

Abstract Number: [999]

Abstract Title: COVID-19 Outcomes and Seropositivity Rates Following SARS-CoV-2 Vaccine and/or Infection in Ofatumumab-treated RMS Patients: Data from the ALITHIOS Open-label Extension Study

Abstract Category: Therapy - 33 - Immunomodulation/Immunosuppression

Preferred Presentation Type: Oral or poster presentation

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Introduction:

SARS-CoV-2 vaccines are effective in protecting individuals against COVID-19 and have played a key role in fighting the pandemic. However, no robust data are available on the serological response to these vaccines in patients with relapsing multiple sclerosis (RMS) receiving ofatumumab, a B-cell-depleting therapy. Furthermore, COVID-19 outcomes under MS disease modifying therapies require precise evaluation.

Objectives/Aims:

To evaluate the COVID-19 outcomes and serological response to SARS-CoV-2 vaccination and/or infection in RMS patients receiving ofatumumab.

Methods:

The serological response to SARS-CoV-2 vaccines was evaluated retrospectively in patients with RMS who received ofatumumab in core clinical trials and the ongoing ALITHIOS open-label extension study. Patients with blood samples available before and after infection/vaccination and with negative IgG antibodies to the receptor-binding domain (RBD) spike protein prior to infection/vaccination were included in the analysis. Antibodies levels were measured (Abbott Architect SARS-CoV-2 IgG II Quant assay) in 4 pre-defined subgroups: COVID-19 infection only (no vaccination, n=76), fully vaccinated

only (no infection; n=181), booster vaccination (fully vaccinated+booster; n=93) and breakthrough infection (SARS-CoV-2 infection post-full vaccination; n=82).

Results:

As of 25 Sept 2022, 648 of 1703 patients (38.1%) who entered ALITHIOS (mean age at baseline: 39.2 yrs) reported COVID-19 (confirmed: 603; suspected: 45). Most cases (92.3%) were non-serious, and majority (94.0%) were mild to moderate in severity. Most patients (96.1%) recovered; 5 patients had a fatal outcome (3 unvaccinated; 2 fully vaccinated). As of 14 Feb 2023, serological responses were assessed in 432 patients across the 4 subgroups. The proportion of patients seropositive for anti-RBD (geometric mean±SD of anti-RBD IgG) was 47.4% (36/76; 8.19±7.57;) after COVID-19 infection and 44.2% (80/181; 6.43±7.86) among fully vaccinated patients. The seropositivity rate was higher in the booster vaccination (60.2%; 56/93; 17.54±10.57) and breakthrough infection (64.6%; 53/82; 17.82±10.89) subgroups.

Conclusion:

Most COVID-19 cases in RMS patients receiving ofatumumab in ALITHIOS were non-serious, mild-to-moderate in severity, and most patients recovered. Booster vaccination increased the seropositivity rate in ofatumumab-treated patients. Anti-RBD IgG seropositivity rates and antibody response levels reported here are in line with previous reports for ofatumumab.

Disclosures: The study was supported by Novartis Pharma AG, Switzerland.

Heinz Wiendl has received honoraria for acting as a member of scientific advisory boards for Biogen, Evgen, Genzyme, MedDay Pharmaceuticals, Merck Serono, Novartis, Roche Pharma AG, and Sanofi-Aventis, as well as speaker honoraria and travel support from Alexion, Biogen, Cognomed, F. Hoffmann-La Roche Ltd., Gemeinnützige Hertie-Stiftung, Merck Serono, Novartis, Roche Pharma AG, Genzyme, Teva, and WebMD Global. Heinz Wiendl is acting as a paid consultant for AbbVie, Actelion, Biogen, IGES, Johnson & Johnson, Novartis, Roche, Sanofi-Aventis, and the Swiss Multiple Sclerosis Society. His research is funded by the German Ministry for Education and Research (BMBF), Deutsche Forschungsgemeinschaft (DFG), Else Kröner Fresenius Foundation, Fresenius Foundation, the European Union, Hertie Foundation, NRW Ministry of Education and Research, Interdisciplinary Center for Clinical Studies (IZKF) Muenster and RE Children's Foundation, Biogen, GlaxoSmithKline GmbH, Roche Pharma AG, and Sanofi-Genzyme.

Anne H. Cross has received consulting fees, research support and honoraria from Biogen, Bristol Myers Squibb, Celgene, EMD Serono, Merck, Genentech, Roche, Horizon, Janssen (subsidiary of Johnson & Johnson), Jazz Pharmaceuticals, Novartis, Octave and TG Therapeutics, serves on scientific advisory boards for ASCLEPIOS I/II (Novartis), OBOE (Genentech) and EVOLUTION III (EMD Serono) and receives support from the National Institutes of Health and the Department of Defense, USA.

Silvia Delgado has received clinical research grant support from EMD Serono and Novartis.

Mario Habek participated as a clinical investigator and/or received consultation and/or speaker fees from Biogen, Sanofi Genzyme, Merck, Bayer, Novartis, Pliva/Teva, Roche, Alvogen, Actelion, Alexion Pharmaceuticals and TG Pharmaceuticals.

Natalia Khachanova participated as a clinical investigator and/or received consultation and/or speaker fees from Merck, Novartis, Hoffmann-La Roche, Actelion, TG Pharmaceuticals, Generium, Osmotica Pharmaceuticals US LLC, Sanofi-Aventis, Teva, Octapharma AG, Janssen, MAPI Pharma, BIOCAD.

Brian J. Ward serves on a scientific advisory board for Novartis and reports personal fees from Novartis for this activity. He is also medical officer for Medicago Inc and holds parts of patents for vaccines targeting influenza, Clostridioides difficile and Schistosoma mansoni. In the last 5 years, he has held academic industry awards with Medicago, MIT Canada and Aviex Technologies.

Bruce A.C. Cree has received personal compensation for consulting from Alexion, Atara Biotherapeutics, Autobahn, Avotres, Biogen, EMD Serono, Novartis, Sanofi, TG Therapeutics and Therini and received research support from Genentech.

Natalia Totolyan has received fees for speaking for BIOCAD, Generium, Janssen, Merck, Novartis, Roche and institutional grants for conducting clinical trials for Alexion, BIOCAD, Janssen, MAPI Pharma, Merck, Novartis, Receptos, Roche, Sanofi and TG Therapeutics.

Xavier Montalban has received speaking honoraria and travel expenses for participation in scientific meetings, has been a steering committee member of clinical trials or participated in advisory boards of clinical trials in the past years with Actelion, Alexion, Bayer, Biogen, Celgene, EMD Serono, Genzyme, Hoffmann-La Roche, Immunic, Medday, Merck, Mylan, NervGen, Novartis, Roche, Sanofi-Genzyme, Teva Pharmaceutical, TG Therapeutics, EXCEMED, MSIF and NMSS.

Kevin Winthrop has received honoraria and/or support for contracted research from BMS, Pfizer, AbbVie, Union ChimiqueBelge, Eli Lilly & Company, Galapagos, Glaxosmithkline, Roche, Gilead, Regeneron, Sanofi, AstraZeneca and Novartis.

Linda Mancione, Ronald Zielman and Alex Ocampo are employees of Novartis. Roseanne Sullivan is employee of Novartis and has Novartis stock ownership.

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