Objective
To evaluate the interplay between seizures, quality of life (QoL), and neuropsychiatric outcomes in patients with leucine-rich glioma-inactived 1 antibody encephalitis (LGI1-Ab-E).

Background
Patients with LGI1-Ab-E experience varied seizure semiologies, but their potential differing impact on long-term outcomes remains under-explored.

Design/Methods
We conducted a single-center retrospective cohort study of patients with antibody-confirmed LGI1-Ab-E with seizures. Patients were categorized as having faciobrachial dystonic seizures (FBDS) or non-faciobrachial dystonic seizures (non-FBDS). Patient Health Questionnaire-9 (PHQ-9), Neuro-QoL, Patient Reported Outcomes Measurement Information System (PROMIS), and modified Rankin Scale (mRS) were abstracted. Outcomes were compared using two-tailed independent sample t-tests for continuous variables and chi-square and Fisher's exact test for categorical variables. Change over time was evaluated using Wilcoxon signed-rank test.

Results
21 patients (33% female, median 65 years) were included, 10 (47.6%) with FBDS and 11 (53.4%) with non-FBDS. Levetiracetam (66%), lacosamide (42.9%), and valproate (19.0%) were the most common anti-seizure medications; 19 (90.5%) underwent immunotherapy. In patients with at least one year of follow-up, all patients with FBDS (n = 7) and 75% with non-FBDS (n = 6) achieved seizure freedom (p = 0.48). From 8 months to 30 months post-diagnosis, PHQ-9 improved in the FBDS cohort (median 6, IQR 5.5—9.5 to median 2.5, IQR 2.0—4.5, p = 0.06), but remained stable in the non-FBDS cohort (median 5.5, IQR 2.3—9.3 to median 5, IQR 3.0 to 8.0, p = 0.75). Both groups had similar mRS baselines (median mRS 1 for both, p = 0.91) and experienced similar significant mRS worsening at median 23 months post-symptoms onset (median increase 1, p < 0.001 over time). Neuro-QoL and PROMIS scores were similar between groups (for all, p > .05).

Conclusions
Patients with LGI1-Ab-E who experience exclusively non-FBDS may be at higher risk of sustained depressive symptoms than those with FBDS. Regardless of seizure type, patients with LGI1-Ab-E are at risk for significantly worsening disability despite treatment and seizure freedom.

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An Observational Study on the Humoral and Cellular Immune Response to SARS-CoV-2 mRNA Vaccination in Multiple Sclerosis and Other Autoimmune Neurological Disorders Treated With Anti-CD20 Therapies

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Objective
To assess adaptive immunity to SARS-CoV-2 in anti-CD20 treated individuals with mRNA vaccination.

Background
Anti-CD20 therapies attenuate humoral responses to vaccines. However, their effect on T cell responses is less clear. We examined B and T cell responses following COVID-19 vaccination in patients receiving anti-CD20 therapy for multiple sclerosis (MS) and other autoimmune inflammatory neurologic diseases (AINDs, e.g., autoimmune encephalitis, stiff person syndrome, etc.).

Design/Methods
MS and AIND patients on anti-CD20 therapies were prospectively enrolled for longitudinal analysis of antibody and T cell responses after a 3rd COVID-19 vaccination. Serum antibodies against the receptor-binding domain of the S1 spike protein (RBD-S1 IgG), neutralizing antibodies, and SARS-CoV-2 CD8 T cell responses, using activation-induced markers (AIM) and INF-γ release assays (EUROIMMUN, Germany), were measured at various time points including pre-vaccination, post initial vaccination series, and 4 and 12 weeks after 3rd dose.

Results
Thirty-four MS and AIND participants are enrolled. Results for these patients (mean age 52 years-old, 79% female, 21 Pfizer, 13 Moderna) demonstrated attenuated RBD IgG antibody responses. However, a robust CD8 T cell response was observed, following a two-dose series, compared to non-immunosuppressed, age-matched vaccinated controls or unvaccinated with severe SARS-CoV-2 infection (p = 0.01). T cell response was sustained long-term (>12 weeks post 3rd dose) in all 11 anti-CD20 patients analyzed thus far. Collections are completed for all participants at 12 weeks and analysis to be completed by 05/15/22. Further analysis includes correlation of the INF- γ release assay compared to RBD-CD8 T cell response detected by AIM assay.

Conclusions
Results suggest that patients treated with anti-CD20 therapy generate a robust CD8 T cell response to SARS-CoV-2 mRNA after three doses but remain with attenuated humoral immune responses. Our observational study will provide important data to guide vaccine management in patients on or anticipating anti-CD20 therapy.

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Creation and Implementation of a Multi-Disciplinary Clinical Workflow Aimed at Earlier Diagnostic Evaluation for Autoimmune Encephalitis for Patients Presenting With Atypical Psychosis: A Pilot Study

Grace Russo, Gad Noy, Konstantin Stojanovic, Kiran Thakur

Objective

To implement a clinical workflow that facilitates earlier diagnostic evaluation for autoimmune encephalitis (AE) among patients presenting with atypical psychosis (AP).

Background

Clinical features found to have positive predictive value for AE were recently identified.[1] Early identification of "red flag" features was associated with a 58% reduction in time from symptom onset to AE diagnosis.[2] "Yellow flag" features, while less specific, were also associated with AE, especially when multiple were present simultaneously.[3] A workflow that utilizes these features would be of clinical significance.

Design/Methods

We created a standardized workflow to triage patients presenting to the psychiatric emergency department with AP using red/yellow flag features. The presence of one or more yellow flags (hyponatremia, first psychotic symptoms at age >40, systemic/infectious prodrome, refractory symptoms, and malignancy history) results in neurology consultation. Following the consultation, there may be a recommendation for more involved testing such as CSF studies, imaging, and/or EEG. The presence of a red flag (seizure, dysautonomia, movement disorder, or focal finding on neurologic exam) results in admission to the neurology service.

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