

Systematic review: COVID-19 vaccine-related neurological disorders "exceedingly" rare

A systematic review published in the *Journal of Clinical Pharmacology* has found that very few neurological adverse events have been reported in association with COVID-19 vaccines, and most of those that have been reported are time limited and resolve fully.

The researchers from Qatar searched major databases for English-language studies reporting any diagnosed adverse immune-related neurological events, except those secondary to haematological abnormalities, post-COVID-19 vaccination in April 2021. Two independent reviewers conducted the search, extracted data and assessed quality, with disagreement resolved by consensus. Adverse drug reaction probability was assessed using Naranjo scores.

In total, 18 studies were included; of which, two were case series, twelve were case reports, one was an observational study, and three were randomised, controlled trials. Sixty-one patients who received COVID-19 vaccines experienced at least one neurological adverse effect. Of these, 26 received Pfizer-BioNTech COVID-19 vaccine, 3 received mRNA-1273 [Moderna], 11 were from these two vaccines (Pfizer/BioNTech + Moderna) pooled, 17 received AZD1222 [Covishield; AstraZeneca], 1 received Janssen COVID-19 vaccine [Johnson & Johnson], 1 received Sinopharm/BIBP and 1 received Sputnik-v vaccination; for one, the vaccine was unspecified. The most common neurological event was facial nerve (Bells) palsy (62.3% of all events). Other reported events included: reactivation of herpes zoster (n = 6), Guillain-Barre Syndrome (4), other demyelinating diseases (4), neuropathy (7), neuroleptic malignant syndrome (1), delirium (1) and serotonin syndrome (1). Most reported events were time-limited and resolved spontaneously.

The authors note that "these events were exceedingly rare, and it is difficult to establish their association with the vaccines. Their underlying mechanism could involve immune overactivation in previously susceptible and undiagnosed individuals."