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BRIEF19

A daily review of covid-19 research and policy

RESEARCH BRIEFING

mRNA vaccines appear to have no effect or rates of facial paralysis or weakness.

During the Pfizer/BioNtech and Moderna phase 3 vaccine trials, 7 instances of facial paralysis were noted out of 35,654 recipients who received the real vaccine. In contrast, just 1 such instance was reported among the 35,611 who received a placebo shot. While to the casual observer, that may seem like a big difference, the reality is that the numbers were too small to be interpretable. Now that millions of people have gotten the vaccines, researchers assessed rates of facial paralysis and facial weakness among recipients of the mRNA vaccines during the early rollout. The results were published today in *JAMA Internal Medicine.*

The vaccines were *not* found to impart a higher rate of these adverse events. In order to determine this, the researchers did something interesting. They compared the rates of facial paralysis and weakness to rates among influenza vaccine recipients and other viral vaccines. The reason for this is, in essence two-fold. First, baseline rates of conditions like facial paralysis are extremely hard to know. Many of these conditions are temporary (most cases of "Bell's Palsy, a weakness of one side of the face) and improve spontaneously or with medications. Moreover, it's not as though every single clinician who diagnoses one of these conditions reports it into some central database, the way public health officials must do with causes of death. However, virtually all side effects that people experience after a vaccination *are* reported to centralized databases. (If anything, swaths of random unrelated symptoms are often over-reported after vaccinations; people have random events and blame the vaccines, whether rightly or wrongly.) As a result, we have a much better idea of how common these conditions are amongst people who recently received an influenza or other viral vaccine than we do about the rates of these conditions occurring in the general population. Secondly, comparing the rates of facial paralysis and weakness to the rates that are associated with other vaccines to the rates that occurred after SARS-CoV-2 inoculation provides an important benchmark. If we are willing to accept some rate of temporary facial paralysis when we go to get our flu, shingles, or measles shot, it stands to reason that we'd accept a similar rate when protecting ourselves from SARS-CoV-2.

The researchers found that the coronavirus mRNA vaccines were associated with similar rates of facial nerve problems compared to other viral vaccines. Additionally, the coronavirus mRNA vaccines were associated with *lower* rates or facial nerve problems than has been seen among influenza vaccine recipients.

The takeaways are clear. First, the phase 3 coronavirus vaccine trials gave us important information on possible associations with some important side effects which needed to be tracked. This new study provided just such follow-up information. It reminds us that the hint of an adverse effect signal in a clinical trial does not necessarily correlate to real findings in larger datasets. Second, the authors have provided us with some insightful reasoning regarding our own implicit risk tolerance. The achievable goal, as they imply without saying directly, is not to create vaccines with absolutely no risk of adverse events. The goal is to create vaccines with tolerable effects that are in line with our usual risk tolerance when we set out to prevent deadly diseases.

—Jeremy Samuel Faust, MD MS

POLICY BRIEFING

US to share vaccine oversupply with the rest of the world.

As much of the world experiences surging numbers of SARS-CoV-2 infections, the United States on Monday announced plans to relinquish supply of up to 60 million doses of covid-19 vaccine in an effort to help other struggling countries protect their populations.

Currently, AstraZeneca's shot is available in other countries. However, it has yet to undergo the Emergency Use Authorization process through the US Food and Drug Administration. Previously, the US has shared some of its supply with Mexico and Canada, and now it will likely send unused supplies to countries struggling with skyrocketing caseloads. It is seen as increasingly unlikely that the US will not need to use its supply of the AstraZeneca option in order to inoculate most of its population.

In recent weeks, the United States government has faced increasing worldwide scrutiny and accusations of hoarding its vaccine oversupply while countries, including India, struggle to manage an overwhelming number of new cases of covid-19.

Unfortunately, the specific doses likely to be shared abroad were produced at the same manufacturing facility as the Johnson & Johnson product that has previously been reported to have had significant quality issues. Due to these concerns, the plant has stopped making the AstraZeneca formulation and the company is searching for a new manufacturer for production of the remaining ordered doses. Over the weekend, it was announced that the United States is also planning to share the raw materials needed for the vaccine formulation with other nations so that doses can be produced internationally as well. *The Associated Press.*

-- Jordan M. Warchol, MD, MPH

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