

## **The American Perspective: What is vaccine-induced immune thrombotic thrombocytopenia (VITT) and is there a connection with ITP?**

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In February of this year, a new syndrome was described in which patients developed blood clots and a low platelet count after receiving certain types of COVID-19 vaccines. This condition, called vaccine-induced immune thrombotic thrombocytopenia (VITT) or thrombosis with thrombocytopenia syndrome (TTS), is totally distinct from ITP. Nevertheless, it is easy to confuse the two because they both involve the immune system and result in a low platelet count. Many of my ITP patients have asked me about VITT and whether they are at increased risk of this condition. My goal in this article is to answer some of the frequent questions about VITT that I have received.

### **Which vaccines can cause VITT?**

VITT has been reported after two different types of COVID-19 vaccines: The Oxford/Astra Zeneca vaccine and the Janssen/Johnson & Johnson vaccine. VITT has not been established as a side effect of the Moderna vaccine or the Pfizer/BioNTech vaccine.

### **What are the symptoms of VITT?**

Patients do not develop VITT immediately after getting a vaccine. Instead, symptoms usually begin 5 to 30 days after vaccination. Most patients present with blood clots. Blood clots can cause different symptoms depending on where they are located. For example, some patients with VITT have blood clots in their brain, which can cause severe headache, vomiting, or seizures. Some patients have blood clots in

their abdomen, which can cause severe stomach pain, nausea, and vomiting. Other patients may have blood clots in their lungs, which can cause shortness of breath or chest pain. Most patients also have low platelet counts and may sometimes have serious bleeding.

### **What causes blood clots and low platelet counts in VITT?**

Researchers are still trying to understand what happens in the bodies of patients with VITT. What we do know is that VITT patients make antibodies against a protein called platelet factor 4. When these antibodies bind to platelet factor 4 on the surface of platelets, they cause the platelets to become hyper-activated and sticky, resulting in formation of blood clots. After the platelets have become hyper-activated and used to make blood clots, they are removed from the bloodstream, resulting in thrombocytopenia. It is important to note that VITT antibodies are very different from the antibodies that cause ITP. Unlike the antibodies that cause VITT, the antibodies that cause ITP do not make the platelets hyper-activated and sticky and therefore do not cause blood clots.

### **How common is VITT?**

Thankfully, VITT is very rare. The incidence is still uncertain, but is probably about 1 case out of every 100,000 individuals who receive the Oxford/Astra Zeneca vaccine or the Janssen/Johnson & Johnson vaccine.

### **Who is at risk for VITT? Are patients with ITP at increased risk?**

VITT has been reported in both male and female adults of all ages. It may be a little more common in young women, though it is important to emphasize that, even in young women, VITT is very rare. There is no evidence that patients with ITP are at increased risk for VITT. To my knowledge, no ITP patients have been reported to develop VITT after vaccination.

**How is VITT treated?**

There are some similarities and some differences between how VITT is treated and how ITP is treated.

Like ITP, some patients with VITT are treated with steroids and/or IVIG to bring up the platelet count.

Unlike ITP, most patients with VITT have blood clots that are treated with blood thinners.

**Is it still safe to get vaccinated?**

YES! We strongly encourage you to get vaccinated against COVID-19 in consultation with your doctors

([see the March edition of the American Perspective](#) for more information on this topic). COVID-19

vaccines are very safe and highly effective. If you are a numbers person, think of it this way: the risk of

getting VITT if you receive the Oxford/AstraZeneca or Janssen/Johnson & Johnson vaccine is about 1 in

100,000. The risk of dying if you get COVID-19 is about 1 in 150. Bottom line... getting vaccinated is the

best way to protect your own health as well as that of your family and community.