

Before blaming BNT162b2 for necrotising myopathy and Trigeminal Neuropathy, Alternative Causes must be off the Table

Josef Finstere

MD, PhD, Neurology Dpt., Neurology & Neurophysiology Center, Vienna, Austria, Orcid: 0000-0003-2839-7305

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LETTER TO THE EDITOR

We read with interest Wada *et al.*'s article about a 42-year-old female suffering from rheumatoid arthritis for 21 years who developed necrotising myopathy and trigeminal neuropathy 12 days after the third dose of BNT162b2 [Tsuzuki, W. T. *et al.*, 2023]. The patient recovered only incompletely under prednisolone, tacrolimus and intravenous immunoglobulins (IVIG) for necrotising myopathy and carbamazepine and mirogabalin for trigeminal neuropathy [Tsuzuki, W. T. *et al.*, 2023]. The study is impressive, but several points require discussion.

The major limitation of the study is that alternative causes of necrotizing myopathy and trigeminal neuropathy were not adequately considered and excluded. Necrotising myopathy has been reported as a complication of Sjögren syndrome [Kawamura, A. *et al.*, 2020]. Necrotising myopathy can also be a complication of rheumatoid arthritis [Kawamura, A. *et al.*, 2020]. How were these other causes ruled out?

A second limitation of the study is that current medication could not be sufficiently ruled out as a trigger for necrotising myopathy. Since the index patient was on long-term treatment with adalimumab, it is important to rule out that the clinical presentation was a complication of the current medication rather than a side effect of the vaccination. Several cases of adalimumab-induced necrotising myopathy have been reported [Chavarría-Miranda, A. *et al.*, 2021]. These patients had received adalimumab for ankylosing spondylitis or rheumatoid arthritis. Necrotizing myopathy was also reported in association with leflunomide in a patient with rheumatoid arthritis [Salazar, D. M. *et al.*, 2023]. How did the authors rule out that necrotising myopathy was a complication of treatment rather than of SARS-CoV-2 vaccination?

A third limitation is that an acute SARS-CoV-2 infection has not been completely ruled out. An anti-SARS-CoV-2 vaccination does not always protect against a SARS-CoV-2 infection. The suspicion of an acute SARS-CoV-2 infection is supported by the presence of ground glass opacities on chest computed tomography (CT) [Tsuzuki, W. T. *et al.*, 2023].

A fourth limitation is that muscle magnetic resonance imaging (MRI) with contrast medium was not provided to confirm the diagnosis necrotising myopathy. The hyperintensity shown on the short tau inversion recovery (STIR) images is not consistent with the patient's symptoms (bilateral pain in the proximal muscles of the upper and lower limbs). The hyperintensity shown in figure 2 could also be interpreted as edema.

In summary, the excellent review has limitations that should be addressed before drawing final conclusions. Clarifying the weaknesses would strengthen the conclusions and could improve the study. Before necrotising myopathy and trigeminal neuropathy can be attributed to BNT162b2, alternative causes must be off the table.

REFERENCES

1. Tsuzuki, W. T., Yokota, K., Inayoshi, F., Sakai, S., Okumura, N., Matsuda, M., Osawa, I., Araki, Y., Funakubo Asanuma, Y., Akiyama, Y. & Mimura, T. "New-onset Immune-mediated Necrotizing Myopathy and Trigeminal Neuropathy after SARS-CoV-2 mRNA Vaccination in a Patient with Rheumatoid Arthritis and Sjögren's Syndrome." *Intern Med*, 62.24 (2023): 3699-3706.
2. Kawamura, A., Tsuchida, Y., Shoda, H., Kubo, K., Uchio, N., Shimizu, J. & Fujio, K. "A case of granulomatous myositis in a patient with rheumatoid arthritis receiving anti-TNF- α treatment." *Mod Rheumatol Case Rep*, 4.1 (2020): 1-5.

3. Chavarría-Miranda, A., Hernández Lain, A., Toldos González, O. & Pedraza Hueso, M. I. "Immune-mediated necrotising myopathy after treatment with adalimumab in a patient with HLA-B27 ankylosing spondylitis." *Neurologia (Engl Ed)*, 36.8 (2021): 631-632.
4. Salazar, D. M., Damani, D. N., Kositangool, P., Ortiz, M. J., Lavezo, J. & Dihowm, F. "Leflunomide-Induced Immune-Mediated Necrotizing Myopathy in a Patient With Rheumatoid Arthritis: A Case Report." *J Investig Med High Impact Case Rep*, 11 (2023): 23247096221150636.

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