Neuropsychiatric Adverse Events with Monoclonal Antibodies Approved for Multiple Myeloma: An Analysis from the FDA Adverse Event Reporting System

Supplementary Material

**Table S1.** Characteristics of neuropsychiatric mAb-related reports involving mAbs used for the treatment of myeloma multiple collected into FAERS.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Characteristic** | **Daratumumab**  **(*n*= 2862)** | **Isatuximab**  **(*n*= 345)** | **Elotuzumab**  **(*n*= 321)** | **Belantamab Mafodotin**  **(*n*= 241)** | **Teclistamab**  **(*n*= 216)** | **Elranatamab**  **(*n*= 29)** | **Talquetamab**  **(*n*= 47)** |
| **Age group, *n* (%)** | | | | | | | |
| Neonate | 1 (0.03%) | 2 (0.6%) |  |  |  |  |  |
| Child | 4 (0.1%) | 3 (0.9%) |  |  |  |  |  |
| Adolescent | 10 (0.4%) |  |  |  |  |  |  |
| Adult | 719 (25.1%) | 105 (30.4%) | 87 (27.1%) | 38 (15.8%) | 43 (19.9%) | 10 (34.5%) | 4 (8.5%) |
| Elderly | 1414 (49.4%) | 191 (55.4%) | 159 (49.5%) | 69 (28.6%) | 86 (39.8%) | 15 (51.7%) | 13 (27.7%) |
| Not available | 714 (25.0%) | 44 (12.8%) | 75 (23.4%) | 134 (55.6%) | 87 (40.3%) | 4 (13.8%) | 30 (63.8%) |
| **Sex, *n* (%)** | | | | | | | |
| Female | 1117 (39.0%) | 156 (45.2%) | 135 (42.1%) | 73 (30.3%) | 87 (40.3%) | 10 (34.5%) | 10 (21.3%) |
| Male | 1341 (46.9%) | 155 (44.9%) | 172 (53.6%) | 63 (26.1%) | 83 (38.4%) | 18 (62.1%) | 17 (36.2%) |
| Not available | 404 (14.1%) | 34 (9.9%) | 14 (4.4%) | 105 (43.6%) | 46 (21.3%) | 1 (3.5%) | 20 (42.6%) |
| **Primary source qualification, *n* (%)** | | | | | | | |
| Consumers | 423 (14.8%) | 14 (4.1%) | 58 (18.1%) | 69 (28.6%) | 11 (5.1%) | 3 (10.3%) | 2 (4.3%) |
| Health professional | 425 (14.9%) | 134 (38.8%) | 38 (11.8%) | 19 (7.9%) | 51 (23.6%) | 8 (27.6%) | 10 (21.3%) |
| Physician | 1516 (53.0%) | 169 (49.0%) | 132 (41.1%) | 144 (59.8%) | 106 (49.1%) | 17 (58.6%) | 30 (63.8%) |
| Other health-professional | 262 (9.2%) | 17 (4.9%) | 73 (22.7%) |  |  |  |  |
| Pharmacist | 222 (7.8%) | 11 (3.2%) | 20 (6.2%) | 8 (3.3%) | 45 (20.8%) | 1 (3.5%) | 5 (10.6%) |
| Not available | 14 (0.5%) |  |  | 1 (0.4%) | 3 (1.4%) |  |  |
| **Outcome codification, *n* (%)** | | | | | | | |
| Death | 209 (7.3%) | 21 (6.1%) | 22 (6.9%) | 52 (21.6%) | 42 (19.4%) | 3 (10.3%) | 2 (4.3%) |
| Disability | 46 (1.6%) | 9 (2.6%) | 5 (1.6%) | 4 (1.7%) | 5 (2.3%) |  |  |
| Hospitalization - Initial or prolonged | 946 (33.1%) | 194 (56.2%) | 102 (31.8%) | 60 (24.9%) | 65 (30.1%) | 18 (62.1%) | 12 (25.5%) |
| Life-threatening | 82 (2.9%) | 17 (4.9%) | 10 (3.1%) |  | 2 (0.9%) |  | 1 (2.1%) |
| Other serious (Important Medical Event) | 1366 (47.7%) | 93 (27.0%) | 131 (40.8%) | 119 (49.4%) | 76 (35.2%) | 6 (20.7%) | 10 (21.3%) |
| Required intervention to prevent permanent impairment/damage | 1 (<0.1%) |  |  |  | 4 (1.9%) |  |  |
| Not available | 212 (7.4%) | 11 (3.2%) | 51 (15.9%) | 6 (2.5%) | 22 (10.2%) | 2 (6.9%) | 22 (46.8%) |
| **Reporter Country, *n* (%)** | | | | | | | |
| Africa | 19 (0.7%) |  |  |  |  |  |  |
| Asia | 504 (17.6%) | 41 (11.9%) | 74 (23.1%) | 2 (0.8%) | 6 (2.8%) | 5 (17.2%) | 3 (6.4%) |
| Central America | 11 (0.4%) | 7 (2.0%) |  |  |  |  |  |
| Europe | 1167 (40.8%) | 211 (61.2%) | 88 (27.4%) | 120 (49.8%) | 60 (27.8%) | 10 (34.5%) | 12 (25.5%) |
| North America | 910 (31.8%) | 65 (18.8%) | 146 (45.5%) | 109 (45.2%) | 141 (65.3%) | 13 (44.8%) | 30 (63.8%) |
| Oceania | 49 (1.7%) | 8 (2.3%) | 12 (3.7%) | 5 (2.1%) | 3 (1.4%) |  |  |
| South America | 159 (5.6%) | 4 (1.2%) | 1 (0.3%) | 2 (0.8%) | 5 (2.3%) | 1 (3.5%) |  |
| Not available | 43 (1.5%) | 9 (2.6%) |  | 3 (1.2%) | 1 (0.5%) |  | 2 (4.3%) |
| **Year of reporting, *n* (%)** | | | | | | | |
| 2015 | 8 (0.3%) | 3 (0.9%) | 6 (1.9%) |  |  |  |  |
| 2016 | 203 (7.1%) |  | 48 (15.0%) |  |  |  |  |
| 2017 | 196 (6.9%) | 2 (0.6%) | 52 (16.2%) |  |  |  |  |
| 2018 | 350 (12.2%) | 14 (4.1%) | 50 (15.6%) |  |  |  |  |
| 2019 | 394 (13.8%) | 16 (4.6%) | 61 (19.0%) |  |  |  |  |
| 2020 | 326 (11.4%) | 45 (13.0%) | 60 (18.7%) | 38 (15.8%) |  |  |  |
| 2021 | 374 (13.1%) | 53 (15.4%) | 30 (9.4%) | 78 (32.4%) |  |  |  |
| 2022 | 517 (18.1%) | 84 (24.4%) | 11 (3.4%) | 111 (46.1%) | 20 (9.3%) | 5 (17.2%) |  |
| 2023 | 494 (17.3%) | 128 (37.1%) | 3 (0.9%) | 14 (5.8%) | 196 (90.7%) | 24 (82.8%) | 47 (100.0%) |
| **Median age (Q1–Q3), years** | 69 (61 - 76) | 67 (61 - 74) | 69 (60 - 76) | 70 (61 - 76) | 69 (60 - 75) | 67 (59 - 75) | 67 (65 - 71) |
| **Median weights (Q1–Q3), Kgs** | 70 (59 - 84) | 75 (62 - 89) | 78 (60 - 92) | 73 (62 - 82) | 70 (59 - 82) | 70 (58 - 79) | 66 (53 - 79) |

**Table S2.** Disproportionality analyses with ROR and IC for neuropsychiatric AEs related to mAbs approved for MM (including not signal).

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Daratumumab** | | | | | | |
| **SOC** | **PT** | **N** | **ROR (95%CI)** | **Signal** | **IC (IC025-IC075)** | **Signal** |
| **Nervous system disorders** | Neuropathy peripheral | 533 | 5.89 (5.4-6.42) | Yes | 2.64 (2.49-2.74) | Yes |
| Polyneuropathy | 189 | 17.74 (15.34-20.5) | Yes | 4.15 (3.91-4.32) | Yes |
| Dizziness | 170 | 0.35 (0.3-0.41) | No | -0.22 (-0.48--0.04) | No |
| Syncope | 145 | 1.66 (1.41-1.95) | Yes | 1.11 (0.83-1.31) | Yes |
| Headache | 134 | 0.2 (0.17-0.24) | No | -0.5 (-0.78--0.29) | No |
| Tremor | 126 | 0.86 (0.72-1.02) | No | 0.45 (0.15-0.66) | Yes |
| Hypoaesthesia | 86 | 0.59 (0.48-0.73) | No | 0.13 (-0.23-0.39) | No |
| Loss of consciousness | 80 | 0.77 (0.61-0.95) | No | 0.35 (-0.02-0.61) | No |
| Encephalopathy | 71 | 5.07 (4.01-6.41) | Yes | 2.48 (2.08-2.76) | Yes |
| Cerebrovascular accident | 61 | 0.5 (0.39-0.64) | No | 0.01 (-0.42-0.31) | No |
| Seizure | 56 | 0.42 (0.32-0.55) | No | -0.11 (-0.55-0.21) | No |
| Somnolence | 53 | 0.29 (0.22-0.38) | No | -0.34 (-0.79--0.01) | No |
| Paraesthesia | 48 | 0.32 (0.24-0.42) | No | -0.28 (-0.76-0.06) | No |
| Cerebral infarction | 45 | 2.39 (1.79-3.21) | Yes | 1.54 (1.05-1.9) | Yes |
| Peripheral sensory neuropathy | 45 | 10.49 (7.81-14.08) | Yes | 3.45 (2.96-3.81) | Yes |
| Depressed level of consciousness | 42 | 1.65 (1.22-2.24) | Yes | 1.12 (0.6-1.48) | Yes |
| Cognitive disorder | 36 | 0.8 (0.58-1.11) | No | 0.39 (-0.16-0.79) | No |
| Ischaemic stroke | 33 | 2.24 (1.59-3.15) | Yes | 1.47 (0.89-1.88) | Yes |
| Altered state of consciousness | 32 | 1.97 (1.39-2.78) | Yes | 1.32 (0.73-1.74) | Yes |
| Presyncope | 32 | 1.42 (1-2.01) | Yes | 0.96 (0.37-1.37) | Yes |
| Lethargy | 31 | 0.64 (0.45-0.91) | No | 0.21 (-0.39-0.63) | No |
| Neuralgia | 31 | 1.13 (0.8-1.61) | No | 0.72 (0.12-1.15) | Yes |
| Posterior reversible encephalopathy syndrome | 29 | 6.13 (4.25-8.84) | Yes | 2.74 (2.12-3.18) | Yes |
| Cerebral haemorrhage | 28 | 0.93 (0.64-1.34) | No | 0.53 (-0.1-0.98) | No |
| Epilepsy | 28 | 1.11 (0.77-1.61) | No | 0.7 (0.07-1.15) | Yes |
| Nervous system disorder | 28 | 1.69 (1.16-2.45) | Yes | 1.15 (0.52-1.59) | Yes |
| Partial seizures | 27 | 6.77 (4.63-9.89) | Yes | 2.87 (2.23-3.33) | Yes |
| Transient ischaemic attack | 27 | 1.11 (0.76-1.61) | No | 0.7 (0.06-1.16) | Yes |
| Leukoencephalopathy | 26 | 14.8 (10.04-21.84) | Yes | 3.93 (3.28-4.4) | Yes |
| Taste disorder | 24 | 1.03 (0.69-1.54) | No | 0.63 (-0.05-1.11) | No |
| Guillain-Barre syndrome | 23 | 6.42 (4.26-9.69) | Yes | 2.81 (2.11-3.3) | Yes |
| Spinal cord compression | 23 | 6.48 (4.29-9.77) | Yes | 2.82 (2.12-3.31) | Yes |
| Brain oedema | 20 | 2.51 (1.62-3.9) | Yes | 1.62 (0.87-2.14) | Yes |
| Disturbance in attention | 20 | 0.4 (0.26-0.62) | No | -0.13 (-0.88-0.39) | No |
| Dysgeusia | 20 | 0.3 (0.19-0.46) | No | -0.31 (-1.06-0.21) | No |
| Memory impairment | 20 | 0.13 (0.08-0.2) | No | -0.66 (-1.41--0.14) | No |
| Dementia | 19 | 0.71 (0.45-1.11) | No | 0.29 (-0.48-0.83) | No |
| Facial paralysis | 19 | 1.6 (1.02-2.52) | Yes | 1.1 (0.33-1.64) | Yes |
| Immune effector cell-associated neurotoxicity syndrome | 18 | 5.36 (3.37-8.53) | Yes | 2.58 (1.79-3.13) | Yes |
| Peripheral sensorimotor neuropathy | 18 | 22.42 (14.02-35.85) | Yes | 4.51 (3.72-5.07) | Yes |
| Neurotoxicity | 17 | 1.69 (1.05-2.72) | Yes | 1.16 (0.35-1.73) | Yes |
| Coma | 16 | 0.49 (0.3-0.8) | No | 0.01 (-0.83-0.59) | No |
| Amnesia | 14 | 0.24 (0.14-0.41) | No | -0.41 (-1.32-0.21) | No |
| Peripheral motor neuropathy | 14 | 14.48 (8.53-24.58) | Yes | 3.93 (3.02-4.55) | Yes |
| Burning sensation | 13 | 0.19 (0.11-0.33) | No | -0.52 (-1.46-0.13) | No |
| Incoherent | 12 | 2.61 (1.48-4.61) | Yes | 1.68 (0.71-2.35) | Yes |
| Balance disorder | 11 | 0.12 (0.07-0.22) | No | -0.66 (-1.69-0.03) | No |
| Speech disorder | 11 | 0.23 (0.13-0.41) | No | -0.44 (-1.46-0.26) | No |
| Unresponsive to stimuli | 11 | 0.67 (0.37-1.21) | No | 0.26 (-0.76-0.96) | No |
| Dyskinesia | 10 | 0.29 (0.15-0.53) | No | -0.32 (-1.4-0.4) | No |
| Haemorrhage intracranial | 10 | 0.82 (0.44-1.52) | No | 0.44 (-0.64-1.17) | No |
| Orthostatic intolerance | 10 | 12.54 (6.71-23.43) | Yes | 3.75 (2.67-4.48) | Yes |
| Sensory disturbance | 9 | 0.6 (0.31-1.15) | No | 0.18 (-0.96-0.94) | No |
| Dizziness postural | 8 | 0.8 (0.4-1.6) | No | 0.43 (-0.78-1.24) | No |
| Stupor | 8 | 4.48 (2.23-8.98) | Yes | 2.39 (1.18-3.19) | Yes |
| Aphasia | 7 | 0.26 (0.13-0.55) | No | -0.35 (-1.66-0.5) | No |
| Hemiparesis | 7 | 0.52 (0.25-1.09) | No | 0.08 (-1.22-0.93) | No |
| Hepatic encephalopathy | 7 | 1.04 (0.49-2.17) | No | 0.69 (-0.62-1.54) | No |
| Hypersomnia | 7 | 0.24 (0.11-0.51) | No | -0.4 (-1.7-0.45) | No |
| Facial paresis | 6 | 2.14 (0.96-4.77) | No | 1.49 (0.08-2.4) | Yes |
| Haemorrhagic stroke | 6 | 0.78 (0.35-1.75) | No | 0.43 (-0.98-1.34) | No |
| Hyperaesthesia | 6 | 0.77 (0.34-1.71) | No | 0.41 (-1-1.33) | No |
| Intracranial mass | 6 | 4.61 (2.07-10.3) | Yes | 2.45 (1.04-3.36) | Yes |
| Parkinsonism | 6 | 1.01 (0.45-2.25) | No | 0.67 (-0.74-1.59) | No |
| Restless legs syndrome | 6 | 0.34 (0.15-0.75) | No | -0.21 (-1.62-0.7) | No |
| Senile dementia | 6 | 10.24 (4.57-22.93) | Yes | 3.52 (2.1-4.43) | Yes |
| Ageusia | 5 | 0.21 (0.09-0.51) | No | -0.45 (-2.01-0.54) | No |
| Allodynia | 5 | 8.64 (3.57-20.86) | Yes | 3.31 (1.74-4.29) | Yes |
| Cytotoxic oedema | 5 | 41.17 (16.71-101.45) | Yes | 5.44 (3.88-6.42) | Yes |
| Dysaesthesia | 5 | 1.9 (0.79-4.58) | No | 1.37 (-0.19-2.36) | No |
| Dysarthria | 5 | 0.18 (0.07-0.42) | No | -0.53 (-2.09-0.46) | No |
| Hyperammonaemic encephalopathy | 5 | 7.57 (3.13-18.26) | Yes | 3.13 (1.57-4.11) | Yes |
| Mental impairment | 5 | 0.23 (0.09-0.55) | No | -0.41 (-1.97-0.57) | No |
| Paraparesis | 5 | 3.69 (1.53-8.89) | Yes | 2.18 (0.62-3.17) | Yes |
| Parkinson's disease | 5 | 0.25 (0.1-0.6) | No | -0.36 (-1.93-0.62) | No |
| Sciatica | 5 | 0.29 (0.12-0.69) | No | -0.29 (-1.85-0.69) | No |
| Anosmia | 4 | 0.38 (0.14-1.02) | No | -0.1 (-1.87-0.98) | No |
| Central nervous system lesion | 4 | 0.29 (0.11-0.76) | No | -0.28 (-2.05-0.8) | No |
| Cerebellar haemorrhage | 4 | 3.04 (1.14-8.11) | Yes | 1.97 (0.2-3.04) | Yes |
| Dystonia | 4 | 0.42 (0.16-1.13) | No | -0.03 (-1.8-1.04) | No |
| Formication | 4 | 0.67 (0.25-1.79) | No | 0.33 (-1.44-1.41) | No |
| Language disorder | 4 | 1.39 (0.52-3.7) | No | 1.04 (-0.72-2.12) | No |
| Metabolic encephalopathy | 4 | 1.9 (0.71-5.08) | No | 1.4 (-0.36-2.48) | No |
| Monoparesis | 4 | 2.45 (0.92-6.54) | No | 1.7 (-0.06-2.78) | No |
| Paralysis | 4 | 0.33 (0.12-0.89) | No | -0.19 (-1.96-0.89) | No |
| Paresis | 4 | 2.46 (0.92-6.56) | No | 1.7 (-0.06-2.78) | No |
| Pleocytosis | 4 | 11.42 (4.25-30.68) | Yes | 3.72 (1.95-4.8) | Yes |
| Post herpetic neuralgia | 4 | 2.66 (1-7.11) | No | 1.8 (0.04-2.88) | Yes |
| Toxic encephalopathy | 4 | 1.52 (0.57-4.06) | No | 1.15 (-0.62-2.22) | No |
| VIth nerve paralysis | 4 | 6.48 (2.42-17.35) | Yes | 2.95 (1.19-4.03) | Yes |
| Autonomic neuropathy | 3 | 3.93 (1.26-12.21) | Yes | 2.34 (0.27-3.55) | Yes |
| Brain fog | 3 | 0.58 (0.19-1.81) | No | 0.24 (-1.83-1.45) | No |
| Cerebellar haematoma | 3 | 11.42 (3.65-35.74) | Yes | 3.77 (1.7-4.98) | Yes |
| Chronic inflammatory demyelinating polyradiculoneuropathy | 3 | 2.48 (0.8-7.69) | No | 1.76 (-0.31-2.96) | No |
| Dysstasia | 3 | 0.1 (0.03-0.3) | No | -0.71 (-2.78-0.5) | No |
| Encephalitis autoimmune | 3 | 2.33 (0.75-7.24) | No | 1.68 (-0.38-2.89) | No |
| Focal dyscognitive seizures | 3 | 1.76 (0.57-5.47) | No | 1.35 (-0.72-2.56) | No |
| Hypotonia | 3 | 0.43 (0.14-1.32) | No | 0 (-2.07-1.2) | No |
| Loss of proprioception | 3 | 12.5 (3.99-39.14) | Yes | 3.89 (1.82-5.1) | Yes |
| Migraine with aura | 3 | 1.06 (0.34-3.29) | No | 0.8 (-1.27-2) | No |
| Motor dysfunction | 3 | 0.32 (0.1-0.98) | No | -0.2 (-2.27-1.01) | No |
| Neurological symptom | 3 | 0.71 (0.23-2.2) | No | 0.41 (-1.66-1.62) | No |
| Parosmia | 3 | 0.44 (0.14-1.37) | No | 0.02 (-2.05-1.23) | No |
| Toxic neuropathy | 3 | 10.67 (3.41-33.38) | Yes | 3.68 (1.61-4.88) | Yes |
| **Psychiatric disorders** | Confusional state | 135 | 0.95 (0.81-1.13) | No | 0.54 (0.26-0.75) | Yes |
| Insomnia | 105 | 0.4 (0.33-0.49) | No | -0.14 (-0.47-0.09) | No |
| Delirium | 54 | 2.29 (1.75-2.99) | Yes | 1.49 (1.04-1.81) | Yes |
| Anxiety | 52 | 0.18 (0.13-0.23) | No | -0.56 (-1.02--0.23) | No |
| Mental status changes | 40 | 2.66 (1.95-3.63) | Yes | 1.67 (1.14-2.04) | Yes |
| Depression | 34 | 0.17 (0.12-0.23) | No | -0.58 (-1.15--0.17) | No |
| Agitation | 18 | 0.33 (0.21-0.52) | No | -0.25 (-1.05-0.3) | No |
| Sleep disorder | 18 | 0.24 (0.15-0.38) | No | -0.42 (-1.22-0.13) | No |
| Mental disorder | 16 | 0.4 (0.25-0.66) | No | -0.13 (-0.97-0.46) | No |
| Body dysmorphic disorder | 15 | 58.08 (34.3-98.33) | Yes | 5.81 (4.94-6.41) | Yes |
| Disorientation | 15 | 0.5 (0.3-0.83) | No | 0.02 (-0.85-0.63) | No |
| Hallucination | 15 | 0.22 (0.13-0.37) | No | -0.45 (-1.32-0.15) | No |
| Psychotic disorder | 15 | 0.72 (0.43-1.2) | No | 0.32 (-0.55-0.92) | No |
| Aggression | 13 | 0.37 (0.21-0.63) | No | -0.18 (-1.12-0.46) | No |
| Anxiety disorder | 12 | 3.6 (2.04-6.35) | Yes | 2.08 (1.1-2.75) | Yes |
| Depressed mood | 12 | 0.21 (0.12-0.37) | No | -0.47 (-1.45-0.2) | No |
| Personality change | 12 | 1.58 (0.89-2.78) | No | 1.1 (0.12-1.77) | Yes |
| Irritability | 8 | 0.15 (0.08-0.31) | No | -0.59 (-1.8-0.21) | No |
| Restlessness | 8 | 0.25 (0.13-0.5) | No | -0.38 (-1.59-0.42) | No |
| Eating disorder | 7 | 0.28 (0.14-0.6) | No | -0.31 (-1.62-0.54) | No |
| Abnormal behaviour | 6 | 0.21 (0.09-0.47) | No | -0.46 (-1.87-0.45) | No |
| Listless | 6 | 1.85 (0.83-4.13) | No | 1.32 (-0.09-2.24) | No |
| Panic attack | 6 | 0.19 (0.08-0.42) | No | -0.5 (-1.92-0.41) | No |
| Stress | 6 | 0.07 (0.03-0.16) | No | -0.79 (-2.2-0.12) | No |
| Mania | 5 | 0.48 (0.2-1.14) | No | 0.03 (-1.53-1.02) | No |
| Nervousness | 5 | 0.1 (0.04-0.24) | No | -0.71 (-2.27-0.28) | No |
| Anger | 4 | 0.14 (0.05-0.37) | No | -0.6 (-2.37-0.47) | No |
| Hallucination, visual | 4 | 0.25 (0.09-0.65) | No | -0.36 (-2.13-0.71) | No |
| Mood altered | 4 | 0.17 (0.06-0.44) | No | -0.54 (-2.31-0.54) | No |
| Mood swings | 4 | 0.14 (0.05-0.38) | No | -0.6 (-2.36-0.48) | No |
| Poor quality sleep | 4 | 0.17 (0.06-0.45) | No | -0.53 (-2.3-0.54) | No |
| Affective disorder | 3 | 0.41 (0.13-1.26) | No | -0.04 (-2.11-1.17) | No |
| Apathy | 3 | 0.24 (0.08-0.73) | No | -0.36 (-2.43-0.84) | No |
| Bruxism | 3 | 0.64 (0.21-1.98) | No | 0.31 (-1.75-1.52) | No |
| Emotional distress | 3 | 0.02 (0.01-0.06) | No | -0.94 (-3.01-0.27) | No |
| Major depression | 3 | 0.49 (0.16-1.53) | No | 0.11 (-1.96-1.31) | No |
| Psychiatric symptom | 3 | 0.44 (0.14-1.35) | No | 0.01 (-2.06-1.22) | No |
| Suicidal ideation | 3 | 0.04 (0.01-0.13) | No | -0.87 (-2.94-0.34) | No |
| Suicide attempt | 3 | 0.07 (0.02-0.23) | No | -0.77 (-2.84-0.44) | No |
| **Belantamab Mafodotin** | | | | | | |
| **SOC** | **PT** | **N** | **ROR (95%CI)** | **Signal** | **IC (IC025-IC075)** | **Signal** |
| **Nervous system disorders** | Neuropathy peripheral | 38 | 2.62 (1.9-3.61) | Yes | 1.65 (1.11-2.03) | Yes |
| Headache | 22 | 0.21 (0.14-0.32) | No | -0.47 (-1.18-0.03) | No |
| Dizziness | 15 | 0.2 (0.12-0.33) | No | -0.5 (-1.37-0.1) | No |
| Cerebrovascular accident | 13 | 0.68 (0.39-1.17) | No | 0.27 (-0.67-0.91) | No |
| Syncope | 13 | 0.94 (0.55-1.62) | No | 0.56 (-0.37-1.21) | No |
| Tremor | 13 | 0.56 (0.33-0.97) | No | 0.12 (-0.82-0.76) | No |
| Cerebral haemorrhage | 9 | 1.9 (0.99-3.67) | No | 1.33 (0.19-2.09) | Yes |
| Somnolence | 9 | 0.31 (0.16-0.6) | No | -0.27 (-1.41-0.49) | No |
| Cognitive disorder | 8 | 1.14 (0.57-2.28) | No | 0.77 (-0.44-1.58) | No |
| Seizure | 8 | 0.38 (0.19-0.77) | No | -0.14 (-1.35-0.67) | No |
| Altered state of consciousness | 6 | 2.35 (1.05-5.23) | Yes | 1.6 (0.19-2.52) | Yes |
| Burning sensation | 6 | 0.56 (0.25-1.25) | No | 0.15 (-1.27-1.06) | No |
| Central nervous system lesion | 5 | 2.29 (0.95-5.51) | No | 1.59 (0.03-2.58) | Yes |
| Encephalopathy | 5 | 2.26 (0.94-5.44) | No | 1.58 (0.01-2.56) | Yes |
| Nervous system disorder | 5 | 1.92 (0.8-4.62) | No | 1.38 (-0.18-2.37) | No |
| Neuralgia | 5 | 1.16 (0.48-2.8) | No | 0.83 (-0.73-1.82) | No |
| Memory impairment | 4 | 0.16 (0.06-0.44) | No | -0.55 (-2.31-0.53) | No |
| Muscle tone disorder | 4 | 59.56 (22.19-159.81) | Yes | 6.06 (4.29-7.14) | Yes |
| Paraesthesia | 4 | 0.17 (0.06-0.45) | No | -0.53 (-2.3-0.55) | No |
| Polyneuropathy | 4 | 2.32 (0.87-6.19) | No | 1.64 (-0.13-2.71) | No |
| Aphasia | 3 | 0.72 (0.23-2.23) | No | 0.42 (-1.65-1.63) | No |
| Bell's palsy | 3 | 12.77 (4.11-39.68) | Yes | 3.94 (1.87-5.15) | Yes |
| Cerebral disorder | 3 | 2.16 (0.69-6.69) | No | 1.59 (-0.48-2.8) | No |
| Lethargy | 3 | 0.4 (0.13-1.23) | No | -0.05 (-2.12-1.15) | No |
| Loss of consciousness | 3 | 0.18 (0.06-0.57) | No | -0.49 (-2.56-0.72) | No |
| Mental impairment | 3 | 0.87 (0.28-2.71) | No | 0.6 (-1.46-1.81) | No |
| Neurological decompensation | 3 | 12.49 (4.02-38.8) | Yes | 3.91 (1.84-5.12) | Yes |
| Sciatica | 3 | 1.1 (0.35-3.42) | No | 0.84 (-1.23-2.04) | No |
| Subarachnoid haemorrhage | 3 | 2.34 (0.75-7.27) | No | 1.69 (-0.38-2.9) | No |
| Unresponsive to stimuli | 3 | 1.16 (0.37-3.6) | No | 0.89 (-1.18-2.1) | No |
| **Psychiatric disorders** | Confusional state | 21 | 0.95 (0.62-1.45) | No | 0.56 (-0.18-1.07) | No |
| Mental status changes | 10 | 4.23 (2.28-7.88) | Yes | 2.3 (1.22-3.03) | Yes |
| Anxiety | 6 | 0.13 (0.06-0.29) | No | -0.64 (-2.05-0.27) | No |
| Agitation | 4 | 0.47 (0.17-1.24) | No | 0.03 (-1.73-1.11) | No |
| Depressed mood | 4 | 0.45 (0.17-1.2) | No | 0.01 (-1.75-1.09) | No |
| Sleep disorder | 4 | 0.34 (0.13-0.9) | No | -0.18 (-1.95-0.89) | No |
| Aggression | 3 | 0.54 (0.17-1.67) | No | 0.18 (-1.89-1.38) | No |
| **Elranatamab** | | | | | | |
| **SOC** | **PT** | **N** | **ROR (95%CI)** | **Signal** | **IC (IC025-IC075)** | **Signal** |
| **Nervous system disorders** | Altered state of consciousness | 3 | 20.7 (6.61-64.83) | Yes | 4.6 (2.53-5.81) | Yes |
| Headache | 3 | 0.51 (0.16-1.58) | No | 0.14 (-1.93-1.34) | No |
| Neuropathy peripheral | 3 | 3.6 (1.15-11.28) | Yes | 2.22 (0.15-3.42) | Yes |
| Syncope | 3 | 3.82 (1.22-11.98) | Yes | 2.29 (0.22-3.5) | Yes |
| **Isatuximab** | | | | | | |
| **SOC** | **PT** | **N** | **ROR (95%CI)** | **Signal** | **IC (IC025-IC075)** | **Signal** |
| **Nervous system disorders** | Headache | 24 | 0.17 (0.12-0.26) | No | -0.55 (-1.23--0.07) | No |
| Syncope | 23 | 1.26 (0.84-1.9) | No | 0.84 (0.14-1.33) | Yes |
| Polyneuropathy | 21 | 9.26 (6.03-14.22) | Yes | 3.31 (2.58-3.82) | Yes |
| Cerebrovascular accident | 17 | 0.67 (0.42-1.08) | No | 0.25 (-0.56-0.82) | No |
| Transient ischaemic attack | 17 | 3.37 (2.09-5.42) | Yes | 1.98 (1.17-2.55) | Yes |
| Ischaemic stroke | 14 | 4.59 (2.71-7.75) | Yes | 2.39 (1.48-3.01) | Yes |
| Dizziness | 13 | 0.13 (0.07-0.22) | No | -0.65 (-1.59--0.01) | No |
| Neuropathy peripheral | 11 | 0.57 (0.31-1.02) | No | 0.13 (-0.9-0.82) | No |
| Peripheral sensory neuropathy | 11 | 12.23 (6.76-22.13) | Yes | 3.72 (2.7-4.42) | Yes |
| Cerebral infarction | 10 | 2.56 (1.38-4.76) | Yes | 1.67 (0.59-2.4) | Yes |
| Cerebral ischaemia | 9 | 12.64 (6.56-24.34) | Yes | 3.78 (2.64-4.54) | Yes |
| Guillain-Barre syndrome | 8 | 10.72 (5.35-21.48) | Yes | 3.57 (2.35-4.37) | Yes |
| Seizure | 8 | 0.29 (0.15-0.58) | No | -0.3 (-1.52-0.5) | No |
| Haemorrhage intracranial | 7 | 2.76 (1.31-5.79) | Yes | 1.79 (0.48-2.64) | Yes |
| Altered state of consciousness | 6 | 1.77 (0.8-3.95) | No | 1.27 (-0.14-2.19) | No |
| Basal ganglia infarction | 6 | 132.39 (58.54-299.42) | Yes | 7.11 (5.7-8.02) | Yes |
| Peripheral motor neuropathy | 6 | 29.61 (13.25-66.18) | Yes | 5.01 (3.6-5.92) | Yes |
| Presyncope | 6 | 1.28 (0.57-2.85) | No | 0.92 (-0.5-1.83) | No |
| Aphasia | 5 | 0.91 (0.38-2.18) | No | 0.58 (-0.98-1.57) | No |
| Paraesthesia | 5 | 0.16 (0.07-0.38) | No | -0.56 (-2.12-0.42) | No |
| Somnolence | 5 | 0.13 (0.05-0.31) | No | -0.63 (-2.2-0.35) | No |
| Subarachnoid haemorrhage | 5 | 2.95 (1.23-7.09) | Yes | 1.9 (0.34-2.89) | Yes |
| Acute motor-sensory axonal neuropathy | 4 | 93.02 (34.43-251.26) | Yes | 6.68 (4.91-7.76) | Yes |
| Cerebral haemorrhage | 4 | 0.64 (0.24-1.7) | No | 0.28 (-1.48-1.36) | No |
| Generalised tonic-clonic seizure | 4 | 1.36 (0.51-3.63) | No | 1.02 (-0.74-2.1) | No |
| Loss of consciousness | 4 | 0.18 (0.07-0.49) | No | -0.5 (-2.26-0.58) | No |
| Chronic inflammatory demyelinating polyradiculoneuropathy | 3 | 11.95 (3.84-37.14) | Yes | 3.85 (1.78-5.05) | Yes |
| Dementia | 3 | 0.54 (0.17-1.67) | No | 0.17 (-1.9-1.38) | No |
| Dysarthria | 3 | 0.51 (0.16-1.57) | No | 0.13 (-1.94-1.33) | No |
| Epilepsy | 3 | 0.57 (0.18-1.77) | No | 0.22 (-1.85-1.43) | No |
| Hepatic encephalopathy | 3 | 2.14 (0.69-6.64) | No | 1.58 (-0.49-2.79) | No |
| Hypoaesthesia | 3 | 0.1 (0.03-0.31) | No | -0.7 (-2.77-0.51) | No |
| Meningoradiculitis | 3 | 179.87 (56.31-574.58) | Yes | 7.64 (5.57-8.85) | Yes |
| Nervous system disorder | 3 | 0.87 (0.28-2.7) | No | 0.6 (-1.47-1.81) | No |
| Posterior reversible encephalopathy syndrome | 3 | 3.03 (0.98-9.41) | No | 2.01 (-0.06-3.22) | No |
| Sciatica | 3 | 0.83 (0.27-2.58) | No | 0.56 (-1.51-1.76) | No |
| Sensory loss | 3 | 1.86 (0.6-5.78) | No | 1.42 (-0.65-2.62) | No |
| Tremor | 3 | 0.1 (0.03-0.3) | No | -0.7 (-2.77-0.51) | No |
| **Psychiatric disorders** | Insomnia | 14 | 0.26 (0.15-0.43) | No | -0.38 (-1.28-0.24) | No |
| Delirium | 9 | 1.84 (0.95-3.53) | No | 1.28 (0.15-2.05) | Yes |
| Anxiety | 7 | 0.11 (0.05-0.24) | No | -0.68 (-1.98-0.17) | No |
| Confusional state | 7 | 0.24 (0.11-0.5) | No | -0.4 (-1.71-0.45) | No |
| Depression | 7 | 0.17 (0.08-0.35) | No | -0.56 (-1.86-0.29) | No |
| Acute psychosis | 3 | 8.8 (2.83-27.34) | Yes | 3.42 (1.36-4.63) | Yes |
| Nervousness | 3 | 0.29 (0.09-0.91) | No | -0.25 (-2.32-0.96) | No |
| **Talquetamab** | | | | | | |
| **SOC** | **PT** | **N** | **ROR (95%CI)** | **Signal** | **IC (IC025-IC075)** | **Signal** |
| **Nervous system disorders** | Dysgeusia | 13 | 17.71 (10.11-31.02) | Yes | 4.16 (3.22-4.8) | Yes |
| Immune effector cell-associated neurotoxicity syndrome | 7 | 185.55 (87.3-394.35) | Yes | 7.59 (6.29-8.44) | Yes |
| Taste disorder | 7 | 26.81 (12.63-56.93) | Yes | 4.82 (3.52-5.68) | Yes |
| Ageusia | 5 | 18.81 (7.75-45.66) | Yes | 4.37 (2.81-5.36) | Yes |
| Dizziness | 3 | 0.54 (0.17-1.68) | No | 0.18 (-1.89-1.39) | No |
| Neurotoxicity | 3 | 26.11 (8.35-81.62) | Yes | 4.93 (2.86-6.14) | Yes |
| **Teclistamab** | | | | | | |
| **SOC** | **PT** | **N** | **ROR (95%CI)** | **Signal** | **IC (IC025-IC075)** | **Signal** |
| **Nervous system disorders** | Immune effector cell-associated neurotoxicity syndrome | 96 | 450.7 (364.76-556.89) | Yes | 8.66 (8.32-8.9) | Yes |
| Neurotoxicity | 22 | 31.49 (20.65-48.02) | Yes | 5 (4.29-5.51) | Yes |
| Headache | 12 | 0.26 (0.15-0.45) | No | -0.37 (-1.35-0.3) | No |
| Seizure | 9 | 0.96 (0.5-1.86) | No | 0.6 (-0.54-1.36) | No |
| Neuropathy peripheral | 8 | 1.21 (0.61-2.43) | No | 0.84 (-0.37-1.64) | No |
| Depressed level of consciousness | 5 | 2.79 (1.16-6.71) | Yes | 1.83 (0.27-2.82) | Yes |
| Nervous system disorder | 5 | 4.27 (1.78-10.28) | Yes | 2.37 (0.81-3.36) | Yes |
| Polyneuropathy | 5 | 6.45 (2.68-15.53) | Yes | 2.92 (1.36-3.91) | Yes |
| Aphasia | 4 | 2.14 (0.8-5.7) | No | 1.54 (-0.23-2.61) | No |
| Encephalopathy | 4 | 4.02 (1.51-10.72) | Yes | 2.32 (0.56-3.4) | Yes |
| Hypersomnia | 4 | 1.96 (0.73-5.23) | No | 1.43 (-0.33-2.51) | No |
| Spinal cord compression | 4 | 15.87 (5.94-42.38) | Yes | 4.19 (2.43-5.27) | Yes |
| Tremor | 4 | 0.38 (0.14-1.03) | No | -0.1 (-1.86-0.98) | No |
| Unresponsive to stimuli | 4 | 3.44 (1.29-9.19) | Yes | 2.13 (0.36-3.21) | Yes |
| Cerebral haemorrhage | 3 | 1.41 (0.45-4.37) | No | 1.1 (-0.97-2.3) | No |
| Dysarthria | 3 | 1.49 (0.48-4.64) | No | 1.16 (-0.91-2.37) | No |
| **Psychiatric disorders** | Confusional state | 9 | 0.9 (0.47-1.73) | No | 0.54 (-0.6-1.3) | No |
| Mental status changes | 5 | 4.7 (1.95-11.31) | Yes | 2.5 (0.94-3.48) | Yes |
| **Elotuzumab** | | | | | | |
| **SOC** | **PT** | **N** | **ROR (95%CI)** | **Signal** | **IC (IC025-IC075)** | **Signal** |
| **Nervous system disorders** | Neuropathy peripheral | 41 | 2.52 (1.85-3.43) | Yes | 1.6 (1.08-1.97) | Yes |
| Syncope | 27 | 1.75 (1.2-2.56) | Yes | 1.19 (0.55-1.64) | Yes |
| Cerebral infarction | 25 | 7.61 (5.13-11.28) | Yes | 3.03 (2.37-3.51) | Yes |
| Dizziness | 19 | 0.22 (0.14-0.35) | No | -0.45 (-1.22-0.09) | No |
| Cerebrovascular accident | 13 | 0.6 (0.35-1.04) | No | 0.18 (-0.76-0.82) | No |
| Tremor | 13 | 0.5 (0.29-0.87) | No | 0.04 (-0.9-0.68) | No |
| Cerebral haemorrhage | 12 | 2.27 (1.29-4) | Yes | 1.52 (0.54-2.18) | Yes |
| Hypoaesthesia | 12 | 0.47 (0.27-0.83) | No | -0.01 (-0.99-0.65) | No |
| Headache | 11 | 0.09 (0.05-0.17) | No | -0.73 (-1.76--0.04) | No |
| Somnolence | 9 | 0.28 (0.14-0.53) | No | -0.33 (-1.47-0.43) | No |
| Balance disorder | 7 | 0.45 (0.22-0.95) | No | -0.02 (-1.32-0.83) | No |
| Dementia | 7 | 1.48 (0.71-3.11) | No | 1.06 (-0.24-1.91) | No |
| Seizure | 7 | 0.3 (0.14-0.63) | No | -0.28 (-1.58-0.57) | No |
| Memory impairment | 6 | 0.22 (0.1-0.49) | No | -0.44 (-1.85-0.47) | No |
| Lethargy | 5 | 0.59 (0.25-1.42) | No | 0.2 (-1.36-1.19) | No |
| Loss of consciousness | 5 | 0.27 (0.11-0.65) | No | -0.32 (-1.88-0.66) | No |
| Cerebrovascular disorder | 4 | 16.68 (6.24-44.56) | Yes | 4.26 (2.5-5.34) | Yes |
| Clumsiness | 4 | 7.82 (2.93-20.86) | Yes | 3.21 (1.45-4.29) | Yes |
| Dysgeusia | 4 | 0.34 (0.13-0.9) | No | -0.18 (-1.95-0.9) | No |
| Neuralgia | 4 | 0.83 (0.31-2.22) | No | 0.52 (-1.24-1.6) | No |
| Orthostatic intolerance | 4 | 28.31 (10.58-75.73) | Yes | 5 (3.24-6.08) | Yes |
| VIth nerve paralysis | 4 | 36.99 (13.81-99.05) | Yes | 5.38 (3.62-6.46) | Yes |
| Altered state of consciousness | 3 | 1.05 (0.34-3.25) | No | 0.78 (-1.29-1.99) | No |
| Amnesia | 3 | 0.29 (0.09-0.91) | No | -0.24 (-2.31-0.96) | No |
| Burning sensation | 3 | 0.25 (0.08-0.78) | No | -0.33 (-2.4-0.87) | No |
| Central nervous system lesion | 3 | 1.23 (0.4-3.8) | No | 0.95 (-1.12-2.16) | No |
| Depressed level of consciousness | 3 | 0.67 (0.22-2.08) | No | 0.36 (-1.71-1.57) | No |
| Encephalopathy | 3 | 1.21 (0.39-3.75) | No | 0.93 (-1.14-2.14) | No |
| Facial paralysis | 3 | 1.44 (0.46-4.47) | No | 1.12 (-0.95-2.33) | No |
| Guillain-Barre syndrome | 3 | 4.74 (1.53-14.7) | Yes | 2.59 (0.52-3.8) | Yes |
| Hemiparesis | 3 | 1.27 (0.41-3.93) | No | 0.98 (-1.09-2.19) | No |
| Intention tremor | 3 | 49.87 (15.97-155.8) | Yes | 5.86 (3.79-7.06) | Yes |
| Monoplegia | 3 | 4.55 (1.46-14.11) | Yes | 2.54 (0.47-3.74) | Yes |
| Post herpetic neuralgia | 3 | 11.39 (3.67-35.39) | Yes | 3.78 (1.71-4.99) | Yes |
| Spinal cord compression | 3 | 4.78 (1.54-14.83) | Yes | 2.6 (0.53-3.81) | Yes |
| Toxic encephalopathy | 3 | 6.51 (2.1-20.22) | Yes | 3.01 (0.95-4.22) | Yes |
| Transient ischaemic attack | 3 | 0.7 (0.23-2.17) | No | 0.4 (-1.67-1.6) | No |
| **Psychiatric disorders** | Insomnia | 32 | 0.7 (0.49-0.99) | No | 0.28 (-0.31-0.7) | No |
| Delirium | 15 | 3.63 (2.18-6.02) | Yes | 2.08 (1.21-2.68) | Yes |
| Confusional state | 9 | 0.36 (0.19-0.69) | No | -0.18 (-1.32-0.58) | No |
| Mental status changes | 5 | 1.89 (0.78-4.53) | No | 1.36 (-0.2-2.35) | No |
| Agitation | 3 | 0.31 (0.1-0.97) | No | -0.21 (-2.28-1) | No |
| Anxiety | 3 | 0.06 (0.02-0.18) | No | -0.81 (-2.88-0.39) | No |
| Listless | 3 | 5.28 (1.7-16.38) | Yes | 2.73 (0.66-3.94) | Yes |
| Mental disorder | 3 | 0.43 (0.14-1.33) | No | 0 (-2.07-1.21) | No |

*CI = Confidence Interval; FDA = Food and Drug Administration; IC = Information Component; ICANS = Immune effector Cell-Associated Neurotoxicity Syndrome; IRR= Immune Related Reaction; PT = Preferred Term; ROR = Reporting Odds Ratio; SOC = System Organ Class.*