Consider Transverse Myelitis as a Complication of a SARS-CoV-2 Vaccination

Josef Finsterer and Daniel Matovu

1Neurology and Neurophysiology Center, Vienna, Austria
2Departamento de Neurologia e Neurocirurgia, Escola Paulista de Medicina, Universidade Federal de São Paulo, Brazil

To the Editor:

We read with interest the article by Eom et al. about two patients, an 81 years old male (patient-1) and a 23 years old female (patient-2), who developed transverse myelitis three days (patient-1) respectively 21 days (patient-2) following the second (patient-2) respectively first dose of the Biontech Pfizer vaccine (BPV). Patient-1 presented with distal weakness, sensory disturbances and spasticity of the upper limbs. Patient-2 presented with paraparesis and sensory disturbances of the lower limbs and urinary retention. Spinal MRI revealed a T2-hyperintense lesion C1-C3 (patient-1) and a T2-hyperintense lesion in the conus medullaris (patient-2). Both patients received steroids but recovery was incomplete at the one month (patient-1) respectively 3 months (patient-2) follow-up.

The study is appealing but raises concerns that need to be discussed. We disagree that transverse myelitis is a rare complication of SARS-CoV-2 vaccinations. When reviewing the literature about transverse myelitis following a SARS-CoV-2 vaccination, 24 cases were identified of whom detailed individual data were available from 20 patients (Table 1). Age of these 20 patients ranged between 23 and 85 years. Twelve of these patients were female and eight were male (Table 1). Vaccine brands applied were the BPV (n = 7), the Astra Zeneca vaccine (AZV , n = 9), the Moderan vaccine (MOV , n = 2), the Johnson and Johnson vaccine (JJV , n = 1), and the Sinovac vaccine (SVV , n = 1) (Table 1). Latency between vaccination and onset of clinical manifestations of transverse myelitis ranged from one day to 21 days (Table 1). Patients were treated with steroids (n = 20, plasma exchange (n = 4), or immune-adsorption (n = 1) (Table 1). The outcome at the last follow up was reported as complete recovery in three patients, as incomplete recovery in 16 patients, and as fatal in one patient (Table 1). This case series does not include those with myelin oligodendrocyte glycoprotein (MOG)-associated myelitis, neuromyelitis optica spectrum disorder (NMO-SD), those with acute disseminated encephalomyelitis (ADEM), or those with a spinal relapse of multiple sclerosis as complications of a SARS-CoV-2 vaccination. Since not all patients with post-SARS-CoV-2 vaccination transverse myelitis have been published, it is conceivable that the true number of patients with COVID vaccination associated myelitis is much higher.
Overall, the interesting study has limitations which challenge the results and their interpretation. Addressing these issues would strengthen the conclusions and could be more educative. Myelitis as a complication of SARS-CoV-2 vaccinations is not infrequent and treating physicians should be aware of this side effect to diagnose patients thoroughly and treat them adequately in due time.

REFERENCES

1. Eom H, Kim SW, Kim M, Kim YE, Kim JH, Shin HY, et al. Case Reports of acute transverse myelitis associated with mRNA vaccine for COVID-19. *J Korean Med Sci* 2022;37(7):e52.
Dear Editor:

Thank you for your interest in our recent report. We appreciate your supportive comments about the case of acute transverse myelitis (ATM) after the coronavirus disease (COVID-19) vaccination. Some reports are available across the world, and you have provided meaningful clinical information by reviewing previous cases. We should be aware of myelitis as an adverse event after COVID-19 vaccination and treat it promptly.

As of January 12, 2022, approximately 58% of the world’s population received at least one dose of the COVID-19 vaccine. According to the Korea Disease Control and Prevention Agency (CDC), the cumulative number of recipients who have been vaccinated against COVID-19 at least once in Korea is 44,947,315. Approximately 73% (32,688,629) of these people received booster shots. In the United States, nine cases of transverse myelitis were reported among 51,755,447 individuals who received vaccinations in 2021. In Taiwan, two cases of transverse myelitis were reported among 9,987,157 individuals who received inoculations in 2021. According to the Korean CDC, there were 23 suspected cases of myelitis among 120,296,705 individuals who received vaccinations in 2022. Citing the reports of these countries, its frequency is estimated to be 0.2 per million of those who received COVID-19 vaccination doses. Considering the inoculation size worldwide, we think that myelitis is a relatively rare side effect; therefore, close attention of neurologists is necessary.

As of January 12, 2022, approximately 58% of the world’s population received at least one dose of the COVID-19 vaccine. According to the Korea Disease Control and Prevention Agency (CDC), the cumulative number of recipients who have been vaccinated against COVID-19 at least once in Korea is 44,947,315. Approximately 73% (32,688,629) of these people received booster shots. In the United States, nine cases of transverse myelitis were reported among 51,755,447 individuals who received vaccinations in 2021. In Taiwan, two cases of transverse myelitis were reported among 9,987,157 individuals who received inoculations in 2021. According to the Korean CDC, there were 23 suspected cases of myelitis among 120,296,705 individuals who received vaccinations in 2022. Citing the reports of these countries, its frequency is estimated to be 0.2 per million of those who received COVID-19 vaccination doses. Considering the inoculation size worldwide, we think that myelitis is a relatively rare side effect; therefore, close attention of neurologists is necessary.

In addition, a recent study reported that among the healthcare workers who received the BNT162b2 vaccine, approximately 60% complained of malaise or fatigue, and 45% experienced myalgia. These symptoms are common side effects of COVID-19 vaccination; however, no case of ATM has been reported earlier.

This report was the first of its kind in Korea, which is an Asian country, and it is meant to draw the attention of neurologists. Given the number of worldwide vaccinations, dozens of cases of ATM are expected in each country. Since the annual incidence of myelitis is not high in most countries, the estimated number of ATM cases after COVID-19 vaccination is not small, as reported by Dr. Finsterer.

Criteria for rarity would vary; however, we propose that the number of reported ATM cases is relatively small given the number of vaccinations, as compared to common side effects, such as fever, headache, and myalgia. However, in the case of ATM, the severity is higher than that of the common side effects; thus, we suggest that although a rare adverse event, it should be
taken into account. Based on these reports, we hope that patients diagnosed with myelitis post-vaccination will receive adequate treatment.

REFERENCES

1. Eom H, Kim SW, Kim M, Kim YE, Kim JH, Shin HY, et al. Case reports of acute transverse myelitis associated with mRNA vaccine for COVID-19. J Korean Med Sci 2022;37(7):e52.
   PUBLMED | CROSSREF
2. BBC News. https://www.bbc.com/korean/features-56066227. Accessed April 13, 2022.
3. Korea Disease Control and Prevention Agency. https://www.kdca.go.kr/board/board.es?mid=a20501010000&bid=0015&act=view&list_no=719130. Accessed April 1, 2022.
4. Goss AL, Samudralwar RD, Das RR, Nath A. ANA investigates: neurological complications of COVID-19 vaccines. Ann Neurol 2021;89(5):856-7.
   PUBLMED | CROSSREF
5. Hsiao YT, Tsai MJ, Chen YH, Hsu CF. Acute transverse myelitis after COVID-19 vaccination. Medicina (Kaunas) 2021;57(10):1010.
   PUBLMED | CROSSREF
6. Korea Disease Control and Prevention Agency. https://ncv.kdca.go.kr/board.board.es?mid=a11707010000&bid=0032&act=view&list_no=606&tag=&nPage=1. Accessed April 1, 2022.
7. Kadalii RAK, Janagama R, Peruru S, Malayala SV. Side effects of BNT162b2 mRNA COVID-19 vaccine: a randomized, cross-sectional study with detailed self-reported symptoms from healthcare workers. Int J Infect Dis 2021;106:376-81.
   PUBLMED | CROSSREF