PARENTS PACK

MONTHLY UPDATES ABOUT VACCINES ACROSS THE LIFESPAN

Considerations for COVID-19 vaccination of 5- to 11-year-old children

November 2021

It's understandable that some parents want more information before getting their young children vaccinated against COVID-19, so this month's feature article aims to address three factors to assist parents' decision-making.

Number 1: Safety of the vaccine

First and foremost, parents want to know that the COVID-19 vaccine is safe before they give it to their children. In particular, three areas of concern have emerged. One is based on data; the other two are based on word-of-mouth concerns. All three generate legitimate fear that leaves parents wondering about the risk for their child. So, let's take a look:

Myocarditis — Myocarditis is inflammation of the heart. It has been found to be a rare side effect associated with receipt of the COVID-19 mRNA vaccine. Myocarditis following vaccination most often occurs in the four-day period after receipt of the second dose of the vaccine, occurs more often in males, and usually resolves completely without specific treatment. Because the dose for 5- to 11-year-old children is lower, the hope is that fewer children will experience this side effect, which results from a strong immune response to the vaccine. Scientists tested a few doses to find the lowest one that would still offer sufficient immunity in anticipation that the lower dose would also cause fewer side effects. The clinical trials did not show myocarditis to be a problem; however, the study was too small to pick up a rare side effect.

This situation may cause some parents to consider taking a "wait and see" approach, delaying their own child's vaccination until more doses have been administered. However, what many parents don't realize is that in teens and young adults — the group with the highest occurrence of this side effect — the risk of developing myocarditis is greater following natural infection:

- Of 100,000 males between 16 and 29 years of age, about 5 would develop myocarditis after vaccination and about 59 would develop myocarditis after infection.
- If we consider 100,000 females between these ages, 1 would develop myocarditis after vaccination and about 39 would develop myocarditis after infection.

As such, the risk of experiencing myocarditis is greater in an unvaccinated person than a vaccinated person. Said another way, opting to delay or forgo vaccination to avoid myocarditis is opting to take the risk of developing COVID-19 infection, which could put the child at greater risk of experiencing myocarditis.

Fertility — Much discussion has centered on whether COVID-19 vaccines affect fertility. After millions of vaccinations, no evidence for this exists. In males, concerns have related to an observation that sperm count temporarily decreases during COVID-19 infection; however, the same does not appear to occur following vaccination, nor would it be expected to as the vaccines are processed near the site of injection and cause a significantly lower "assault" on the immune system compared with infection.

In females, concerns have centered on two areas. First, reports of changes to menstruation following vaccination of oneself or someone around the vaccinated individual have caused some to question whether these vaccines affect fertility. Given that millions of women have been vaccinated or infected and changes to fertility have not been realized (i.e., the birth rate has remained unchanged), it is unlikely that even if short-term changes to the menstrual cycle were found to occur, they would translate into long-term alterations to fertility. However, because of these reports, the National Institutes of Health (NIH) is studying menstruation following vaccination. These data will need to be analyzed carefully since changes to the menstrual cycle can occur due to a variety of reasons, including undiagnosed infections, fluctuations in hormone levels, or stress.

The second concern related to females and fertility involves a protein found in the placenta, called syncytin-1. A paper published prior to approval of any COVID-19 vaccines suggested that the SARS-CoV-2 spike protein is similar to syncytin-1. This conclusion was based on a theoretical, or computer-based, study that compared the genes for these two proteins. However, two points provide important context:

- While the computer-based method used for this paper is important for generating hypotheses, it cannot reveal what would happen in people. Proteins are made of amino acids. Only 20 amino acids exist, so two proteins with a short section of similarity between these building blocks is common. However, these similar sections do not necessarily mean that antibodies to one will recognize the other. As such, a hypothesis based on this type of study would require experimental support, perhaps first at a lab bench, but ultimately in people, often referred to as clinical data.
- We now have abundant clinical data that do not support this hypothesis. If the spike protein was in fact an issue, we would be seeing increased numbers of miscarriages as women who were infected with the virus become pregnant. Since antibodies from infection do not lead to fertility-related issues, antibodies from vaccination would not be likely to either, and this is supported by the fact that millions of vaccinated women have given birth or become pregnant since being vaccinated.

As it relates to younger children, if these vaccines are not affecting fertility for men and women during their childbearing years, they would not be expected to affect younger children either.

Other long-term effects — Fears associated with the potential for long-term effects are difficult to overcome because they are the equivalent of the "fear of the unknown." However, the easiest way to think about the potential for long-term side effects following receipt of these vaccines is by realizing that their components are only in the body for a few weeks at most. The only thing that remains thereafter is the immunologic memory generated by vaccination. **Simply put, something that is not there cannot cause an issue.** Additional details about this topic were described in the February 2021 issue of this newsletter.

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Number 2: Severity of the disease

Generally, children are less frequently infected with the virus that causes COVID-19 and when infected have less severe disease and complications from COVID-19 than adults, particularly older adults. However, if a parent is trying to decide about vaccination of their child, they need to understand three unequivocal facts:

1. Children do get COVID-19.
2. Some children have become severely ill, and some have died from COVID-19.
3. Some children have suffered, and continue to suffer, the effects of "long COVID."

Let's take a closer look:

- While rates of COVID-19 infection were higher in adults early during the pandemic, fewer children were interacting with others as they were home with their families. Also, since children often do not develop symptoms, testing in children has been less consistent. These factors have led to a false sense of comfort related to children's susceptibility to this disease. Indeed, by late summer 2021 as more adults were vaccinated and children increasingly returned to school and other activities, the infection rates in children were greater than those in most other age groups. When the SARS-CoV-2 virus entered the United States early in 2020, children accounted for about 3% of all infections; today they account for more than 25%.
- Thousands of children have been hospitalized and more than 650 have died as a result of COVID-19. In addition, more than 5,000 children have experienced a condition called multisystem inflammatory syndrome in children, or MIS-C. While this risk is low, it is not zero,
  so choosing not to vaccinate is opting to leave the child susceptible to these low — but real — risks.

  Check out the Vaccine Education Center's (VEC) new video series, "Perspectives on COVID-19 Vaccine for Kids," for personal stories and experiences to hear more about what children sick with COVID-19 experience, such as described by Lauren, a clinician at the Children's Hospital of Philadelphia, *"It can be traumatizing and scary and difficult for children and their support systems, despite the severity of illness or anything of that nature."*
- We have yet to understand the long-term effects of COVID-19 infection, and children are also suffering these effects. The most common lingering symptoms being reported by children include tiredness or fatigue, headache, trouble sleeping (insomnia), trouble concentrating, muscle and joint pain, and cough.

  One group of people who understand what it is like to live a life affected by the lingering effects of a viral infection are polio survivors. The VEC's "Perspectives on COVID-19 Vaccine for Kids" video series includes perspectives of polio survivors. As described by Carol, *"I can easily connect the fear of contracting polio to the fear we've all been experiencing with COVID-19. An asymptomatic or a very mild case of that virus [polio] has changed my life forever."*

Number 3: Other people

Finally, while parents often focus on the potential risks and benefits of vaccination for their child, it is important to understand that a decision not to vaccinate a child could result in the child transmitting the virus to a parent, grandparent, teacher, coach, or other child. Because children often do not have symptoms or experience mild cases, they are more likely to continue with regular activities. While this may seem like it should not be a concern when a parent is deciding about the safety and need for vaccination, the reality is this type of event could also forever change the course of the child's life. Recently, a study found that about 1 of every 500 children in the U.S. has lost a parent or a grandparent who served as their caregiver to COVID-19. The rates varied by race and ethnicity, but all groups have been affected. And, while this study was a modeling study, meaning it was based on using existing data from a variety of sources to draw a conclusion, the idea of large numbers of children no longer having a safe, stable, and loving home environment should concern everyone.

In sum

While it is natural to feel nervous about getting your child vaccinated, it is important to honestly and open-mindedly evaluate the risks and the benefits associated with either choice. Only then can you rest assured that you are making the best decision for your child. A choice not to vaccinate a child is not a risk-free choice, it is a choice to take a different — and more serious — risk.

For links to referenced information, visit the online version of this article, **bit.ly/3BWMcMC**.

NEWS & NOTES

To find out additional resources related to COVID-19 vaccine for children 5 to 11 years of age, check out the "News & Notes" article, **chop.edu/news/vaccine-news-notes-november-2021**.

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