May 11, 2021

Re: COVID-19 vaccines

Dear friends,

I am excited that we are on the threshold of the COVID-19 vaccine being approved to be given in children between 12-15 years of age. I thought it would be good to write my thoughts about the vaccine and recommendations as you consider giving this to yourself and your children.

The Pfizer and Moderna COVID-19 vaccines use an exciting technology for manufacturing vaccines, called mRNA. The vaccine contains particles filled with this material that then fuse with the muscle cells of our body (where the vaccine is injected), releasing this material into the outer part of the cell, called the cytoplasm. It does not make it into the nucleus of our cell, where our own genetic material is kept. In the cytoplasm, structures called ribosomes that use the mRNA to make a protein, which is transferred to the cell surface. This protein, called the Spike Protein, is the most common protein in the outer membrane of the SARS-Cov-2, the virus that causes COVID-19. Our immune system recognizes the Spike Protein and forms an antibody response to it, thus protecting us when we are exposed to the real SARS-Cov-2.

Here is a link to an excellent video describing this in more detail: <https://www.webmd.com/vaccines/covid-19-vaccine/video/video-covid-mrna-vaccine>

The Johnson and Johnson vaccine uses a slightly different technology, with the same ultimate result. All these vaccines are remarkably effective in preventing disease caused by Sars-Cov-2, up to 95%, which is amazing. This mRNA technology has been around for decades and is not new. I expect that it will be commonly used in vaccines developed in the future because it is so effective. In addition, since it does not require growing the virus, as many other vaccine processes do, it can be manufactured very quickly and in large amounts.

These vaccines are very safe. Common side effects of the vaccines include fever/chills, body aches, headaches, fatigue, and nausea. These are generally short-lived (about 1-2 days) and resolve quickly. Many of you heard about the pausing in giving the Johnson and Johnson vaccine recently so that investigations could be completed regarding reports of blood clots in some recipients. These occurred in just under 1 in one million doses. After investigating the reports, it was determined that with this risk being so low, the benefits to vaccination far outweigh the risks, and so it was reinstated. Another widespread concern regarding these vaccines is that they can affect fertility. There is currently **no evidence** this is the case.

Many people have expressed concerns that these vaccines were rushed through the process of approval and that corners may have been cut in order to get them out as soon as possible. All drugs and vaccines undergo three phases of research in which safety, correct dosing, and efficacy (proving it works) must be demonstrated. For the COVID vaccines, these studies were conducted in thousands of volunteers. Thereafter the data undergoes extensive review by the FDA prior to being approved. Studies continue after drugs and vaccines are released to ensure continued safety, and if concerns arise, these are investigated. You can be assured that safety was and is a top priority and no corners have been cut during the development of these vaccines.

We are hoping that we will be able to give the vaccine in our office within the next 1-2 weeks. We will be giving the Pfizer vaccine, as this is the only one right now which will be approved for ages 12 and up. They are currently doing studies in children from 6 months to 12 years of age, and those results will likely be available in the early fall. These will be reviewed by the FDA and if all goes well, I anticipate vaccine recommendations for all age groups by the end of the year or early 2022. I have received the vaccine and all of my family of eligible age have also received the vaccine.

Due to very strict storage and administration guidelines, we will be giving the vaccine only during specific times and an appointment will be needed, similar to other sites who have already been giving the vaccine. We plan to immunize all ages for which the vaccine is recommended, including adults and children, similar to how we do the Influenza vaccine. We will send more information with specifics regarding these times as we finalize our plans in the next couple of weeks. I look forward to being a part of the army fighting against this virus and pandemic.

Sincerely,

Joseph M. Johnson, MD

P.S: May I also put in a plug to not forget to get vaccinated against Influenza this coming fall!