

**MENSTRUAL CYCLES AFTER COVISHIELD VACCINATION**

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**ABSTRACT.**

Sars COV 2 that emerged from the wet market of wuhan clinched the world with electrifying speed. Mankind has never bowed down to any natural calamity without strong fight to certain extent The culprit being a virus

,even the latest antibiotics were of no help. Scientists and pharma companies came to rescue the mankind by manufacturing various vaccines to combat the spread of

COVID 19 and provide immunity against the possible exposure to infective virus .Various vaccines like Inactivated virus vaccines, recombinant viral vaccines, subunit vaccines, DNA vaccines, and attenuated vaccinations were all tried to find out effective vaccine against sars cov virus. In india government took up the task of vaccinating the population free of cost. After testing the efficacy of various available vaccines covishield was selected for the mass vaccination programme.

Our DHIRAJ HOSPITAL being a tertiary care centre affiliated to SBKS MI & RC took a leap forward to serve the mankind and was elected as govt approved vaccination centre. Easy availability of the research material prompted us to carry out the study. In study we concluded that the female candidates experienced changes in menstruation in form of increased days of bleeding, increased passage of blood during menstruation and shortening of the interval between the cycles.

**Keywords:** SARS-CoV-2; covishield, immunization; menstrual bleeding; menstrual cycle; heavy period.

## INTRODUCTION

Sars- cov virus primarily affects the respiratory system of the person who is exposed to the virus. Usually the infection is mild in majority of affected persons presenting with symptoms of common cold and influenza and resolves in few days without any medical treatment. The persons with co morbidities of cvs or respiratory system and immunocompromised patients e.g. DM or carcinoma are inflicted with severe form of disease threatening their life. Coughing and sneezing by infected person throws millions of aerosol droplets in atmosphere which are responsible for spread of the disease.. Staying at home was the best measure to avoid the infection. Public awareness and following the guidelines issued by the health department proved the main tool to avoid spread of the disease .Frequent washing of hands, proper use of face mask and social distancing were advised to protect oneself from contracting the disease. Mass vaccination was also carried out to provide immunity against the virus. Various pharma companies came out with vaccine

Serum Institute of India – researched covishield while covaxin was researched and developed in

Hyderabad by Bharat biotech under guidance of ICMR and national institute of virology. (NIV). The vaccines approved and available in India, are, Covaxin, Covishield, and Sputnik-V. Scientific name of Covaxin is BBV152. Efficacy of Covaxin ia around 80% Scientific pharmaceutical name of Covishield, is AZD1222, and is developed jointly by the SII, Oxford University, and AstraZeneca. Covishield's effectiveness was found to be 90%. The time gap between the two doses of Covaxin are given at interval of 4-6 weeks while covishield is to be given at interval 12-16 weeks The covishield vaccine is derived from inactivated vero cell which are not capable of replication . They are incapable of causing disease but can sensitize the immune system to produce the humoral immunity.

Rapid and multiple mutation of the virus was a great barrier against fight against controlling the pandemic. In India we adopted covishield for mass vaccination. Dhiraj hospital being tertiary care hospital affiliated to medical institute was approved for mass vaccination programme. Mass vaccination provided immunity to the mankind against the disease and reduced the severity of disease. Just like other medicines, this vaccine was not devoid of side effects. In female as is well known menstruation is the first physiological phenomenon to warrant adverse mileu. It is vulnerable to get affected by drugs as well as disease and psychological upsets. The vaccinated female candidates of reproductive age group reported variations in menstrual cycle pertaining to the days of menstruation, interval between cycles, amount of blood flow, and associated premenstrual

symptoms. To summarise

- 1 increase in no of days of bleeding during cycle
  - 2 increase in amount of blood
  - 3 shorter cycles
  - 4 painful cycles (DYSMENORRHOEA)
  - 5 increase in premenstrual symptoms
  - 6 amenorrhoea
- Were the the principle changes observed.

## REVIEW OF LITERATURE

Acute respiratory syndrome coronavirus is highly transmissible and pathogenic disease that emerged from the wet market of wuhan city off china in 2019 and gripped the world with pandemic. IN the beginning of twenty first century two pathogenic viruses of animal origin spread in human population causing severe respiratory illness. They were identified as SARS-COV and MERS- COV and proved to be a new health concern in twenty first century.<sup>1</sup> At the end of 2019, a novel coronavirus designated as SARS-CoV-2 emerged in the city of Wuhan, China, and caused an outbreak of unusual viral pneumonia The ongoing outbreak of COVID-19 has posed an extraordinary threat to global public health<sup>2-3</sup>. In the end of 2019 many patients from the wuhan city of hunei province of china

presented with symptoms of cough and fever. Their chest x rays presented with bilateral lung infiltration of ground glass appearance.<sup>4-5</sup>,

They were linked to Huanan Seafood Wholesale Market, a wet market located in downtown Wuhan, which sells seafood and live animals, including poultry and wildlife<sup>4,6</sup>. On 31 December, Wuhan Municipal

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Health Commission notified the public of a pneumonia outbreak of unidentified cause and informed the World Health Organization

**Aims and objectives** The aim to carry out this study was to study short-term menstrual changes in the female participants who were vaccinated with one or two shots of the covishield vaccine.

The study will prove to be a significant contribution to the literature as this pandemic is new, and the vaccination against COVID-19 is still in the trial phase

## MATERIAL AND METHODS

The study was conducted in Dhiraj hospital over the patients coming to the OPD during the period jan 22 to dec 22. It was a prospective questionnaire based study. A self-administered questionnaire was used to collect data on the date of vaccination; type of vaccine; type, grade, and duration of the side effects; regularity of menstruation; normal length of the menstrual cycle; and the day one date of menstruation around vaccination.

## INCLUSION CRITERIA

- >The patients coming to the hospital who were vaccinated with covishield vaccine.
- > At least 6 months had elapsed after vaccination.
- > the women of reproductive age group (18-40) years
  - >The women with normal reproductive tract anatomy
- >The patients who were had atleast 3 normal menstrual cycles prior to vaccination
- > Patients who were mentally sound
- > Women willing to participate and cooperate in study.

## Exclusion criteria

Women with following conditions were excluded:

- (1) pregnant or lactating women;
- (2) the women taking oral contraceptive pills

- (2) history of diseases that cause menstrual irregularities or early menopause like fibroid, endometriosis anorexia nervosa, bulimia, polycystic ovary syndrome
- (3) patients having endocrine disorders like DM, thyroid dysfunction
- (4) obesity, or underweight weight candidates
- (5) hysterectomized or oophorectomized patients; and patients on radiation therapy.
- (6) high performance athletes.
- (7) patients having genital tract malignancy
- (8) Women not willing to participate

## OBSERVATION

Total no of patients attending Dhiraj hospital during the study period were 13140. Total no of female of women fulfilling criteria and consenting for the study were 11647.

TABLE 1

## AGE WISE DISTRIBUTION

Group 1	Age 18-25	2908	
Group2	Age 25-37	5245	
Group 3	Age37-45	3494	

The participants were grouped in to three clusters arbitrarily depending on the age. The middle group forming the group with active reproductive life. The last group included participants who have completed their family, while first group consisted of females yet to start their family life either unmarried or recently married.

TABLE 2 SOCIOECONOMIC STATUS

UPPER	1975
MIDDLE	5104
LOW	4568

The socioeconomic status also was important from the view of possible effect of vaccine as it would reflect the BMI of the participant.

TABLE 3 EDUCATIONAL STATUS

UP to 7 std	1354
Up to 8 to 12	5177
Up to graduate	3134
Post graduate	1982

Our hospital being located in the peripheral rural region of Baroda city and drawing patients from the adjacent rural tribal population, almost 50 percent of participants had education up to schooling only.

Out of 11647 participants 3960 patients reported some alterations in the menstrual cycle. Various

changes experienced by the participants were as under

TABLE 4

NO OF PARTICIPANTS WITH TOBACCO HABBIT

		no menstrual alteration	Alterations menstruation	in %
Total no of participant	11647	7687	3960	34.00
Tobacco users	6523	4047	2976	45.62
Non tobacco users	5124	3640	0984	19.2

TABLE 5

NO OF WOMEN HAVING SYMPTOMS

	TOTAL NO		After 1 <sup>st</sup> dose	percentage	After 2 <sup>nd</sup> dose	%
Group 1	2908		504	16.95%	1262	51.99%
Group 2	5245		1136	20.08	1654	59.00%
Group 3	3494		578	15.68	1172	56.18%

TABLE 6  
VARIOUS MENSTRUAL CHANGES REPORTED

Menstrual cycle change	Group 1 2908		Group 2 5245		Group 3 3349		
Irregular periods 55.24%	1253	43.08%	2456	46.83%	1561	44.67%	5270
Increase in no of days of bleeding. 3771 32.37%	891	30.63	1824	34.77	1056	30.22	
Increase in amount of blood loss 3694 31.71%	854	29.36	1773	33.80	1067	30.53	
Shortening of the cycle 4088 35.09%	1017	34.97	1908	36.37	1163	33.28	
Painful periods 3646 31.30%	861	29.61	1732	33.02	1053	30.13	



Increase in premenstrual symptoms	986	33.91	1894	36.11	1126	32.22	
4006 34.39%							
Oligomenorrhea	109	03.74	253	04.82	146	04.17	
508 4.36%							

## DISCUSSION AND RESULTS

Women vaccinated against COVID-19 usually perceive mild menstrual and premenstrual changes. The alterations in menstrual pattern were more among the women in active reproductive age, women of higher soci economic status and tobacco users. Of the women who participated in this study, 7687 reported no menstrual alterations. Approximately 34% of vaccinated participants reported a change in their menstrual cycle after vaccination; the majority reported changes after their second dose (56%) as compared with their first (28%) and third (16%) doses. The most commonly reported changes were irregular

menstruation (45.24%), increased premenstrual symptoms (34.39%), increased menstrual pain or cramps (31.30%), and abnormally heavy or prolonged bleeding (35.09%). Total 3960 participants out of 11,017 (78% of the study sample) reported experiencing menstrual cycle changes after vaccination. In summary, women who reported menstrual changes after vaccination were older (overall  $p < 0.001$ ) and slightly more tobacco users ( $p = 0.05$ ) than women who did not report any changes. The most prevalent changes in relation to premenstrual symptoms were increased fatigue (43%), abdominal bloating (37%), irritability (29%), sadness (28%), and headaches (28%). The most predominant menstrual changes were more menstrual bleeding (35.09%), more menstrual pain (31%), delayed menstruation (38%), fewer days of menstrual bleeding (34.5%), and shorter cycle length (32%).

## CONCLUSION

Among vaccinated participants, approximately 34% of them reported predominantly temporary changes in the menstrual cycle, The women in reproductive age and tobacco users were more likely to be affected. However, we observed that these changes were not long lasting and after three or four months all the participants, reported reestablishment of their normal rhythm of menstrual cycles. To determine whether these changes are due to normal cycle variability or due to the anxiety of covid 19 further studies are required.. The COVID-19 vaccines are safe and effective for everyone, including pregnant people and people trying to conceive; hence, these findings should not discourage vaccination.

Although we observed in our study that there was a change in the menstruation pattern after vaccination, further longitudinal studies are needed to conclude the impact of the COVID-19 vaccine on the menstruation cycle