Information for the treatment of Immune Thrombocytopenia for Paediatrics

ITP Australia New Zealand

Rituximab

Second Line Treatment

Rituximab is a manufactured antibody that targets B lymphocytes. It is commonly used if treatment beyond the first line is required. It is not derived from blood donations. Rituximab is used in the treatment of B cell lymphomas, usually in combination with chemotherapy. **Rituximab is not a chemotherapy drug** but is generally handled by cancer/oncology pharmacies because of its historical use in lymphoma. It is also increasingly used in a broad range of other autoimmune diseases.

Studies have reported around 25% long-term remission following rituximab treatment, with the initial response rates are about 60%. It appears to be most likely a successful treatment in younger people, particularly females, with short duration of ITP and lower platelet counts. However, its use should not be limited to this group of ITP patients.

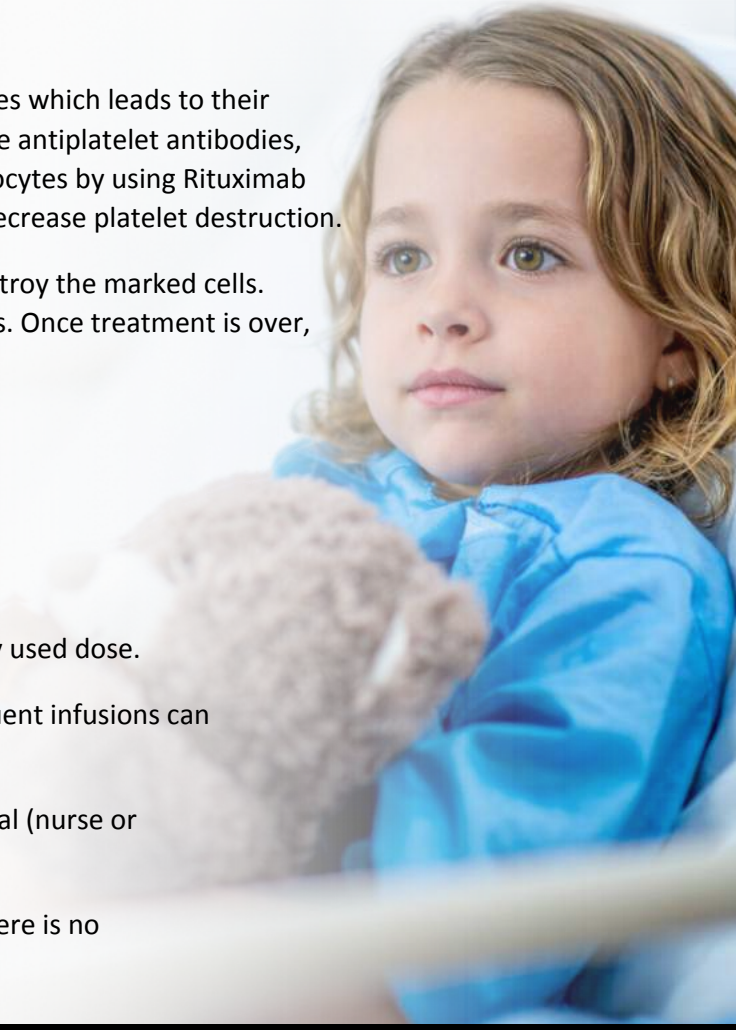
BRAND NAMES

Riximyo, Ruxience, Truxima, Rituxin/Mabthera (Roche) is the original brand; however, over recent years several biosimilar versions of rituximab have become available, resulting in a considerable drop in cost of treatment.

HOW DOES THE TREATMENT WORK?

Rituximab binds to the CD20 protein on B-lymphocytes which leads to their destruction. B-Lymphocytes are the cells that produce antiplatelet antibodies, which cause thrombocytopenia. Destroying B-lymphocytes by using Rituximab leads to decrease antiplatelet antibodies and then decrease platelet destruction.

This triggers the immune system cells to pick and destroy the marked cells. Rituximab destroys both abnormal and normal B-cells. Once treatment is over, the body can replace the normal B-cells.



HOW IS IT ADMINISTERED?

Rituximab is administered as an intravenous infusion.

DOSAGE

375mg/m2 weekly for 4 weeks is the most commonly used dose.

The first infusion is given over 3-4 hours, but subsequent infusions can generally be given over 1 hour.

Rituximab is administered by a healthcare professional (nurse or clinician) in a hospital or day treatment centre.

Occasionally, the dose of 100mg may be used, but there is no evidence as to the best dose in children with ITP.

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COMMON SIDE EFFECTS

Rituximab is generally well tolerated. Common side effects are more likely with the first infusion. Common side effects include low-grade fevers, headaches or chills, nausea, stomach pain, diarrhea, heartburn, night sweats, muscle or joint pain and dizziness.

The most listed side effects of rituximab are those seen in the treatment of lymphoma and when combined with chemotherapy. Side effects are less frequently seen in ITP but may include a first-dose infusion reaction, diminished response to subsequent vaccinations, and a risk of worse outcomes with COVID-19 infection.

RARE SIDE EFFECTS

A rare yet serious complication of rituximab is progressive multifocal leukoencephalopathy (a rare viral disease characterised by progressive damage or inflammation of the brain's white matter at multiple locations). Because B lymphocytes make our healthy immunoglobulins and the antibodies responsible for ITP, some patients develop hypogammaglobulinemia (stop making healthy antibodies) after rituximab use and will require regular immunoglobulin (IVIg) infusions.

TREATMENT RESPONSE

The median time to response is 5.5 weeks.

LIKELIHOOD OF AN INITIAL RESPONSE

Approximately 60%.

LIKELIHOOD OF A LONG-TERM RESPONSE?

Approximately 25%.

OTHER CONSIDERATIONS

Premedication of steroids and antihistamines is given before rituximab treatment to reduce the risk of infusion reactions.

Rituximab is favoured for patients without concomitant immunodeficiency and those at risk of blood clots. Rituximab should be considered in younger female patients with short disease duration (< 1–2 years).

Historically, most rituximab use was in treating lymphoma, so it is sometimes hard to separate the listed side effects of rituximab given in combination with chemotherapy for lymphoma from the generally lower dose given alone in ITP.

Lesser frequency and severity of side effects are likely seen in ITP. As previously indicated, rituximab is not a chemotherapy/cytotoxic drug.

REFERENCES

https://itpaustralia.org.au/itp-in-children/

http://itpaustralia.org.au/wp-content/uploads/2024/10/2023-ANZCHOG-Paediatric-ITP-Treatment-Guidelines.pdf