

Prevention, diagnosis and early-stage management of COVID-19 - A crisis in the developing world

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Managing patients with COVID-19 in respiratory distress: What is the role of steroids?

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**What are the benefits of steroid
use in patients with COVID-19 and
respiratory distress?**

RECOVERY trial: Glucocorticoid therapy for COVID-19



176 NHS centres
March–June 2020



N=6,425

hospitalized
with COVID-19*

DEXAMETHASONE



n=2,104

oral or IV DEX
6 mg once daily
up to 10 days

USUAL CARE ALONE



n=4,321

usual standard
of care alone



28-day mortality



DEX lowered 28-day mortality in patients hospitalized with COVID-19 who were receiving invasive mechanical ventilation or oxygen at randomization

28-day mortality rate (DEX vs usual care alone)

Overall population

22.9% vs **25.7%**

(n=482) (n=1,110)

AARR 0.83

95%CI 0.75–0.93; p<0.001

Received invasive
mechanical ventilation

29.3% vs **41.4%**

AARR 0.64

95%CI 0.51–0.81

Received oxygen alone

23.3% vs **26.2%**

AARR 0.82

95%CI 0.72–0.94

No evidence that DEX provides benefit in patients not receiving respiratory support at randomization

No respiratory support

17.8% vs **14.0%**

AARR 1.19

95%CI 0.92–1.55

Summary


- Treatment with DEX (6 mg once daily for up to 10 days) reduces 28-day mortality in patients with COVID-19 who are receiving respiratory support
- Benefit of glucocorticoids depends on selection of the right dose, at the right time, in the right patient

*Clinically suspected or laboratory-confirmed SARS-CoV-2.

AARR, age-adjusted rate ratio; CI, confidence interval; COVID-19, coronavirus disease 2019; DEX, dexamethasone; IV, intravenous; NHS, National Health Service (United Kingdom);

SARS-CoV-2, severe acute respiratory syndrome coronavirus 2.

RECOVERY Collaborative Group, et al. *New Engl J Med.* 2021;384:693–704.



What patient factors should be considered when making decisions on appropriate dose and duration of steroids?

Patient factors guiding steroid use for COVID-19



Disease severity

- Sufficient immunomodulation required to control the cytokine storm

Body weight



- Prescribe by body weight
- Methylprednisolone sodium succinate (1–2 mg/kg IV in 2 divided doses) achieves sufficient immunomodulation to control cytokine storm, and is preferred over DEX^{1,2}



Oxygen requirements

- Patients on respiratory support (intubated and/or mechanically ventilated) may require a higher dose compared with patients receiving supplemental (1–2 L) oxygen alone



Comorbidities



- Carefully consider implications of comorbidities on steroid use
- Diabetic patients not requiring oxygen may initiate steroids on a lower dose
- Assess best route of administration and if oral route manageable

Frequent and attentive monitoring is imperative to tailor steroid use and dosing to individual patient status

Disclaimer: Content reflects individual real-world experiences and practice insights from the perspective of a physician currently practicing in India. For the latest WHO guidance on the clinical management of COVID-19 please visit: <https://www.who.int/publications/i/item/WHO-2019-nCoV-clinical-2021-1>.

COVID-19, coronavirus disease 2019; DEX, dexamethasone; IV, intravenous; L, litre.

1. Government of India: Ministry of Health and Family Welfare. Clinical management protocol for COVID-19 (in adults) Version 6 (24.05.21) Available at <https://www.mohfw.gov.in/pdf/UpdatedDetailedClinicalManagementProtocolforCOVID19adultsdated24052021.pdf>, accessed June 2021.

2. Ranjbar K, et al. *BMC Infectious Diseases*. 2021;21:337.



**What other advice can you give
for optimizing outcomes when
steroids are indicated?**

Optimizing outcomes in steroid-treated patients

 Treatment goal for steroids in patients with COVID-19 is immunomodulation, *NOT* immunoablation

Strategies to improve appropriate steroid use and optimize outcomes

Advised



Refine patient selection

- Careful consideration of patient parameters to prescribe in the right patient, at the right time with an appropriate dose



Screen for underlying infections

- Surveillance cultures can rule out bacterial and/or fungal infections
- Inflammatory markers may indicate presence of underlying infection



Assess metabolic effects

- Assess patient metabolic status before prescribing and after administration

Not advised



Do not use steroids as antipyretic agents

- Especially within 1st week



Do not rely on inflammatory markers alone

- Clinical picture important to guide steroid use in patients with elevated inflammatory markers and not receiving oxygen, steroids may be delayed but follow-up HRCT is advised



Avoid pulse therapy

- Of limited clinical benefit in managing COVID-19

Steroid stewardship to avoid inappropriate or overuse in our patients with COVID-19 is paramount

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<https://www.mohfw.gov.in/pdf/UpdatedDetailedClinicalManagementProtocolforCOVID19adultsdated24052021.pdf>
COVID-19, coronavirus disease 2019; DEX, dexamethasone; HRCT, high-resolution computerized tomography.