SARS-CoV-2 vaccine-associated basilar artery thrombosis and GBS require comprehensive workup and specific therapy

Dear Editor,

We recently came across the article by Wali *et al*. who reported about two patients with severe neurological complications eight days after the second Astra-Zeneca vaccine (AZV) dose (Patient-1) and 16 days after the first AZV dose (Patient-2).[1] Patient-1 suffered SARS-CoV-2 vaccination associated basilar artery thrombosis, while Patient-2 suffered Guillain–Barre syndrome (GBS).[1] Patient-1 was anticoagulated and discharged after seven weeks, while Patient-2 received intravenous immunoglobulins (IVIG) and improved during an observation period of 11 weeks before his discharge.[1] The work is compelling, but some points should be discussed.

There is no right and left basilar artery as mentioned in the abstract.[1] There is only one basilar artery. What do the authors mean with right basilar artery? Do they confuse it with right middle, posterior, or anterior cerebral artery? Knowing the exact vessel is crucial not only for diagnosing the condition but also for treatment.

Patient-1 was described with normal cranial nerves.[1] However, a patient with a basilar artery thrombosis and a pontine stroke usually presents with facial palsy, and bulbar symptoms and signs, such as dysarthria, dysphagia, and absent gag reflex. Were lower cranial nerve functions really intact on clinical examination?

Patient-1 was treated with acetyl-salicylic acid and dalteparin.[1] Why did the patient not undergo thrombolysis or thrombectomy? How many hours after the clinical onset of the stroke did the patient arrive in the hospital? Was the hospital a stroke medicine center and did it have facilities for acute interventional stroke treatment? Did the patient have classical cardiovascular risk factors such as arterial hypertension, diabetes, hyperlipidemia, smoking, or atrial fibrillation? What medications had Patient-1 taken before hospitalization?

The description of nerve conduction studies (NCSs) is confusing.[1] On the one hand, NCVs have been described as "bilateral motor nerve axonal neuropathy," on the other hand, NCSs were described as a demyelinating pattern. Axonal neuropathy together with the sensory deficits suggests that the patient had acute, motor and sensory, axonal neuropathy (AMSAN), but the "demyelinating pattern" suggests that the patient had acute, inflammatory demyelinating polyneuropathy (AIDP). Did the patient have both AMSAN and AIDP? The details of the NCS should be presented.

Since ischemic stroke and GBS can also be complications of SARS-CoV-2 infection, it is important that acute SARS-CoV-2 infection has been ruled by a negative PCR test.

Were alternative triggers of GBS completely ruled out in Patient-2? GBS can be caused not only by vaccinations, but more commonly by infections with campylobacter jejuni, M. pneumoniae, Epstein–Barr virus (EBV), cytomegalovirus (CMV), influenza, Zika, hepatitis E, and dengue virus.[2]

Treatment of basilar thrombosis with acetyl-salicylic acid plus dalteparin 10000 IU/d is unconventional.[1] Was there evidence of atrial fibrillation, intraventricular thrombus formation, venous sinus thrombosis, or pulmonary embolism? If none of these conditions was present, 5000 IU/D dalteparin is sufficient.

In summary, the two case reports have several limitations that call into question the interpretation of the results and should be modified.

Author contribution

(1. Research project: A. Conception, B. Organization, C. Execution; 2. Statistical Analysis: A. Design, B. Execution, C. Review and Critique; 3. Manuscript: A. Writing of the first draft, B. Review and Critique): author JF: 1A, 1B, 1C, 3A, 3B.

Data access statement

All data are available from the corresponding author.

Ethical compliance statement

The authors confirm that the approval of an institutional review board or patient consent was not required for this work. We confirm that we have read the journal's position on issues involved in ethical publication and affirm that this work is consistent with those guidelines. This article is based on previously conducted studies and does not contain any new studies with human participants or animals performed by any of the authors.

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Conflicts of interest

There are no conflicts of interest.

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