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B Cell Over Population Following Alemtuzumab Therapy in a Multiple Sclerosis Patient

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Background: Alemtuzumab is an anti-CD52 monoclonal antibody therapy for relapsing remitting multiple sclerosis (RRMS), which depletes T and B-lymphocytes resulting in their reduction and subsequent repopulation.It decreased relapses compared to interferon beta-1a in clinical trials. However incidence in causing B-cell autoimmunity and hyper-proliferation has not extensively described for CNS involvement.

Method(s): We report on a 24-year-old female diagnosed with RRMS since 2011 following multiple episodes of optic neuritis and hand tremors. She was started on Natalizumab from an outside facility but developed a relapse. Hence Alemtuzumab was recommended due to fact that patient experienced relapses on natalizumab. After the pre-workup of Alemtuzumab, patient received her first course in February 2017, and second course in March 2018 with no complications. She had unremarkable monthly follow-up.

Result(s): Eight months after the second course, patient developed confusion and pseudobulbar symptoms. MRI brain with contrast showed more than 15 new gadolinium-enhancing lesions in the left frontal lobe. 5-days course of methylprednisolone was given to suppress the inflammation.

The differentials at that time were listeria infection, PML, or other opportunistic infection, Tuberculosis,Varicella, Listeria, fungal, HSV. Lumbar Puncture showed clear cerebro-spinal fluid with mildly elevated protein. CSF test for HSV, TB, varicella and listeria were negative. Flow cytometry analysis showed low lymphocytes, depleted CD3 cells and CD4 of T cells, and B cells within normal range. Ocrelizumab was administered on May 2019. The patient has been stable since initiating ocrelizumab with no further relapses or deterioration.

Conclusion: This case describes a rare but potentially new complication of alemtuzumab, which maybe due to B-cell hyper- population.