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Immune Thrombocytopenia (ITP): Relapse Versus de novo After COVID-19 Vaccination

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Statements

Our institution does not require ethical approval for reporting individual cases or case series.

Verbal informed consent was obtained from the patient(s) for their anonymized information to be published in this article.

Supplemental materials: All data can be accessed directly from the corresponding author upon a formal request.

Letter to Editor

With the development of the new COVID-19 vaccines, recent case reports and series were published linking COVID-19 vaccines to immune thrombocytopenia (ITP) onset or relapse.[1-3]

We describe case series of ten patients with thrombocytopenia during the first 4 weeks after COVID-19 vaccination. Data was collected from first January to 31st July 2021. None of the patients described had SARS-CoV-2 infection at the time of ITP diagnosis or relapse. None of the patients reported with thrombocytopenia prior to COVID-19 vaccination.

A case-by-case description has been included in the supplement and a summary of results are found in Table 1. From January first - July 31st 2021 in Kuwait, 1,029,417 individuals had received the first dose only and 716,296 had received both doses of Pfizer vaccine, and 736,123 patients had received the first dose only and 289,592 had received both doses of AstraZeneca/Oxford vaccine. We describe 10 cases of ITP; three cases were de novo and 7 cases were ITP relapse after the vaccine which represent 1:927,000 cases of all vaccinated individuals in Kuwait (January first-July 31st, 2021). Two out of 10 cases developed ITP after the first dose of AstraZeneca/Oxford which represented 1:368,000 of all individuals who received first dose of the AstraZeneca/Oxford. One developed de novo ITP after the second dose of Pfizer vaccine which represents 1:1,750,000 of all patients who received both doses of Pfizer vaccine. All cases of ITP de novo were females, age range of 33 to 56 years, with time range between vaccine exposure and platelet count drop of 7 to 21 days and a platelet count range of 2 to 10×10^9/l. All patients required hospitalization and active treatment and two required second line therapy with thrombopoietin receptor agonists. Two patients had only partial response after 3 days and one had complete remission 10 days after the second admission.

Our cases varied in the timing of ITP onset ranging 4 to 21 days post vaccine, similar to a study by Lee et al. which showed that ITP relapse ranges 1 to 23 days post vaccine.[2] However, this is in contrast to reported cases by Helms et al. that occurred one day post Moderna vaccine[3] and by Tarawneh et al. that occurred three days post Pfizer vaccine.[1]

The cases presented here included different age groups (19-63 years) than those reported by others.[1-3]

The incidence of de novo ITP in Kuwait is very low (almost 1:1,000,000) of all vaccinated individuals in with difference in the incidence according to the type of vaccine (1: 368,000 for AstraZeneca/Oxford and 1:1.750,000 for Pfizer vaccine). Unfortunately, data on ITP prevalence in the population is

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Table 1. Summary of patients with ITP post Covid-19 vaccine

Case Number	Case 1	Case 2	Case 3	Case 4	Case 5	Case 6	Case 7	Case 8	Case 9	Case 10
De novo ITP	No	No	No	No	No	No	No	Yes	Yes	Yes
Age	37Y	30 Y	56 Y	63 Y	30Y	28y	19 y	54	33	56
Gender	Female	Male	Male	Female	Female	Female	Male	Female	Female	female
Base line treatment	Observation	Eltromobopag 25 mg/24h	Splenectomy in 2010	Observation	Observation	Romiplostim 10mcg/kg/ week + prednisolone 5 mg /24h	eltrombopag 50mg/ 24h	Not known to have ITP previously	Not known to have ITP previously	Not known to have ITP previously
Type of vaccine	Pfizer	Pfizer	AstraZenec-oxford	AstraZeneca-oxford	Pfizer	AstraZeneca-oxford	Pfizer	AstraZeneca-oxford	AstraZeneca-oxford	Pfizer
first or second dose of vaccine	second dose	first dose	first dose	second dose	first dose	first dose	second dose	first dose	first dose	second dose
Time between vaccine and development of symptom	10 days	7 days	14 days	10 days	7 days	10 days	4 days	17 days	21 days	7 days
Platelet count	$25X10^9$/l	11×10^9/l	9×10^9/L	35×10^9/l	40×10^9/l	$30X10^9$/l	5×10^9 /l	10×10^9/l	3×10^9 /l	2×10^9/l
Treatment	Prednisolone 20 mg 2weeks	IVIG 1gm Prednisolone 20 mg/24h for 1 week Eltromobopag increased to 25 mg/24h	IVIG 1gm Romiplostim 250mcg	None	None	Increase prednisolone to 40mg/24h, taper back to 5 mg/24h over 3 weeks romiplostim	Methylprednisolone 1gm Prednisolone 20 mg Increase dose of eltrombopag to 75 mg/24h	IVIG 1gm/kg Prednisolone 1 mg/ kg for 8 weeks	IVIG 1 gm/kg daily for 2 doses Prednisolone 1 mg/ kg Romiplostim 3 mcg/ kg once per week	Pulse steroid IVIG 1g/kg for 2 days Prednisolone 1 mg/kg Eltrombopag 50 mg/24h
Response to treatment	Complete remission(platelet 170×10^9/l) within 7 days	Complete remission (platelet 300×10^9/l) within 8 days	Complete remission (platelet 170×10^9/l) 14 days	Spontaneous partial remission (platelet 110×10^9/l)within 30 days	Spontaneous partial remission platelet 80×10^9/) after 20 days	Platelet back to baseline ($70X10^9$/l) within 7 days	Platelet count back to base line (70×10^9 /l)after 5 days	Partial remission platelet 50×10^9/l) within 3 days	Partial remission Platelet count was 50×10^9 /l after 3 days during second admission	Complete remission Platelet count 226×10^9/l after 10 days of the second admission

lacking in order to compare ITP incidence post vaccine to the general population.

Significance Statement

This paper is intended to raise awareness of the possibility of the occurrence of ITP relapse post COVID-19 vaccine like other vaccines previously reported. We presented ten cases, three of whom developed de novo ITP.

We do not advice against COVID-19 vaccination of such individuals but rather suggest performing CBC few days prior to and after vaccination aiming for an earlier discovery of ITP attack to provide a proper intervention as soon as possible, hence preventing undiagnosed severe thrombocytopenia, bleeding, and the need for aggressive therapy or hospital admission.

Author's contribution

MA and MA initiated and coordinated the development of the paper, worked on data collection, analysis, and writing up the paper. MA, MA, NS, TR and LA analyzed and interpreted the results and helped in writing introduction. All authors read and approved the final manuscript.

Declaration of Conflicting Interests

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Supplemental Material

Supplemental material for this article is available online.

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