

# Delayed-onset anaphylaxis after first dose of Pfizer-BioNTech COVID-19 vaccine

Dear Sir,

Public hesitancy over safety of the Pfizer-BioNTech COVID-19 vaccine still persists.<sup>[1]</sup> Anaphylaxis remains the most serious adverse reaction,<sup>[2]</sup> with the average time of onset being 13 minutes from administration. This reaction has been reported more commonly in females,<sup>[3]</sup> and it can be life-threatening if not treated in time. To reduce this risk, a post-vaccine monitoring period of 30 minutes has been instituted in Singapore's mass vaccination exercise.<sup>[4]</sup>

Herein, we present a case of delayed-onset anaphylaxis after the first dose of COVID-19 vaccine. A 68-year-old man was vaccinated with the Pfizer-BioNTech COVID-19 vaccine as part of the Institute of Mental Health's vaccination programme for long-stay residents in March 2021. He had a medical history of hyperlipidaemia, osteoporosis, epilepsy, cerebrovascular accident in 2015 (rendering him wheelchair ambulant but able to self-feed solid food), mental retardation and an adverse drug reaction (unknown) to fluphenazine. At baseline, the patient was non-communicative because of his cognitive impairment.

At 11.15 am, the Pfizer-BioNTech COVID-19 vaccine was administered over the patient's left deltoid. He remained asymptomatic throughout the institution's mandatory post-vaccination monitoring period of one hour. At 2.10 pm, the patient was observed to be coughing during lunch. On examination, he had a temperature of 36.3°C, blood pressure (BP) of 138/78, heart rate (HR) of 82 and an oxygen saturation of 93% on room air. He was found wheezing, with localised erythema over his left deltoid, not extending past the elbow. A systems review was otherwise unremarkable. The patient was subsequently administered intramuscular (IM) adrenaline, nebulised salbutamol and supplemental oxygen. At 2.40 pm, he was transferred to the nearest restructured hospital for medical stabilisation, with vital signs of BP 137/90, HR 118 and respiratory rate of 28. His oxygen saturation was maintained at 100% using a non-rebreather mask.

On arrival, the patient was hemodynamically stable, saturating well on room air. His wheeze and erythema had subsided. However, owing to persistent coughing and restlessness, a second-line treatment for anaphylaxis comprising intravenous hydrocortisone 200 mg and IM diphenhydramine 25 mg was started. Nasoendoscopy was also performed to rule out possible aspiration. The airway of the patient was clear. His coughing and restlessness resolved within an hour of administration of the second-line treatment. He remained well during admission, requiring no intubation or monitoring in high-dependency unit.

Mast cell tryptase test was not performed as it was outside the window period.

This case was discussed during SingHealth COVID-19 vaccine allergy work group meeting, and the patient was formally diagnosed as having anaphylaxis to tozinameran (Pfizer-BioNTech COVID-19 vaccine) based on his clinical presentation during admission and advised not to receive the second dose of the vaccine. The patient had recovered fully at the time of writing this article.

This case serves as a reminder that adverse reactions should be considered in patients even outside the current stipulated post-vaccination monitoring window, regardless of gender, especially in populations with communication difficulties, so that timely treatment can be initiated.

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## Conflicts of interest

There are no conflicts of interest.

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## REFERENCES

- MacDonald NE, SAGE Working Group on Vaccine Hesitancy. Vaccine hesitancy: Definition, scope and determinants. *Vaccine* 2015;33:4161-4.
- CDC COVID-19 Response Team; Food and Drug Administration. Allergic reactions including anaphylaxis after receipt of the first dose of Pfizer-BioNTech COVID-19 vaccine - United States, December 14-23, 2020. *MMWR Morb Mortal Wkly Rep* 2021;70:46-51.
- Shimabukuro T, Nair N. Allergic reactions including anaphylaxis after receipt of the first dose of Pfizer-BioNTech COVID-19 vaccine. *JAMA* 2021;325:780-1.
- Lim MZ. Covid-19 vaccination now open to Singapore residents aged 45 to 59: Gan Kim Yong. *The Straits Times* 2021 May 03. Available from: <https://www.straitstimes.com/singapore/covid-19-vaccination-programme-in-singapore-expanded-to-those-aged-45-to-59-gan-kim-yong>. [Last accessed on 2021 Apr 15].

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