

Categories: Visuospatial Functions/Neglect/Agnosia

Keyword 1: neurocognition

Keyword 2: neglect

Keyword 3: asymmetry

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40 Disorders Of The Anterior Attentional-Intentional System In COVID-19 Survivors – Preliminary Results

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Objective: In December 2019, the first reports came from China about cases of pneumonia caused by a previously unknown coronavirus, SARS-CoV-2 (Severe Acute Respiratory Syndrome Coronavirus 2), responsible for a disease called COVID-19. Since then, the pandemic has spread worldwide, affecting people's physical and mental health and as well as quality of life. Currently, many people are experiencing the health consequences of contracting COVID-19, also due to the impact this disease has on the central nervous system. As a result, in addition to well-known ailments, such as headaches, chronic fatigue or smell and taste disorders, COVID-19 survivors may develop neuropsychological problems such as executive-attentional deficits. However, the specificity of these executive-attentional problems has not been determined. Thus, the purpose of this study was to learn if survivors of COVID-19 may present with more generalized or rather specific dysfunction(s) of the anterior attentional-executive system.

Participants and Methods: The study group consisted of 37 individuals who underwent COVID-19 (age M=44, education M=17). The comparison group consisted of 25 matched controls tested before the COVID-19 pandemic. The experimental procedures included (1) a clinical interview, (2) an assessment of selected cognitive functions (3) and attentional-

executive functioning, which was assessed using the ROtman-Baycrest Battery to Investigate Attention (ROBBIA); a battery was designed to measure three attentional processes (i.e., energizing, task setting, and monitoring). Overall, four reaction time (RT) subtests from ROBBIA were administered: (1) Simple RT, (2) Choice RT, (3), Prepare RT, and (4) Concentrate. For each subtest, the instruction was to press an appropriate button on a response pad as quickly as possible when a target stimulus (one of the following capital letters: A, B, C, or D) is detected, but also (in Choice RT, Prepare RT and Concentrate) to make as few errors as possible.

Results: Overall, the analyses revealed that individuals who survived COVID-19 exhibited a different effect of the warning stimulus compared to controls. Specifically, COVID-19 survivors presented an increase in reaction time from 1s warning condition to 3s warning condition being significantly greater than the control group's increase ($p < .05$). Also, only in the COVID-19 group, reaction time in the Concentrate task tended to be longer ($p = 0.01$). No group differences in monitoring (e.g., number of errors) or task setting emerged.

Conclusions: The patients' problems appear analogous to those observed in other chronic somatic diseases, likely due to the impact of COVID-19 on the frontal lobe's medial regions. However, due to a small sample size, future neuroimaging research, including computerized studies of attentional-execution networks, is needed to confirm that COVID-19 may predominantly affect the energization system that contributes to these patient's cognitive slowing and defective ability to sustain attention.

Categories: Executive Functions/Frontal Lobes

Keyword 1: computerized neuropsychological testing

Keyword 2: frontal lobes

Keyword 3: reaction time

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41 Concussion History, Physical Activity, and Athletic Status Predict Subjective but not Objective Executive Functioning