**Table e-1: Demographic and clinical characteristics of NMDAR encephalitis patients and controls.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | **NMDAR encephalitis (n=23)** | **Healthy**  **controls**  **(n=24)** | ***P values$*** |
| **Epidemiology** | **Age** (years ± SD) | 34.0± 12.7 | 40.6 ± 14.2 | *0.0689* |
|  | **Female/male** | 21/2 (91/7%) | 22/2 (84/7%) | *0.9645* |
|  | **Weight** (kg ± SD) | 66.8 ± 10.3 | 66.4 ± 12.8 | *0.9576* |
|  | **Height** (cm ± SD) | 165.9 ± 5.1 | 163.1 ± 6.3 | *0.1307* |
| **Environment** | **Size of city**  – village | 5(22%) | 5 (20%) | *0.9395* |
|  | – small town | 7 (30%) | 7 (29%) | *0.9243* |
|  | – medium town | 5 (22%) | 3(13%) | *0.3995* |
|  | – metropolis | 3 (13%) | 3 (13%) | *0.9555* |
|  | – megacity | 3 (13%) | 6 (25%) | *0.2977* |
|  | **Diet**  – omnivore | 20 (87%) | 23 (96%) | *0.2756* |
|  | – ovo-lacto | 2 (9%) | 0 (0%) | *0.1398* |
|  | – pesco- vegetarian | 0 (0%) | 1 (4%) | *0.3224* |
|  | – others | 1 (4%) | 0 (0%) | *0.3018* |
|  | **Probiotic intake** | 2 (7%) | 3 (13%) | *0.6724* |
|  | **Nicotine**  – smoker | 5 (24%) | 6 (25%) | *0.7918* |
|  | – past smoker | 2 (9%) | 4 (17%) | *0.4130* |
|  | – never smoked | 17 (74%) | 14 (58%) | *0.2598* |
|  | **Recent stay abroad** | 1 (4%) | 0 (0%) | *0.3018* |
| **Medication** | **Antibiotics** |  |  |  |
|  | –last 6 months | 1 (4%) | 0 (0%) | *0.3018* |
|  | **Immunosuppression** | 5 (22%) | 0 (0%) | **0.0157** |
|  | **Hypertensive** | 4 (17%) | 3 (13%) | *0.6378* |
|  | **Central acting** | 4 (17%) | 1 (4%) | *0.1416* |
|  | **Thyroid** | 5 (22%) | 3 (13%) | *0.3995* |
|  | **PPI** | 1 (4%) | 1 (4%) | *0.9755* |
|  | **Diabetes** | 0 (0%) | 0 (0%) | *N/A* |
|  | **Lipid lowering** | 2 (9%) | 1 (4%) | *0.5255* |
|  | **Anticoagulation** | 0 (0%) | 0 (0%) | *N/A* |
|  | **Others** | 3 (13%) | 2 (8%) | *0.6006* |
|  | **no medical intake** | 9 (39%) | 15(63%) | *0.1091* |
| **Digestive symptoms** | **Stomach pain** | 3 (13%) | 5 (21%) | *0.4775* |
| **Constipation\***  – never | 15 (65%) | 14 (58%) | *0.6274* |
|  | – sometimes (25%) | 6 (26%) | 6 (25%) | *0.9319* |
|  | – often (50%) | 2 (9%) | 3 (13%) | *0.6724* |
|  | – very often (75%) | 0 (0%) | 1 (4%) | *0.3224* |
|  | **Diarrhea\***  – never | 10 (43%) | 7 (29%) | *0.3074* |
|  | – sometimes (25%) | 10 (43%) | 9 (38%) | *0.6763* |
|  | – often (50%) | 3 (13%) | 7 (29%) | *0.1770* |
|  | – very often (75%) | 0 (0%) | 1 (4%) | *0.3224* |
|  | **Defecations/**week | 8 | 9 (38%) | *0.8463* |
|  | **Hematochezia** | 0 (0%) | 0 (0%) | *N/A* |
|  | **Stool consistency**  – normal | 23 (100%) | 23 (96%) | *0.3224* |
|  | – abnormal | 0 (0%) | 1 (4%, diarrhea) | *0.3224* |
| **Medical condition** | – excellent | 12(52%) | 16 (67%) | *0.3115* |
| – impaired | 9 (39%) | 8 (33%) | *0.6793* |
|  | – unwell | 1 (4%) | 0 (0%) | *0.3122* |
|  | – pregnant | 1 (4%) | 0(0%) | *0.3122* |
|  | **Fever** | 0(0%) | 0 (0%) | *N/A* |

$ Mann Whitney test for age, weight and height; Chi-square test for all others; \* within last 3 months

**Table e-2: Bacterial species in active NMDAR encephalitis.** Five genera showed significant differences in overall abundance in patients with acute NMDAR encephalitis compared to recovered patients (*P*). The differences were not present after correction for multiple testing (*Q*).

|  |  |  |  |
| --- | --- | --- | --- |
|  | ***P value (count)*** | **Sig** | ***Q value (count)*** |
| **f.Enterobacteriaceae** | *0.968* |  | *0.996* |
| **f.Lachnospiraceae** | *0.257* |  | *0.684* |
| **f.Ruminococcaceae** | *0.512* |  | *0.820* |
| **g.Alistipes** | *0.902* |  | *0.996* |
| **g.Bacteroides** | *0.378* |  | *0.743* |
| **g.Barnesiella** | *0.665* |  | *0.996* |
| **g.Blautia** | **0.015** | **\*** | *0.072* |
| **g.Clostridium\_IV** | **0.013** | **\*** | *0.072* |
| **g.Clostridium\_XlVa** | *0.457* |  | *0.783* |
| **g.Clostridium\_XVIII** | **0.014** | **\*** | *0.072* |
| **g.Dialister** | *0.330* |  | *0.743* |
| **g.Escherichia.Shigella** | *0.255* |  | *0.684* |
| **g.Faecalibacterium** | *0.868* |  | *0.996* |
| **g.Fusicatenibacter** | *0.110* |  | *0.440* |
| **g.Lachnospiracea\_incertae\_sedis** | *0.735* |  | *0.996* |
| **g.Oscillibacter** | **0.004** | **\*\*** | *0.050* |
| **g.Parabacteroides** | *0.153* |  | *0.523* |
| **g.Parasutterella** | *0.934* |  | *0.996* |
| **g.Phascolarctobacterium** | *0.772* |  | *0.996* |
| **g.Prevotella** | **0.003** | **\*\*** | *0.050* |
| **g.Roseburia** | *0.359* |  | *0.743* |
| **g.Ruminococcus** | *0.797* |  | *0.996* |
| **g.Ruminococcus2** | *0.402* |  | *0.743* |
| **g.Sutterella** | *0.996* |  | *0.996* |