Elasomeran/tozinameran

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Various toxicities: 2 case reports

In a retrospective, medical records review, a 49-year-old man and a 44-year-old man were described, of whom the 49-year-old man developed parsonage-turner syndrome (PTS) following immunisation against COVID-19 with elasomeran while the 44-year-old man developed PTS, headache, fatigue and erythema following immunisation against COVID-19 with tozinameran [*doses and routes not stated*].

Case 1: A 49-year-old man, who was immunised against COVID-19 with the first dose of the tozinameran [BNT162b2 vaccine, manufactured by Pfizer-BioNTech] in his right shoulder, was awoken by severe, electric, shooting pain in his left volar forearm following 13h of vaccination. Due to persistent severe pain, he presented to the emergency department where he received IV NSAIDs, but only mild relief was noted with this treatment. His past medical history was significant for Lyme disease 2 months before and was treated with doxycycline. He was discharged and treated with an 8 day prednisone taper, at the end of which his pain subsided. After 9 days of pain onset, an electrodiagnostic test was performed which showed normal results. He developed weakness in wrist flexion and forearm pronation the day after electromyography, along with numbness along a 1 inch strip in the middle volar forearm region. Cervical spine and brachial plexus MRI performed 9 days after onset of initial pain symptoms did not show any findings to account for his symptoms. Physical examination showed mild atrophy in the left volar forearm and mild weakness in forearm pronation and wrist flexion, following 8 weeks after onset of initial pain. MR neurography revealed a prominent denervation oedema pattern of the pronator teres (PT) and flexor carpi radialis (FCR) muscles within the forearm. Within the arm, 4 severe hour-glass-like constrictions and T2-weighted signal hyperintensity of the anteromedially positioned fascicular bundle of the median nerve were detected; this bundle represents the PT/FCR bundle based on the known topographic fascicular arrangement of the median nerve. Repeated electromyography showed severe denervation and no motor unit recruitment within the PT or FCR muscles. Muscles in the anterior interosseous nerve distribution were normal at MRI and electromyography. At 3 month follow-up after onset, he reported that no residual pain but increased weakness. He had not yet received the second dose of his COVID-19 vaccine. After excluding all other causes and based on MR neurography findings, he was suspected to have PTS which attributed to tozinameran.

Case 2: A 44-year-old man, who was immunised against COVID-19 with the second dose of elasomeran [mRNA-1273; manufactured by Moderna] in the left lateral deltoid region, developed sudden-onset, intense, cramping pain in the left lateral deltoid region, after 18 days of immunisation. After 3 weeks, he noticed the inability to abduct the left shoulder beyond 20 degrees. He also developed only minor symptoms attributed to the vaccine, including erythema at the injection site as well as headache and mild fatigue that lasted 2 days. Cervical spine MRI revealed no findings to explain his symptoms, after 24 days of symptom onset. Physical examination showed severe weakness in left shoulder abduction and external rotation, after 2 days. He also described hyperesthesias in the left lateral shoulder and had diminished sensation to pinprick in the radial nerve distribution. Nerve conduction studies revealed mild slowing of the left median and radial sensory responses. Electromyography demonstrated denervation and poor motor unit recruitment in the infraspinatus muscle. After 5 weeks of symptom onset, left brachial plexus MR neurography revealed enlargement, T2-weighted signal hyperintensity and multiple focal hourglass-like constrictions of the suprascapular nerve with accompanying denervation oedema pattern of the supraspinatus and infraspinatus muscles, suggesting PTS.

The man was treated 3 weeks after onset with gabapentin 3 times a day for pain and began physical therapy 7 weeks after symptom onset. His range of motion and strength subjectively improved but did not return to baseline levels, after 3 months of symptom onset. After excluding all other causes his PTS was considered secondary to elasomeran.

Queler SC, et al. Parsonage-Turner Syndrome Following COVID-19 Vaccination: MR Neurography. Radiology 302: 84-87, No. 1, Jan 2022. Available from: URL: http://doi.org/10.1148/radiol.2021211374

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