1 March 2021

BRIEF19

A daily review of covid-19 research and policy

RESEARCH BRIEFING

Johnson & Johnson vaccine approved over the weekend. A look at the data.

On Saturday, the Food and Drug Administration officially granted Emergency Use Authorization (EUA) for the Janssen Ad26.COV2.S vaccine. The pharmaceutical company, Janssen (owned by Johnson & Johnson), is now cleared to start distributing its single dose vaccine in the US at a time when covid-19 numbers seem to have plateaued after a sharp drop that seemed to coincide with the distribution of Pfizer and Moderna's shots. Although Janssen's vaccine is not noted to be quite as effective as those two in the initial weeks, it eventually has similarly favorable outcomes when it comes to hospitalization and death.

The Johnson & Johnson (J&J) vaccine offers new hope for reaching the light at the end of the long coronavirus tunnel, as it provides a handful of various advantages. Not only will the single dose regimen allow for more efficient inoculation, its ability to be refrigerated at normal temperatures for months will make it easier for community and rural doctors offices to carry the shot. It is also based on a technology that has been used before.

With respect to its efficacy, data from Phase 3 clinical trials released in early February suggested that the J&J vaccine was 72 percent effective at preventing moderate and severe disease 28 days after the shot in the US. More promising was the 85 percent global prevention of *severe* disease at day 28, and the fact that there were *no severe cases* at day 49. With its EUA request, submitted on February 4th, J&J and Janssen submitted more safety and efficacy data from their Phase 3 trial, which was a randomized, double-blind and placebo controlled study. In addition to the aforementioned figures, we now know that the shot was found to be around 66 percent effective (across the globe) at day 14 and 28, which suggests that just two weeks after the shot, it is already doing its job. Other encouraging news included the fact that after 28 days, not a single vaccinated participant died, or was even hospitalized. For anyone wondering if the J&J vaccine is "as good" as the Pfizer and Moderna options, we note that both of those vaccines were not even considered to be fully effective until 7 or 14 days after that, as they require a booster at 3 or 4 weeks.

Furthermore, the J&J safety profile was quite good. Similar to its competitors, the primary side effects noted after the shot were injection site pain (49 percent), fatigue (38 percent), myalgias (33 percent), headaches (29 percent), nausea (14 percent) and fever (9 percent). While the Pfizer vaccine quickly developed a reputation for causing hypersensitivity reactions such as anaphylaxis (albeit, exceedingly rarely), it seems J&J has avoided this, with only one documented case of hypersensitivity (which was *not* classified as anaphylaxis).

A note on pregnancy—while no pregnant women were included in the trials, eight women did get pregnant after enrolling (four each in the placebo and vaccine groups), which doesn't provide sufficient data to draw conclusions. However, a study performed in rats in which pregnant females were injected with a double dose of vaccine showed no adverse events.

With SARS-CoV-2 variants replicating rapidly, now is the time to build herd immunity across the globe, and the Johnson & Johnson vaccine provides a third tool in the US to make this a reality. The company has pledged to get 100 million doses to the US by June, and shipments are expected to begin today and arrive by tomorrow.

—Fred Milgrim, MD

POLICY BRIEFING

New CDC guidance on ventilation in schools and child care centers.

Earlier in February the US Centers for Disease Control and Prevention (CDC) released updated recommendations to help local officials determine the safety and timing of school reopening. One of the recurrent concerns has been the ability to adequately and appropriately ventilate shared spaces. To address this, the CDC has now issued new guidance, highlighting a number of core components for school systems to adopt.

- Exposure to outside air: whether holding events outside, opening windows or using child-safe fans to improve air mixing, incorporating more clean air will dilute concentrations of viral particles.
- Optimizing HVAC ("heating, ventilation, and air-conditioning") systems to increase air flow: ensuring proper maintenance, setting thermostats to "on" versus "on demand" and increasing flow rates will similarly contribute to better air movement.
- Filtration, filtration, filtration: make sure air filters are properly installed and that they allow the maximum filtration possible without decreasing air flow. Consideration of installation of HEPA ("high efficiency particulate air") filters and using UV germicidal irradiation (with professional installation).
- Exhaust: ensure exhaust systems in kitchens and restrooms are functioning properly and in use during building occupation.
- Open air exposure in vehicles: when using transportation, even cracking windows can increase air flow and allow for injection of fresh air into an otherwise sealed environment.

The common theme with these recommendations is maintaining clean air and constant air movement. This is consistent with the long-established risks of exposing individuals to stagnant air, which only increases risk of exposure to any infectious particles. *The Centers for Disease Control and Prevention*

—Brief19 Policy Team

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