Vaccine Researcher Who Developed Tinnitus After COVID Shot Calls for Further Study

— Gregory Poland, MD, advocates both vaccination and better understanding of possible side effect

by Jennifer Henderson, Enterprise & Investigative Writer, MedPage Today
March 9, 2022

Gregory Poland, MD, director of the Mayo Clinic's Vaccine Research Group in Rochester, Minnesota, remains a steadfast vaccination advocate -- even though he developed tinnitus soon after receiving his second dose of COVID vaccine.

A little more than a year ago, Poland was driving back from the hospital after receiving his second shot when he nearly veered out of his lane.

"It was like someone suddenly blew a dog whistle in my ear," Poland told *MedPage Today*. "It has been pretty much unrelenting."

Since then, Poland said he has been experiencing what he describes as life-altering tinnitus, or ringing in the ear. It occurs in both ears, but is worse in the left than in the right.

He remains steadfast that opting to receive his booster -- after which his tinnitus briefly disappeared but then returned at a slightly higher pitch that made it just a bit less bothersome -- was the right move. After all, it would be "way too ironic" for a prominent vaccinologist to die of COVID, he said. He also worried about the possibility of contracting COVID and spreading it to his patients.

Yet Poland realizes his life may never be the same, and that many others may be grappling with the same reality. He continues to receive emails from other individuals across the country and around the world who say they have also developed tinnitus after COVID vaccination.

Poland believes there may be tens of thousands of people affected in the U.S. and potentially millions worldwide. He feels strongly that more research should be done to determine what caused these symptoms and what can be done to help people desperate for relief.

"What has been heartbreaking about this, as a seasoned physician, are the emails I get from people that, this has affected their life so badly, they have told me they are going to take their own life," Poland said.

Troubling Symptoms

Poland said of his own symptoms that he "can only begin to estimate the number of times I just want to scream because I can't get rid of the noise or how many hours of sleep I've lost," he said. The noise he hears is "particularly loud at night when there are no masking sounds."

On a recent evening, he had an especially difficult moment. Poland, a self-described lover of nature and the outdoors, realized that he may never be able to hear the silence of nature again, which brought tears to his eyes.

He said that he finds some comfort in his 14- to 16-hour work days that have helped him to not focus on the noise that won't cease.

"It's something that deserves attention," Poland said, pointing to the effort that has gone into defining the risk of myocarditis post-vaccination, and rightfully so, he said.

Thankfully, myocarditis often resolves within a few days of treatment, Poland noted. But with tinnitus, symptoms can persist.

The American Tinnitus Association describes the condition as audiological and neurological. Tinnitus can be acute or chronic, and many cases can be extreme and debilitating. Currently, there is no cure for most types of the condition, though there are treatment options to help patients live more comfortable and productive lives, according to the association.

Is There a Link?

Elliott Kozin, MD, a neurotologist at Massachusetts Eye and Ear in Boston, told *MedPage Today* in an email that there are "ongoing research efforts to understand if COVID-19 vaccines may be related to various auditory complaints, including hearing loss and tinnitus."

Kozin said there are "no definitive studies on the subject." Still, some research has shown evidence of neurological complications following COVID vaccination. For instance, the CDC has acknowledged rare reports of and the FDA warned about the risk of Guillain-Barre syndrome (GBS) following vaccination with the Johnson & Johnson vaccine.

And in a recent Vaccine Adverse Event Reporting System (VAERS) analysis reported in the *Annals of Neurology*, tinnitus was among the most commonly reported adverse neurological events following vaccination. But its authors noted that rates of neurological adverse events were far higher following SARS-CoV-2 infection than after vaccination.

A *MedPage Today* search of the VAERS database yielded more than 13,000 results for tinnitus following COVID vaccination with mRNA vaccines. However, the database specifies that, for any reported event, cause-and-effect relationship has not been established.

A spokesperson for CDC told *MedPage Today* in an email that the agency is "aware of reports of tinnitus occurring in temporal association with mRNA COVID-19 vaccination."

"Tinnitus is a common condition, heterogenous in nature, and has many causes and risk factors," the spokesperson added. "Hundreds of millions of people have received mRNA COVID-19 vaccination under the most intensive monitoring in U.S. history. Currently, the data from safety monitoring are not sufficient to conclude that a causal relationship exists between vaccination and tinnitus."

Kozin said two lines of research are needed: prospective human studies and well-designed animal studies. "Without studying symptomatic and asymptomatic individuals, it is challenging to understand the overall risk," Kozin said regarding the need for prospective

studies. "Animal studies may allow us to better understand causation as one can readily control administration of vaccine versus a placebo, as well as study auditory changes that occur on behavioral, physiologic, and cellular levels."

Poland also believes more research is needed, though he, too, cautioned against rushing to conclusions.

"Temporality is not causality," Poland said. "Rather, it forms a hypothesis, and then what you do is carefully collect information to determine [whether] this potential syndrome or side effect [is] above and beyond the background rate before there was COVID or a COVID vaccine, and is the rate different in people who got the vaccine and people who didn't."

"My own best guess is that this may be an off-target inflammatory response, inflammation of the temporal lobe area of the brain where sounds are generated or made sense of," Poland said.

What Can Be Done

Kozin said that, following the administration of any new medication, including the COVID-19 vaccine, "individuals should pay attention to symptoms of hearing loss, tinnitus, ear 'fullness,' and dizziness," and seek "prompt evaluation by a primary care provider, otolaryngologist, and/or audiologist."

"Sometimes hearing symptoms are subtle," Kozin said. "For example, an individual may primarily experience tinnitus and not realize that it is also accompanied by hearing loss."

"The first step is to visit a medical provider and obtain a formal hearing test," he added. "In some circumstances, such as sudden hearing loss, steroids may be given if a diagnosis is made soon after the onset of symptoms."

For Poland, he believes that ongoing transparency is essential to continuing to build trust and confidence in vaccines.

He stressed that his story is not meant to frighten others or discourage them from getting vaccinated.

Nearly 1 million Americans have died of COVID, which can be prevented by a free vaccine and a 25-cent mask, he said. And there have also been reports of tinnitus following COVID itself.

Poland added that he would absolutely receive the COVID vaccine again because a wise person makes decisions on the balance of risks and benefits, not on fear.

Moving Forward

With the possibility that Americans could be advised to receive a fourth shot in the near future, or that COVID vaccines could become recommended on an annual basis or even more frequently, Poland said he is hopeful for more options.

Given his personal situation, he will look to protein subunit vaccines that are in development but not yet authorized by the FDA, such as those from Novavax, Medicago, and Sanofi.

A spokesperson for Pfizer, one of the makers of mRNA vaccines, said the following in a statement provided to *MedPage Today*: "We take adverse events, that are voluntarily reported by HCPs and individuals following vaccination with our COVID-19 vaccine, very seriously. Tinnitus cases have been reviewed and no causal association to the Covid-19 vaccine has been established."

"To date, about 3 billion of our COVID-19 vaccines have been delivered globally," the spokesperson added. "It is important to note that serious adverse events that are unrelated to the vaccine are unfortunately likely to occur at a similar rate as they would in the general population."

Moderna, which also makes an mRNA vaccine, did not immediately respond to a request for comment.

Though tinnitus can sometimes resolve within several months or a year, that hasn't yet happened for Poland. But he tries to keep things in perspective.

"Tinnitus is often associated with hearing loss, and I have my first grandchild and I want to hear him, all the things he thinks about as he grows up," Poland said. "I'd encourage him to get the vaccine. But I don't want this to happen to him."