**Supplementary table 1. Frequency of each lymphocyte subset between MS patients with DMDs.**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | NMOSD (n = 29) | Total MS (n = 72) | IFNβ (n = 12) | DMF (n = 11) | FTY (n = 18) | NTZ (n = 6) | No DMD (n = 25) | p Valuesa |
| Lymphocyte / WBC (%) | 21 (11-31) | 21 (14-29) | 37 (29-44) | 18 (10-21) | 13 (8-19) | 40 (31-50) | 24 (17-28) | < 0.0001b |
| Th cell / lymphocyte (%) | 43 (26-57) | 43 (30-56) | 53 (36-67) | 55 (42-66) | 10 (7-18) | 40 (49-64) | 50 (43-56) | < 0.0001c |
| Memory Th cell / Th cell (%) | 38 (32-56) | 46 (33-59) | 39 (28-57) | 39 (29-55) | 76 (54-91) | 48 (37-57) | 42 (28-50) | 0.0004d |
| CD8+ T cell / lymphocyte (%) | 19 (13-28) | 15 (9-21) | 17 (10-32) | 12 (9-18) | 14 (10-20) | 19 (9-29) | 15 (9-21) | 0.3 |
| B cell / lymphocyte (%) | 4 (2-5) | 6 (3-9) | 8 (5-11) | 6 (3-13) | 2 (1-5) | 8 (5-19) | 7 (4-9) | < 0.0001e |

Abbreviations: DMD = disease-modifying drug; DMF = dimethyl fumarate; FTY = fingolimod; IFN = interferon; MS = multiple sclerosis; NMOSD = neuromyelitis optica spectrum disorder; NTZ = natalizumab; Th = helper T; WBC = white blood cell. n.s., Not significant.

Values indicate median (interquartile range).

a p Values for comparisons across the 7 groups. Statistically significant post hoc analysis details are described below.

b p < 0.0001 for IFNβ vs FTY; p < 0.0001 for FTY vs NTZ; p = 0.008 for IFNβ vs DMF; p = 0.01 for DMF vs NTZ; p = 0.01 for Total MS vs FTY; p = 0.02 for FTY vs No DMD; p = 0.03 for Total MS vs IFNβ; p = 0.04 for NMOSD vs IFNβ; p = 0.04 for Total MS vs NTZ.

c p = 0.001 for NMOSD vs FTY; p < 0.0001 for Total MS vs FTY; p < 0.0001 for IFNβ vs FTY; p < 0.0001 for DMF vs FTY; p < 0.0001 for FTY vs No DMD.

d p = 0.0002 for FTY vs No DMD; p = 0.001 for NMOSD vs FTY; p = 0.007 for Total MS vs FTY; p = 0.01 for IFNβ vs FTY; p = 0.02 for DMF vs FTY.

e p = 0.003 for IFNβ vs FTY; p = 0.008 for FTY vs No DMD; p = 0.02 for NMOSD vs IFNβ; p = 0.03 for Total MS vs FTY.

**Supplementary table 2. Absolute number of each lymphocyte subset between MS patients with DMDs.**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | NMOSD (n =23)  | Total MS (n = 68)a | IFNβ (n = 9)a | DMF (n = 10)a | FTY (n = 18)a | NTZ (n = 6)a | No DMD (n = 25)a | P Valuesb  |
| WBC (/μL) | 8145 (5473-8373) | 6205 (5473-8373) | 5075 (3440-5970) | 7210 (4768-9110) | 3400 (2988-5473) | 6440(4910-7835) | 6205 (5473-8373) | < 0.0001c |
| Lymphocyte count (/μL) | 1471 (1004-2110) | 1216 (696-1912) | 1621 (1064-2318) | 1002 (809-1388) | 436 (371-551) | 2841 (1411-3580) | 1572 (1184-1944) | < 0.0001d |
| Th cell count (/μL) | 724 (420-930) | 558 (140-968) | 757 (627-1247) | 491 (404-770) | 43 (23-95) | 1081 (712-1379) | 847 (406-1080) | < 0.0001e |
| Memory Th cell / Th cell (/μL) | 311 (186-445) | 249 (76-344) | 322 (278-449) | 245 (146-310) | 34 (21-70) | 498 (331-660) | 281 (177-451) | < 0.0001f |
| CD8+ T cell count (/μL) | 304 (182-440) | 170 (78-325) | 329 (137-621) | 142 (113-181) | 58 (44-79) | 613 (324-987) | 245 (150-325) | < 0.0001g |
| B cell count (/μL) | 77 (25-139) | 60 (24-89) | 135 (73-214) | 64 (21-134) | 7 (4-28) | 214 (82-592) | 106 (56-145) | < 0.0001h |

Abbreviations: DMD = disease-modifying drug; DMF = dimethyl fumarate; FTY = fingolimod; IFN = interferon; NTZ = natalizumab; MS = multiple sclerosis; NMOSD = neuromyelitis optica spectrum disorder; Th = helper T; WBC = white blood cell. n.s., Not significant.

Values indicate median (interquartile range).

a Absolute number was not available in MS patients with IFNβ (n = 3) and with DMF (n = 1).

b p Values for comparisons across the 7 groups. Statistically significant post hoc analysis details are described below.

c p < 0.0001 for NMOSD vs FTY; p = 0.0005 for FTY vs No DMD; p = 0.007 for NMOSD vs Total MS; p = 0.009 for NMOSD vs IFNβ; p = 0.02 for DMF vs FTY; p = 0.048 for Total MS vs FTY.

d p < 0.0001 for NMOSD vs FTY; p < 0.0001 for FTY vs NTZ; p < 0.0001 for FTY vs No DMD; p = 0.0002 for Total MS vs FTY; p = 0.0006 for　IFNβ vs FTY.

e p < 0.0001 for NMOSD vs FTY; p < 0.0001 for Total MS vs FTY; p < 0.0001 for FTY vs NTZ; p < 0.0001 for FTY vs No DMD; p = 0.0001 for　IFNβ vs FTY; p = 0.04 for DMF vs FTY.

f p < 0.0001 for NMOSD vs FTY; p < 0.0001 for FTY vs Total MS; p < 0.0001 for FTY vs NTZ; p < 0.0001 for FTY vs No DMD; p = 0.0002 for IFNβ vs FTY; p = 0.0003 for Total MS vs FTY.

g p < 0.0001 for NMOSD vs FTY; p < 0.0001 for FTY vs NTZ; p = 0.0005 for FTY vs No DMD; p = 0.001 for IFNβ vs FTY; p = 0.002 for Total MS vs FTY; p = 0.03 for Total MS vs NTZ; p = 0.046 for DMF vs NTZ.

h p < 0.0001 for IFNβ vs FTY; p < 0.0001 for FTY vs NTZ; p < 0.0001 for FTY vs No DMD; p = 0.0001 for Total MS vs FTY; p = 0.047 for DMF vs FTY.