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Letter to the Editor

CNS demyelination following SARS-CoV-2 vaccination is more common than previously thought

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We read with interest the review article by Ismail and Salama about central nervous system (CNS) demyelination following SARS-CoV-2 vaccinations^[1]. Upon a systematic literature search in PubMed, SCOPUS, EMBASE, Google Scholar, Ovid, and medRxiv, 32 cases with CNS demyelination following a SARS-CoV-2 vaccination were detected as per the end of September 2021^[1]. Of these 32 cases 12 had transverse myelitis, 12 multiple sclerosis like presentations, 5 acute, disseminated encephalomyelitis (ADEM), and 3 had neuromyelitis optica spectrum disorder (NMO-SD)^[1]. Half of these patients had a previous history of previous immune-mediated disease^[1]. Patients received steroids, intravenous immunoglobulins (IVIGs), or plasmaphereses and the outcome was favourable in the majority of cases^[1]. It was concluded that only few cases experience CNS demyelination after a SARS-CoV-2 vaccine, that four types of CNS demyelinating disease were reported, and that CNS demyelination occurred after the first dose in most cases^[1]. The study is appealing but has some limitations that raise concerns which need to be discussed.

We do not agree that only a few cases with CNS demyelination as a complication of SARS-CoV-2 vaccinations have been reported so far^[1]. In a recent study about the frequency of post-SARS-CoV-2 vaccination ADEM, we collected 185 cases with post-SARS-CoV-2 vaccination AEDM [Finsterer, submitted]. Among these, 164 cases were reported to the Eudra vigilance database of the European Medicine Agency (EMA) and 6 were reported to the center of disease control (CDC) based vaccine adverse event reporting system (VAERS)^[2]. From these 170 patients no individual data about ADEM are available but 91 received the Biontech Pfizer vaccine (BPV), 46 the Astra Zeneca vaccine (AZV), and 27 the Moderna vaccine. In 6 patients the vaccine type was not available. Among the 15 patients of whom individual details were available, age ranged between 19 and 88 years, 10 were females, 8 received the AZV vaccine, two the BPV, two the Moderna vaccine, two the Sinovac vaccine, and 1 patient the Sputnik-V vaccine [Finsterer, submitted]. ADEM developed two to 29 days after the last vaccination. In thirteen patients ADEM developed after the first dose and in two patients after the second dose. Fourteen patients received steroids, four plasma exchange, and one patient IVIGs. Four patients experienced complete recovery, seven partial recovery, and four patients died [Finsterer, submitted]. Though the literature search for the latter review ended at the 18th March 2022, the number of patients with ADEM reported by Ismail and Salama is too low.

A second limitation of the review is that only four types CNS demyelination was considered^[1]. In a recent narrative review about the neurological side effects of SARSCoV-2 vaccinations, three patients with autoimmune encephalitis following vaccination with the AZV were reported as per the end of September 2021^[3]. Since then, at least seven more cases with post-SARs-CoV-2 vaccination autoimmune encephalitis have been published^[4, 5, 6, 7, 8, 9, 10].

Overall, the interesting review has some limitations and inconsistencies which challenge the results and their interpretation. Addressing these issues would strengthen the conclusions and could increase the status of the study. CNS demyelination following SARS-CoV-2 vaccination is more common than anticipated.

Declarations

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Consent for publication: was obtained from the patient.

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Author contribution: JF: design, literature search, discussion, first draft, critical comments, final approval, DM: literature search, discussion, critical comments, final approval.

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