The thrombopoietin receptor agonists, eltrombopag and romiplostim, are second-line agents used to treat chronic immune thrombocytopenia purpura (ITP) in adults and children. ITP is a rare autoimmune disease and hematologic disorder characterized by reduced platelet counts that can result in significant symptoms, such as bleeding, bruising, epistaxis, petechiae, wet purpura, or blood in the urine or stool. This article reviews ITP treatment for adult and pediatric patients, including the use of the oral agent eltrombopag and the injectible agent romiplostim, nursing considerations, and patient education.

AT A GLANCE

- ITP is primarily characterized by reduced platelet counts and classified based on disease duration.
- Reduced platelet counts place patients at a higher risk for bleeding and related complications.
- Eltrombopag or romiplostim can be effective maintenance therapy options for patients with chronic ITP requiring frequent treatments.

KEYWORDS
immune thrombocytopenia purpura; TPO-RA agents; eltrombopag; romiplostim

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Thrombopoietin Receptor Agonists

Eltrombopag and romiplostim for the treatment of chronic immune thrombocytopenia purpura

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Immune thrombocytopenia purpura (ITP) is an uncommon autoimmune disorder where the body's antibodies destroy platelet antigens and T cells associated with thrombopoietin, resulting in an increased risk for bleeding, bruising, and petechiae from reduced platelet counts (Rodeghiero et al., 2009). The estimated incidence of ITP is approximately 1 to 12 per 100,000 adults and 8 per 100,00 children annually (Terrell et al., 2012).

Background

Diagnosis of ITP is based on the exclusion of other causes of thrombocytopenia because of side effects from drugs (e.g., heparin, penicillin, nonsteroidal anti-inflammatory drugs), secondary ITP (e.g., lupus), or infection (e.g., HIV, *Heliobacter pylori* [*H. pylori*], hepatitis C), as well as platelet counts of less than 100,000/ml (Rodeghiero et al., 2009). Although patients can present without excessive bleeding symptoms, most patients present with bruising, petechiae, epistaxis, wet purpura, fatigue, or prolonged or heavy menses. ITP diagnosis begins with a complete blood count evaluation and a peripheral blood smear, in addition to a thorough personal and family history evaluation and physical examination. If the test results are typical of ITP, no further evaluation is needed. Bone marrow examination may be considered in select patients who exhibit symptoms, such as fever or bone or joint pain, or in those who have a family history of low platelet counts or easy bruising; risk factors for HIV infection; skeletal or soft-tissue morphologic abnormalities; nonpetechial rash; lymphadenopathy; or an abnormal hemoglobin level, white blood cell count, or white cell morphology. These symptoms are not typical of ITP and require additional testing to rule out the possibility of other disorders (Neunert et al., 2011; Provan et al., 2010). ITP classification is based on disease duration from three months newly diagnosed to chronic disease being greater than 12 months. In addition, ITP can be classified as severe, indicated by significant bleeding requiring treatment, or refractory, demonstrated by a post-splenectomy relapse or high risk for bleeding, or it can be based on the response or complete response of platelet counts (Lambert & Gernsheimer, 2017; Rodeghiero et al., 2009). This article reviews first- and second-line ITP treatments, particularly use of the thrombopoietin receptor agonists (TPO-RAs), eltrombopag (Promacta®) and romiplostim (Nplate®), for adult and pediatric patients.

First-Line Treatments

The first-line treatment of ITP for low platelet counts or bleeding symptoms includes corticosteroids, such as prednisone or dexamethasone, and IV immunoglobulin (IVIG), or anti-D immunoglobulin (WinRh0) for nonsplenectomized patients. These treatment options provide a rapid but transient response in increasing platelet count and reducing bleeding symptoms if present.