CORRESPONDENCE

VITT and Second Doses of Covid-19 Vaccine

TO THE EDITOR: In March 2021, concerns were raised about an increased risk of thrombosis associated with thrombocytopenia among persons who had received their first dose of the ChAdOx1 nCoV-19 (Oxford–AstraZeneca) coronavirus disease 2019 (Covid-19) vaccine. Between 5 and 30 days after vaccination, severe thrombosis developed in these patients, most of whom were previously fit and well. The thrombosis often occurred at unusual or multiple sites, in conjunction with thrombocytopenia, grossly elevated D-dimer levels, reduced fibrinogen levels,[1,2] and the presence of anti–platelet factor 4 (PF4) antibodies.

To determine the risk of a second Covid-19 vaccine dose in these patients with vaccine-induced immune thrombotic thrombocytopenia (VITT), the U.K. Health Security Agency (formerly Public Health England) identified the patients who had received a second vaccine dose and contacted the primary care physicians for follow-up. A total of 40 patients were identified as having confirmed (26 patients), probable (2 patients), or possible (12 patients) VITT, as defined in Pavord et al.,[3] after receiving their first dose of ChAdOx1 nCoV-19 (Table 1). The patients ranged in age from 21 to 76 years, and 25 were women. Five of the patients had received a second dose of ChAdOx1 nCoV-19, 2 had received mRNA-1273 (Moderna), and 33 had received BNT162b2 (Pfizer–BioNTech).

None of the 40 patients had any relapse of symptoms or severe adverse reactions after receiving the second dose of vaccine, regardless of the vaccine received. Although the mechanism of VITT is still not known,[4] the absence of relapse suggests that the phenomenon is not related to the immune response to the spike protein. This conclusion is consistent with that reported by Greinacher et al.,[4] who showed that the anti-PF4 antibodies that are detected in patients with VITT do not interact with epitopes on the spike protein and appear to be independent of the spike antibody response. Furthermore, VITT is rarely, if at all, associated with vaccination with non–adenoviral vector vaccines, such as the messenger RNA (mRNA) vaccines.[5] Patients with VITT should be advised to complete their Covid-19 vaccine course to improve protection. In this study, the majority of patients had received BNT162b2 as their second dose, with no adverse effects.

Table 1. Second Doses of Covid-19 Vaccine in Patients Who Had VITT after a First Dose of ChAdOx1 nCoV-19.*

VITT Category	ChAdOx1 nCoV-19	mRNA-1273	BNT162b2	Interval between Vaccine Doses
	no. of patients who received a second dose			*days*
Confirmed	1	2	23	53–234
Probable	0	0	2	77–122
Possible	4	0	8	63–190
Total	5	2	33	—

* Covid-19 denotes coronavirus disease 2019, and VITT vaccine-induced immune thrombotic thrombocytopenia.

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