

Dexamethasone for COVID-19: preliminary findings

Overview of: Effect of dexamethasone in hospitalised patients with COVID-19 – preliminary report. *medRxiv preprint* <https://doi.org/10.1101/2020.06.22.20137273>

Key learning points

- ▶ A clinical trial has assessed the effect of dexamethasone in patients hospitalised with suspected or confirmed SARS-CoV-2 infection.
- ▶ Preliminary results of the trial have been published in a preprint* report that has not been subject to peer review.
- ▶ Dexamethasone reduced 28-day mortality among those receiving invasive mechanical ventilation or oxygen at randomisation.

Preliminary findings from the RECOVERY study have been published in a preprint* report. The data showed that for patients hospitalised with COVID-19, dexamethasone 6 mg daily for 10 days reduced 28-day mortality among those receiving invasive mechanical ventilation or oxygen at randomisation.¹

Overview

The randomised evaluation of COVID-19 therapy (RECOVERY) study is a controlled open-label adaptive platform trial in which a range of possible treatments are compared with usual care in patients hospitalised with COVID-19.¹ The trial involved 176 hospital organisations in the UK and recruited hospitalised patients who had clinically suspected or laboratory confirmed SARS-CoV-2 infection. Patients were randomised to usual standard of care or usual standard of care plus oral or intravenous dexamethasone 6 mg daily for up to 10 days (or to one of the trial's other treatment arms). The primary outcome measure was all-cause mortality within 28 days of randomisation and secondary outcomes included time to discharge from hospital, and need for mechanical ventilation (in those not already receiving ventilation) or death. The trial organisers estimated that they would require 2000 patients allocated to dexamethasone and 4000 patients allocated to usual care alone.

A total of 2104 patients were randomised to dexamethasone and 4321 to usual care. Participants had a mean age of 66 years, 36% were female and SARS-CoV-2 infection was confirmed in 82% of patients. More than 56% of patients had at least one major comorbidity including 24% with diabetes, 27% with heart disease and 21% with lung disease. At the point of randomisation, 16% were receiving mechanical ventilation or extracorporeal membrane oxygenation, 60% were receiving oxygen therapy only and 24% were receiving neither.

For the primary outcome, the 28-day mortality rate was lower in patients allocated

to dexamethasone plus usual care compared with those who received usual care alone (21.6% vs 24.6%; rate ratio 0.83, 95% CI 0.74 to 0.92; $p < 0.001$). The absolute risk reduction (ARR) for patients receiving dexamethasone was 3% with a number-needed-to-treat (NNT) of 33. Subgroup analyses suggested that dexamethasone had the greatest effect on 28-day mortality in patients receiving invasive mechanical ventilation at randomisation (29.0% vs 40.7%; ARR 11.7%; NNT 9) and in those receiving oxygen only (21.5% vs 25.0%; ARR 3.5%; NNT 29) but not in those who were not receiving oxygen (17.0% vs 13.2%).

*“Preprints are preliminary reports of work that have not been certified by peer review.² They should not be relied on to guide clinical practice or health-related behaviour and should not be reported in news media as established information.”

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Context

The RECOVERY study is one of several hundred COVID-19 studies listed on the World Health Organization's (WHO) database.³ Preliminary results have been published on the trial organisers' website and in a preprint report but the full results have not yet been published in a peer-reviewed journal.^{1,4} The UK government has authorised the National Health Service to use dexamethasone to treat all hospitalised patients with COVID-19 requiring oxygen, including those on ventilators.⁵ The UK's chief medical officers have acknowledged that they would normally advise waiting for the full clinical paper to be published before changing practice. Nevertheless, as dexamethasone has been shown to reduce mortality and is safe to use for this indication, they consider it

reasonable for practice to change before the final paper is published. WHO clinical guidance will be updated to reflect how and when the drug should be used in COVID-19.⁶

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