

## **Real world effectiveness of second-line therapies for primary immune thrombocytopenia (ITP): a retrospective analysis of healthcare claims data**

Investigator: Karen L. Rascati, Ph, PhD

Institution: The University of Texas at Austin

Real-world data and evidence are playing an important role these days in health care decisions. Real world data includes information related to patient health status and/or the delivery of health care routinely collected from different sources. Real-world evidence is defined as the clinical evidence regarding the usage of and potential benefits/risks from a medical product, such as a treatment, derived from real-world data.

This study compared the effectiveness of various second-line therapies using healthcare claims data (insurance) in the management of ITP to help patients and their clinicians make more informed decisions. The motivation for this study was, in part, prompted by the revisions to the American Society of Hematology (ASH) guidelines for immune thrombocytopenia. In 2019, ASH guidelines recommended that second-line agents such as thrombopoietin receptor agonists (TPO-RAs; specifically, romiplostim (N-Plate) and eltrombopag (Promacta/Revolade), rituximab and splenectomy be considered for both adults and children with ITP who are unresponsive to corticosteroids (or corticosteroid dependent). However, the relative effects between these different therapies have never been established due to a lack of clinical trials that directly compare their effectiveness.

Previous studies have showed that TPO-RAs, rituximab, and splenectomy showed variable effectiveness in terms of increasing platelet count and preventing bleeding events. However, there has been very little evidence outside a clinical trial on outcomes of ITP patients receiving second-line therapies and a lack of published studies evaluating ITP second-line therapies using healthcare claims data.

We predicted that outcomes might be different among ITP patients treated in real-world practices (meaning outside a clinical trial or controlled for environment) receiving different second-line therapies. Therefore, the objectives of our study included: 1) to describe the utilization of different types of second-line therapies in a real-world ITP population; 2) to compare the ITP-related clinical outcomes among patients receiving different types of second-line therapies; and 3) to compare the ITP-related clinical outcomes among patients receiving different TPO-RAs.

A retrospective cohort study (using data previously collected) was conducted using healthcare claims data between January 2013 and May 2020. Treatment patterns and clinical outcomes were evaluated in patients with ITP during the 6-month follow-up after initiating rituximab, or one of two TPO-RAs (romiplostim or eltrombopag); subgroup analyses were conducted using 12-month follow-up to look at whether results are different when patients were followed for a longer period.

A total of 897 patients from the U.S. were included in the main analysis over a 6-month follow-up period, of which 362 patients received rituximab, 288 patients received romiplostim, and 247 patients received eltrombopag. The average age of patients in the study was 70 years with just under half identified as having secondary thrombocytopenia (i.e., low platelets resulting from another medical condition). A total of 695 patients were included in the subgroup analyses over a 12-month follow-up period: including 285 patients in the rituximab group, 212 in the romiplostim group and 198 in the eltrombopag group.

### **Requiring a different second-line ITP therapy**

Use of a different second-line therapy was defined as a “switch to” or “add on” of a different second-line therapy other than the initial second-line therapy. Patients receiving rituximab were more likely to receive a different second-line therapy compared to those receiving eltrombopag. There was no significant

difference in the risk of receiving a different second-line therapy for the other two comparison groups (eltrombopag vs. romiplostim; rituximab vs. romiplostim).

#### Requiring other ITP therapies

The proportions of patients receiving any other ITP therapies (defined as any ITP therapies other than a second-line therapy). Patients receiving rituximab were more likely to receive other ITP therapies compared to those receiving eltrombopag and those receiving romiplostim. There was no significant difference in the odds of receiving any other ITP therapies during the 6-month follow-up when comparing eltrombopag to romiplostim groups.

#### Bleeding related episodes (BRE)

A bleeding related episode (BRE) was defined as any bleeding event identified using diagnosis codes labeled by healthcare providers. There were no significant differences among the three groups in terms of having a BRE during the 6-month follow-up after controlling for other variables that could have impacted the results. There was no significant difference in the odds of having at least one major bleeding event among the three groups at 6-month or 12-month follow-up.

#### Rescue therapy

Rescue therapy was defined as a therapy used to treat patients at imminent risk of bleeding or with active bleeding, including immunoglobulins (IVIg) and platelet transfusions. Patients receiving romiplostim were more likely to have at least one rescue therapy compared to those receiving rituximab. There was no difference in the odds of having at least one rescue therapy for the other two comparison groups (eltrombopag vs. romiplostim; eltrombopag vs rituximab); and 12-month subgroup analysis showed similar results.

Overall, it was found that ITP patients receiving rituximab were more likely to need other therapies but did not experience a higher risk of bleeding compared to those receiving TPO-RAs. Patients receiving eltrombopag and romiplostim had similar treatment pattern and clinical outcomes. Future studies with larger sample size are needed to evaluate treatment patterns and outcomes of ITP patients receiving second-line therapies in a non-Medicare population.

*PDSA has designed our research program to specifically focus on patient priorities and funds studies that will make a significant impact on ITP diagnosis, therapies, and quality of life. If you'd like to donate to our research fund, please visit <https://www.pdsa.org/pdsa-donation.html>.*