

Perioperative treatment for patients with immune thrombocytopenia: Eltrombopag vs IVIG

What is this research about?

Patients with immune thrombocytopenia (ITP) have low platelet counts and this can put them at risk for bleeding. There are treatments available to increase the platelet count in patients with ITP and this can be crucial in situations associated with blood loss, such as invasive surgeries. Intravenous immunoglobulin (IVIG) is commonly used to increase the platelet count before surgery for ITP patients, although available treatment options also include corticosteroids and eltrombopag, an oral medication that stimulates production of platelets. However, in addition to the many considerations that influence treatment preference, it is unclear if eltrombopag is non-inferior to IVIG as a perioperative treatment.

IVIG is made of concentrated proteins, specifically antibodies, that have been collected from plasma. However, IVIG is an expensive blood product in short supply and it can have side effects such as allergic reactions, headaches, and hemolysis. Corticosteroids may be avoided prior to surgeries as it can affect wound healing. Eltrombopag carries potential risks such as thrombosis and liver toxicity.

This study compared eltrombopag and IVIG for patients with ITP around the time of surgery. This is the only randomized control trial to date that has examined perioperative treatments for patients with ITP.

IN BRIEF: Eltrombopag can be used as an alternative to IVIG for perioperative treatment of patients with immune thrombocytopenia.

What did the researchers do?

A randomized control trial was carried out by the researchers. 74 patients with ITP were included in the study and patients were randomly assigned to either:

1. Eltrombopag: Patients received 50 mg of the oral medication for 21 days before the surgery and for approximately 7 days after the surgery.
2. IVIG: Patients received the infusion at a dose of 1 g/kg or 2 g/kg approximately 7 days before their surgery. A repeat dose could be given up to 7 days after the surgery.

The researchers looked at whether patients reached a platelet count target of $45 \times 10^9/L$ for minor surgeries and $90 \times 10^9/L$ for major surgeries. They also monitored patients for bleeding

events, surgical delays, patient satisfaction, the need for transfusions, and other adverse effects.

What did the researchers find?

Researchers found that eltrombopag was not inferior to IVIG for increasing and maintaining platelet counts in patients with ITP during the perioperative period. 79% of patients in the eltrombopag group and 61% of patients in the IVIG group reached the targeted platelet count for surgery.

With regards to adverse events, there was no significant difference in bleeding between the treatment groups. One patient in the eltrombopag group developed a treatment-related blood clot (pulmonary embolism) after a minor surgery. A distal deep vein thrombosis was also diagnosed in one patient in the IVIG group, but this was felt to be not treatment related.

How can you use this research?

This is an important area of research for this rare disease population. This trial demonstrates that eltrombopag is non-inferior in comparison to IVIG and it can be a valuable treatment alternative.

IVIG is an effective treatment; however, it is costly, of limited supply, and it must be given in a clinic or hospital. Eltrombopag offers an alternative treatment option for patients and is easily administered as an oral medication. Eltrombopag also carries unique risks (liver toxicity and increased risk of thrombosis); therefore, the decision to use IVIG or eltrombopag should be individualized for each patient.

This **Research Unit** was written by Dr. Marissa Laureano, transfusion medicine fellow at McMaster University.

About the research team: This research was led by **Dr. Donald Arnold**. He is a professor at McMaster University of Medicine, Hematology & Thromboembolism. He is also Director of the McMaster Centre for Transfusion Research.

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