate respiratory score, for the use of HFNO and of tocilizumab.

Disclosure of interest

The authors declare that they have no competing interest.

Human and animal rights

The authors declare that the work described has not involved experimentation on humans or animals.

Informed consent and patient details

The authors declare that the work described does not involve patients or volunteers.

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Author contributions

All authors attest that they meet the current International Committee of Medical Journal Editors (ICMJE) criteria for Authorship.

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