**Supplemental data**

Table e-1. Definition of the clinical features.

|  |  |
| --- | --- |
| Clinical feature | Definition |
| Amnesia | Clinical description and/or evidence of episodic memory disturbances in neuropsychological evaluation |
| FBDS | Clinical description of brief dystonic movements involving the face, upper limb, and/or lower limb |
| Other seizures | Clinical description of stereotyped episodes compatible with focal seizures or generalized tonic-clonic seizures (FBDS excluded) |
| Status epilepticus | Clinical description with compatible EEG |
| Psychiatric symptoms | Clinical description of depression, anxiety, psychosis, hallucinations, irritability, hetero-aggressiveness, abnormal behavior |
| Frontal syndrome | Clinical description of dorsolateral frontal syndrome (i.e apathy, abulia), orbitofrontal syndrome (i.e disinhibition, impulsiveness), frontal-release signs (i.e grasping), and/or executive dysfunction detected in neuropsychological evaluation |
| Sleep disturbances | Insomnia or hypersomnolence, inversion of circadian rhythm, suspicion of REM sleep behavioral disorder |
| Apraxia | Ideomotor, ideational, constructional apraxia based on clinical description and/or neuropsychological evaluation |
| Aphasia | Alteration in language production based on clinical description and/or neuropsychological evaluation |
| Dysautonomia | Sweating or thermoregulatory abnormalities, orthostatic hypotension, cardiac dysrhythmias, gastrointestinal dysmotility |

*Abbreviations: FBDS, faciobrachial dystonic seizures.*

Table e-2. HLA allele carrier frequencies in patients with LE and LGI1-Abs compared to controls.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Allele | Controls, n=300 (%) | Patients, n=72 (%) | Uncorrected p value | Corrected p value |
| A\*01:01 | 65 (21.7) | 16 (22.2) | 1 | 1 |
| A\*01:83 | 0 (0.0) | 1 (1.4) | 0.19 | 1 |
| A\*02:01 | 138 (46.0) | 25 (34.7) | 0.08 | 1 |
| A\*02:03 | 1 (0.3) | 0 (0.0) | 1 | 1 |
| A\*02:05 | 4 (1.3) | 3 (4.2) | 0.13 | 1 |
| A\*02:06 | 1 (0.3) | 0 (0.0) | 1 | 1 |
| A\*02:07 | 1 (0.3) | 0 (0.0) | 1 | 1 |
| A\*02:20 | 1 (0.3) | 0 (0.0) | 1 | 1 |
| A\*03:01 | 58 (19.3) | 12 (16.7) | 0.73 | 1 |
| A\*03:02 | 1 (0.3) | 0 (0.0) | 1 | 1 |
| A\*11:01 | 40 (13.3) | 8 (11.1) | 0.69 | 1 |
| A\*23:01 | 24 (8.0) | 6 (8.3) | 1 | 1 |
| A\*24:02 | 55 (18.3) | 8 (11.1) | 0.16 | 1 |
| A\*24:58 | 1 (0.3) | 0 (0.0) | 1 | 1 |
| A\*25:01 | 5 81.7) | 3 (4.2) | 0.18 | 1 |
| A\*26:01 | 21 (7.0) | 6 (8.3) | 0.62 | 1 |
| A\*26:08 | 2 (0.7) | 0 (0.0) | 1 | 1 |
| A\*29:01 | 3 (1.0) | 0 (0.0) | 1 | 1 |
| A\*29:02 | 29 (9.7) | 14 (19.4) | 0.02 | 0.92 |
| A\*30:01 | 7 (2.3) | 10 (13.9) | 0.0003 | 0.009 |
| A\*30:02 | 15 (5.0) | 0 (0.0) | 0.08 | 1 |
| A\*30:04 | 2 (0.7) | 0 (0.0) | 1 | 1 |
| A\*31:01 | 14 (4.7) | 3 (4.2) | 1 | 1 |
| A\*32:01 | 24 (8.0) | 8 (11.1) | 0.48 | 1 |
| A\*32:07 | 1 (0.3) | 0 (0.0) | 1 | 1 |
| A\*33:01 | 6 (2.0) | 0 (0.0) | 0.60 | 1 |
| A\*33:03 | 4 81.3) | 2 (2.8) | 0.32 | 1 |
| A\*34:02 | 0 (0.0) | 1 (1.4) | 0.19 | 1 |
| A\*43:01 | 0 (0.0) | 1 (1.4) | 0.19 | 1 |
| A\*66:01 | 6 (2.0) | 1 (1.4) | 1 | 1 |
| A\*66:02 | 1 (0.3) | 0 (0.0) | 1 | 1 |
| A\*68:01 | 24 (8.0) | 3 (4.2) | 0.32 | 1 |
| A\*68:02 | 5 (1.7) | 0 (0.0) | 0.58 | 1 |
| A\*68:03 | 1 (0.3) | 0 (0.0) | 1 | 1 |
| A\*74:03 | 1 (0.3) | 0 (0.0) | 1 | 1 |
| A\*74:06 | 1 (0.3) | 0 (0.0) | 1 | 1 |
| B\*07:02 | 49 (16.3) | 7 (9.7) | 0.19 | 1 |
| B\*07:05 | 2 (0.7) | 0 (0.0) | 1 | 1 |
| B\*07:06 | 1 (0.3) | 0 (0.0) | 1 | 1 |
| B\*08:01 | 44 (14.7) | 9 (12.5) | 0.71 | 1 |
| B\*13:02 | 9 (3.0) | 8 (11.1) | 0.007 | 0.37 |
| B\*14:01 | 11 (3.7) | 3 (4.2) | 0.73 | 1 |
| B\*14:02 | 16 (5.3) | 2 (2.8) | 0.54 | 1 |
| B\*15:01 | 31 (10.3) | 8 (11.1) | 0.83 | 1 |
| B\*15:03 | 2 (0.7) | 1 (1.4) | 0.47 | 1 |
| B\*15:10 | 0 (0.0) | 1 (1.4) | 0.19 | 1 |
| B\*15:17 | 2 (0.7) | 0 (0.0) | 1 | 1 |
| B\*15:18 | 3 (1.0) | 0 (0.0) | 1 | 1 |
| B\*15:24 | 0 (0.0) | 1 (1.4) | 0.19 | 1 |
| B\*18:01 | 43 (14.3) | 2 (2.8) | 0.004 | 0.21 |
| B\*18:03 | 1 (0.3) | 0 (0.0) | 1 | 1 |
| B\*27:02 | 2 (0.7) | 1 (1.4) | 0.47 | 1 |
| B\*27:05 | 20 (6.7) | 7 (9.7) | 0.44 | 1 |
| B\*27:12 | 1 (0.3) | 0 (0.0) | 1 | 1 |
| B\*35:01 | 24 (8.0) | 7 (9.7) | 0.63 | 1 |
| B\*35:02 | 7 (2.3) | 2 (2.8) | 0.68 | 1 |
| B\*35:03 | 11 (3.7) | 1 (1.4) | 0.47 | 1 |
| B\*35:08 | 5 (1.7) | 0 (0.0) | 0.58 | 1 |
| B\*37:01 | 3 (1.0) | 1 (1.4) | 0.57 | 1 |
| B\*37:02 | 3 (1.0) | 0 (0.0) | 1 | 1 |
| B\*38:01 | 13 (4.3) | 5 (6.9) | 0.36 | 1 |
| B\*39:01 | 9 (3.0) | 2 (2.8) | 1 | 1 |
| B\*39:05 | 1 (0.3) | 0 (0.0) | 1 | 1 |
| B\*39:06 | 1 (0.3) | 1 (1.4) | 0.35 | 1 |
| B\*39:10 | 2 (0.7) | 0 (0.0) | 1 | 1 |
| B\*39:24 | 1 (0.3) | 0 (0.0) | 1 | 1 |
| B\*40:01 | 17 (5.7) | 3 (4.2) | 0.77 | 1 |
| B\*40:02 | 17 (5.7) | 2 (2.8) | 0.54 | 1 |
| B\*41:02 | 0 (0.0) | 1 (1.4) | 0.19 | 1 |
| B\*44:02 | 42 (14.0) | 9 (12.5) | 0.85 | 1 |
| B\*44:03 | 56 (18.7) | 24 (33.3) | 0.01 | 0.54 |
| B\*44:05 | 3 (1.0) | 0 (0.0) | 1 | 1 |
| B\*44:15 | 1 (0.3) | 0 (0.0) | 1 | 1 |
| B\*45:01 | 2 (0.7) | 1 (1.4) | 0.47 | 1 |
| B\*47:01 | 0 (0.0) | 1 (1.4) | 0.19 | 1 |
| B\*49:01 | 19 (6.3) | 2 (2.8) | 0.39 | 1 |
| B\*50:01 | 5 (1.7) | 3 (4.2) | 0.18 | 1 |
| B\*50:02 | 0 (0.0) | 1 (1.4) | 0.19 | 1 |
| B\*51:01 | 47 (15.7) | 6 (8.3) | 0.13 | 1 |
| B\*51:02 | 1 (0.3) | 0 (0.0) | 1 | 1 |
| B\*51:07 | 1 (0.3) | 0 (0.0) | 1 | 1 |
| B\*51:08 | 1 (0.3) | 0 (0.0) | 1 | 1 |
| B\*52:01 | 7 (2.3) | 0 (0.0) | 0.35 | 1 |
| B\*55:01 | 4 (1.3) | 0 (0.0) | 1 | 1 |
| B\*56:01 | 1 (0.3) | 1 (1.4) | 0.35 | 1 |
| B\*57:01 | 14 (4.7) | 12 (16.7) | 0.001 | 0.05 |
| B\*57:02 | 1 (0.3) | 0 (0.0) | 1 | 1 |
| B\*58:01 | 9 (3.0) | 3 (4.2) | 0.70 | 1 |
| B\*82:01 | 1 (0.3) | 0 (0.0) | 1 | 1 |
| C\*01:02 | 29 (9.7) | 7 (9.7) | 1 | 1 |
| C\*02:02 | 40 (13.3) | 6 (8.3) | 0.32 | 1 |
| C\*02:10 | 2 (0.7) | 1 (1.4) | 0.47 | 1 |
| C\*03:02 | 4 (1.3) | 0 (0.0) | 1 | 1 |
| C\*03:03 | 26 (8.7) | 5 (6.9) | 0.81 | 1 |
| C\*03:04 | 26 (8.7) | 5 (6.9) | 0.81 | 1 |
| C\*04:01 | 61 (20.3) | 17 (23.6) | 0.52 | 1 |
| C\*05:01 | 58 (19.3) | 9 (12.5) | 0.23 | 1 |
| C\*06:02 | 36 (12.0) | 25 (34.7) | 0.00002 | 0.0007 |
| C\*07:01 | 79 (26.3) | 18 (25.0) | 0.88 | 1 |
| C\*07:02 | 56 (18.7) | 8 (11.1) | 0.16 | 1 |
| C\*07:04 | 7 (2.3) | 0 (0.0) | 0.35 | 1 |
| C\*07:18 | 6 (2.0) | 0 (0.0) | 0.60 | 1 |
| C\*07:41 | 1 (0.3) | 0 (0.0) | 1 | 1 |
| C\*08:02 | 25 (8.3) | 5 (6.9) | 0.81 | 1 |
| C\*12:02 | 7 (2.3) | 0 (0.0) | 0.35 | 1 |
| C\*12:03 | 27 (9.0) | 6 (8.3) | 1 | 1 |
| C\*14:02 | 13 (4.3) | 3 (4.2) | 1 | 1 |
| C\*14:03 | 4 (1.3) | 0 (0.0) | 1 | 1 |
| C\*15:02 | 20 (6.7) | 2 (2.8) | 0.27 | 1 |
| C\*15:05 | 3 (1.0) | 0 (0.0) | 1 | 1 |
| C\*15:06 | 1 (0.3) | 0 (0.0) | 1 | 1 |
| C\*15:13 | 1 (0.3) | 1 (1.4) | 0.35 | 1 |
| C\*16:01 | 41 (13.7) | 17 (23.6) | 0.04 | 1 |
| C\*16:02 | 1 (0.3) | 1 (1.4) | 0.35 | 1 |
| C\*17:01 | 2 (0.7) | 1 (1.4) | 0.47 | 1 |
| C\*17:03 | 3 (1.0) | 0 (0.0) | 1 | 1 |
| C\*17:38 | 2 (0.7) | 0 (0.0) | 1 | 1 |
| C\*18:02 | 1 (0.3) | 0 (0.0) | 1 | 1 |
| DRB1\*01:01 | 45 (15.0) | 18 (25.0) | 0.05 | 1 |
| DRB1\*01:02 | 11 (3.7) | 0 (0.0) | 0.13 | 1 |
| DRB1\*01:03 | 3 (1.0) | 0 (0.0) | 1 | 1 |
| DRB1\*03:01 | 74 (24.7) | 5 (6.9) | 0.001 | 0.03 |
| DRB1\*04:01 | 36 (12.0) | 7 (9.7) | 0.68 | 1 |
| DRB1\*04:02 | 7 (2.3) | 9 (12.5) | 0.001 | 0.03 |
| DRB1\*04:03 | 6 (2.0) | 1 (1.4) | 1 | 1 |
| DRB1\*04:04 | 16 (5.3) | 1 (1.4) | 0.21 | 1 |
| DRB1\*04:05 | 8 (2.7) | 1 (1.4) | 1 | 1 |
| DRB1\*04:06 | 3 (1.0) | 1 (1.4) | 0.57 | 1 |
| DRB1\*04:07 | 6 (2.0) | 0 (0.0) | 0.60 | 1 |
| DRB1\*07:01 | 86 (28.7) | 63 (87.5) | 2.1 10-20 | 8.1 10-19 |
| DRB1\*07:05 | 1 (0.3) | 0 (0.0) | 1 | 1 |
| DRB1\*08:01 | 11 (3.7) | 1 (1.4) | 0.47 | 1 |
| DRB1\*08:02 | 1 (0.3) | 0 (0.0) | 1 | 1 |
| DRB1\*08:03 | 1 (0.3) | 0 (0.0) | 1 | 1 |
| DRB1\*08:06 | 0 (0.0) | 1 (1.4) | 0.19 | 1 |
| DRB1\*09:01 | 4 (1.3) | 3 (4.2) | 0.13 | 1 |
| DRB1\*10:01 | 9 (3.0) | 0 (0.0) | 0.21 | 1 |
| DRB1\*11:01 | 55 (18.3) | 4 (5.6) | 0.006 | 0.22 |
| DRB1\*11:02 | 3 (1.0) | 0 (0.0) | 1 | 1 |
| DRB1\*11:03 | 5 (1.7) | 1 (1.4) | 1 | 1 |
| DRB1\*11:04 | 16 (5.3) | 1 (1.4) | 0.21 | 1 |
| DRB1\*12:01 | 2 (0.7) | 2 (2.8) | 0.17 | 1 |
| DRB1\*13:01 | 39 (13.0) | 2 (2.8) | 0.01 | 0.41 |
| DRB1\*13:02 | 20 (6.7) | 0 (0.0) | 0.01 | 0.68 |
| DRB1\*13:03 | 4 (1.3) | 1 (1.4) | 1 | 1 |
| DRB1\*13:07 | 1 (0.3) | 0 (0.0) | 1 | 1 |
| DRB1\*14:01 | 2 (0.7) | 0 (0.0) | 1 | 1 |
| DRB1\*14:04 | 1 (0.3) | 0 (0.0) | 1 | 1 |
| DRB1\*14:38 | 1 (0.3) | 0 (0.0) | 1 | 1 |
| DRB1\*14:54 | 17 (5.7) | 0 (0.0) | 0.05 | 1 |
| DRB1\*15:01 | 51 (17.0) | 6 (8.3) | 0.07 | 1 |
| DRB1\*15:02 | 5 (1.7) | 1 (1.4) | 1 | 1 |
| DRB1\*15:03 | 3 (1.0) | 1 (1.4) | 0.57 | 1 |
| DRB1\*16:01 | 17 (5.7) | 4 (5.6) | 1 | 1 |
| DRB1\*16:02 | 1 (0.3) | 0 (0.0) | 1 | 1 |
| DQB1\*02:01 | 73 (24.3) | 5 (6.9) | 0.0006 | 0.01 |
| DQB1\*02:02 | 78 (26.0) | 53 (73.6) | 1.3 10-13 | 2.2 10-12 |
| DQB1\*03:01 | 100 (33.3) | 11 (15.3) | 0.002 | 0.03 |
| DQB1\*03:02 | 48 (16.0) | 16 (22.2) | 0.22 | 1 |
| DQB1\*03:03 | 18 (6.0) | 12 (16.7) | 0.006 | 0.10 |
| DQB1\*03:19 | 3 (1.0) | 0 (0.0) | 1 | 1 |
| DQB1\*04:02 | 19 (6.3) | 2 (2.8) | 0.39 | 1 |
| DQB1\*05:01 | 62 (20.7) | 19 (26.4) | 0.34 | 1 |
| DQB1\*05:02 | 22 (7.3) | 4 (5.6) | 0.79 | 1 |
| DQB1\*05:03 | 19 (6.3) | 0 (0.0) | 0.03 | 0.54 |
| DQB1\*05:04 | 2 (0.7) | 0 (0.0) | 1 | 1 |
| DQB1\*06:01 | 48 (16.0) | 1 (1.4) | 0.0003 | 0.005 |
| DQB1\*06:02 | 48 (16.0) | 8 (11.1) | 0.36 | 1 |
| DQB1\*06:03 | 41 (13.7) | 2 (2.8) | 0.007 | 0.11 |
| DQB1\*06:04 | 17 (5.7) | 0 (0.0) | 0.05 | 1 |
| DQB1\*06:09 | 4 (1.3) | 0 (0.0) | 1 | 1 |

*Abbreviations: Abs, antibodies; HLA, human leukocyte antigen; LE, limbic encephalitis; LGI1, leucine-rich glioma-inactivated 1.*

Table e-3. Univariate analysis of prognostic factors.

|  |  |  |  |
| --- | --- | --- | --- |
|  | mRS≤2, n (%) | mRS>2, n (%) | P value |
| Age |  |  | 0.03 |
| 18-54 | 18 (17) | 1 (4) |  |
| 55-64 | 28 (26) | 4 (15) |  |
| 65-74 | 41 (38) | 11 (41) |  |
| ≥75 | 20 (19) | 11 (41) |  |
| Men | 68 (63) | 16 (59) | 0.68 |
| Diagnostic delay |  |  | 0.90 |
| <3 months | 40 (38) | 11 (41) |  |
| ≥3 to <6 months | 36 (34) | 10 (37) |  |
| ≥6 to <9 months | 12 (11) | 3 (11) |  |
| ≥9 months | 18 (17) | 3 (11) |  |
| First symptom |  |  | 0.26 |
| Amnesia | 34 (31) | 14 (52) |  |
| Other seizures | 33 (31) | 5 (19) |  |
| FBDS | 27 (25) | 5 (19) |  |
| Psychiatric symptoms | 13 (12) | 3 (11) |  |
| mRS at onset |  |  | <0.001 |
| mRS=1 | 9 (8) | 0 (0) |  |
| mRS=2 | 25 (23) | 0 (0) |  |
| mRS=3 | 52 (49) | 12 (44) |  |
| mRS=4 | 16 (15) | 8 (30) |  |
| mRS=5 | 5 (5) | 7 (26) |  |
| Amnesia | 90 (84) | 26 (96) | 0.09 |
| Other seizures | 79 (74) | 19 (70) | 0.41 |
| FBDS | 59 (55) | 12 (44) | 0.31 |
| Psychiatric symptoms | 65 (61) | 18 (67) | 0.57 |
| Sleep disorders | 42 (39) | 6 (22) | 0.09 |
| Frontal syndrome | 50 (47) | 14 (52) | 0.63 |
| Aphasia | 7 (7) | 4 (15) | 0.23 |
| Apraxia | 12 (11) | 5 (19) | 0.33 |
| Dysautonomia | 4 (4) | 2 (7) | 0.41 |
| ICU admission | 7 (7) | 5 (19) | 0.05 |
| Status epilepticus | 5 (4.7) | 5 (19) | 0.02 |
| Hyponatremia | 54 (51) | 17 (63) | 0.24 |
| Abnormal MRI | 70 (67) | 15 (57) | 0.25 |
| Inflammatory CSF | 52 (54) | 15 (57) | 0.85 |
| LGI-Abs in CSF | 82 (77) | 23 (85) | 0.33 |
| IgG1 in serum | 64 (84) | 13 (100) | 0.20 |
| IgG4 in serum | 60 (79) | 12 (92) | 0.44 |
| IgG1 in CSF | 18 (56) | 6 (75) | 0.43 |
| IgG4 in CSF | 30 (94) | 7 (88) | 0.49 |
| HLA DRB1\*07:01 | 53 (85) | 10 (100) | 0.34 |
| First line treatment | 104 (97) | 26 (96) | 1 |
| Second line treatment | 49 (46) | 15 (56) | 0.36 |
| Chronic immunotherapy | 17 (16) | 2 (7) | 0.36 |

*Abbreviations: Abs, antibodies; FBDS, faciobrachial dystonic seizures; HLA, human leukocyte antigen; ICU, intensive care unit; LGI1, leucine-rich glioma-inactivated 1; mRS, modified Rankin scale.*