

the non-dominant hemisphere, yet this remains largely unexplored. Surgical ablation by laser interstitial thermal therapy (LITT) is increasingly used for epilepsy management in PVNH (Thompson et al., 2016, Whiting et al. 2020). However, there are no reported studies exploring cognitive outcomes following LITT of focal PVNH.

Participants and Methods: A 46-year-old, right handed, Black female with 16 years of education presented for management of medically refractory epilepsy. Epilepsy monitoring captured intermittent slow waves in the right temporal lobe, interictal polyspikes in the right temporal lobe, and three epileptic events all emanating from the right temporal lobe. MRI showed extensive migrational anomalies involving the right hemisphere posteriorly consistent with PVNH with no associated mesial temporal sclerosis. Pre-surgical neuropsychological evaluation showed a significant split in IQ, with verbal IQ = 99 and performance IQ = 76. Testing indicated circumscribed deficits in visuo-perceptual judgement, visuoconstruction, visuospatial reasoning, non-verbal recall, and several executive weaknesses in the context of otherwise average neurocognitive functioning. Fine motor speed was impaired bilaterally. Her profile was suggestive of non-dominant fronto-parieto-temporal dysfunction, concordant with the remainder of her work-up. By history she reported longstanding academic weaknesses in math and organization with strong verbal and reading abilities.

Results: The patient underwent partial LITT of right PVNH sparing areas involved in visual function. At 6-month follow-up she was seizure free (Engel outcome 1A). Post-surgical neuropsychological evaluation showed reliable improvements in perceptual reasoning, aspects of learning/memory, and verbal naming. Visuoconstruction remained impaired but qualitatively improved. She also reported subjective experience of improved mental clarity and was applying for jobs after regaining driving privileges.

Conclusions: This case demonstrates symptoms and history concerning for a nonverbal learning disorder in an adult woman with epilepsy secondary to right hemisphere PVNH and underscores the importance of exploring the range of neurocognitive profiles in MCD. Her notable neurocognitive and functional improvements following surgical ablation and seizure freedom suggest a possible release of

function in the absence of inhibitory neurophysiological influences. This raises interesting questions about the endurance of her developmental profile. This case report contributes to our understanding of neuroanatomical correlates of neurocognitive and neurodevelopmental presentations. Future investigations should explore neuropsychological changes following LITT for PVNH.

Categories: Epilepsy/Seizures

Keyword 1: epilepsy / seizure disorders - surgical treatment

Keyword 2: visuospatial functions

Keyword 3: learning disabilities

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46 Visuospatial Functions in Patients After COVID-19 Disease

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Objective: "Brain fog" is one of the most common consequences of developing COVID-19. The available research focuses mainly on the decline in overall cognitive performance. Much less papers refers to the evaluation of particular cognitive domains, and when it does, it focuses particularly on attention and memory disorders. The available data on the effects of COVID-19 infection on visuospatial functions is sparse, so the aim of this study was to investigate the level of visuospatial functioning in adults who have a history of COVID-19 infection. It was also intended to explore whether there is a protective effect of vaccination on the cognitive functioning after COVID-19.

Participants and Methods: The group included sixty volunteers (age: M = 40.12, SD = 16.78; education: M = 12.95 SD = 2.25; sex: M = 20, F = 40) - thirty seven with a history of COVID-19 and twenty three who were never infected with SARS-COV-2. Of those with a history of COVID-19, twenty-four were vaccinated at the time of

the disease, and thirteen were not. Subjects from individual groups did not differ demographically. Participants were examined with a set of neuropsychological tests to assess: a) general cognitive functioning - Montreal Cognitive Assessment (MoCA), b) attention - d2 Test of Attention, memory - Rey-Osterieth Complex Figure – delayed recall, and c) visuospatial functions - Rey-Osterieth Complex Figure - copy, Block Design – subtest of WAIS-R and three experimental tasks consisting of: incomplete pictures, rotating puzzles, counting cubes in a 3D tower.

Results: Subjects who had a history of COVID-19 achieved significantly lower scores in the MoCA test ($p = 0.033$) compared to those who did not suffer from COVID-19. They also needed more time in mental rotation task ($p = 0.04$). Statistically significant differences were also found in the d2 Test of Attention GP score ($p = 0.001$).

Moreover, in group of adults who had a history of COVID-19, statistically significant differences were found between the vaccinated and unvaccinated subjects. It turned out that those who were vaccinated during their illness performed significantly better than those who were unvaccinated in the following cognitive domains: attention (d2 Test of Attention) and visuospatial functions (Rey-Osterieth Complex Figure test – copy, Block Design from WAIS-R, as well as experimental trials: incomplete pictures, rotating puzzles, counting cubes).

Conclusions: Among adults who have been infected with COVID-19, there is a decrease in general cognitive performance, but also in individual cognitive abilities, including visuospatial functions. Vaccination significantly reduces the risk of cognitive impairment.

Categories: Infectious Disease (HIV/COVID/Hepatitis/Viruses)

Keyword 1: visuospatial functions

Keyword 2: infectious disease

Keyword 3: cognitive functioning

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47 The Impact of COVID-19 Infection on Objective and Subjective Cognitive Functioning: Resilience as a Protective Factor

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Objective: Growing evidence indicates that COVID-19 infection adversely impacts cognitive functioning, with COVID-19 patients demonstrating high rates of objective and subjective cognitive impairments (Daroische et al., 2020; Miskowiak et al., 2021). Given the prevalence and potentially debilitating nature of post-COVID-19 cognitive symptoms, understanding factors that mitigate the impact of COVID-19 infection on cognitive functioning is paramount to developing interventions that facilitate recovery.

Resilience, the ability to cope with and grow from challenges, has been associated with improved cognitive performance in healthy adults and linked to decreased perceived cognitive difficulties in post-COVID-19 patients (Connor & Davidson, 2003; Deng et al., 2018; Jung et al., 2021). However, resilience has not yet been examined as a potential attenuator of the relationship between COVID-19 and either perceived or objective cognitive function. This study aims to investigate the role of resilience as a protective factor against experience of cognitive function difficulties in COVID-19 patients by probing the role of resilience as a moderator of the relationship between COVID-19 diagnosis and cognitive functioning (both perceived and objective).

Participants and Methods: Participants (mean age=36.93, 30.10% male) were recruited from British Columbia and Ontario. The sample included 53 adults who had never been diagnosed with COVID-19 and 50 adults diagnosed with symptomatic COVID-19 at least three months prior and not ventilated.

Participants completed online questionnaires ($n=103$) to assess depression (the Center for Epidemiological Studies Depression Scale), anxiety (7-item Generalized Anxiety Disorder Scale), subjective cognitive functioning (The Subjective Cognitive Decline Questionnaire), and resilience (2-item Connor-Davidson Resilience Scale). Participants then completed neuropsychological tests ($n=82$) measuring attention, processing speed, memory, language, visuospatial skills, and executive function via teleconference, with scores averaged to create a