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BRIEF19

A daily review of covid-19 research and policy.

RESEARCH BRIEFING

Higher viral loads found to be associated with worse covid-19 outcomes.

A [new study](#) published in *Clinical Infectious Diseases*, an influential medical journal, found a correlation between patients with high SARS-CoV-2 viral loads and increased risks of dying. The study was conducted by researchers at Weill Cornell Medicine in New York and studied patients hospitalized between March 30 and April 30, 2020. The outcomes of the cases were followed through June 8, 2020. While the concept is intuitive, prior to this study there had not been definitive evidence linking higher viral loads to mortality. Several studies completed early in the pandemic in China had pointed to an association between viral load and severity of initial presentation of covid-19. However, this is the first study in the United States to show a clear association.

678 patients diagnosed with laboratory-confirmed active SARS-CoV-2 infections were included in the study. Researchers broke down viral loads into three categories: low, medium, and high. There was a clear association between higher viral loads and in-hospital mortality. Among patients with high viral loads, 35 percent died. For those with medium viral loads, the mortality rate was 17.6 percent. Patients with low viral loads died only 6 percent of the time. The authors also assessed the likelihood that a patient would require intubation (mechanical ventilation). 29 percent of patients with high viral loads required mechanical ventilation intubated, versus 21 percent of those with medium viral loads, and 15 percent among those with low viral loads. The authors found an association between high viral loads and heart attacks, congestive heart failure, and kidney damage. The authors did not find any association between use of certain blood pressure medications (ACE-inhibitors or ARBs) and viral load. There was no association with viral load between racial or ethnic groups, suggesting that non-biological factors including “social determinants of health” played a role in differing outcomes in these groups.

One limitation of this study was the fact that only a single sample for viral load measuring was taken at the time of hospital admission. Serial testing, in which multiple samples were drawn over time, would have permitted researchers to monitor the changes in viral loads over the course of the disease. The data from this study may be useful for clinicians as it provides confirmation that higher viral loads are associated with worse patient outcomes. For example, this may help physicians determine whether patients need hospitalization in borderline situations and guide hospital care. Knowledge of a patient’s viral load potentially improves upon simple yes/no results by providing a more nuanced view of a patient’s disease status. Those with higher viral loads will likely need more frequent assessments and closer monitoring. In situations where hospitals are overwhelmed, quantitative testing may help with decisions on allocating scarce resources. Furthermore, it may help communicate the severity of a patient’s infection to family members.

–Eric Funk, MD

POLICY BRIEFING

BARDA's been busy.

The Biomedical Advanced Research and Development Authority (BARDA) has been busy expanding its private partnership portfolio in the face of the coronavirus pandemic. *Brief19* [previously reported](#) on the partnership with Empatica Inc.'s early detection physiologic monitor. BARDA's latest [announcement](#) involves a wearable patch manufactured by Sonica Health. Initially envisioned in 2019 as a tool to monitor cardiovascular health, this pivot focuses on using algorithms to analyze data collected from individuals infected with SARS-CoV-2 to determine whether there are any patterns among infected patients who have not yet begun to notice clinical symptoms. BARDA's full portfolio of coronavirus-related partnerships is [available](#) on its website. *The Department of Health and Human Services*

–Joshua Lesko, MD

Pentagon relaxes restrictions

In late May, the Pentagon [issued](#) travel restrictions that applied to all employees of the Department of Defense in an attempt to limit spread of the coronavirus, with relaxation possible once the US Centers for Disease Control and Prevention (CDC) and White House guidelines had been met. This week, the Pentagon has [updated](#) that status, effectively removing the travel ban in all states except Michigan, Florida, and California, due to their recent uptick in cases. Additionally, normal movement was granted for many service members stationed internationally. What remains to be seen is how the US Navy will respond to this decision, having recently [implemented](#) significant movement restrictions on all North American forces. *Various*

–Joshua Lesko, MD

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Brief19 is a daily executive summary of covid-19-related medical research, news, and public policy. It was founded and created by frontline emergency medicine physicians with expertise in medical research critique, health policy, and public policy.