

COVID-19 Vaccines with Dr. Benjamin Greenberg

Part II

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GG deFiebre: I'm GG deFiebre from the Siegel Rare Neuroimmune Association, the Associate Director of Research and Education, and I'm here talking to Dr. Greenberg, who is a member of the Siegel Rare Neuroimmune Association board of directors and the Medical and Scientific Council. And we're just going to be talking a bit about vaccines and the, COVID vaccines and the implications potentially for those with rare neuroimmune disorders.

[00:00:23] Okay. So what is emergency use authorization, and what does it mean for Pfizer? And when do you think the Moderna emergency use authorization might happen?

Dr. Ben Greenberg: [00:00:34] Yeah, GG, it's a good question because this is an area of confusion for a lot of folks. The emergency use authorization power that the FDA has is actually a relatively recent ability in the last few years. It was worked on throughout the mid 2000s all the way to 2016, 2017, when it was codified. And the idea was to prepare for specifically a pandemic situation or a mass casualty event that needed a rapid response from the medical field.

[00:01:07] And what it allows for is the FDA to give a conditional authorization - not full approval - of a drug or device or, in this case, a vaccine to make it available for the good of a public health emergency. And so it allows for the FDA to suspend certain rules about the process but importantly maintains that they have to still be able to view the safety data and efficacy data from studies of the agent and give this provisional approval while still collecting additional data. So it doesn't get rid of the obligation to prove a certain amount of safety and efficacy, but it does reduce the amount of time to getting a product available while ongoing studies get completed.

GG deFiebre: [00:01:53] And then, so we do have the emergency use authorization for Pfizer. When do we think Moderna might happen?

Dr. Ben Greenberg: [00:02:01] So we're recording this on a Wednesday, and the expectation is probably by the weekend we would hear about an emergency use authorization. Now that said, there are no guarantees. Every set of data is looked at independently. And while there is the recommendation for this to be granted, it could happen at any moment for the Moderna vaccine to join the Pfizer vaccine. It's worth noting that both of these vaccines represent variations of the same technology. What we talked about in our last conversation, the mRNA vaccine.

GG deFiebre: [00:02:35] Great. Thank you. And then, so I know that we have some of the data from the Pfizer vaccine. Were those with any sort of, kind of immune system issues included in the data? You know, potentially neuroimmune issues or just immune systems generally? Or what are your thoughts kind of around that at this point?

Dr. Ben Greenberg: [00:02:54] Yeah. So overall there's not enough data to make comments about individuals who have either primary immunodeficiencies or are on medications that cause immunosuppression.

[00:03:04] Likewise, there's not a lot of data around pregnant or women who are breastfeeding, and there is not data for populations under the age of 16 and limited data for ages between 16 and 18. So the bulk, the majority of the participants in the trial were 18 and older and did not have any of these specialized conditions. That said, when we look at the data from those groups, individuals with conversations with their treating physicians can make decisions on how to apply the safety and efficacy data to themselves.

[00:03:39] On the immunocompromised side of things, the concern we have isn't around safety. The concern we have is around efficacy - that if you are on a medicine that suppresses your immune system to prevent an attack of an autoimmune disease, it likely will also reduce the efficacy of a vaccination, any vaccination. And so what we are talking about in general with, with patients in the community is that while it may be okay and safe to take the vaccine, you still have to recognize the implication on the efficacy side.

GG deFiebre: [00:04:14] Okay, thank you. And then in that discussion, like with someone's physician, for example, if they're on something that suppresses their immune system, should they have a conversation about timing of vaccine in terms of when that occurs around infusions? Or what kind of other things should come up in that conversation?

Dr. Ben Greenberg: [00:04:31] Yeah, the honest answer is this is a really complicated person-by-person conversation. It depends on the immunosuppressant a person is on, the reason for the immunosuppressant, and is there any option available for creating a window of opportunity to get vaccinated and have a better response to the vaccine.

[00:04:51] That is a difficult question to answer for, for each patient, but those are the topics that come up. For some individuals, it just won't be possible to come off the immunosuppressant to try and create a better environment for being vaccinated. Now, one of the options that clinicians and patients and families can consider is staying on their immunosuppressive regimen, getting vaccinated, and if it's one of the vaccines where you get two doses, getting both doses, and then doing a blood test to see whether or not you mount an antibody response based on the vaccine, to give you a sense of: are you getting any protection or not?

[00:05:29] That's not an official guideline. In fact, there are no official guidelines when it comes to this question, but it's one of the strategies that can be discussed to decide how and when to get the vaccine and how to coordinate your clinical care with it.

GG deFiebre: [00:05:42] Okay. Great. Thank you. And then, so obviously these vaccines are being rolled out now currently to, for example, healthcare workers, but also people in long-term care facilities like nursing homes or who might be in a hospital at the moment.

[00:05:55] Are there any kind of specific considerations for people who might be offered that at this point in time, who have one of these rare neuroimmune disorders?

Dr. Ben Greenberg: [00:06:05] Yeah, that's a great question. Based on the data we saw in the trials, we don't have a reason to restrict offering the vaccines to any of the patients in our community, whether you're in a hospital or a long-term care facility or an outpatient.

[00:06:19] The nice thing about the mRNA technology is that we're not talking about a live-attenuated virus. This is not something where the virus will replicate. In fact, you're not even being exposed to the virus itself.

You're being exposed to a piece of nucleic acid that will have your cells express one of the proteins from the virus.

[00:06:42] And so, there's no way to get the virus from this vaccine. There's no way to get infected by this vaccine. And so I don't have a reason to tell any of my patient populations to avoid or restrict exposure to the vaccination.

GG deFiebre: [00:06:56] Okay. Great. Thank you. And then, so there has been some discussion about the fact that there, within the Pfizer vaccine data, that there were some instances of Bell's palsy.

[00:07:07] Can you just describe what that is and talk a little bit about what that means in terms of implications moving forward?

Dr. Ben Greenberg: [00:07:15] Yeah, this is a really important question. And I'd actually like to answer it by starting a couple of steps back and just reminding everybody about data reporting during clinical trials.

[00:07:25] So whether you're doing a clinical trial of the vaccine, or you're doing a clinical trial of a new medication to treat a condition, from the moment a participant signs the consent form all the way through follow-up, anything that that person experiences gets recorded. So if you are in a study where we are looking at the role of broccoli and health, and we randomize people to eat broccoli or not eat broccoli, anybody who reports having a headache during the month of the diet, we list headaches and the rates of headaches that happen in each of the group. So just because an event occurs during a study does not prove causation.

[00:08:04] This is where the statistics come in. And this is where we look for patterns that may raise a red flag. Bell's palsy, which is a weakness of one side of the face, paralysis of one side of the face, from which most people usually recover, is a common event. It's related to inflammation of what's called the facial nerve, one of your cranial nerves, and it can lead to a lopsided face or inability to smile or close your eye.

[00:08:33] It's a pretty common neurologic event. The, some studies estimate 15 to 30 cases per hundred thousand individuals per year. So we see Bell's palsy on a pretty regular basis in the medical community. In the Pfizer vaccine trial that involved about 36 to 40,000 individuals, there were four cases of Bell's palsy during the follow-up.

[00:08:57] Now all four occurred in individuals who were receiving the vaccine, none occurred in the placebo arm. So it's definitely caught our attention. And while I do not have access to the full dataset from the Moderna trial, they have announced as well four cases of Bell's palsy. But in that trial, one of those cases was on the placebo arm.

[00:09:19] So clearly not related. And the reminder there is people get Bell's palsy, and it might happen in the months of follow-up after a vaccine trial. That said, to see a few cases appearing in both trials, I know that the individuals at the FDA and the vaccine adverse reporting system group will be watching for any further reports of Bell's palsy as we vaccinate now millions of people with these products.

GG deFiebre: [00:09:49] Okay. Thank you for that explanation. And then there have also been reports of allergic reactions or anaphylactic reactions. Can you just talk a little bit about that as well?

Dr. Ben Greenberg: [00:09:59] Yeah, this caused a lot of concern just last week when the National Health Services in the UK, announced a very urgent sounding warning, and it was appropriate, but I think may have been over interpreted. What they noted was individuals with severe histories of allergic reactions to foods

and medications. So usually these are individuals who carry an epi pen with them, because if they eat that one piece of shellfish or that one peanut, their airway is going to close up and they're going to have problems.

[00:10:30] There were a couple individuals with that type of history who had reactions to the injection. They did not require hospitalization. They were treated and released immediately. But the recommendation is use caution for individuals with a history of severe allergic reactions. And it's probably going to have an impact on how we monitor folks for the 15, 20 minutes after an injection, just to make sure people aren't having those reactions. But all of them are treatable and could be managed without consequences to the individual.

GG deFiebre: [00:11:01] Great. And then, how will this vaccine be administered? So I've, I've heard some concerns about it. You know, one of them needs to be stored at very, very cold temperatures. So, does it get injected at that temperature? What, what happens in terms of that?

Dr. Ben Greenberg: [00:11:16] Yeah, so it'd be very uncomfortable to inject a liquid from minus 80 degrees into the arm. So these are thawed. The issue with the cold storage of these products has to do with transportation and storage up until the point of being administered.

[00:11:32] Once a vial is ready to be thawed and mixed, by the time it makes it to an individual, it's going to be thawed and pretty close to room temperature, but that vial can't be left out and then used in the afternoon. So what you read about the temperatures isn't going to impact you, the individual receiving the vaccine, but it does have big implications for the logistics of how we vaccinate a population.

[00:11:57] This will really require facilities that have the ability to appropriately store, monitor, thaw, and then administer the vaccine in an efficient manner. And this is not something that the world has done on a large scale before, but it's what we're gearing up for.

GG deFiebre: [00:12:14] Great. And then there were also some comments about, going around the internet, about the vaccines causing infertility through somehow attacking the placenta, I guess, in the, in a future pregnancy. Do you mind just addressing that?

Dr. Ben Greenberg: [00:12:29] Yeah, there are a few things in the world that have started to get me more worked up than misinformation moving through the internet at warp speed and at rates that seem far faster than the accurate information. So what a few anti-vaccination campaign individuals have latched onto is a comment around protein relationships between the spike protein of SARS-CoV-2, which is the protein that we are generating in a person in order to mount an immune response, in that it bears some sort of relationship to a protein in the placenta. And what they have put forth onto the internet is this idea that you will mount a response to the SARS-CoV-2 spike protein, and that will lead to an inability of a woman to develop a placenta because of cross-reactivity.

[00:13:22] This is not founded in any data or any science or any experience with the vaccine on the animal study level or on the human level. And in fact, when you look at what they're referring to, the overlap of the proteins and the similarity, they are missing a huge basic science piece of information. And that is the overlapping protein has to share a certain amount of homology in order for that concern to be triggered, and that percent is not shared between these two proteins. So we do not have that as a concern, and it's not something that we've seen reported in any of the studies to date. This is individuals taking small pieces of science and making them into something they're not

GG deFiebre: [00:14:09] Right. And presumably, if the spike protein, you know, people have that from getting infected with the virus as well. So would it, it would... that that issue would have shown up in someone who was infected if that was the case, but...

Dr. Ben Greenberg: [00:14:23] Correct. We haven't seen anything from the natural infections or the vaccine studies yet.

GG deFiebre: [00:14:28] Got it. Okay. And then, so with these, you know, we have Pfizer with the emergency use authorizations vaccine. Moderna is expected soon. Do you think that we're going to have a choice in terms of which one we get to pick? Or what do you think kind of the factors there that, that might determine which one someone gets?

Dr. Ben Greenberg: [00:14:46] Yeah, it's a good question. And I should preface this by saying my answer is a guess. I, I don't have inside information on this. But I would expect that between now and say end of February, March, it's going to be you get what you get, and you don't get upset. Just purely based on supply, if you have access, it's probably going to be to one or the other. The reason that doesn't concern me so much is they're based on overlapping, similar technologies. And so it's not as if we're comparing a live-attenuated virus versus a deactivated virus versus an mRNA vaccine.

[00:15:19] These are, the Moderna and the Pfizer are closely related to each other. So if offered either one of them, I would put them in very similar categories, both in terms of safety, efficacy, and the issues that are involved. Where this will get complicated is, as more vaccines become available that have a different technology and potentially a different efficacy and safety profile, we are going to have to start navigating whether or not people will wait for access to certain types versus others. And right now, that's uncharted territory. And fortunately or unfortunately, we're not going to know probably until the spring.

[00:15:57] It's worth noting, however, to all of the patients and families in our community who are listening to this, that you will have the benefit from one of the largest mass vaccination campaigns in history. This is actually probably going to exceed what was done in polio vaccinations going back over 50 years. We are literally going to be vaccinating somewhere between 10 and 40 million individuals in a period of weeks, something that just hasn't happened before. And so if there are very rare safety events, something that wouldn't show up in 40 to 80,000 individuals, we're going to know about it before the vaccines are so widely available that everybody will have to make this decision.

[00:16:44] So to all the individuals on the front lines, healthcare workers, first responders, our families who are in long-term care facilities, those who are being offered the vaccine first and are taking it, we hope it works. We have a lot of confidence in the safety, and we also have to appreciate the fact that they're part of the experiment too. They are generating data that will help inform all of us as we get to the spring.

GG deFiebre: [00:17:09] Great. Thank you. And then, is there anything else you want to mention that we didn't talk about today that might be relevant for our community?

Dr. Ben Greenberg: [00:17:15] Yes. And that is staying in tune. So we recorded a conversation just the other week. We're recording one today. Our plan is to keep updating this on a regular basis because this information is subject to change. And so, I do highly recommend people stay engaged. Because as we get more data, we want to be transparent with what we know and what we don't know.

[00:17:37] And as we get more vaccine options, we want to put them in perspective for everybody to make their own decisions. And I would also end by saying, just because the vaccines are coming out, we cannot let down our guard. Our numbers are still increasing. And what's interesting is the focus, very appropriately, is on getting a safe and effective vaccine.

[00:17:59] We have very safe and very effective methods for preventing this infection. Wearing your mask, social distancing, no large gatherings is highly effective, and there is not medical risk. We have all been suffering the psychological impacts, the personal impacts, and the economic impacts, but there aren't medical impacts.

[00:18:19] And as we get to the holidays and the new year, it's going to be sad and different for all of us not having the type of celebrations we're all used to. But that short-term loss really makes a big difference in the long-term for us turning a corner. So please, everybody keep staying safe when making those decisions.

GG deFiebre: [00:18:38] Great. Thank you so much.