THE SPECTRUM OF POST-ACUTE COVID-19 NEUROLOGICAL SYMPTOMS AND HUMORAL RESPONSE AGAINST NEURAL ANTIGENS

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Post-acute COVID-19 neurological symptoms are characterized by persistent complaints/deficits beyond 3-4 weeks from the disease's onset. To address the ongoing care needs of patients beyond the acute phase, we have established COVID-19 clinics in outpatient settings. We evaluated 426 patients through neurological examinations, neuroimaging, and laboratory tests for anti-neural antibodies. Patients who required hospitalization during the acute phase of COVID-19 had a lower frequency of olfaction (21% vs. 59%;P<0.000001) and taste disturbances (15% vs. 48%;P=0.000005) in the post-acute phase. Conversely, memory impairment was more prevalent in hospitalized patients (66%;P=0.0121) compared to those who did not require hospitalization (47%). The frequency of concentration/sleep disturbances, paresthesias, mood/drive impairment, balance disturbances, skeletal-muscular issues, or headaches did not differed. Severe COVID-19 cases showed the presence of anti-GAD (2%), anti-MAG (9%), anti-myelin (17%), anti-non-myelinated fibers (6%), and anti-neuroendothelium (6%) antibodies. In patients who did not require hospitalization, we observed a humoral response against Yo (0.8%), CV2 (0.5%), GAD (1.4%), MAG (3%), myelin (16%), non-myelinated nerve fibers (1.4%), neuroendothelium (11%), titin (0.3%), and GM1 (0.3%). In conclusion, the profile of post-acute COVID-19 neurological symptoms and the presence of a humoral response against neural antigens are associated with the severity of the acute phase of SARS-CoV-2 infection.