DELAYED-ONSET ANAPHYLAXIS AFTER MRNA-BASED COVID-19 VACCINATION IN AN ADOLESCENT MALE

To the Editors:

Adverse events after mRNA-based COVID-19 vaccinations have been reported in the adolescents.[1–3] We report a case of 16-year-old male who developed anaphylaxis 27 hours after the first dose of BNT162b2 COVID-19 vaccine, and improved with 2 doses of intramuscular adrenaline 1 mg (1:1000).

A 16-year-old male presented to the emergency department 31 hours after receiving the first dose of BNT162b2 (Pfizer-BioNTech) COVID-19 vaccine (Batch No. PAA173696) on January 11, 2022. He had 2 episodes of vomiting that started 6 hours postvaccination and 3 episodes of loose stools without mucus or blood. He developed body rash after 27 hours of vaccination associated with pruritus. He also complained acute chest tightness and shortness of breath for 1 hour, present even at rest. On examination, he was ill-looking, with red eyes, upper lip swelling, and diffuse erythematous rash over anterior abdominal wall, back, and bilateral upper limbs. He was febrile and vitals were unstable (pulse rate 140 beats per minute, respiratory rate 24 per minute, blood pressure 90/60 mm Hg), with oxygen saturation of 84% in room air. On chest auscultation, there was bilateral decreased air entry with no added sounds. Other systemic examinations were normal.

The patient denied recent insect bite, application of new cosmetic agent, or intake of new food items or medicines between vaccination and symptoms onset. He had no known allergy to any drugs, food, pets, insect stings, dust, pollens, or vaccinations. He did not have history of asthma, atopy, or chronic illness; no previous exposure to bowel preparations or laxatives either. He had never been infected with COVID-19. His laboratory reports were mostly normal except high D-dimer (5.08 mg per liter) (see Table, Supplemental Digital Content 1, http://links.lww.com/INF/E690).

In the emergency room, the patient was treated with oxygen supplementation via nasal prongs and intravenous medications: hydrocortisone 200 mg, pheniramine maleate 90 mg, ranitidine 50 mg, hyoscine butyl bromide 20 mg, ketorolac 30 mg, pantoprazole 40 mg, and normal saline infusion 500 mL. He improved initially, but worsened after few hours. Then he was treated with 2 doses of intramuscular adrenaline 1 mg (1:1000), after which his condition improved. The same day, he was shifted to the intensive care unit for further management. The patient was discharged after 4 days of hospitalization, and, as of February 10, 2022, he is doing fine. This incident has been reported to the Ministry of Health and Population.

Nepal deployed COVID-19 vaccination on January 27, 2021, starting with Oxford-AstraZeneca (Covishield) vaccination for adults and elderly.[4] The mRNA-based vaccines were introduced in late 2021, for children 12–17 years (www.covid19.mohp.gov.np). However, there are no official publications regarding COVID-19 vaccination associated adverse events following immunization (AEFI). Latest global reports suggest anaphylaxis incidence closer to 1:200,000 doses with respect to BNT162b2.[1]

In most anaphylactic reactions, symptoms begin within minutes (generally 30 minutes) of exposure to the allergen.[5] In case of vaccines, symptoms onset is 13 minutes on average, and generally, 86% occur within 30 minutes of vaccination.[3] Symptoms can range from cutaneous symptoms to respiratory distress and cardiovascular collapse.[5] Delayed reactions which occur hours to days after exposure, typically manifest as cutaneous reaction.[5] Our patient developed reactions 27 hours after vaccination, had level 1 anaphylaxis as per Brighton Collaboration case definition (www.brightoncollaboration.us) as he met all 3 major criteria under dermatologic/mucosal, respiratory, and cardiovascular symptoms.

This report highlights the importance of establishing effective AEFI surveillance systems in the country, and extending patient monitoring following COVID-19 vaccination with proper AEFI counseling so that life-threatening complications can be prevented.[1]

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REFERENCES

1. Turner PJ, Ansotegui IJ, Campbell DE, Cardona V, Ebisawa M, El-Gamal Y, et al. COVID-19 vaccine-associated anaphylaxis: a statement of the World Allergy Organization Anaphylaxis Committee [Internet]. *World Allergy Organ J.* 2021;14:100517. Available at: https://doi.org/10.1016/j.waojou.2021.100517
2. Ulrikka N, Mette HCB. Population-based incidence of myopericarditis after COVID-19 vaccination in Danish adolescents. *Pediatr Infect Dis J*. 2022;41:e25–e28.
3. Shimabukuro T, Nair N. Allergic reactions including anaphylaxis after receipt of the first dose of Pfizer-BioNTech COVID-19 vaccine [Internet]. *JAMA*. 2021;325:780–781.
4. Bhattarai S, Dhungana J. A million-dose success for Nepal: insights from Nepal's national vaccine deployment plan against COVID-19. *J Travel Med.* 2021;28:taab027.
5. Kuder MM, Lang DM, Patadia DD. Anaphylaxis to vaccinations: a review of the literature and evaluation of the COVID-19 mRNA vaccinations [published online ahead of print March 1, 2021]. *Cleve Clin J Med*. doi:10.3949/ccjm.88a.ccc075.

CORRECT IMPLEMENTATION OF SCREENING TESTING TOWARD CONGENITAL INFECTIONS DURING PREGNANCY REDUCES THE RISK OF ABNORMAL FETAL ULTRASOUND

To the Editors:

We read with great interest the paper of Ho et al[1] on neuropathologic ultrasound findings during pregnancy after infection with ZIKA virus. *Toxoplasma gondii* may also cause fetal defects.[2] Rabil-

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The patient provided a written informed consent for publishing this report.
Supplemental digital content is available for this article. Direct URL citations appear in the printed text and are provided in the HTML and PDF versions of this article on the journal's website (www.pidj.com).
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