

COVID-19 vaccine related menstrual irregularities: A cause of vaccine hesitation?Aqsa Saleem,¹ Syed Owais Javed,² Farheen Malik³

Madam, vaccination against Coronavirus Disease of 2019 (Covid-19) has shown remarkable progress in controlling the ongoing pandemic. Currently, over nine billion doses of Covid-19 vaccines have been administered worldwide,¹ and although this widespread vaccination has shown great progress in managing the pandemic, multiple side effects have been noted. Most of these side effects are mild such as pain at injection site, fever, rash, etc., but some are serious and long-lasting like myocarditis and other cardiovascular complications.

Recently, there have been reports of several women experiencing menstrual irregularities after being administered Covid-19 vaccines, and that has created hesitation amongst women to get their shot² Table-1. summarizes the number of menstrual disturbances recorded by Medicines and Healthcare products Regulatory Agency (MHRA) Yellow Card Scheme until 22nd December 2021.

While several factors have been implicated to be the cause of these irregularities, a definitive reason still remains to be established. A recent meta-analysis by Sharifian-Dorche M et al. has shown that Covid-19 vaccines induce thrombocytopenia.³ This can result in the loss of endometrial haemostasis, and consequently, vaccinated women might experience increased blood loss/heavy menstrual bleeding (HMB). Moreover, since body's immune system is activated by Covid-19 vaccines,⁴ immune cells lining the uterus can contribute to early shedding of uterine wall, and that may manifest as intermenstrual bleeding (IMB) or postmenopausal bleeding (PMB). Women who have recovered from Covid-19 infection continue to suffer from menstrual irregularities for prolonged times. Therefore, the possibility of Long Covid Syndrome causing these menstrual disturbances cannot be disregarded.⁵ Additionally, the prevailing gender bias in pre-and post-covid literature has led to under-reporting of events

.....
¹25th Year MBBS Student, Dow Medical College, Karachi, ³Department of Medicine, Civil Hospital, Karachi, Pakistan.

Correspondence: Syed Owais Javed. Email: syedowaisjaved97@gmail.com

DOI: <https://doi.org/10.47391/JPMA.5415>

Table: Summary of menstrual irregularities in women living in UK by MHRA.⁶⁻⁸

Adverse Events	Number of Adverse Events Reported (n)**		
	Pfizer-BioNTech	Moderna	AstraZeneca
Menstruation with Decreased Bleeding	6359	776	4363
Menstruation with Increased Bleeding	6383	933	5363
Intermenstrual Bleeding	1142	186	694
Postmenopausal Bleeding	101	13	302
Other Menstrual Disorders	8533	1182	5468

**~51.1 million doses of Covid-19 vaccines have been administered to women in the UK until 22nd December, 2021.

related to female reproductive health, further limiting our understanding of this subject.

In conclusion, to minimize vaccine hesitation among women, it is imperative that a better understanding of these side effects should be sought. Further research should be encouraged to investigate vaccines' short- and long-term effects on reproductive health. Questions regarding menstrual cycle should be included in clinical trials for Covid-19 vaccines, and women should be encouraged to report any unusual post-vaccination changes in menstrual cycles to their doctors. Moreover, strict pharmacovigilance should be practiced to monitor people with pre-existing coagulopathies, and those on certain medications in order to limit the possibility of life-threatening conditions such as cerebral venous sinus thrombosis (CVST) after taking the Covid-19 vaccines. Lastly, to remove any mistrust, clinicians should inform women about all the risks and benefits of vaccination so they can make the right choice to protect themselves, and their families.

Disclaimer: The material described is not under publication or consideration for publication elsewhere, and no parts of this manuscript have been presented in a meeting orally, or by a poster, anywhere to date.

Conflict of Interest: None to declare.

Funding Disclosure: None to declare.

References

1. Coronavirus (COVID-19) Vaccinations - Statistics and Research - Our World in Data. [Online] [Cited 2021 December 31]. Available from: URL: <https://ourworldindata.org/covid-vaccinations>.
2. Li K, Chen G, Hou H, Liao Q, Chen J, Bai H, et al. Analysis of sex hormones and menstruation in COVID-19 women of child-bearing age. *Reprod Biomed Online*. 2021; 42:260-7.
3. Sharifian-Dorche M, Bahmanyar M, Sharifian-Dorche A, Mohammadi P, Nomovi M, Mowla A. Vaccine-induced immune thrombotic thrombocytopenia and cerebral venous sinus thrombosis post COVID-19 vaccination; a systematic review. *J Neurol Sci*. 2021; 428:117607.
4. Speiser DE, Bachmann MF. Covid-19: Mechanisms of vaccination and immunity. *Vaccines (Basel)*. 2020; 8:404.
5. Davis HE, Assaf GS, McCorkell L, Wei H, Low RJ, Re'em Y, et al. Characterizing long COVID in an international cohort: 7 months of symptoms and their impact. *EClinicalMedicine* [Online] [Cited 2021 August 16]. Available from: URL: <https://doi.org/10.1016/j.eclinm.2021.101019>.
6. COVID-19 mRNA Pfizer- BioNTech vaccine analysis print 2021. COVID-19 mRNA Pfizer- BioNTech vaccine analysis print Report Run Date?: Data Lock Date?: Case Series Drug Analysis Print Name?: COVID-19 mRNA Pfizer- BioNTech vaccine analysis print.[Online] [Cited 2022 April 06]. Available from: URL: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1069177/COVID-19_Pfizer-BioNTech_Vaccine_Analysis_Print_DLP_6.04.2022.pdf
7. Wkh ZE, Rqo Y, Wkh W, Kdv U, Lw DV, Kdyh PD, et al. vaccine RUGHU WR LGHQWLI \ SRVVLEOH QHZ ULVNV COVID-19 Moderna vaccine Case Series Drug Analysis Print Name: COVID-19 Moderna vaccine. [Online] [Cited 2022 April 07]. Available from: URL:https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1069179/COVID-19_Moderna_Vaccine_Analysis_Print_DLP_6.04.2022.pdf
8. Date RR, Date DL, Uk A. COVID-19 AstraZeneca Vaccine Analysis Print Report Run Date?: Data Lock Date?: mean that it was caused by the vaccine, only that the reporter has a suspicion Case Series Drug Analysis Print Name: COVID-19 Astra Zeneca Vaccine Analysis Print. [Online] [Cited 2022 April 10]. Available from: URL: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1069178/COVID-19_AstraZeneca_Vaccine_Analysis_Print_DLP_6.04.2022.pdf.