

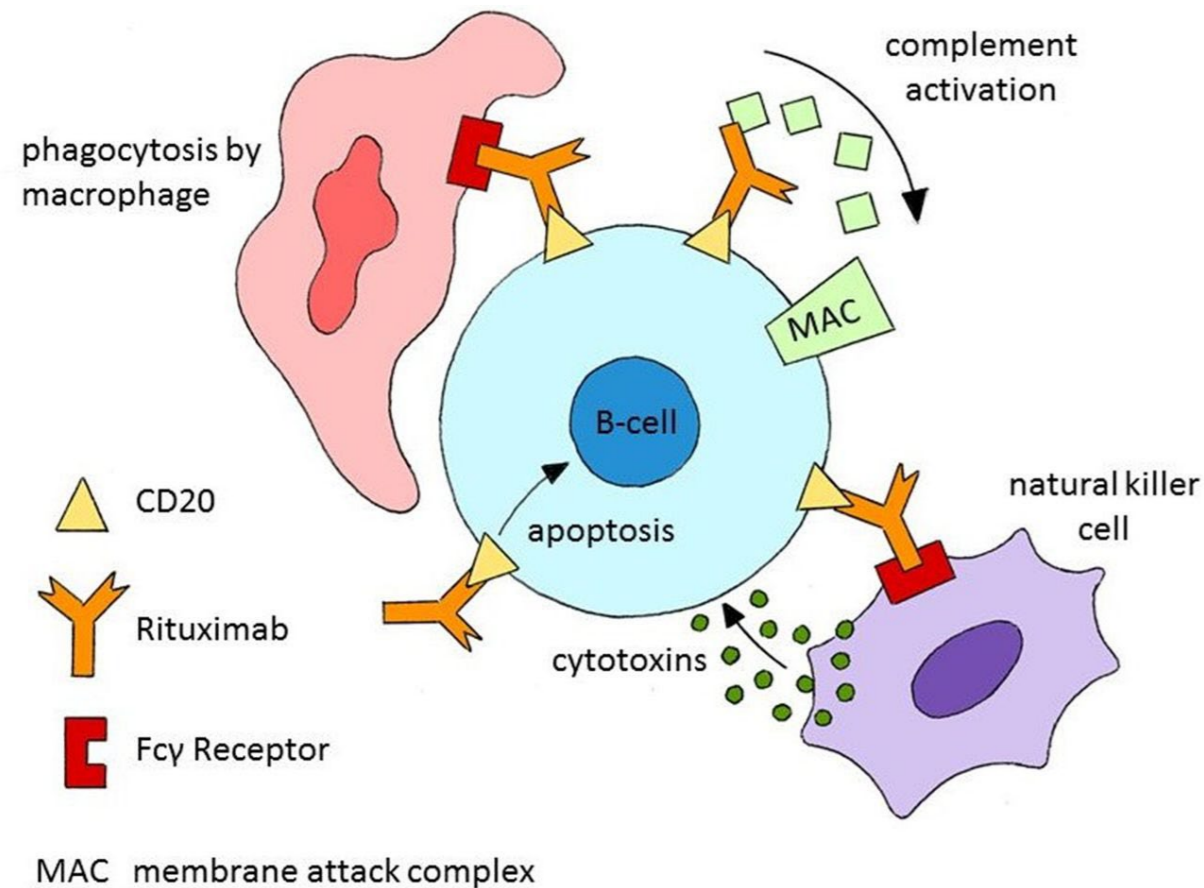
# Rituximab Induced Early Phase Neutropenia in IgG4-Related Disease

Ashley Draisey, DO, Austin Cudak, DO, Julie Jones, DO; Abbott Northwestern Hospital, Minneapolis, MN

## INTRODUCTION

A 57-year-old female with a diagnosis of Immunoglobulin G4-related disease (IgG4-RD) treated with rituximab is found to have new onset neutropenia during an emergency department visit for neck pain three weeks following her rituximab infusion.

### Typical Mechanism of Action of Rituximab



Whittam DH, Tallantyre EC, Jolles S, et al. *Pract Neurol* 2019;19:5–20.

## REFERENCES

1. Sánchez-Oro R, Alonso-Muñoz EM, Martí Romero L. Review of IgG4-related disease. Revisión de la enfermedad relacionada con la IgG4. *Gastroenterol Hepatol*. 2019;42(10):638-647. doi:10.1016/j.gastrohep.2019.08.009
2. Nambiar S, Oliver TI. IgG4 Related Disease. In: *StatPearls*. Treasure Island (FL): StatPearls Publishing; August 14, 2021.
3. Dunleavy K, Tay K, Wilson WH. Rituximab-associated neutropenia. *Semin Hematol*. 2010;47(2):180-186. doi:10.1053/j.seminhematol.2010.01.009
4. Justiz Vaillant AA, Zito PM. Neutropenia. [Updated 2021 Nov 15]. In: *StatPearls* [Internet]. Treasure Island (FL): StatPearls Publishing; 2022 Jan-.
5. Nelson BE, Tipton S, Venkatesan R. Early Onset Neutropenia due to Rituximab Therapy in Mantle Cell Lymphoma: A Case Report. *J Hematol*. 2021;10(3):136-138. doi:10.14740/jh814

## CASE PRESENTATION

- A middle-aged female with biopsy-confirmed IgG4-related disease receiving rituximab presented to the emergency department with worsening chronic neck pain and swelling related to autoimmune lymphadenopathy.
- She had recently restarted rituximab for active IgG4-related disease with her last infusion three weeks prior to presentation.
- Laboratory evaluation revealed acute mild neutropenia (ANC 1200 cells/microL) without thrombocytopenia or anemia. This was not present prior to administration of her current rituximab regimen.
- Following diagnosis of neutropenia, the patient remained afebrile without evidence of sepsis and did not require antibiotic/antifungal therapy or hospital admission for management.
- The patient had no other medications associated with neutropenia, no nutritional deficits, and no identified infectious cause of her neutropenia.

## DISCUSSION

- IgG4-related disease is an autoimmune lymphoproliferative disease that can affect multiple organ systems and lead to development of destructive lesions in the body (1).
- Treatment of IgG4-related disease may be attempted via B-cell reduction therapy with rituximab (2).
- One rare but documented adverse effect of rituximab therapy is neutropenia (neutrophil count <1500 cells/microL) (3-4).
- Rituximab induced neutropenia may be categorized as early or late phase.
- Early phase neutropenia is defined as occurring less than 4 weeks following rituximab administration, is extremely rare, and the mechanism is unknown (5).

## TAKE HOME POINTS

- Rituximab is an effective treatment of multiple rheumatologic conditions including IgG4-related disease.
- A potential consequence of rituximab therapy is neutropenia, though mechanism of this occurrence remains unclear.
- Early phase rituximab-induced neutropenia is extremely rare and has never been documented in relation to treatment for IgG4-related disease.
- Awareness of this potential adverse effect for multiple rheumatologic diseases including IgG4-related disease is essential for providers who are assessing rituximab as a treatment option.