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.

Journal of Microbiology, Immunology and Infection 55 (2022) 170–171

Available online at www.sciencedirect.com

ScienceDirect

journal homepage: www.e-jmii.com

Correspondence

Oral dexamethasone for COVID-19 patients at the initial recognition of hypoxia: Can an early dose herald a better outcome?

KEYWORDS
COVID-19;
Steroid;
Hypoxia;
Dexamethasone

Dear editor:

Due to the COVID-19 pandemic, many asymptomatic or pre-symptomatic patients with COVID-19 may stay at the group quarantine facilities or home. There was a risk of clinical deterioration into silent hypoxia (SaO2 $\leq$ 94% at room air), and if untreated even sudden death, especially in patients older than 60 years old.[1] An observational study in German included 213 patients with COVID-19 and PaO_2/FiO_2 <300 mmHg at admission, and 68 (32%) were defined as silent hypoxia.[2] Such a clinical scenario provokes the urgent need of remote monitoring systems or virtual wards to early intervention to prevent adverse outcomes.

As for pharmacological therapy in COVID-19, dexamethasone has been shown to exhibit survival benefit in the patients with oxygen demand alone or mechanical ventilation in the controlled, open-labelled, and large-scale RECOVERY trial.[3] This indicates either oral or intravenous dexamethasone might be considered in early stage of symptomatic patients with hypoxia. However, the detailed information, such as the period between symptom onset and dexamethasone therapy in patients with COVID-19, was not mentioned in the RECOVERY trial, and the optimal timing of steroid initiation for COVID-19 remained undefined yet.

Two retrospective studies from South Korea supported the potential benefit of steroid in the "early" stage of COVID-19. Hyun et al. demonstrated for 22 cases of severe disease, 12 cases treated by corticosteroid administrated within 10 days (the early group) after clinical diagnosis of COVID-19 would result in a shorter hospital stay, if compared those given after 10 days (mean: 26 days *vs.* 54 days, $P = 0.033$).[4] A lower mortality rate was noted in the early group than that those treated later, but the difference was not significant (8% *vs.* 30%, $P = 0.30$). Another group led by Heo. reported in 59 cases of COVID-19 requiring oxygen therapy and dexamethasone therapy, 30 cases receiving dexamethasone within 24 h of onset of hypoxemia (room-air $SaO_2 < 90\%$) would have a shorter duration of oxygen supplementation (10 ± 10 days *vs.* 21 ± 16 days, $P = 0.003$) and a lower risk of initiation of high-flow nasal cannula or mechanical ventilation (40% *vs.* 76%, $P = 0.012$) than those with dexathamethasone initiated at or after 24 h of hypoxemia onset.[5]

Despite of the beneficial potential of steroid in early stage of COVID-19 patients with, there may be adverse effects of steroid therapy, including agitation and hyperglycemia. However, a randomised controlled trial showed a single dose of dexamethasone will not cause higher blood glucose level than a placebo.[6] Therefore, early dexamethasone use is likely to have a survival benefit at the inital recognition of hypoxia for COVID-19 patients as one of the first aids at the ambulance or home before the hospital visit. A prospective and randomized clinical study is warranted to justify the rationale of one dose of dexamethasone for COVID-19 patients out of the hospital.

https://doi.org/10.1016/j.jmii.2021.07.016

References

1. Lai CC, Liu YH, Wang CY, Wang YH, Hsueh SC, Yen MY, et al. Asymptomatic carrier state, acute respiratory disease, and pneumonia due to severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2): facts and myths. *J Microbiol Immunol Infect* 2020;**53**:404—12.
2. Busana M, Gasperetti A, Giosa L, Forleo GB, Schiavone M, Mitacchione G, et al. Prevalence and outcome of silent hypoxemia in COVID-19. *Minerva Anestesiol* 2021;**87**:325—33.
3. Horby P, Lim WS, Emberson JR, Mafham M, Bell JL, Linsell L, et al. Dexamethasone in hospitalized patients with COVID-19. *N Engl J Med* 2021;**384**:693—704.
4. Hyun JH, Kim MH, Sohn Y, Cho Y, Baek YJ, Kim JH, et al. Effects of early corticosteroid use in patients with severe coronavirus disease 2019. *BMC Infect Dis* 2021;**21**:506.
5. Lee HW, Park J, Lee JK, Park TY, Heo EY. The effect of the timing of dexamethasone administration in patients with COVID-19 pneumonia. *Tuberc Respir Dis* 2021;**84**:217—25.
6. Murphy GS, Szokol JW, Avram MJ, Greenberg SB, Shear T, Vender JS, et al. The effect of single low-dose dexamethasone on blood glucose concentrations in the perioperative period: a randomized, placebo-controlled investigation in gynecologic surgical patients. *Anesth Analg* 2014;**118**:1204—12.

Ching-Lung Lo
Ling-Shan Syue
Department of Internal Medicine, National Cheng Kung University Hospital, College of Medicine, National Cheng Kung University, Tainan, Taiwan
Center for Infection Control, National Cheng Kung University Hospital, College of Medicine, National Cheng Kung University, Tainan, Taiwan

Wen-Chien Ko*
Department of Internal Medicine, National Cheng Kung University Hospital, College of Medicine, National Cheng Kung University, Tainan, Taiwan
Department of Medicine, College of Medicine, National Cheng Kung University, Tainan, Taiwan

*Corresponding author. Department of Internal Medicine, National Cheng Kung University Hospital, Tainan, Taiwan.
Fax: +886 6 2752038.
E-mail address: winston3415@gmail.com (W.-C. Ko)

15 July 2021
Available online 7 October 2021