Corticosteroids Improve Survival in Critically Ill COVID-19 Patients, International Adaptive Randomized Trial Finds

PITTSBURGH, September 2, 2020 – In a tremendous demonstration of global collaboration, clinician-scientists have pooled data from 121 hospitals in eight countries to find that inexpensive, widely available steroids improve the odds that very sick COVID-19 patients will survive the illness.

The findings were made through the “Randomized Embedded Multifactorial Adaptive Platform-Community Acquired Pneumonia” (REMAP-CAP) trial and are reported today in JAMA as part of a four-article package. The World Health Organization is updating its COVID-19 treatment guidance as a result.

REMAP-CAP is one of seven randomized control trials to test corticosteroids — a class of drug that lowers inflammation and modulates immune system activity — for treating COVID-19 in critically ill patients. An analysis combining all the trial data reinforces the June results of the UK RECOVERY trial, which found the steroid dexamethasone reduced deaths by 29% in ventilated COVID-19 patients.

“It is relatively rare in medicine that you find drugs where the evidence of their effectiveness in saving lives is so consistent,” said lead author Derek Angus, M.D., M.P.H., professor and chair of the Department of Critical Care Medicine at the University of Pittsburgh and chief health care innovation officer at UPMC. “This is, in many respects, the single clearest answer we’ve had so far on how to manage terribly ill COVID-19 patients. People on ventilators or oxygen and under intensive care should definitely be given corticosteroids.”
Between March and June, the REMAP-CAP corticosteroid trial randomized 403 adult COVID-19 patients admitted to an intensive care unit to receive the steroid hydrocortisone or no steroids at all. The trial found a 93% probability that giving patients a seven-day intravenous course of hydrocortisone would result in better outcomes than not giving the steroid. The results were consistent across age, race and sex.

“At the beginning of the year, it felt almost hopeless at times, knowing that we had no specific treatments. It was a worrying time,” said senior author Anthony Gordon, M.D., professor of anesthesia and critical care at Imperial College London and an NIHR research professor. “Yet less than six months later, we’ve found clear, reliable evidence in high-quality clinical trials of how we can tackle this devastating disease. We now have more than one choice of steroid treatment for those who need it most. Steroids are not a cure, but they help improve outcomes. Having a choice of different types of steroids, all of which seem to improve patient recovery, is great as it helps ease the problem of drug supply issues.”

REMAP-CAP and the other corticosteroid trials did not test the drugs in patients with less severe COVID-19. Steroids are not currently recommended for these patients because they can dampen the immune system and have serious side effects.

It also was mostly conducted in resource-rich countries across Europe, North America and Australasia, so the findings may not translate to low- and middle-income countries.

Because it is designed to simultaneously test multiple combinations of potential therapies — as opposed to the traditional, slow clinical trial process that tests one therapy at a time — REMAP-CAP is particularly well-suited for rapidly identifying effective treatments during the COVID-19 pandemic. It currently is testing thousands of different treatment regimens, including various doses and combinations of vitamin C, convalescent plasma, blood thinners, antivirals and immune modulators.

“The publication of our results, those of the other trials as well as the prospective meta-analysis, all within seven weeks of the RECOVERY publication, is a great example of what we can accomplish with global collaboration,” said co-author Lennie Derde, M.D., Ph.D., from the University Medical Center in Utrecht, the Netherlands. “And the joint effort of so many people across the globe to deliver this trial has been especially inspiring.”

Additional authors on the JAMA publication are from the Raymond-Poincaré Hospital – AP-HP (Greater Paris University Hospitals), University of Versailles and University Paris Saclay, all in France; King Saud Bin Abdulaziz University for Health Sciences in Saudi Arabia; University of Oxford, Bristol Royal Informatory, University of Bristol, NHS Blood and Transplant, Queen’s University Belfast, and Intensive Care National Audit & Research Centre, all in the UK; Berry Consultants, LLC, the Global Coalition for Adaptive Research, University of California at Los Angeles and Harbor-UCLA Medical Center, all in the U.S.; St. Michael’s Hospital of Unity Health Toronto, Université de Sherbrooke, University of Toronto, University Health Network, University of British Columbia and University of Manitoba, all in Canada; Jena University Hospital in Germany; Monash University, Alfred Health, Princess Alexandra Hospital University of West Australia, The George Institute for Global Health and St. John of God Hospital, all in Australia; University of Amsterdam and Radboud University Medical Center, both in the Netherlands; Antwerp University Hospital in Belgium; Network for Improving Critical Care Systems and Training in Sri Lanka; Mahidol Oxford Tropical Medicine Research Unit in Thailand; Auckland City Hospital, The Health
Research Council of New Zealand and University of Auckland, all in New Zealand; and St. Vincent’s University Hospital and University College Dublin, both in Ireland.

This research was funded by The Platform for European Preparedness Against (Re-) emerging Epidemics (PREPARE) consortium FP7-HEALTH-2013-INNOVATION-1 (#602525), the Australian National Health and Medical Research Council (#APP1101719 and #1116530), the New Zealand Health Research Council (#16/631), the Canadian Institute of Health Research Strategy for Patient-Oriented Research Innovative Clinical Trials Program Grant (#158584), the UK National Institute for Health Research (NIHR) and the NIHR Imperial Biomedical Research Centre, the Health Research Board of Ireland (CTN 2014-012), the UPMC Office of Healthcare Innovation, the Breast Cancer Research Foundation, the French Ministry of Health (PHRC-20-0147), and the Minderoo Foundation.

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