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【 LETTERS TO THE EDITOR 】

A Case of Sequential Development of Polymyalgia Rheumatica and Guillain-Barré Syndrome Following Administration of the Pfizer-BioNTech COVID-19 Vaccine

Key words: COVID-19, vaccine, polymyalgia rheumatica, Guillain-Barré syndrome

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To the Editor We read with interest the case report "New-onset Polymyalgia Rheumatica Following the Administration of the Pfizer-BioNTech COVID-19 Vaccine" by Osada et al., which was published in Internal Medicine (1). Accumulating evidence has shown that vaccination against coronavirus disease 2019 (COVID-19) can induce or aggravate certain autoimmune-related diseases, including polymyalgia rheumatica (PMR) and Guillain-Barré syndrome (GBS) (2, 3). The plausible mechanisms include molecular mimicry, production of particular autoantibodies, and the involvement of certain vaccine adjuvants (4). However, it remains unknown whether one patient can sequentially develop two or more auto-immune-related diseases after the administration of a COVID-19 mRNA vaccine.

A 67-year-old man with chronic kidney disease (CKD) stage G3b was hospitalized for treatment of systemic pain and morning stiffness that started 1 week after his second COVID-19 mRNA vaccination (BNT162b2; Comirnaty; Pfizer-BioNTech). At 1 week after the second vaccination, he experienced pain in the bilateral hips, elbows, shoulders, knees, and wrists. He also had morning stiffness that lasted for >45 min. He visited our department after two months of oral nonsteroidal anti-inflammatory drug treatment failed to relieve the systemic pain. A physical examination on admission revealed tenderness, pain on movement, and limitation of the bilateral shoulders and hip joints. His serum C-reactive protein and albumin levels were 5.6 mg/dL and 3.6 g/dL, respectively. Tests for rheumatoid factor and anti-cyclic citrullinated antibodies were negative. Ultrasonography revealed bilateral biceps tenosynovitis. His clinical findings were consistent with PMR. Oral prednisolone (15 mg/day) was initiated. A few days later, the multiple joint pain subsided, and the dose of prednisolone was reduced to 10 mg/day within 1 month. However, at 1 month after the initiation of prednisolone, he experienced muscle weakness and developed hoarseness. The symptoms rapidly progressed, and he became unable to stand from the ground unaided at 5 days before the second admission. A physical examination revealed distant dominant weakness with absent deep tendon reflexes and unilateral vocal cord palsy. Gowers's test was positive. He was diagnosed with GBS and treated with the intravenous administration of immunoglobulins. The related symptoms subsided after 2 months and he is now on a rehabilitation program.

It remains unclear whether the development of two distinct autoimmune-related diseases in the present case was caused by the COVID-19 mRNA vaccination or was just a coincidence. However, our case highlights the clinical significance that two autoimmune-related diseases may occur in a patient. Further surveillance is necessary to determine a causal relationship among COVID-19 mRNA vaccines, PMR, and GBS.

All procedures performed in this study involving human participants were in accordance with the ethical standards of the institutional review board and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Written informed consent for the submission of this case report was obtained from the patient.

The authors state that they have no Conflict of Interest (COI).

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