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Comparison of ocrelizumab and ofatumumab: Examining clinical characteristics within the first year of market availability

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Background:

The number of treatment options for relapsing multiple sclerosis (RMS) has considerably increased in recent years. Onlabel anti-CD20 monoclonal antibodies (anti-CD20) ocrelizumab (OCR; introduced: 2018) and ofatumumab (OFA; introduced: 2021) are highly effective disease-modifying therapies (HE-DMTs).

Objectives:

To compare the clinical characteristics of people with MS (pwMS) initiating treatment with OCR/OFA within the first year of German market availability.

Methods:

We analysed data from the German MS Registry as of 1-Nov-2023, focusing on OCR/OFA-treated RMS patients. pwMS with DMT initiation within one year of German market availability (observation time: OCR 1-Feb-2018 to 1-Feb-2019; OFA 1-Sep-2021 to 1-Sep-2022) were characterised regarding clinical variables and DMT prescription before OCR/OFA.

Results:

- Age, disease duration and EDSS score (disability level) at OCR/OFA initiation were significantly lower in OFA patients than in OCR patients
- Lower EDSS scores were identified to favor OFA initiation (Figure 1)
- OFA users were slightly more often therapy naïve than OCR users (29.7% vs. 25.7%; chi-square test p=0.33; Figure 2)
- S1P receptor modulators, natalizumab, and DMF/DRF were the most used pre-OCR treatments
- Glatiramer acetate, anti-CD20 MAB, and teriflunomide were more frequently prescribed before OFA

Conclusions:

Differences in clinical patient characteristics and pre-therapy may be explained by the market availability of additional HE-DMTs. PwMS were more often initiated with OCR as the first in-class medication compared to the subsequent OFA. The administration route of OCR (infusion) and OFA (injection) could also impact patient preferences and physician decisions in the future.

Declaration of interest: Melanie Peters, David Ellenberger and Firas Fneish had no personal financial interests to disclose other than being employees of the German MS Registry. Niklas Frahm is an employee of the MSFP. Moreover, he is an employee of Rostock's University Medical **Center and received travel funds for research meetings from Novartis. None resulted in a conflict of interest. Tim Friede has received personal fees for statistical consultancies (including data monitoring committees) from Actimed, Aslan, Bayer, BiosenseWebster, BMS, CSL Behring, Daiichi Sankyo, Enanta, Fresenius Kabi, Galapagos, IQVIA, Immunic, KyowaKirin, LivaNova, Minoryx, Novartis, PINK! gegen** Brustkrebs, PPD, RECARDIO, Recordati, Relaxera, Roche, Servier, Viatris, Vifor, and VICO Therapeutics. None resulted in a conflict of interest. Peter Flachenecker has received speaker's fees and honoraria for advisory boards from Almirall, Bayer, Biogen Idec, BMS-Celgene, Coloplast, Genzyme, GW Pharma, Hexal, Janssen-Cilag, Novartis, Merck, Roche, Sanofi, Stadapharm and Teva. None resulted in a conflict of interest. Kerstin Hellwig has received speaking fees and/or institutional grant support from Bayer, Biogen, BMS, Merck Serono, Novartis, Roche, Sanofi-Genzyme, and Teva. None resulted in a conflict of interest. Christoph Kleinschnitz has received speaker's fees, honoraria for attending advisory boards, and financial support for conducting research projects from Merck Serono GmbH, Germany and Merck KgaA, Germany. None resulted in a conflict of interest. Alexander Stahmann has no personal financial interests to disclose, other than being the leader of the German MS Registry, which receives (project) funding from a range of public and corporate sponsors, recently including G-BA, The German Retirement Insurance, The German MS Trust, German MS Society, Biogen, Bristol Myers Squibb, Merck, Novartis and Roche. None resulted in a conflict of interest. Uwe K. Zettl has received speaking fees, travel support, and/or financial support for research activities from Alexion, Almirall, Bayer, Biogen, Bristol-Myers-Squibb, Janssen, Merck Serono, Novartis, Octapharma, Roche, Sanofi Genzyme, Teva as well as EU, BMBF, BMWi, and DFG.

Variables	OCR (N=452)	OFA (N=175)
Female sex, N (%)	324 (71.7)	113 (64.6)
Age at MS onset [years], mean (±SD)	29.3 (±9.7)	29.5 (±9.6)
Time to MS diagnosis [years], median [25%;75%-quantiles]	0.2 [0.0;1.1]	0.1 [0.0;0.6]
Age at OCR/OFA initiation [years], mean (±SD)*	41.9 (±11.0)	39.4 (±11.8)
Disease duration at ocrelizumab/ofatumumab initiation [years], mean (±SD)*	12.2 (±8.8)	10.2 (±8.8)
EDSS at ocrelizumab/ofatumumab initiation, median [25%;75%-quantiles]**	3.0 [2.0;4.5]	2.0 [1.5;2.9]
Annualised relapse rate, (±SD)	0.28 (±0.6)	0.20 (±0.5)
Number of prior therapies, N (%)		
Initial therapy	116 (25.7)	52 (29.7)
1 prior therapy	124 (27.4)	43 (24.6)
2 prior therapies	83 (18.4)	31 (17.7)
≥3 prior therapies	129 (28.5)	49 (28.0)

Table 1. Baseline comparison between initiation with ocrelizumab and ofatumumab patients with MS

EDSS - expanded disability status scale; MS – Multiple sclerosis; N – number of patients; OCR – ocrelizumab; OFA – ofatumumab; SD - standard deviation; * – p<0.05; ** – p<0.001

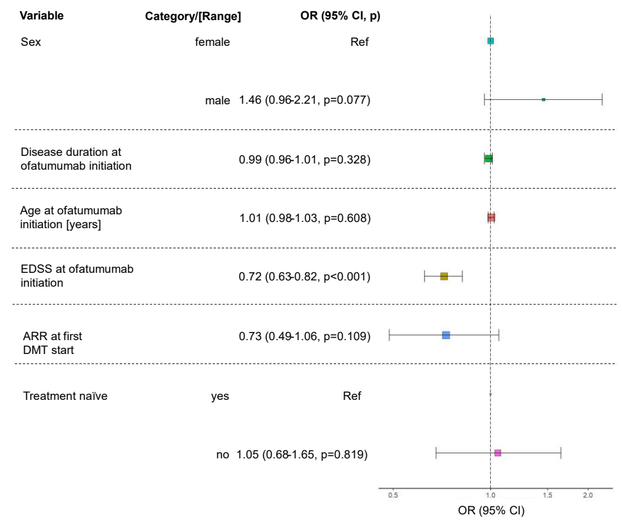

Figure 1 . Predictors for starting treatment with ofatumumab within the first year of market availability. A multivariable logistic regression model was used to identify variables associated with the initiation of ofatumumab among 175 MS patients compared to 452 who initiated ocrelizumab. The forest plot contains colored boxes indicating the ORs of the variables analysed for treatment with ofatumumab. Box sizes represent the number of patients included. Whiskers symbolise the 95% CIs of ORs. ARR – annualised relapse rate; CI – confidence interval; EDSS – expanded disability status scale ; MS – multiple sclerosis; OR – odds ratio; p – p-value; Ref – reference

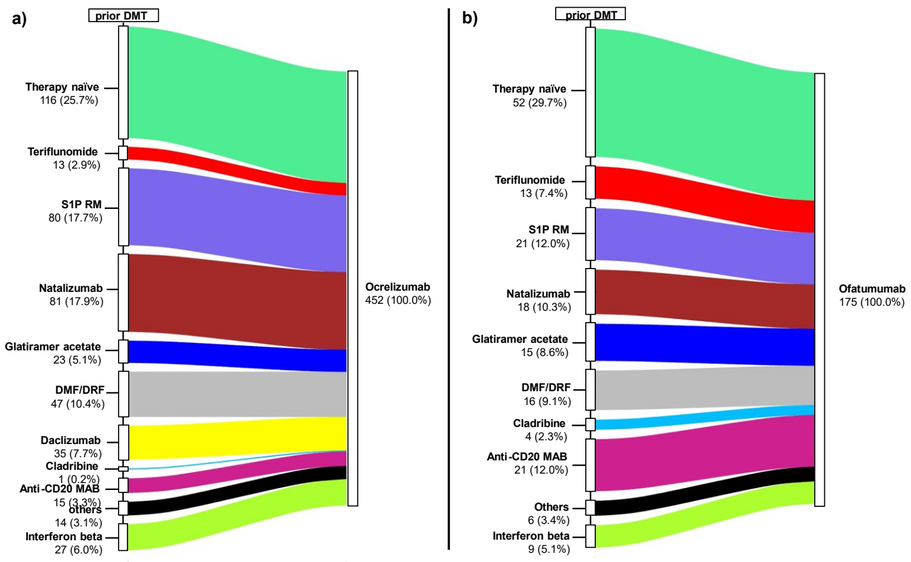

Figure 2. DMTs prescribed prior to patients with ocrelizumab [a] (N=452) and ofatumumab [b] (N=175). The boxes on the left side represent the proportion of patients, stratified by the prior DMT used. On the right side, the immediately following ocrelizumab [a] or ofatumumab [b] treatment is shown. The color line sizes correspond to the proportions of patients using the respective DMTs. Anti-CD20 MAB – anti-CD 20 monoclinal antibodies: ocrelizumab/ofatumumab/rituximab ; DMF – dimethyl fumarate; DMT – disease-modifying therapy; DRF – diroximel fumarate; MS – multiple sclerosis; N – number of patients; S1P RM – sphingosine-1-phosphate receptor modulators: fingolimod/ ozanimod/ ponesimod/ siponimod