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Abstract Title: Changes in Immunoglobulin in Patients with Multiple Sclerosis Treated with Anti CD20 Monoclonal Antibodies

Abstract Category: Therapy - 33 - Immunomodulation/Immunosuppression

Preferred Presentation Type: Oral or poster presentation

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Introduction:

Ocrelizumab (OCR) and rituximab (RTX) are B-cell depleting antibodies used in the treatment of multiple sclerosis (MS). A decrease in serum immunoglobulin G (IgG) concentration is associated with B cell depletion which may pose an increased risk of infection.

Objectives/Aims:

To explore changes in IgG and immunoglobulin M (IgM) lab values over time while on treatment with anti-CD20 therapies for MS.

Methods:

Randomly selected patients who newly initiated OCR (n=50) or RTX (n=50) at the Rocky Mountain MS Center at the University of Colorado after January 2017 and had a minimum of one IgG value pre- and post-initiating therapy were retrospectively followed. Lab data, disease history, and patient characteristics were collected. Descriptive statistics and longitudinal regression models were used to examine patient characteristics and percent change in IgG and IgM values over time.

Results:

OCR and RTX patients had a mean age of 40.9 and 42.2 years at date of first treatment; had a mean MS disease duration of 6.9 and 5.9 years, respectively; and were predominantly female (OCR: 72%; RTX: 70%). The majority of patients were relapsing (OCR: 88%; RTX: 80%). The mean time on therapy for OCR and RTX was 45.1 and 38.5 months, respectively. OCR patients received a mean of 7.2 infusions with a median cumulative dose of 4200 mg (IQR:3000, 5400). RTX patients received a mean of 6.2 infusions with a median cumulative dose of 3500 mg (IQR:2000, 4500). The mean baseline IgG values were 968.4 (95% CI:925.3, 1013.4) and 954.4 (95% CI: 894.83, 1017.95) for OCR and RTX, respectively. Few patients had an IgG value during follow-up less than 500 mg/dl (OCR: 0%; RTX: 8%). The estimated percent change in IgG values per year were -3.13% (95% CI:-4.88%, -1.35%, p=0.0007) and -4.92% (95% CI:-7.26%, -2.51%, p<0.0001), for OCR and RTX, respectively. The mean baseline IgM values were 112.98 (95% CI: 96.02, 132.93) and 97.22 (95% CI: 84.19, 112.27) for OCR and RTX, respectively. Few patients had an IgM value during follow-up less than 25 (OCR: 8.16%; RTX: 6.12%). The estimated percent change in IgM values per year are -15.20% (95% CI:-18.97%, -

11.26%, $p < 0.0001$) and -19.66% (95% CI: -23.57%, -15.56%, $p < 0.0001$), for OCR and RTX, respectively.

Conclusion:

This study uniquely presents percent change in IgG and IgM values for patients treated with OCR or RTX, suggesting a significant reduction in IgG and IgM values over time. Additional data examining larger sample sizes and the addition of ofatumumab are ongoing.

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