GBS | CIDP Foundation International

Speaker Series Summary: Your Immune System and Vaccination

Overview

This summary is a recap of an episode from our "Ask the Experts" program, where we talked with Dr. Maureen Su, endocrinologist and a research professor at UCLA. This summary will explore vaccine efficacy and the biology of autoimmunity.

Summary

What is the immune system?	The Immune system protects us from viruses, fungi, bacteria, etc.
	• It is the reason why we do not get sick.
	• White blood cells, or our white count, signal how robust our immune is. It is made up of macrophages and neuropils that bring in T-cells, and B-cells.
	  ◦ T-cells: Kill virus infected cells
	  ◦ B-cells: make antibodies
	  ▪ In infections, B-bells will make copies of itself to kill infected cells
	• The Immune System has memory. So when it is infected for the second time, it signals immune cells to treat the body, otherwise known as a memory response.
	  ◦ Upon repeat infections, the immune system can prevent further damage to the body because it knows how to kill the virus, making symptoms less severe.
	  ▪ Vaccines use the immune system's memory to prevent or lessen infection

Should people with GBS, CIDP, or MMN get vaccinated?	**Yes, actually getting the flu may have more negative impacts on one's health than becoming vaccinated.**
	
	There is a rare population that get GBS from a vaccine within 6 weeks of receiving a vaccine.
	• This rare population are already at high risk of getting GBS
	  ◦ Therefore people with autoimmune conditions should get vaccinated, unless the risks outweigh the benefits. These risks should be determined by a doctor.
	  ◦ If someone along with their doctor believe that they came down with an autoimmune condition from a vaccine, then they should consult their doctor about new vaccines. There is a possibility they could immunocompromised.
	The COVID and Flu vaccines are not live viruses.

What is the mRNA vaccine?	**mRNA Vaccines are vaccines that use a synthetic piece of genetic code, mRNA that instructs the body to make proteins or pieces of a virus** • The body will signal a threat and work to treat the body of a virus and ultimately improve the immune system's memory • Technology, now, allows researchers to change the strain of the virus that the body will encode from the mRNA virus
Why are vaccines not weight dependent?	• Research studies focus a vaccine's safety and effectiveness when treating adults. Once it is deemed safe and effective, researchers will move to achieving a vaccine's safety and effectiveness when treating children. • For vaccines like the COVID vaccine, there is less interest in achieving the correct dosage when the focus is on keeping everyone safe
What are the side effects of the COVID vaccine in relation to autoimmune conditions?	• Some researchers theorize GBS is caused by faulty memory in the immune system ◦ Campylobacter is an infection that commonly triggers GBS, and, for some reason, the immune system thinks good and healthy cells need to be killed • In some cases, people will experience a flare up of their illness from a vaccine, but it is short lived and often ceases with treatment ◦ There are many reasons why this happens and patients should consult their doctor ▪ CIDP and MMN patients should tell their doctor that they are being vaccinated and should be ready for treatment if they do experience extreme flareups
Does the timing of a vaccine impact its effectiveness?	• IVIg is often used to treat autoimmune conditions and to help those who need replenishment of B-cells ◦ IVIg timing may not be important unless the patient has B-cell depletion or T-cell depletion ▪ For those who get B-cell treatment like Rituximab, they should get their vaccine at least two weeks before their treatment so that their immune system can build a memory response and not negatively impact their B-cell memory response
Statically, is someone more likely to get GBS from a vaccine or the illness itself?	• Someone is more likely to get GBS from the illness/virus itself. However, in very rare cases individuals can contract GBS from a vaccine ◦ Includes the flu or flu vaccine ◦ The last time GBS and its ability to come from the flu or the flu vaccine was last studied in 1976

Why do vaccines like Pneumovax and Shingrix warn people of contracting GBS?	The shingles vaccine is recommended for people over 50, and those over 65 are more at risk of contracting GBS • There is a rare correlation between people getting shingles and GBS Are they safe for patients with GBS, CIDP, and/or MMN? • Generally Yes, Always consult your doctor about your risks of getting GBS (At the time of the webinar, Dr. Su did not see anything about Pneumovax because Shingrix is more of a priority at the FDA)
How can we strengthen our immune system?	**Our Immune system is dynamic, so vaccines tend to be the best avenue for prevention of specific illnesses.** Other ways to strengthen your immune system include: • Supplements • Keep your body healthy with nutrition, exercise, and improved mental state • Prioritize your health • Sunshine
If a GBS patient's residual symptoms worsen with a vaccine...	• Talk to your neurologist or primary care doctor as soon as you feel like symptoms that concern you. • There are ongoing studies tracking GBS patients who received a vaccine
How does Rituximab impact B cells?	• B Cells come back after Rituximab treatment so they are killed with Rituximab • Those who do not keep an adequate immune memory may think about getting revaccinated, but should always talk to their doctor ◦ In some cases, a vaccine can boost their treatment ◦ Everyone has an individual case
If two siblings have CIDP, should their third sibling be careful with vaccines?	• Generally, certain genes can predispose individuals to autoimmunity and can run in families • So yes family history can impact your risk of contracting an autoimmune condition from a vaccine ◦ Therefore, it is more important for these individuals to be vaccinated because they so high at a risk ◦ They are more likely to get CIDP (or GBS and other related conditions) from an infection than a vaccine

What is the immune system that causes residual symptoms?	These areas needs more research; we do not definitely know whether residuals are: • Left over damage that the body could not repair • The immune system is still attacking the cells on a very small scale

Are other autoimmune conditions triggered by food and environmental substances especially in the gut microbiome?	• There is a lot of research being done in the gut microbiome for GBS and CIDP
	• 30% of the time Campylobacter (which causes stomach illness) triggers GBS
	• There is a link between your gut and the autoimmunity in your nerves
	  ◦ Healthcare providers are coming to the realization that what happens in your gut directly connects to autoimmune diseases like type one diabetes
	  ◦ Genetics are likely not the sole cause of autoimmune diseases. The incidence of these diseases has risen so rapidly that other factors must also be at play:
	  ▪ The environment we live in and the foods we eat directly translate to our immune system
	  • Epigenetics: the environment affects how your genes are expressed for your immune system
	  • Hygiene Hypothesis: The prioritization of a modernized and cleaner environment has declined rates of infection but subsequently, increased the rate of autoimmune conditions because of our lack of exposure to bacteria and viruses of other countries

Should people who are taking immunosuppressants or the immunosuppressed get a vaccine?	• Vaccines protect your community, especially when a vaccinated person lives with someone immunocompromised
	• If someone is immunosuppressed, like people with cancer or who received an organ transplant, vaccines are important to receiving a natural infection and building immune memory
	  ◦ These individuals may need an extra dose to get the same memory boost as others
	  ▪ They may also need antivirals to lessen the burdens of the virus
	  ▪ The priority is building and protecting memory
	
	Who in the GBS|CIDP community is immunosuppressed?
	• Those taking steroids
	  ◦ Steroids are a global immunosuppressant especially at a higher dose
	• Those taking B-cell and T-cell depletion therapies
	• IVIg is in between, because it is a treatment for B-cell depletion, it is not considered an immunosuppressant
	  ◦ It is a good idea to get a vaccine while being on IVIg, always talk to your doctor

For those with variants of GBS, CIDP, or MMN, does their vaccine schedule change?	• No, there isn't a significant change needed • Talk to your doctor if you think your treatment is immunosuppressant
Final Thoughts	**Vaccines are important and protective for individuals and communities, even in the rarest cases when it can trigger autoimmune conditions**

Relevant Resources

Centers of Excellence

All about Vaccines

Treatments and Access Portal