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The correlation between B cells depletion and the therapeutic response, among MS patients treated with Ocrelizumab.

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Introduction:

Ocrelizumab (OCR) is a B cells depleting agent used to treat MS.

Objectives/Aims:

We set out to assess the correlation between B cells suppression and efficacy outcomes, among OCR treated MS patients.

Methods:

We retrospectively analyzed 427 RRMS patients treated with OCR at Imperial College Healthcare Trust and followed for a mean 30 months. B cell suppression was defined by absolute count of <50 B cells at last assessment.

Results:

Patients were predominantly females (62.6%) with a mean age of onset 33.5 years and received 5.1 mean OCR infusions. At baseline they had mean disease duration of 10.9 years and mean EDSS score of 3.9, while at last assessment the mean EDSS score was 4. The mean B cells count was 271.8 at baseline and dropped to 16 at the last infusion. The group with B cells suppressed (BS, n=379, 88%), compared to patients with B cells not suppressed (BN, n=48), had similar age of onset (33 vs 33 years, p=0.8), but shorter disease duration (10.8 vs 11.9 p=0.03) and lower EDSS at baseline (3.8 vs 4.7 p=0.01) and at last assessment (3.9 vs 4.7 p=0.04), and received more OCR infusions (5.2 vs 4.5 p<0.001). Compared to the BN group, BS patients experienced in lower proportion relapses (14.8% vs 20.8% p=0.4) and new MRI activity (4% vs 8.3% p=0.1), and in larger proportion EDSS improvement (10% vs 6.3% p=0.4), EDSS worsening (16.1% vs 6.3% p=0.07) and PIRA (14.5% vs 6.3% p=0.1), although differences were not significant. Kaplan Meier analysis estimated that the BS group, compared to BN patients, took longer time to experience relapse (61.1 vs 38.4 months p=0.2), new MRI activity (68.5 vs 44.9 months p=0.1), EDSS improvement (61.2 vs 45.7 months p=0.4), EDSS progression (60.1 vs 45.6 months p=0.08) and PIRA (61.2 vs 45.6 months p=0.1).

Conclusion:

We did not find any correlation between the level of B cells suppression and the therapeutic response to OCR. However, patients with effective B cells suppression had in larger percentages EDSS progression and PIRA, potentially suggesting that systemic B cell measures have a role in inflammatory activity but might be not involved in the pathogenesis of clinical progression.

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