The effect of multiple sclerosis B-cell therapy on vaccination

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INTRODUCTION

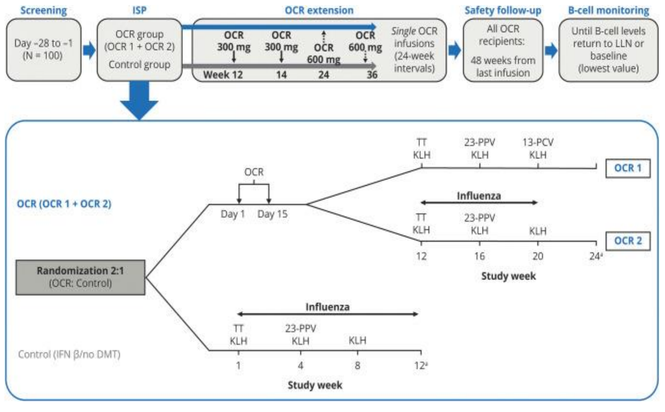
Multiple sclerosis (MS) is a disease that affects the brain and spinal cord, resulting in a variety of symptoms such as vision, arm or leg movement, sensation, and balance disorders.

Depletion of CD20+ B cells has been shown to be a highly effective method of suppressing inflammatory activity in MS patients. Anti-CD20 monoclonal antibodies (mAbs) such as rituximab, ocrelizumab, and ofatumumab have been developed for MS treatment.

CD20 is a cell-surface molecule expressed on most B-cell subsets, including pre-B cells, immature, mature, and memory B cells. CD20 is not, however, expressed on pro-B cells, or on plasmablasts and plasma cells.

patients treated with rituximab and ocrelizumab do not develop rebound inflammation following B-cell reconstitution

Vaccination is an easy, safe, and efficient technique to protect people from dangerous diseases before they become infected.



Materials and Methods

patients were divided into 2 groups ,
The OCR group (n = 68; OCR 600 mg) and the control group (n = 34; interferon beta or no disease-modifying treatment) were randomized 2:1.
tetanus toxoid (TT)-containing vaccine Pneumovax (23-valent pneumococcal polysaccharide vaccine [23-PPV]) and keyhole limpet hemocyanin (KLH) were given to all of the participants. At randomization, the OCR group was separated into two groups: OCR1 (n = 33) and OCR2 (n = 35).
Prevnar (conjugate pneumococcal vaccination) was given to the OCR1 group 4 weeks after 23-PPV, whereas the OCR2 and control groups got influenza vaccine. Vaccinations began 12 weeks following the onset of OCR (OCR group) or on day 1 (non-OCR group) (control group).

RESULTS

At 8 weeks, the OCR had a 23.9 percent positive response rate to the TT vaccine compared to 54.5 percent in the control group.
At 4 weeks, the OCR had a 71.6 percent positive response rate to 5 serotypes in 23-PPV, while the control group had a 100% positive response rate.
Prevnar, like Pneumovax, did not improve pneumococcal serotype response.
The OCR group had a lower Humoral Response to KLH than the control group. Seroprotection rates against five influenza strains were 55.6 percent to 80.0 percent in the OCR2 group and 75.0 percent to 97.0 percent in the control group after four weeks.

Discussion

Vaccinations against infectious diseases are an important part of MS patients' overall health maintenance. Some MS treatments have been linked to an increased susceptibility to infectious diseases, and MS relapses may occur as a result of infection.

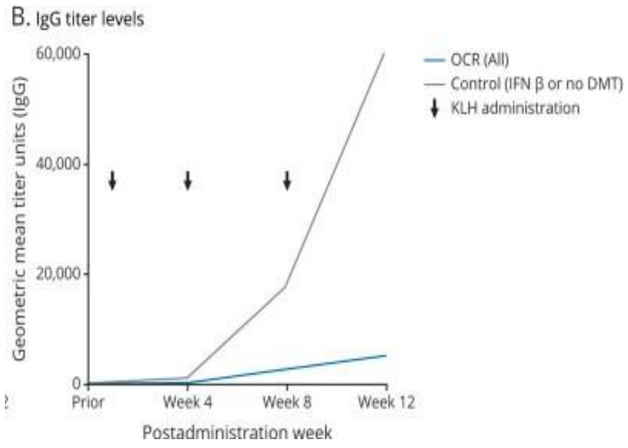
After treatment with OCR, patients with RMS who were peripherally B-cell depleted were able to mount humoral responses to clinically relevant vaccines (TT, 23-PPV, influenza) and the neoantigen KLH, albeit at a reduced level. Prior to the start of OCR16, vaccination requirements should be met as closely as possible according to local prescribing information, as this will improve vaccine effectiveness. Vaccination is likely to produce a significant vaccine response in the majority of patients, even after OCR initiation, and should be considered when vaccination is declared beneficial.

Patients on OCR, for example, should be vaccinated with seasonal influenza vaccine to induce a protective humoral response, even if the vaccine is attenuated. Live vaccines should not be given to patients undergoing OCR treatment, either during or after treatment. until the B cells are depleted VELOCE's reduced responses could be a class effect shared by other CD20+ B-cell–depleting therapies. Rituximab, for example, has been shown to reduce the response to TT in lymphoma patients.

Patients who received OCR maintained their specific humoral immunity to common viral and bacterial antigens

CONCLUSION

OCR recipients with peripheral B-cell depletion had lower humoral responses to clinically relevant vaccines and the neoantigen KLH, implying that nonlive vaccines can be used while on OCR treatment. Seasonal influenza vaccines are recommended for OCR patients because a potentially protective humoral response, even if attenuated, can be expected.



References

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