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No need for brain biopsy in acute disseminated encephalomyelitis after first Sputnik-V jab

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Letter to the Editor

We read with interest the article by Lazaro et al. about a 26 years old female experiencing acute, disseminated encephalomyelitis (ADEM) after the first dose of the vector-based SARS-CoV-2 vaccine Sputnik-V (Lazaro et al., 2022). ADEM manifested clinically with disorientation, inappropriate behaviour, impaired memory, hypoprosopagnosia, anosognosia, incoherent speech, visuospatial failures headache, right upper limb weakness, and ataxic gait. Magnetic resonance imaging (MRI) revealed multiple, nodular T2-and fluid attenuated inversion recovery (FLAIR) hyperintense lesions (Lazaro et al., 2022). Cerebrospinal fluid investigations showed elevated protein and positive oligoclonal bands (OCB) (Lazaro et al., 2022). Brain biopsy revealed perivascular demyelination and reactive astrocytosis (Lazaro et al., 2022). The patient benefited from steroids. The study is appealing but has some limitations that raise concerns which need to be discussed.

We do not agree that post-SARS-CoV-2 vaccination ADEM is a rare complication of SARS-CoV-2 vaccinations (Lazaro et al., 2022). As per the end of March 2022 at least 150 patients with post-SARS-CoV-2 vaccination ADEM or acute, hemorrhagic encephalomyelitis (AHEM) have been either published in medical journals (n=15) or reported to the Eudra vigilance database of the European Medicine Agency (EMA) (n=164) (Ancau et al., 2022). Among those reported to the Eudra Vigilance database, 46 had received the AstraZeneca vaccine (AZV), 91 the Biontech Pfizer vaccine, and 27 the Moderna vaccine (Ancau et al., 2022). There are patients with post-SARS-CoV-2 vaccination ADEM who present with intracerebral hemorrhage, also known as AHEM (Ancau et al., 2022). Other patients with post-SARS-CoV-2 vaccination ADEM may present with myelin oligodendrocyte glycoprotein (MOG) antibodies (Mumoli et al., 2022).

Surprisingly, the index patient had undergone brain biopsy, showing perivascular demyelination and reactive astrocytosis (Lazaro et al., 2022). We should be informed about the indication for brain biopsy. Before indicating an invasive diagnostic procedure with a risk of significant complications, it would have been appropriate to start ex juvantibus with steroids.

Since ADEM can also manifest with myelitis it is crucial that patients with ADEM not only undergo cerebral MRI but also spinal MRI with contrast medium.

Cerebral lesions in the index patient manifested with vasogenic edema (Lazaro et al., 2022). Vasogenic edema on magnetic resonance imaging (MRI) is characterised by hyperintensity on diffusion weighted imaging and hyperintensity on apparent diffusion coefficient (ADC). However, the DWI mode in the index patient was normal (Lazaro et al., 2022). This discrepancy should be clarified.

A limitation of the study is that no information was provided if the patient was tested for SARS-CoV-2 in the blood or cerebrospinal fluid (CSF). We should be told if the patient was SARS-CoV-2 positive or negative, as SARS-CoV-2 infections can be complicated by ADEM as well (Rossi et al., 2022).

A further limitation of the study is that table 1 does not included reference limits.

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. Before carrying out brain biopsy, extensive work-up by means of non-invasive methods and eventually ex juvantibus treatment should be promoted.

Abbreviations: ADEM, acute disseminated encephalomyelitis; AHEM, acute hemorrhagic encephalomyelitis; AZV, AstraZeneca vaccine; EMA, European medicine agency; FLAIR, fluid attenuated inversion recovery; MOG, myelin oligodendrocyte glycoprotein; MRI, magnetic resonance imaging; OCB, oligoclonal bands.

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Consent to participate

Was obtained from the patient.

Consent for publication

Was obtained from the patient.

Availability of data

All data are available from the corresponding author.

Code availability

Not applicable.

Author contribution

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

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Declaration of competing interest

None.

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