Idiopathic thrombocytopenic purpura (ITP) is a syndrome characterized by a low platelet count in the peripheral blood that is not related to marrow failure. ITP is a relatively common syndrome of unknown origin that is increasingly recognized. Approximately 66 adults and 50 children per 1,000,000 are diagnosed with ITP annually. The population of athletes with ITP, however, is not currently reported in the literature. The ability to recognize its signs and symptoms and referral for further evaluation is critical for the treatment of patients who are otherwise healthy.

Childhood and adult onset of ITB have identical clinical presentations, and treatment is the same but the prognosis differs. The majority of cases in children are diagnosed between two and nine years of age, whereas adult-onset ITB can be manifested between 20 and 50 years of age. Adult ITP (ITP-A) has a slower onset, no prodromal illness, and appears to be idiopathic.

Childhood ITP (ITP-C) is characterized by a rapid drop in platelet count, with sudden onset of petechiae or purpura (i.e., areas of skin discoloration). Over 70% of ITP-C cases resolve within 6 months, but the ITP-A is a chronic disease that is associated with intermittent remission (Table 1).

Diagnosis of ITP-A and ITP-C are distinct, but an individual in his or her early 20s may exhibit characteristics of both conditions. ITP is characterized by antibody response to proteins on platelets that leads to their destruction and diminished platelet production. Signs and symptoms associated with ITP-C and ITP-A vary on the basis of platelet count. Signs may include petechiae, purpura, and ecchymosis of the skin (Table 2). Petechiae and purpura are non-palpable and non-blanching. Bleeding may occur within the mucous membranes of the gastrointestinal tract, mouth, nose, and eyes. Platelet level is considered normal when it is between 150 to 400 K/mL; however, platelet count can be variable over time, and symptoms can develop intermittently (Table 2).

Diagnosis of ITP is based on exclusion of symptoms associated with other similar conditions. A lack of published evidence concerning diagnostic accuracy for a specific set of physical examination findings and laboratory test results necessitates diagnosis on the basis of clinical expertise. The history of a
patient with ITP may be consistent with that for several different conditions. The physical examination should be performed with focused attention to evidence of bleeding beneath the skin and within mucous membranes. A complete blood count (CBC) should confirm an abnormal platelet count and a peripheral smear that confirms normal morphology of erythrocytes, leukocytes, and platelets. ITP is one of several conditions with similar presentations that must be considered in the differential diagnosis (Table 3).

Atypical findings from the CBC or peripheral blood smear may dictate bone marrow evaluation if the patient is over 60 years of age, the patient has had a relapse of ITP following complete remission, first-line

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**Table 1. Child and Adult Signs and Symptoms**

<table>
<thead>
<tr>
<th>Child-Onset</th>
<th>Adult-Onset</th>
</tr>
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<tbody>
<tr>
<td>Usually occurs 2-3 weeks after a viral infection or immunization</td>
<td>Sometimes with no symptoms or prodromal illness</td>
</tr>
<tr>
<td>Rapid platelet drop</td>
<td>Slow onset</td>
</tr>
<tr>
<td>70% of cases resolve within 6 months</td>
<td>Usually chronic in nature</td>
</tr>
</tbody>
</table>

**Table 2. ITP Signs and Symptoms**

- Easy or excessive bruising (purpura)
- Superficial bleeding may appear as a rash of pinpoint-sized reddish-purple spots (petechiae)
- Petechiae more common on lower legs
- Prolonged bleeding from cuts
- Spontaneous nose bleeds
- Spontaneous bleeding from gums
- Blood in urine or stools
- Unusually heavy menstrual flows

**Table 3. ITP Differential Diagnosis**

- Post-transfusion purpura
- Inherited non-immune thrombocytopenia
- Aplastic anemia
- Type IIB von Willebrand’s disease
- Malignant lymphoproliferative and myeloproliferative disease
- Leukemia
- Human immunodeficiency virus (HIV) infection
- H. pylori infection
- Cytomegalovirus (CMV) infection
- Hepatitis C infection
- Other autoimmune conditions, such as systemic lupus erythematosus (SLE)
- Drug-induced thrombocytopenia
ITP therapies have failed, or a splenectomy is under consideration. Other laboratory analyses that may be performed in the process of diagnosing ITP may include an Immunofluorescence test (PIFT), thrombopoietin (TPO) assay, measurement of platelet RNA by flow cytometry, fluorescent antinuclear antibody testing, and serological assays to detect H. pylori; however, these tests are not currently recommended for routine diagnosis of ITP.

**Treatment**

The clinical expertise necessary for proper diagnosis of ITP is also crucial for determination of appropriate treatment, because most options have not yet been supported by research evidence. Symptomatic patients, or patients at risk for bleeding (e.g., contact sport athletes), should begin a regime of immunosuppressant medications. To determine risk for bleeding, clinicians should consider age, comorbidities, and platelet count. A patient with a count greater than 20 K/mL, but who is not symptomatic, should be monitored but should not receive treatment.

Corticosteroids, such as prednisone or prednisolone at 1 to 2mg/kg per day, are typically prescribed following diagnosis of ITP. Almost two-thirds of patients respond favorably to corticosteroids within the first week, which is manifested by clearance of platelets, decreased autoantibody production, and improved capillary integrity. Unfortunately, only 10 to 15% exhibit a lasting remission. The literature suggests that ITP-A is more likely to resolve permanently in response to early intensive immunosuppressive therapy.

If a patient exhibits bleeding or a platelet level less than 10 K/mL, intravenous immunoglobulin treatment (IVIG) may be effective. IVIG reduces reticuloendothelial clearance but also has other immunomodulatory effects: inhibition of complement binding to platelets, decreased autoantibody production, and improved capillary integrity. Unfortunately, only 10 to 15% exhibit a lasting remission. The literature suggests that ITP-A is more likely to resolve permanently in response to early intensive immunosuppressive therapy.

If all conservative treatments have failed, splenectomy may be indicated. Indications include severe thrombocytopenia (< 10 K/mL), a high risk for bleeding (< 30 K/mL), or continuous treatment with corticosteroids to maintain platelet count. Splenectomy may be recommended on the basis of a clinician’s treatment philosophy; however, after 3 months of failed drug treatments and the exhaustion of all nonsurgical options, splenectomy may be the only treatment option that is left. In the physically active and athletic populations, splenectomy is not always excluded as a treatment option. The literature indicates that Nplate® and Promacta® are effective new therapies that are tolerable and not overly toxic. Future treatment planning may need to be modified to include new drug therapies. Guidelines for return to sport participation do not currently exist, because management guidelines for the general population have not been clearly established. Current guidelines suggest that an ITP patient who has been in remission for 4-6 weeks should have a platelet count greater than 300 k/mL. The decision to allow an athlete to return to participation should be based on a sustained platelet count greater than 50,000 without bleeding and consideration of the nature of the sport activity.

**Conclusion**

Differences between ITP-A and ITP-C can complicate the diagnosis of ITP in young adults. Conservative treatments, particularly corticosteroids, IVIG, and anti-D treatments are available, but they have limitations. Splenectomy should not be considered unless conservative treatments have been ineffective for over three months. Approximately two-thirds of ITP-C cases will improve spontaneously in six months. Research evidence should guide the process of establishing a diagnosis, but clinical expertise is often necessary to diagnose ITP. Clinicians should consider conservative treatment options prior to recommending surgical intervention.
References


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