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BRIEF19

A daily review of covid-19 research and policy.

RESEARCH BRIEFING

Phase one data from another vaccine candidate raises hopes.

Of the several vaccines under development for covid-19, last week two made news. In addition to the Moderna mRNA-based vaccine (mRNA-1273) covered in *Brief19*, early data on a vaccine candidate known as Ad5 has now been published in *The Lancet.* The Ad5 vaccine is a fusion of a live but weakened strain of adenovirus 5 (one of many causes of "the common cold") with genetic material isolated from SARS-CoV-2. While this approach has some advantages, one potential problem is that because adenovirus 5 is a known cause of the common cold, many people likely already have immunity to it; in this study, approximately 50 percent of the subjects were found to have existing immunity. In addition, the Ad5 vaccine may cause an immune response that targets the adenovirus portion of the hybrid vaccine's contents, rather than SARS-CoV-2 components. This would render the vaccine ineffective in preventing covid-19. In this study, the investigators administered the Ad5 vaccine to 108 individuals who had just been tested and found to not have SARS-CoV-2 antibodies (i.e. they were not previously infected). Subjects received either low, medium, or high doses of the vaccine and then stayed in a hotel for two weeks. This study was a "phase one trial" and therefore by definition was designed to look for unwanted "adverse" reactions after receiving the vaccine. At least one symptom of an adverse reaction was reported within seven days by patients in all three dosage groups; 83 percent of subjects reported such a reaction in both the low and medium dose groups, and 75 percent in the high dose group. Fever (46 percent), fatigue (44 percent), headache (39 percent), and body aches (17 percent) were the most common reported symptoms. By 28 days, 81 percent of test subjects reported at least one adverse reaction. The researchers also measured T cell responses, which indicate appropriate immune responses to vaccination. The relevant levels peaked 14 days after vaccination. On average, the response was higher in subjects without high pre-existing antibodies to adenovirus 5, as expected. In addition, more than 80 percent of the volunteers in all dosage groups were found to have positive antibody responses (for "neutralizing antibodies") by 14 days; levels of these antibodies, which are seen as key indicators of a favorable immune response, peaked at 28 days. In sum, the Ad5 vaccine performed well and appeared to be safe in this small preliminary study. While side effects were common, they were mild. Rare and far more serious adverse side effects would not be mathematically likely to occur in a sample size this small. As a result, this vaccine will continue to be investigated, especially given the favorable antibody responses described in the paper. However, a previous effort to develop an HIV vaccine using a similar Ad5 approach did not succeed, with more subjects contracting the virus during the study. *–Lauren Westafer, DO MPH*

Brief loss of consciousness and Covid-19. A small study published in the *Annals of Emergency Medicine* reviewed a group of 102 patients with SARS-CoV-2 infection. Loss of conscious (known as "syncope" to medical professionals") occurred in 24 percent of these patients. Of these patients, 62.5 percent required additional oxygen versus 41 percent in the group that had not experienced a temporary loss of consciousness. Syncope is a symptom common to a variety of medical problems, each with its own biological explanation. *–Lauren Westafer, DO MPH*

POLICY BRIEFING

Opening gone awry. Any plan to reopen society safely depends on the assumption that people experiencing coronavirus symptoms will stay home and quarantine themselves. But just as government officials have to weigh the costs of staying shut versus opening and potentially increasing the spread of the virus, individual people make similar calculations. People who have been out of work for months are anxious to reestablish their income and may not be prepared to stay home even if they have symptoms. That kind of calculus may have been at work recently when a hairstylist in Missouri went to work while experiencing symptoms of covid-19. It is unclear what her employment benefits are, but in jobs without paid sick leave, it is easy to understand why some people would elect to go to work, despite the dangers. The hairstylist, who was ultimately diagnosed with the virus, serviced 84 clients and worked alongside 7 co-workers while symptomatic. One local health official implored people not to follow this woman's example. "Each of us owns just how this will go forward in our community," he said. Other similar anecdotes are seen as likely resulting from a combination of historic levels of income loss and limited testing capacity in many areas around the country. *The Hill*

–Kimi Chernoby, MD, JD

Evolution of grassroots PPE movement. It started as a hashtag created by Dr. Esther Choo. #GetMePPE. The tweet came less than one week after the WHO officially designated covid-19 as a pandemic. As case counts started to skyrocket in the United States, there was rapid recognition that on-the-ground supplies of PPE were already running low. Choo initially hoped to spur lawmakers to take steps to speed up production and distribution of the protective equipment, including N95 masks, gowns, and face shields. But it quickly became clear that officials would not act in time and that the supply lines were not going to suffice. So what started as a hashtag turned into a grassroots movement led by doctors to match PPE needs with available supplies. The website, getusppe.org, began as a simple notice board meant to connect those with available PPE (often coming from industries that were shutting down temporarily as the outbreak grew in the US) with hospitals and other healthcare facilities in dire need. Since then, the cite has become a more advanced database that allows for real-time matching of requests and supplies, Dr. Megan Ranney told *ACEP Now*. The organization's efforts have helped mitigate shortages already. It was recently announced that one million face shields donated to the organization by Boston Scientific would be distributed. But with the likelihood of a second wave of infections, the movement's founders see much more work ahead. *ACEP Now.* [disclosure: *Brief19 editor* Dr. Faust is medical editor-in-chief of *ACEP Now*.]

–Joshua Lesko, MD