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BRIEF19

A daily review of covid-19 research and policy

RESEARCH BRIEFING

Can aspirin improve inpatient mortality for patients with covid-19?

A new study conducted by researchers at the University of Maryland School of Medicine suggests a potential benefit of aspirin use for severe covid-19 patients. Aspirin is a commonly used medication for prevention and treatment of strokes and heart attacks as it helps prevent formation of blood clots. As previously discussed in *Brief19*, covid-19 results in a hypercoagulable state, meaning it puts patients at an increased risk for clots, particularly in the legs ("deep vein thrombosis") and lungs ("pulmonary embolism").

Published in *Anesthesia & Analgesia*, the retrospective study included patients admitted to the hospitals participating in a multicenter project called the Collaborative Research to Understand the Sequelae of Harm in COVID (CRUSH COVID) registry. Aspirin use was defined as administration within 24 hours of hospitalization or in the week prior. The main outcome of the study was the need for invasive mechanical ventilation. Other outcomes included admission to the intensive care unit and in-hospital mortality.

A total of 412 patients were included in the study, approximately 25 percent of whom received aspirin. Unsurprisingly, those receiving aspirin had significantly more existing medical conditions, which in turn placed them at a higher risk of covid-19-related mortality. In the final statistical analysis adjusting for patient characteristics, aspirin use was associated with a decreased risk of mechanical ventilation (adjusted hazard ratio=0.56, 95% confidence interval 0.37-0.85, p=0.007), ICU admission (adjusted HR 0.57, 95% CI 0.38-0.85, p=0.005) and in-hospital mortality (adjusted HR 0.53, 95% CI 0.31-0.90, p=0.02). Other predictors included older age, obesity and self-identifying as Latinx.

But does aspirin actually decrease the need for mechanical ventilation, ICU admissions and in-hospital mortality? Unlikely. The effect sizes reported above are quite large and lack "face validity." Furthermore, patients are risk stratified and placed on prophylactic heavy-duty blood thinning medications to prevent pulmonary emboli and deep vein thromboses. Based on these other treatments and the limitations of the study, it doesn't seem as though there is sufficient proof to determine aspirin's true benefit for covid-19 patients.

Nevertheless, the authors should be commended for this hypothesis-generating research and for their appropriate conclusion that "a sufficiently powered randomized controlled trial is needed to assess whether a causal relationship exists between aspirin use and reduced lung injury and mortality in COVID-19 patients."

—Joshua Niforatos, MD

POLICY BRIEFING

Final vaccine rollout recommendations from National Academies of Science.

In early September, the National Academies of Science, Engineering, and Medicine unveiled draft guidance for a phased vaccine rollout schedule. This week the final framework was published. The paper acknowledges that many of these recommendations are being made despite a number of undetermined variables, such as vaccine efficacy in subpopulations, other mitigation efforts and the ever-changing nature of the covid-19 pandemic. Because of such questions, the steps delineated require flexibility and ease of implementation.

The paper outlines that given the anticipation of limited quantities at the outset of a vaccine release, allocation plans must be equitable and perceived as such. The highlighted principles of the plan include ensuring maximum benefit, mitigation of health inequities, fairness, transparency and evidence-based practice.

Finally, in determining allocation of vaccines, the following risks were considered: that of acquiring infection, severe morbidity and mortality, negative societal impact and the risk of transmitting infection to others.

With these variables in mind, the following phased approach of vaccine allocation has been recommended:

- Phase 1a: high-risk healthcare workers and first responders.
- Phase 1b: people of all ages with comorbidities that put them at significantly higher risk; older adults in aggregated living facilities.
- Phase 2: K-12 teachers, staff, and child care workers; critical workers in high-risk settings; people of all ages with comorbidities that put them at moderately higher risk; people in homeless shelters or group homes for individuals with disabilities; people and staff in jails, detention centers, prisons, and the like; all older adults not in Phase 1.
- Phase 3: young adults; children; workers in industries important to the functioning of society not included in Phase 1 or 2.
- Phase 4: everyone else who did not qualify in previous phases.

The paper concludes by discussing the various scenarios under which this framework may need to be implemented. It focuses on time scales of vaccine availability, efficacy, acceptance by the public, number of different vaccines, distribution networks, pandemic status and the social, economic and legal contexts. The authors have admirably tried to address every possibility against every backdrop but acknowledge the limitations in forecasting every scenario. T*he National Academies of Science, Engineering, and Medicine.*

—Joshua Lesko, MD

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