

Rituximab-induced hypogammaglobulinemia and intravenous immunoglobulin replacement therapy do not protect against relapse in granulomatous with polyangiitis.

#### Background:

Rituximab (RTX) is effective in inducing and maintaining remission in granulomatous with polyangiitis (GPA) patients. RTX decreases serum levels of immunoglobulin leading to hypogammaglobulinemia and infections in some patients. This study aims to describe the use of intravenous immunoglobulin (IVIG) in GPA patients treated with RTX.

#### Methods

The study included 35 GPA patients from our vasculitis registry who received long-term pre-emptive RTX maintenance between April 2004 and June 2011. 54 % were men; they were 50 (14-81) years old and had received 16 (0-250) g cyclophosphamide. They received a RTX cumulative dose of 9 (2-14) g and were followed during 77 months. Hypogammaglobulinemia was defined as total Ig < 6 g/L.

#### Results:

Nineteen patients (54%) developed hypogammaglobulinemia 33 (4-71) months after RTX initiation and RTX was re-administered in 16. Seven patients (20 %) received IVIG 31 (0-43) months after hypogammaglobulinemia diagnosis.

Two patients discontinued IVIG after 3 and 4 months; however 5 patients were still on IVIG at last visit, receiving 360 (150-390) g yearly in the past 3 years. Total Ig levels increased from 4.7 prior IVIG to 7.4 g/L.

Eight patients (23 %) relapsed after 3 years of RTX maintenance: 5 had hypogammaglobulinemia and 4 required IVIG. All 3 relapsing patients with subglottic or endobronchial stenosis were on IVIG ( $p=0.036$ ).

#### Conclusion

The risk of hypogammaglobulinemia and the need for IVIG increase during long-term RTX maintenance in GPA. If required to treat hypogammaglobulinemia, IVIG use is usually prolonged. RTX-induced hypogammaglobulinemia and IVIG do not protect against relapse.