

COVID-19 and Neurodegenerative Diseases in Vaccinated and Unvaccinated People

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Objectives

To determine which neurodegenerative diseases and related risk conditions are associated with diagnosed COVID-19 by vaccination status in both hospitalized patients and the general population. To expand on existing literature by considering a greater range of neurodegenerative diseases and related risk conditions than have previously been investigated.

Methods

OpenSAFELY-TPP was used to access linked data from 24million people registered with general practices in England using TPP SystmOne software. Three cohorts were defined: one pre-vaccine availability during the wild-type/Alpha variant eras (exposed January 2020-June 2021; outcomes ascertained up to April 2024) and two (vaccinated/unvaccinated) during the Delta variant era (exposed June-December 2021; outcomes ascertained up to April 2024). We estimated adjusted hazard ratios comparing incidence post-COVID-19 diagnosis against incidence before/without COVID-19 for: dementia (Alzheimer's, Lewy body, vascular), cognitive impairment, Parkinson's disease, restless leg syndrome, REM sleep disorder, motor neurone disease, migraine, and multiple sclerosis.

Results

All permissions have been obtained, and analyses are ongoing. We anticipate that the pre-vaccination cohort will include up to 18.7million people, including ~1.01million COVID-19 diagnoses. The vaccinated cohort will include up to 14.1million individuals, including ~870,000 COVID-19 diagnoses. The unvaccinated cohort will include up to 3.3million individuals, including ~150,000 COVID-19 diagnoses.

Conclusion

The findings from this study will add to the body of evidence on the consequences of COVID-19 on neurodegenerative diseases, and will be the largest study to consider associations by vaccination status in both hospitalized patients and the general population to date.

