**Supplementary Online Content**

**Table e-1.** Definition of the standard of care and potential confounders

**Table e-2.** Log rank test for the association between different confounders and disease relapse, respectively

**Table e-3.** Comparison of variables between initial MOG-IgG titer < 1:100 group and ≥ 1:100 group

**Table e-1. Definition of the standard of care and potential confounders**

|  |  |  |
| --- | --- | --- |
| **Variables** | **Subgroups** | **Details** |
| Standard of care a | Steroid | Intravenous high-dose methylprednisolone (1000mg/dayb) × 5 days → Oral prednisone calculated by weight → Tapering prednisone at the speed of 5mg per week→ 30 mg/day × 1 month → Tapering prednisone at the speed of 2.5mg per week→ Maintenance of 7.5/day.For example: For an adult weighted 60 Kg, the dose of prednisone were as following:First week: 60 mg/day × 7 daysSecond week: 55 mg/day × 7 daysThird week: 50 mg/day × 7 days…Seventh week: 30 mg/day × 30 days (Four weeks)Eleventh week: 27.5 mg/day × 7 daysTwelfth week: 25 mg/day × 7 days…N week: 7.5 mg/day for following days |
| Intravenous Immunogloblin | Intravenous Immunogloblin (0.4g/kg/day) × 5 days |
| Other | Antiviral therapy × 14-21 days according to guidelines |
| Prodrome type at first onset  | None | None |
| Preceding infection/ vaccination | preceding fever/infection /vaccination |
| Other | pregnancy/lactation, fatigue/ poor sleep/ tension |
| Prodrome type at index onset | None | None |
| Preceding infection/ vaccination | preceding fever/infection /vaccination |
| Other | pregnancy/lactation, fatigue/ poor sleep/ tension, or discountinuation of prednisone  |
| Onset type at first onset | Pure optic neuritis | Only optic neuritis |
| Pure cerebrum involvement | Only cerebrum involvement (including lobe and basal ganglia). For instance, motor aphasia was localized to temporal lobe of dominant hemisphere. |
| Pure myelitis | Only spine involvement |
| Other | Brainstem syndrome, cerebellar involvement, meminges involvement, optic neuritis, cerebrum involvement, meningitis, or any combination of above  |
| Onset type at index onset | Pure optic neuritis | Only optic neuritis |
| Pure cerebrum involvement | Only cerebrum involvement (including lobe and basal ganglia). For instance, motor aphasia was localized to temporal lobe of dominant hemisphere. |
| Pure myelitis | Only spine involvement |
| Other | Brainstem syndrome, cerebellar involvement, meminges involvement, optic neuritis, cerebrum involvement, meningitis, or any combination of above |
| Acute therapy type | Methylprednisolone | Intravenous high-dose methylprednisolone in the eTable 1, without intravenous immunogloblin |
| Immunogloblin | Intravenous immunogloblin in eTable 1, with or without intravenous high-dose methylprednisolone |
| Other | Without any of intravenous high-dose methylprednisolone and intravenous immunogloblin |
| Level of MOG-IgG titer | High titer | Including MOG-IgG titer: 1:100,and 1:320 |
| Low titer | Including MOG-IgG titer: 1:10, and 1:32 |
| Disease course at index onset | First onset | Only one attack before index date |
| Non-first onset | ≥ 2 attacks before index date |
| Level of Annual relapse rate (ARR) c | 0 | patients with 1 attack before the index date |
| < 3.0 | patients with ≥2 attacks before the index date and ARR < 3.0 |
| ≥ 3.0 | patients with ≥2 attacks before the index date and ARR ≥ 3.0 |

a Patients in MOG cohort received any or any combination of the above three drugs, or none of the above. All medication history and adverse effects were recorded. Discountinuation of oral prednisone and reasons would be recorded.

b The intravenous high-dose methylprednisolone was calculated by weight in children (30mg/kg/day), whose upper limit was 1000mg/day.

c ARR=Times of attacks before index date/ Time interval from first onset date to index date, only for patients with ≥ 2 attacks before the index date

**Table e-2. Log rank test for the association between different confounders and disease relapse, respectively.**

|  |  |
| --- | --- |
| **Confounders** | **P value** |
| Age type at first onset | 0.486 |
| Age type at index date | 0.566 |
| Sex | 0.286 |
| Prodrome to first onset | 0.551 |
| Prodrome to index onset | 0.985 |
| First onset type | 0.413 |
| Index onset type | 0.632 |
| Disease course | 0.429 |
| Level of ARR before index date a | 0.685 |
| Level of Initial MOG-IgG titer b | 0.114 |
| Time from first onset to index datec | 0.979 |

MOG-IgG: myelin oligodendrocyte glycoprotein Immunoglobulin G; NA: not applicable.

aARR: annual relapse rate

b Two missing datapoints

c <1000 days vs. ≥1000days

**Table e-3. Comparison of variables between initial MOG-IgG titer < 1:100 group and ≥ 1:100 group**

|  |  |  |
| --- | --- | --- |
|  | **Median (IQR)** |  |
| **Characteristic** | **< 1:100** | **≥1:100** | ***P* value** |
| Case, n (%) | 29 (37.7) | 48 (62.3) | NA |
| Age at first onset, years | 11.0 (7.0-31.5) | 18.0 (7.0-25.8) | 0.701 |
| Adult at first onset, n (%) | 12 (41.4) | 29 (62.5) | 0.071 |
| Age at index date, years | 14.0 (9.5-33.0) | 22.5 (10.0-29.8) | 0.658 |
| Adult at index date, n (%) | 15 (51.7) | 33 (68.8) | 0.135 |
| Female, N (%) | 16 (55.2) | 30 (62.5) | 0.525 |
| Prodrome to first onset, n (%)a |  |  | 0.819 |
|  None | 6 (20.7) | 13 (27.1) |  |
|  Preceding infection/vaccination | 19 (65.5) | 29 (60.4) |  |
|  Other | 4 (13.8) | 6 (12.5) |  |
| Prodrome to index onset, n (%)b |  |  | 0.121 |
|  None | 12 (41.4) | 20 (41.7) |  |
|  Preceding infection/vaccination | 16 (55.2) | 19 (39.6) |  |
|  Other | 1 (3.4) | 9 (18.8) |  |
| First onset type, n (%)c |  |  | 0.668 |
|  Pure optic neuritis  | 9 (31.0) | 18 (37.5) |  |
|  Pure cerebral involvement | 11 (37.9) | 13 (27.1) |  |
|  Pure spinal involvement | 1 (3.4) | 4 (8.3) |  |
|  Other | 8 (27.6) | 13 (27.1) |  |
| Index onset type, n (%)d |  |  | 0.713 |
|  Pure optic neuritis  | 11 (37.9) | 18 (37.5) |  |
|  Pure cerebral involvement | 11 (37.9) | 15 (31.3) |  |
|  Pure spinal involvement | 1 (3.4) | 5 (10.4) |  |
|  Other | 6 (20.7) | 10 (20.8) |  |
| First-onset disease course, n (%) | 8 (27.6) | 13 (27.1) | 0.962 |
| ARR before index datee |  |  | 0.882 |
|  0 | 8 (27.6) | 13 (27.1) |  |
|  < 3.0 | 14 (48.3) | 21 (43.8) |  |
|  ≥ 3.0 | 7 (24.1) | 14 (29.2) |  |
| Acute therapy type, n (%)f |  |  | 0.860 |
|  Methylprednisolone | 21 (72.4) | 35 (72.9) |  |
|  Immunogloblin | 6 (20.7) | 11 (22.9) |  |
|  Other | 2 (6.9) | 2 (4.2) |  |
| Time from first onset to test, days g | 199.0 (85.5-1262.5) | 377.0 (92.8-1459.3) | 0.809 |
| Time from index onset to test, days h | 67.0 (21.5-196.5) | 43.0 (23.3-106.5) | 0.521 |

IQR: interquartile range; MOG-IgG: myelin oligodendrocyte glycoprotein antibody; NA: not applicable.

a Other includes 3 patients with pregnancy/lactation, and 7 with fatigue/ poor sleep/ tension.

bOther includes 3 patients with pregnancy/lactation, 4 with fatigue/ poor sleep/ tension, and 3 with discountinuation of prednisone.

c Other includes 9 with cerebellum/brain stem involvement, 4 with optic neuritis (ON) and cerebrum involvement, 3 with myelitis and cerebrum involvement, 2 with ON and myelitis, 2 with cerebellum/brain stem and cerebrum involvement, and 1 with meningitis.

d Other includes 9 with cerebellum/brain stem involvement, 1 with ON and cerebrum involvement, 1 with myelitis and cerebrum involvement, 2 with ON and myelitis, 2 with cerebellum/brain stem and cerebrum involvement, and 1 for asymptomatic but with new lesion on brain MRI.

e Annual relapse rate

f Acute therapy type for index onset. Immunogloblin includes intravenous immunogloblin in online supplementary Table e-1, with or without intravenous high-dose methylprednisolone.

g Date of test =index date

h Date of test =index date