



The BMJ

Cite this as: *BMJ* 2020;369:m2422<http://dx.doi.org/10.1136/bmj.m2422>

Published: 16 June 2020

## Covid-19: Low dose steroid cuts death in ventilated patients by one third, trial finds

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Low dose dexamethasone reduces deaths in patients hospitalised with covid-19 who need ventilation, according to preliminary results from the RECOVERY trial.

The drug was also found to reduce deaths by one fifth in other hospitalised patients receiving oxygen only, but no benefit was seen among covid-19 patients who did not need respiratory support.

The chief investigators from the University of Oxford trial said that the findings represent a “major breakthrough” which is “globally applicable” as the drug is cheap and readily available.

All NHS hospitals will be told in the next 24 hours how they should act on these results.

For the randomised controlled trial, the team recruited 2104 patients for the dexamethasone arm (6 mg once daily, taken orally or by injection for 10 days) and compared them with 4321 patients receiving standard care.

In a statement outlining the preliminary results, researchers reported that “overall dexamethasone reduced the 28 day mortality rate by 17% (0.83 (0.74 to 0.92);  $P=0.0007$ ) with a highly significant trend showing greatest benefit among patients needing ventilation (test for trend  $p<0.001$ ).” Follow up has been completed for over 94% of participants.

Breaking this down they said that dexamethasone “reduced deaths by one third in ventilated patients (rate ratio 0.65 (95% confidence interval 0.48 to 0.88);  $P=0.0003$ ) and by one fifth in other patients receiving oxygen only (0.80 (0.67 to 0.96);  $P=0.0021$ ).”

Among the patients who received usual care alone, 28 day mortality was highest in those who required ventilation (41%), intermediate in those patients who required oxygen only (25%), and lowest among those who did not require any respiratory intervention (13%).

The findings suggest that taking dexamethasone reduces mortality from around 41% to 27% for ventilated patients and from 25% to 20% among those needing oxygen.

Based on these results, one death in eight would be prevented by treatment in ventilated patients or around one in 25 patients requiring oxygen alone, the team said.

Martin Landray, professor of medicine and epidemiology at the University of Oxford and one of the chief investigators on the trial, said, “The search has been on for a treatment that can actually reduce the risk of dying and there hasn’t been one until today. The results are significantly clear, so people can be treated tonight or tomorrow. That is a major

step forward. This is globally applicable. This is not an expensive drug or one where there are supply or manufacturing problems. This is a drug that is locally available. For less than £50 (€56; \$63) you can treat eight patients and save a life. It’s an incredible result.”

Peter Horby, professor of emerging infectious diseases at the University of Oxford and another chief investigator on the trial, added, “This is the only drug that has so far been shown to reduce mortality, and it reduces it significantly. It is a major breakthrough.”

There is no pre-print of the findings and the researchers have said that the full results will be published shortly.

Regarding potential side effects, Horby said, “The harm that has been noted in the past with steroids have been related to high doses. The known side effect profile of these drugs at high doses is well known. What was critical with this trial was getting the dose right with the right patients. The doses we gave were either a low or moderate dose, minimising the side effects while maximising the benefits.”

Siu Ping Lam, director of licensing at the Medicines and Healthcare Products Regulatory Agency, said that the results were “very encouraging.”

The RECOVERY trial, which began in March to assess potential covid-19 treatments, has so far recruited more than 11 500 patients from over 175 NHS hospitals in the UK. It is also evaluating HIV treatment lopinavir and ritonavir, antibiotic azithromycin, anti-inflammatory treatment tocilizumab, and convalescent plasma. It previously looked at hydroxychloroquine but ended that arm of the trial in June after it concluded that there was no benefit in hospitalised patients.<sup>1</sup>

<sup>1</sup> Torjesen I. Covid-19: Hydroxychloroquine does not benefit hospitalised patients, UK trial finds. *BMJ* 2020;369:m2263. doi: 10.1136/bmj.m2263 pmid: 32513810

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