LMDR. Regression statistics for predictors of cognitive decline also were non-significant. Of the eight individuals who declined on LMDR, one patient declined on a total of one neuropsychological measure, four declined on a total of two measures, two declined on a total of three measures, and one declined on a total of four measures. Two of these eight individuals had a diagnosis that changed to amnestic MCI based on concomitant interval history of ADL compromise. Of these two individuals, one declined in two tests and the other declined in four tests. Six of the eight individuals who declined also showed abnormalities in their imaging with either edema or hemorrhage.
Conclusions: Our analysis is unique in that we explored cognitive decline at both the group and individual levels. Despite this, we did not find predictors of post-DBS cognitive decline. Further detailed analysis of additional post-operative factors that might play a greater role in our understanding of this phenomenon is warranted. This said, our data do support that the majority of individuals with non-amnestic MCI did not decline cognitively.

Categories: Movement and Movement Disorders
Keyword 1: deep brain stimulation
Keyword 2: Parkinson's disease
Keyword 3: cognitive functioning
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27 Neuropsychiatric Sequela of COVID-19 Among Persons with MS

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Objective: To evaluate changes in neuropsychiatric symptoms among patients with multiple sclerosis (MS) following coronavirus disease of 2019 (COVID-19) infection using the National COVID Cohort Collaborative (N3C). The N3C represents the largest cohort of COVID-19 cases, through the unification of electronic health records from over 60 medical centers.
Participants and Methods: Out of 5,631,225 COVID-19 confirmed positive patients, we identified a cohort of patients with MS who were diagnosed with COVID-19. Conditions were searched using terms denoting common neuropsychiatric comorbid diagnoses, including anxiety, depression, pain, sleep disorders, fatigue, and cognitive disorders. We examined descriptively the percentages of patients who were newly diagnosed with each comorbid condition after COVID-19 infection. Additionally, we searched for various patient-reported outcome measures in the N3C dataset; only the Patient Health Questionnaire-9 (PHQ-9) had an adequate sample size in our cohort for analysis. To control for variability due to non-COVID-19 factors, we only included PHQ-9 scores that were reported one year before and after COVID-19 infection. A repeated-measures analysis of variance (ANOVA) was conducted to analyze the difference between PHQ-9 scores before and after COVID-19 diagnosis among MS patients.
Results: In our final dataset, there were 40,690 patients who were diagnosed with MS and COVID-19. Among patients without pre-existing anxiety conditions, 9.18% were diagnosed with an anxiety disorder after COVID-19 infection. Among those who did not have a pre-existing cognitive disorder, 1.73% had such diagnoses after COVID-19 infection. Among those without previous depressive disorders, 8.89% were diagnosed with a depressive disorder after COVID-19 infection. Of those without fatigue conditions prior to COVID-19 in their medical records, 8.81% had documented fatigue in their records after contracting COVID-19. Of those without pain conditions in their medical records, 11.37% had documented pain in their records after COVID-19 infection. Finally, among patients without pre-existing sleep disorders, 8.71% were diagnosed with sleep disorders after COVID-19 infection. Regarding PHQ-9 scores, 50 patients had documented scores before their COVID-19 diagnosis and 50 after COVID-19 diagnosis (17 had scores for both before and after COVID-19 diagnosis). There was no significant difference in PHQ-9 scores before and after COVID-19 diagnosis ($F(df) = 0.326$, $p = 0.572$; $mean_{before} = 8.77$, $mean_{after} = 9.32$).
Conclusions: Approximately 2-11% of MS patients developed new neuropsychiatric conditions after COVID-19 infection, with pain being the most common, followed by anxiety, fatigue, depression, and sleep disorders. Cognitive disorders were the least prevalent new

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onset neuropsychiatric sequelae of COVID-19 in this cohort. Additionally, there was a non-significant increase in severity of depressive symptoms, as indicated by a 1.36-point increase in PHQ-9 scores. These results suggest that patients with MS who have also been diagnosed with COVID-19 may be at risk for developing newly onset neuropsychiatric symptoms.

Categories: Multiple Sclerosis/ALS/Demyelinating Disorders
Keyword 1: multiple sclerosis
Keyword 2: neuropsychiatry
Keyword 3: infectious disease
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28 Neurocognitive profile of pediatric acquired demyelinating syndrome with and without myelin oligodendrocyte glycoprotein antibody disease (MOGAD)

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Objective: Pediatric acquired demyelinating syndromes (PADS) include a heterogeneous group of diagnoses, including acute disseminated encephalomyelitis (ADEM), neuromyelitis optica spectrum disorders (NMOSD), optic neuritis (ON) and transverse myelitis (TM). Myelin oligodendrocyte glycoprotein antibody disease (MOGAD) is often associated with demyelinating conditions, but may also present with encephalopathy without demyelinating lesions. Approximately 30% of patients diagnosed with MOGAD experience a relapse. Neurocognitive outcomes in PADS have reduced performance on tasks related to attention, processing speed, visual motor, and fine motor functioning. Psychosocial problems include anxiety, depression, and fatigue. Neurocognitive and psychosocial impacts of MOGAD events for the pediatric population are sparse. The current study sought to characterize neurocognitive sequelae from MOGAD (MAGAD+) compared to patients diagnosed with PADS without MOGAD (MOGAD-).

Participants and Methods: Twenty children and adolescents (6-18 years) diagnosed with PADS were recruited using a clinic convenience sample of patients. Study participants completed a neurocognitive battery and parents completed questionnaires of behavioral and emotional functioning. Demographic and medical variables were collected via retrospective chart review. Chi square and *t*-test analyses were used to compare MOGAD+ and MOGAD- groups. Performance on neuropsychological and behavioral questionnaires were compared to established sex and age norms to assess the degree to which group means deviate from normative expectations.
Results: MOGAD+ and MOGAD- groups did not significantly differ based on demographic, neurocognitive, or parent reported social and behavioral functioning. Neurocognitive testing documented mean scores that were in the average range between groups. Notable variability in performance was observed within both MOGAD+ and MOGAD- groups. Bilateral fine motor deficits, visual motor, visual perception attention, and executive functioning deficits were notable for the combined PADS group, with 30-50% performing >1.5 SD below the mean. The number of white matter lesions or hospital duration were not significantly associated with performance on neurocognitive measures. However, older age of onset of PADS was significantly correlated with lower performance on visual motor integration and visual perception tasks ($r(18) = -.50$ $p = .026$; $r(18) = -.53$ $p = .016$). Findings also revealed associations of shorter hospitalization stays with higher behavioral symptoms on a parent measure of social/behavioral functioning ($r(18) = -.47$ $p = .037$).
Conclusions: Consistent with the PADS literature, relative to control norms, lower performance on tasks related to attention, executive functioning, visual motor, and fine motor skills, irrespective of MOGAD status, are observed in the current study. The variability of functioning and heterogeneity observed across PADS diagnoses warrants further study to better understand the impact of clinical course, treatment outcomes, and neuropsychological sequelae over time in this population. Higher behavioral distress with shorter hospital stays may indicate a potential opportunity for patient and family education preparing for return to home/community. The current study was limited by small sample size, variable time since hospitalization, and heterogeneous diagnoses

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