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Cognitive sequealae of COVID-19 is not predicted by SARS-CoV-2 variants

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1:00 AM - 1:45 AM

Hall 12 (RAI Amsterdam Convention Centre)

Theme

Public Health

Abstract

Background: The long term sequelae of COVID-19 in older adults are only beginning to be clarified, and its predictors and underlying molecular mechanisms may shed light on the relationship between viral infections and Alzheimer's disease and related dementia.

Method: A prospective cohort of 874 older adult Amerindians from Argentina with COVID-19 illness confirmed by PCR of nasal swabs as well as controls, was established during the first year of the COVID-19 pandemic. We obtained data on the severity of the acute illness, as well as extensive neuropsychiatric and cognitive assessments, neurological exams (including quantitative hyposmia/anosmia), plasma for biomarkers and preliminary brain MRI images using the ADNI-3 protoco (n=300)l,and whole genome sequencing (n=300). Isolates from SARS-CoV-2 were obtained by the provincial Direction of Epidemiology and sequenced by the national Ministry of Health. Variants of interest/concern were allocated to each case on the basis of the prevalent community isolate at the time of confirmed positive PCR. A deep learning strategy was used to identify predictive factors of cognitive and clinical outcomes.

Result: Four distinctive cognitive profiles were identified. Greater cognitive impairment was associated with older age ($p = E^{-9}$), worse acute COVID-19 illness (p=0.008), unvaccinated status ($p = E^{-7}$), and severity of anosmia ($p = E^{-5}$). SARS-CoV-2 variant was associated with severity of acute illness (($p = E^{-6}$) but notably not with cognitive impairment. Preliminary analysis of genomic and brain imaging data will be presented.

Conclusion: Our data strongly suggest that all SARS-CoV-2 variants of interest up to the omicron wave seem equally likely to result in cognitive impairment in older adults, modulated by the severity of the acute illness.

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