

# Immune Thrombocytopenia (ITP)

*The* blood comprises three types of cells: red blood cells, white blood cells, and platelets. Among these, platelets play a crucial role in halting bleeding. Even in the absence of injury, minor bleeding occurs in various organs. In response, platelets promptly initiate their function to cease the bleeding. Sufficient platelet numbers are essential for effective clotting. A decrease in platelet count due to various reasons can lead to bleeding in different parts of the body, manifesting as skin, mouth, or nose bleeds, as well as heavy menstrual bleeding. Following bleeding, if blood is allowed to drain out of body, there is no immediate risk to patient's life. However, in cases where, bleeding occurs in closed spaces and blood does not drain out, collected blood can exert excessive pressure on delicate tissues such as the brain, lungs, or liver, which can be life-threatening for the patient.

Immune thrombocytopenia (ITP) is one of the common causes of low platelet count, but it's crucial to acknowledge that various other conditions can lead to decreased platelet levels. Over 50 different diseases, including blood cancer and dengue fever, can cause low platelet count. Hence, accurate diagnosis is very important in every patient with low platelet counts. Treating every case of low platelets as ITP might prove detrimental rather than beneficial.

The bone marrow's megakaryocyte cells are responsible for platelet production. These platelets survive for about seven days

within the blood before being eliminated in the spleen. The bone marrow continuously generates new platelets to replenish those destroyed, maintaining a healthy platelet count ranging from 1.5 lakh to 4.5 lakh per milliliter of blood.

Individuals with ITP produce antibodies that attack their own platelets, leading to decrease in platelet count. Normally, the body produces antibodies to combat viruses or bacteria entering the system. Conditions like ITP fall under the category of auto-immune diseases, where the immune system mistakenly targets its own cells.

ITP affects approximately 5-6 individuals per 100,000 people. Often, despite extensive testing, the reason behind the formation of antibodies against platelets remains unknown. This condition is known as Primary ITP. On the other hand, some people develop platelet-targeting antibodies due to other underlying conditions. This is termed as Secondary ITP. The causes of Secondary ITP include autoimmune diseases such as SLE, APLA, and Rheumatoid Arthritis, HIV infection, blood cancers like lymphoma, viral infections like CMV and hepatitis, H. pylori infection of the stomach, inborn errors of immunity, vaccine usage, and side effects of certain drugs. In cases of secondary ITP, it becomes crucial not only to treat the ITP itself but also to address the underlying disease causing the issue, aiming to reduce the antibody levels.

ITP can occur in young children between 2-6 years of age and adults over 20 years of age. In young children, 80% of ITP cases resolve completely without treatment, while in adults, treatment often leads to resolution, but 80% of patients experience recurring episodes of the disease which is known as Chronic ITP. While some ITP patients may have very low platelet counts without experiencing bleeding symptoms, others may exhibit various bleeding symptoms.

Diagnosis of ITP can often be confirmed by taking the patient's symptom history, performing a comprehensive physical examination, and analyzing a peripheral smear. If other blood diseases are suspected, a bone marrow aspiration test may be conducted. Once ITP is confirmed, additional tests, typically around 5-6, are required to determine the underlying cause of the disease.

ITP is generally not life-threatening, regardless of the amount of bleeding it causes. However, the risk of life-threatening bleeding rises exponentially after the age of 40. It's essential to note that immunosuppressant drugs, like steroids used in ITP treatment, may lead to severe side effects, including fatalities.

Hence, not all ITP patients receive medications to increase platelet counts. Treatment is initiated when the platelet count drops below 20,000/cmm. Initially, steroids are commonly prescribed. In cases where life-threatening conditions are likely, IVIG injections are used to rapidly raise platelet levels. However, these injections are costly (around Rs. one to two lakhs) and they prove to be useful in about 75 percent of patients. If the platelet count reaches above 50,000 due to steroids, the dosage is

gradually reduced over four to six weeks and eventually stopped.

The use of steroids can result in various side effects, with reduced immunity and an increased risk of infections being the most critical concern. Infections can spread rapidly and become life-threatening, so it is crucial for patients on steroids to avoid contact with individuals suffering from cough and fever. Maintaining cleanliness, consuming boiled water, eating cooked food, washing hands before meals, and avoiding constipation become vital precautions.

Common side effects of steroids include swelling of the face and pimples, which generally do not require treatment. Patients may also experience mood swings and irritability. Steroid usage can lead to increased blood glucose levels, necessitating the administration of insulin or sugar-lowering drugs. Furthermore, blood pressure may significantly rise, and patients may be given acidity-reducing medications to reduce the risk of stomach ulcers. There's also an increased likelihood of developing shingles while on steroids, for which Acyclovir is often prescribed. To prevent bone weakening, calcium tablets are given as well.

If the platelet count does not improve after three weeks of steroid treatment or if ITP relapses, a second-line treatment becomes necessary. The following drugs can be used in the second-line treatment:

1. Dapsone
2. Rituximab - Administered as weekly injections for four weeks
3. Azathioprine
4. MMF (Mycophenolate Mofetil)
5. Eltrombopag
6. Cyclosporine

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7. Danazol
8. Treatment to eliminate H. Pylori
9. Splenectomy

Second-line treatments are typically given sequentially and monitored for effectiveness. The duration of treatment depends on which option benefits the patient the most.

Third-line treatments are available if the platelet count does not improve with any of the second-line drugs. However, these treatments carry a higher risk of side effects and potential danger to life. In some cases, living with low platelets and minor bleeding issues might be better than undergoing these complicated treatments.

ITP is more common in pregnant women. During pregnancy, maintaining the platelet count above 30,000 is recommended until delivery, and the count should be over 50,000 at the time of delivery. Steroid and IVIG treatments are generally safe for pregnant women, while other medications should be avoided due to potential adverse effects on the developing fetus.

Platelet transfusions are not effective for people with ITP, as the antibodies present in their bodies would also destroy the transfused platelets, leading to no increase in the platelet count.

Individuals undergoing treatment for ITP are advised to consume cooked food and reduce sugar intake. Special diets or foods cannot significantly increase platelet counts.

ITP is not a genetic disease and is not contagious. Patients undergoing treatment should take precautions to avoid becoming pregnant.

Research is ongoing, and new drugs are being tested in clinical trials for ITP treatment. Patients are encouraged to consider participating in clinical trials whenever possible.

While this article provides substantial information about ITP, patients can reach out to the team of doctors treating them if they require additional information or have any concerns.

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