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SPEAKERS

Dr. Halena Gazelka, Dr. Gregory Poland, Narrator

N Narrator 00:02
Coming up on Mayo Clinic Q&A, it's the listeners mailbag.

D Dr. Gregory Poland 00:05
The virus we were dealing with eight months and 12 months ago, is a very different virus today. Now it's the so-called UK strain, a strain that causes about a four fold increase in viral load.

N Narrator 00:22
To battle the change in the virus, it's important that all individuals 16 years of age and older get vaccinated, even though there is a very slight chance of breakthrough infections.

D Dr. Gregory Poland 00:32
There are people who will get the vaccine and either because of genetic issues they have, or maybe they're immuno-compromised in some way, may not have fully protective antibody levels. So when exposed, they could develop disease. How often is that in fact happening? 0.005%. It's teeny.

D

Dr. Halena Gazelka 00:57

Welcome, everyone to Mayo Clinic Q&A. I'm Dr. Halena Gazelka. We're recording this podcast on April the 19th, 2021. And what a tumultuous week it has been for COVID-19 vaccines, as the Johnson & Johnson vaccine has been temporarily paused out of an abundance of caution, due to concerns over a rare blood clotting disorder. Well, joining us to discuss this today and enlighten us, is our favorite COVID-19 expert, Dr. Greg Poland, virologist, infectious disease and vaccine expert from Mayo Clinic. Thanks for being here today, Greg.

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Dr. Gregory Poland 01:31

Good morning Halena.

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Dr. Halena Gazelka 01:33

All right, today, you're going to update us, and then we have some listener questions to get to too.

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Dr. Gregory Poland 01:37

Oh good. Those are always the best, because our listeners are so bright. They ask penetrating questions that sometimes give us research ideas.

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Dr. Halena Gazelka 01:46

And that we typically say we don't know, but thanks for asking. Well Greg, start with J & J. Tell us about that.

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Dr. Gregory Poland 01:54

Yeah, as you mentioned, they put it on pause. And that really is for a number of reasons. And it's critical to understand those. One is reports, so, about six or seven cases out of about seven million doses that have been given. So, what is the extent of that? Case reports can take weeks to filter in. So, they're pausing to understand how many exactly are there. The second thing is to educate the public about this possible side-effect, so that they know when and under what circumstances to seek medical care. The third is for our own education. It's to have time to educate the physicians and nurses and pharmacists what to look for, why we're doing this, and why this is such a rare side-effect.

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Dr. Halena Gazelka 02:47

Well, tell us a little bit about that.

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Dr. Gregory Poland 02:50

So, what's happened is that we have found six and now probably a seventh case. They've all been women. They've all been Caucasian women. They've all been under the age of 50. And they've developed unusually severe clots, often in the brain, but also other areas of the body. And here's what's so very rare about it, in association with low platelets, the type of blood cell responsible for blood clotting, normally, you don't see any difference in platelet count, when you have those clots. The reason that's important, and this is why the pause, is to educate everybody and determine if this is real, is the last thing you want to do is what we as physicians instinctively know, to do, which is to treat them with a blood thinner called heparin. And you don't want to do that in this particular case. So, they're having to educate people about that and teach them that you have to do that in a different manner in a different way. And part of the problem is determining is this real? Is this really elevated above background? My personal opinion is that it appears to be, and so I think the pause, and it's controversial for some people that I as a vaccinologist say this, but I think the pause was appropriate. It indicates that we have a very, very robust safety surveillance system. And it also indicates that even knowing that it will be controversial, and you know, people who are against that in vaccines will kind of point to it. It indicates our willingness to pause with any kind of safety concern and fully understand and explain this.

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Dr. Halena Gazelka 04:46

And certainly, Greg, you said this is unusual, that there is clotting and low platelets at the same time. Kind of an odd combination. But certainly this is a known phenomenon with at least one other medication. And so, that lends some credence to the idea that this might be like an antibody or autoimmune response.

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Dr. Gregory Poland 05:08

Exactly Halena. In fact, two different investigative teams have identified an antibody against what's called Platelet Factor 4. So, it involves platelets and blood clotting. And that may be the mechanism behind this, and may be the reason why we don't want to give heparin in this case. So, I think the key thing for our listeners is that younger women that may have gotten the vaccine, those six cases out of seven million people, so it's terribly rare, so rare that the question is, is it real? I think it may be, personally, because

when you take those seven million, and you say, well how many of them were women below the age of 50, and you're in the one and a half to two million. So, what that really means is, there might be six cases out of two million, not seven million. And so, women who have gotten that vaccine who are below the age of 50, who developed severe headache, backache, shortness of breath, swelling and pain in a limb, those would all be reasons to seek consultation with your physician.

D Dr. Halena Gazelka 06:26

And certainly Greg, besides the obvious concern over individuals that this might occur in, and the difficulties that they would suffer, there's a couple of big concerns. One is that we're having to remove a vaccine, which was contributing to the supply of vaccines. So, now we have a relative shortage in comparison with that vaccine being available, and two is this idea of vaccine hesitancy, and this may lend credence or fear for some people in pursuing any vaccine. What do you think about that?

D Dr. Gregory Poland 06:58

You know, I think that's a legitimate concern that people have. I think that's why people have been surprised that I'm in favor of the pause until we understand this. But, I think what you have to realize, again, is this is evidence of a robust safety system. These very, very rare things that happen like this, you cannot even identify them until you have millions of people getting vaccine. We've seen zero of this with the Pfizer vaccine, despite 90 million doses. We've seen three cases with Moderna, not with low platelets, and so those represent background rates. Remember that, let's just take the unusual blood clot in the brain, that occurs as often as three to 30 cases per million people. So, this number we're talking about fits in that background rate, except that it's associated with low platelets.

D Dr. Halena Gazelka 08:06

Well, hopefully they can figure this out soon. Because obviously there are advantages to using the Johnson & Johnson vaccine. All of the vaccines have sort of some unique properties. And certainly there are advantages to that vaccine if it's safe to use.

D Dr. Gregory Poland 08:19

In fact, Halena, I think there's a reasonable chance that with the CDC meeting this Friday, that there will be recommendations to use it, perhaps, I'm just guessing here, perhaps not using it in younger women.

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Dr. Halena Gazelka 08:37

My next question for you is this concept of breakthrough COVID infections. So, I've been reading that we should expect some breakthrough COVID infections. What do we mean by that?

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Dr. Gregory Poland 08:48

What that means is infections that occur in people who have been fully immunized. That should not be a surprise. It happens with every single vaccine. Remember that in the clinical trials, that 95% means that compared to unvaccinated people, your risk is reduced by 95%, not 100. And that's why we continue to wear masks until we get very widespread immunization. So, what that means is that there are people who will get the vaccine and either because of genetic issues they have, or maybe they're immunocompromised in some way, may not have fully protective antibody levels. So, when exposed, they could develop disease. How often is that in fact happening? .005%, it's a teeny number. At a population level, it starts adding up to where you've got 9,000, 10,000 people that have been identified. So again, it's the reason why when we're out in public, we still wear masks until we're able, and if we're able to get people immunized.

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Dr. Halena Gazelka 10:06

The other thing that I had read in the news this morning, Greg, it was either from this morning or perhaps this weekend, is that Pfizer had said that we may need to have a booster and perhaps even a yearly vaccine. What do you think about that?

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Dr. Gregory Poland 10:20

I think there's a likelihood that will be the case. And I want to be very clear here. And it won't be popular, but I believe that we should be radically transparent and honest. The reason for this is people who don't wear masks and who don't get vaccines and who don't adhere to these recommendations. What do I mean by that? The more time this virus passes through one person after another, the more likely it continues to mutate. As a result of those mutations, two things are happening. Some of the mutations are making vaccines, plasma, monoclonal antibodies less effective. The other thing is that the virus will likely become something that we have to live with, for the rest of our lives. That potential is there and that we would have seasonal epidemics much like influenza, the consequence of that is by not getting everybody immunized, all of us will have to get immunized every year, which means there are people who won't, and we will continue to lose lives and have people hospitalized.

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Dr. Halena Gazelka 11:40

Interesting. All right. Greg, put your thinking cap on because our listeners have some questions for you. The first is from a listener who is wondering whether it is just as efficacious to have their vaccine administered in their leg as in their upper arm. They state that they're receiving their Shingrix vaccine that way, and would it be okay to have the COVID vaccine that way?

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Dr. Gregory Poland 12:03

You know, again, evidence of just how bright our listeners are? That's a great question. And it's not one that most healthcare providers would necessarily be thinking of or ready for. And she's right. There are reasons that you may want to do that, for example, any issues with lymphatic drainage would be a good example. So, it is definitely possible to do that. That's been done in some cases that I'm aware of. We routinely do it, excuse me, with infant immunizations, it just needs to be done appropriately. That is, in adults and children, giving it into the leg just requires a little special knowledge about proper administration.

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Dr. Halena Gazelka 12:51

Okay, that's good. Now, Greg, in most states, I believe that the vaccines are being administered to those 16 and older at this point.

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Dr. Gregory Poland 13:00

Yes.

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Dr. Halena Gazelka 13:00

And this question comes from another very savvy listener, who said, they remembered you talking at the beginning of the pandemic, that children and younger people were not as likely to transmit the virus or to have a significant illness from it. So, why do we need to vaccinate them?

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Dr. Gregory Poland 13:19

Very astute, again, to ask that question. And what has changed, is that the virus we were dealing with, you know, eight months and twelve months ago, is a very different virus today. So, the so-called Washington strain was circulating a year ago. Now it's the so-

called UK strain, a strain that causes about a fourfold increase in viral load, and about a 50% increased transmission. So, with this variant, not true with the old virus, we're seeing case rates, infection rates in children and adolescents, and unfortunately, even increased hospitalization rates in that age group that we never saw before. So, this is another consequence of choosing not to control this pandemic with mandatory masking and vaccination.

D Dr. Halena Gazelka 14:21

It's the continued reality that things keep changing, too, and that we have to stay up to date. So, here's another question. This listener recalls that you had talked before about the timing between vaccinations being between three and four weeks, depending on what you were receiving Moderna versus Pfizer. But now some countries are extending that time interval. Should we be extending that time interval and what is the scientific evidence for doing that or not doing it?

D Dr. Gregory Poland 14:49

Yeah, it's a really good question. And it's a balance or a tension between two things. The faster we immunize the faster you're more fully protected. When we extend the interval between doses, and let's just take the mRNA, since there are two doses. So, seven to 14 days after the first dose, you're about at 80%, for seven to 14 days after the second dose, you're in the 90 to 95%. So, you see why we want to get that second dose in. But now another factor, when you have a surge and lots of infections, it might be better to protect many more people at 80%, then a smaller number at 90 or 95%. So, those countries where they've had those surges have made that trade off, and I think that can be appropriate. Now, the one thing we don't know is by increasing that interval, does it have any adverse effect on eventual protection or on the height of antibody? I don't think so. I've seen no evidence for that, in fact, except in one case, with a different vaccine, the longer the interval, the better the immune response. It's just that you're not fully protected until that second dose.

D Dr. Halena Gazelka 14:53

Oh, that makes sense. Yeah, it is a tradeoff, isn't it?

D Dr. Gregory Poland 15:57

Yeah.

D Dr. Halena Gazelka 15:57
The next listener wants to know about the COVID vaccines and peripheral neuropathy. So, nerve pain that people experience, often in their hands, and often in their feet as well. And they're wondering, is there evidence that the vaccines worsen peripheral neuropathy?

D Dr. Gregory Poland 16:16
Yeah, it's interesting. I've gotten that question from a few neurologists. There's no evidence that the vaccines can cause neuropathy. Now, when you talk about worsening, I would say there is a chance that anything reactogenic, anything that activates your immune system, causes fever, etc., could temporarily increase the sensation of already existing symptoms.

D Dr. Halena Gazelka 17:10
Oh sure.

D Dr. Gregory Poland 17:11
By the same token, what about not getting the vaccine? Well, we have seen cases of Guillain-Barre. Rare, but there have been a few cases of Guillain-Barre and other neuropathies associated with getting the disease. So, we see it with the disease. We have not seen it with the vaccine. But I think, you know, like most any symptom that you already have, now let me give you a vaccine, could be any vaccine that causes a little bit of fever, a little bit of not feeling well, etc. You might sense those symptoms to be heightened, only to fall back down to whatever your baseline was. And that's, if anything, that's the most the vaccine would do.

D Dr. Halena Gazelka 17:55
So, in talking about Guillain-Barre, that's a type of neuropathy that can develop after a viral infection, sometimes I believe.

D Dr. Gregory Poland 18:04
Yeah.

D Dr. Halena Gazelka 18:04
And neuropathy means there's something wrong with the nerve.

D Dr. Gregory Poland 18:07
Right.

D Dr. Halena Gazelka 18:07
It doesn't function well, it hurts, something along those lines.

D Dr. Gregory Poland 18:11
And there are a lot of reasons for that. And because of the way peripheral neuropathies work. And again, now we're talking about a couple 100 million doses that have been given, and there's been no safety signal for neuropathy.

D Dr. Halena Gazelka 18:29
But Greg, can the COVID 19 infection itself cause neuropathy?

D Dr. Gregory Poland 18:34
Well, that's where I think there's some uncertainty. As I say, we've seen a couple cases of Guillain-Barre, so in that case, yes, but so rare that you are wondering if you're seeing background rates. In other words, we're not seeing more cases than we saw a year ago, for example, or two years ago. So, we assume that's background rates. Now, one thing taken out of the equation is influenza, not the vaccine so much as the disease influenza, does cause Guillain-Barre. And we've had next to no influenza this year. So, it just gives you a flavor of how hard it can be to try to determine is there causality here? Or is it just temporality? In other words, we're seeing this, and it's no greater than the normal background rate.

D Dr. Halena Gazelka 19:29
Greg, everyone wants life to get back to normal. And the next question is from a listener, he and his wife have both been fully vaccinated with the Pfizer vaccine. And now wonder, what is the scientific evidence that they must continue to wear masks?

D Dr. Gregory Poland 19:44
Yeah, that's a very good question. Because, you know, on the surface of it, you'd say, well why do I have to continue to do it? And the reason for it is this, number one, your

protection is not 100%. Now, the odds are, the odds, that if you did get infected, even after being immunized, that it would be mild, moderate or asymptomatic. But that doesn't stop you from passing it on to somebody else. So, we're asking people to continue to wear masks in public, so they don't get infected, they don't pass it on to somebody else. And again, remember that when you look at all the tens of millions of people have gotten immunized, some of them are not going to respond well. They're on chemotherapy, they've had an organ transplant. One study showed the protection in solid organ transplants might be in the 20 to 30% range. So, something, but not high enough where I would stop wearing a mask. And then the last factor is trying to prevent anybody from getting infected and further developing these new mutations in these viruses. So, for those four reasons, we're still recommending wearing masks in public.

D Dr. Halena Gazelka 21:07
Great answers today, Greg. You didn't say, I don't know, very many times today.

D Dr. Gregory Poland 21:13
Well, these ones were relatively easy, although I kind of said I don't know about the peripheral neuropathy, because we're not seeing cases yet.

D Dr. Halena Gazelka 21:21
Well, we're still learning a lot. What else do you have to tell us today, Greg.

D Dr. Gregory Poland 21:26
I think something very interesting was announced today. In the UK, not in the US, in the UK, they're going to take young, healthy people who have been previously infected with COVID-19, and they're going to expose them to the virus.

D Dr. Halena Gazelka 21:46
Oh my.

D Dr. Gregory Poland 21:46
They're going to put them in isolation in a special facility for I think two to four weeks. And they're going to follow them with all kinds of imaging tests, blood tests, etc. And what they're trying to determine is, when do people become susceptible after having had

infection? And what dose of virus does it take to become infected? Whether it's, and those might be different in terms of asymptomatic or symptomatic disease, and then what they'll move to is okay, what about in people who have been vaccinated. We'll take people at four months, six months, eight months, 12 months, etc. We don't have those yet, but we will soon, and expose them to the virus to see about protection. And what new vaccines or new drugs might work, and to learn that faster than we have even done this year. So, I hold hope that the way they're doing it, I think, is ethical. Some readers may have read some of my comments early on, where I had concerns about the ethics of doing it, but when they're taking people already immunized, already who have had disease, are young, and now we have therapeutics, I think it could very quickly accelerate our knowledge base about do we need another booster, how often, when. And I think it will also show the value of masks in ways that will be hard for people who don't like masks to deny. That is really fascinating, Greg, that's a different type of research than we usually hear about happening in the medical community and our hats off to those who would volunteer to help others with that knowledge. That's amazing. Yeah, absolutely.

D Dr. Halena Gazelka 23:36
Thanks for being here today, Greg.

D Dr. Gregory Poland 23:38
Yeah, my pleasure. I just love the questions we get from our listeners. Keep them coming.

D Dr. Halena Gazelka 23:43
I do too.

D Dr. Gregory Poland 23:44
Keep me on my toes.

D Dr. Halena Gazelka 23:46
That's right. Keep him thinking. Our thanks to Mayo Clinic infectious disease expert, Dr. Greg Poland for being here again today to talk to us about COVID-19 and vaccines. I hope that you learned something, I know that I did. And we wish each of you a very wonderful day.

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Narrator 24:03

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