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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 ($\text{SaO}_2 \leq 94\%$ 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 $\text{PaO}_2/\text{FiO}_2 < 300$ 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 administered 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 $\text{SaO}_2 < 90\%$) 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 dexamethasone 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 initial 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.

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