interferon-β. 297 patients treated with ocrelizumab were matched with 811 fingolimod-treated patients. Over a pairwise-censored mean follow-up of 1.5 years, ocrelizumab was associated with lower relapse rates (ARR 0.03 vs 0.14, p<0.001) and lower risk of relapse than fingolimod (HR 0.21, 0.13–0.32). 262 ocrelizumab-treated patients were matched with 343 natalizumab treated. Over a pairwise-censored mean follow-up of 1.6 years, ocrelizumab and natalizumab were associated with similar relapse rates (ARR 0.06 vs 0.08, p=0.39) and risk of relapse (HR 0.77, 0.45–1.33).

Conclusions Treatment with ocrelizumab provides superior control of relapses than interferon-β and fingolimod. The effects of ocrelizumab and natalizumab on relapse activity are similar. Further evaluation of the comparative effectiveness of ocrelizumab on disability accumulation is warranted.

2292 INCOMPLETE RECOVERY FROM ATTACKS IN EARLY RELAPSING-REMITTING MS HERALDS FASTER DISABILITY PROGRESSION IN SECONDARY PROGRESSIVE MS

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Objective To investigate the association between early relapses shortly after relapsing remitting multiple sclerosis (RRMS) onset and disability progression during secondary progressive MS (SPMS).

Methods In this observational cohort study, 4,988 patients from the MSBase registry who reached SPMS, defined by the Lorscheider criteria, were identified. 1220 patients followed within two years from RRMS onset and over at least one year after SPMS conversion, and with an EDSS score of 4 to 5.5 at SPMS conversion, were included. The outcome was the rate of disability progression during SPMS, calculated with linear regression as mean change in multiple sclerosis severity scores (MSSS) over time. Associations between early disease characteristics (especially annualised relapse rate during the first two years of MS and relapse recovery) with the MSSS change were assessed using multivariable linear regression.

Results Of 1220 patients, 67% were female and the median age of MS diagnosis was 40 years. We found no evidence for association of early relapse rate with disability progression (β=-0.014, 95% CI -0.067 to 0.037, p=0.60). Male sex, a longer RRMS period and a higher EDSS at progression were associated with faster SPMS disability progression. A higher initial MSSS was associated with slower disability progression. Importantly, a higher proportion of early relapses with incomplete recovery was associated with faster disability progression during SPMS (β=0.12, 95% CI 0.017 to 0.22, p=0.025)

Conclusion The rate of relapses during early RRMS is not associated with SPMS disability progression, while incomplete recovery of early relapses is associated with faster disability progression.

2314 EXTENSIVE REMODELLING OF THE LYMPHOCYTE REPERTOIRE AND DELETION OF AUTOREACTIVE CLONES FOLLOWING AHSCT IN MS

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Objectives Autologous haematopoietic stem cell transplantation (AHSCT) is a vital therapeutic option for aggressive multiple sclerosis (MS). The mechanism by which AHSCT enables sustained remission beyond lymphopenia remains to be elucidated.

Methods Bio-banked lymphocytes were collected from MS patients enrolled in a phase 2 trial (ACTRN12613000339752), and comparator patients treated with Natalizumab. A multicolour flow cytometry panel was performed on 19 patient samples pre-AHSCT, 6, 12, 24 and 36 months post-AHSCT. DNA markers of thymic function were performed in the same cohort, and thymic PET studies in three patients. Fluorescence-activated cell-sorted T cell sub-populations were acquired for mRNA T-cell receptor sequencing in 13 patients.

Results Early proliferation of (effector and terminal effector) memory T-cells is followed by delayed recovery of naive CD4 + lymphocytes. 40.8% (CD4+CD45RO+) and 32.8% (CD8 +CD45RO+) of clones from the pre-transplant repertoire were detected at 6 months, yet only 19% (CD4+; p<0.025) and 13% (CD8+; p<0.005) of pre-transplant clones were detected at 36 months. Diversity of the memory populations declined post-transplant (p = 0.012). Recovery of a thymically-derived naïve T cell repertoire is ongoing at 36 months, however diversity of the naïve populations only increased from baseline in responders, with activity correlated on PET imaging. In HLA-DRB1*15:01-positive patients, public clones are probed as biomarkers of disease. Twelve public CD4+ clones correlate with disease activity, and two display characteristics on GLIPH2 analysis of autoreactivity.

Conclusions AHSCT induces sustained remission with dynamic changes in clonal T cell repertoire out to 36 months post-transplant, including the deletion of putative auto-reactive clones.

2327 LATITUDE, UVR AND MULTIPLE SCLEROSIS SEVERITY

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