OPEN ACCESS

Saudi Journal of Medical and Pharmaceutical Sciences

Abbreviated Key Title: Saudi J Med Pharm Sci ISSN 2413-4929 (Print) | ISSN 2413-4910 (Online) Scholars Middle East Publishers, Dubai, United Arab Emirates Journal homepage: https://saudijournals.com

Original Research Article

Periodontology

Online Survey among Dental Professionals Post COVID-19 Vaccination

Dr. Anil Kumar Gujjari MDS¹, Dr. Sindhu Anisha Gujjari MBBS², Dr. Karandeep Singh MBBS³, Dr. Sai Pranathi Putta MDS⁴, Dr. Priya MukherjeeMDS⁵, Dr. Sheela Kumar Gujjari MDS^{6*}, Dr. Sowmya S MDS⁷

¹Professor, Department of Prosthodontics and Crown & Bridge, JSS Dental College and Hospital, JSSAHER, Sri Sivarathreeswara Nagara, Bannimantap, Mysuru- Bangalore highway road, Mysuru, Karnataka- India

²Medical College, JSSAHER, Sri Sivarathreeswara Nagara, Bannimantap, Mysuru- Bangalore Highway Road, Mysuru, Karnataka-India

³JSS Medical College, JSSAHER, Sri Sivarathreeswara Nagara, Bannimantap, Mysuru- Bangalore highway road, Mysuru, Karnataka-India

⁴Third year student, Department of Prosthodontics and Crown & Bridge, JSS Dental College and Hospital, JSSAHER, Sri Sivarathreeswara Nagara, Bannimantap, Mysuru- Bangalore Highway Road, Mysuru, Karnataka- India ⁵Private Practitioner, Rama Charitable Hospital, Ludhiana, Punjab, India

⁶Professor, Department of Periodontology, JSS Dental College and Hospital, JSSAHER, Sri Sivarathreeswara Nagara, Bannimantap, Mysuru- Bangalore Highway Road, Mysuru, Karnataka- India

⁷Senior Lecturer, Department of Prosthodontics and Crown & Bridge, JSS Dental College and Hospital, Karnataka India

DOI: <u>10.36348/sjmps.2022.v08i03.003</u>

| **Received:** 07.02.2022 | **Accepted:** 11.03.2022 | **Published:** 16.03.2022

*Corresponding author: Dr. Sheela Kumar Gujjari MDS

Professor, Department of Periodontology, JSS Dental College and Hospital, JSSAHER, Sri Sivarathreeswara Nagara, Bannimantap, Mysuru- Bangalore Highway Road, Mysuru, Karnataka- India

Abstract

The sudden outburst of the pandemic COVID-19, in 2019, caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV2), had caught all by surprise, affected the entire world, and took the lives of many. This led to a desperate need for vaccines and India was one of the 11 countries that went ahead for the discovery of vaccines with manufacturing and export of the same. The first phase of vaccination was directed towards the frontline workers, including dentists, as they were at high risk. As vaccines have faced challenges in acceptability, there is a need to create awareness. The objectives are 1. Assess post-vaccination side-effects among dental professionals after both doses. 2. Assess any particular oral manifestations that can occur post-vaccination. The COVID vaccine was administered to all the healthcare workers of a private Dental College, Mysuru. The first dose was given in January, 28 days later the second dose was given. A questionnaire was developed and sent by email to be filled by those who were vaccinated to record and assess their experiences and challenges. SPSS 22 was used for statistical analysis. The frequency, mean and mode were calculated of the acquired responses. We can conclude that in the absence of any co-morbidity and good immunity, the effects post-vaccination is mild, which can be subsided by taking appropriate symptomatic medications. **Keywords:** COVID-19, Healthcare workers, Signs, Symptoms, vaccine.

Copyright © 2022 The Author(s): This is an open-access article distributed under the terms of the Creative Commons Attribution 4.0 International License (CC BY-NC 4.0) which permits unrestricted use, distribution, and reproduction in any medium for non-commercial use provided the original author and source are credited.

INTRODUCTION

The pandemic caused by SARS-CoV-2 struck many countries and India was one among the worst hit. India has a population of 17.7% of the world population, and billions were affected leading to panic and decreased manpower in the health sector even though the transmission of the virus was prevented by stringent measures such as hand washing, social distancing wearing of masks, lockdown.

The attention later turned to herd immunity, herd immunity is when many people in a community become immune to an infectious disease that it stops the disease from spreading, and this is achieved by the maximum population contracting the disease and in time building up an immune response to it or get vaccinated against the disease to achieve immunity.

As India is heavily populated it was necessary to develop vaccines and India was among the countries who developed (Covishield [ChAdOx1 CoV-19;

Citation: Anil Kumar Gujjari *et al* (2022). Online Survey among Dental Professionals Post COVID-19 Vaccination. 113 Saudi J Med Pharm Sci, 8(3): 113-119. Oxford Astra- Zeneca manufactured by Serum Institute of India], Covaxin [BBV152, Bharat biotech] and Sputnik V [Gam-Covid-Vac, Gamaleya Research Institute of Epidemiology and Microbiology] and approved for emergency use. There is the production of another domestic COVID-19 vaccine, ZyCoV-D by Cadila Healthcare, Ahmedabad, based on the new plasmid DNA vaccine technology, is supported by the Department of Biotechnology, Government of India [6]. The latest COVID-19 vaccine candidate that was granted conditional permission for Phases 1 and 2 of the human clinical trials by DCGI is the mRNA vaccine developed bv the Pune-based Genova Biopharmaceuticals Ltd in collaboration with HDT Biotech Corporation, USA [7]. Around 70 million Covishield doses and 10 million Covaxin doses per month have been manufactured in India up to May 2021.

The vaccination drive was launched on January 16, 2021, and was directed first to the frontline workers. As these health workers were at high risk and there was a big challenge to the acceptance of vaccines so the health workers could be role models for creating awareness by giving their experiences and educating them. So, a questionnaire-based study was carried out in the dental college where the participants had received both doses of vaccine. This was done to assess the side effects experienced by the individuals after their first and second dose of vaccine and to assess any particular oral manifestations that can occur post-vaccination.

MATERIALS AND METHODS

The COVID vaccine was administered to all the health care workers and students of a private Dental College, Mysuru. The first dose of vaccination was given in January following which the second dose was given after 28 days.

A questionnaire was developed and sent by email to be filled by those who were vaccinated to record and assess their experiences post-COVID vaccination. A total of 141 responses were acquired. The responses were subjected to statistical analysis to evaluate the experiences and challenges faced by them.

RESULTS

SPSS 22 was used for statistical analysis. The frequency, mean and mode were calculated of the acquired responses. On observing the responses of the questionnaire study, the post-vaccination comfort and discomfort were evaluated. There were 90% of participants responded that they were not tested positive for COVID-19 before vaccination. COVID-19 vaccines are not currently recommended for outbreak management or for post-exposure prophylaxis to prevent SARS-CoV-2 infection in a person with known exposure. Because the median incubation period of COVID-19 is 4–5 days, it is unlikely that a dose of

COVID-19 vaccine would provide an adequate immune response within the incubation period for effective postexposure prophylaxis. Out of the total number of participants, females were 80.1% and males were 19.9%. Mostly, the age group of 18-30 years old participated in the study (77.3%). The age group of 31-45 years and 46-60 years were divided among 14.2 % and 8.5% respectively.

DISCUSSION

In general, females have stronger innate and adaptive (humoral and cellular) immune responses in comparison to males. The factors responsible for the stronger immune response in females than males may be due to biologic factors (i.e., sex differences, such as genetic and epigenetic factors, sex hormones) and psychosocial factors (i.e., gender differences) [1, 2]. 66% experienced mild side effects post-vaccination whereas 28.4% observed no side effects postvaccination. A minimal of 1.4% observed severe side effects post-vaccination. The possible side effects experienced after COVID-19 vaccination are: common ones being pain, redness, and swelling. Throughout the rest of the body are tiredness, headache, muscle pain, chills, fever, and nausea [3]. The results comprehend with the study conducted by Saxena et al. where they concluded that a higher percentage of males (56.3%) experienced side effects within 24-72 hours when compared to females (43.8%) [8].

Inflammation is a visible response to an immune reaction, which is defined as the local response of living mammalian tissues to injury due to any agent and to eliminate or limit the spread of the injurious agent. A Roman writer Celsus in 1st century A.D named 4 cardinal signs of inflammation: rubor, tumor, calor, pain. Virchow added the fifth sign function least to the former signs. Any vaccination thus has these signs of inflammation at the site of injection which is a protective response of the body, may vary in intensity. On asking them regarding the change of color and itchiness observed at the site of injection, only 13.5% experienced a mild redness whereas 0.7% had severe redness, simultaneously 10.6% experienced mild itchiness and 0.7% had severity in itchiness. The results of our study comprehend with a study conducted by D. Djanas et al. where they see the side effects of the COVID-19 vaccine among hospital staff in a national referral hospital in Indonesia. Most of the participants were healthy post-vaccination and did not face symptoms like swelling, redness, or itching [9].

COVID-19 pandemic as with other previous pandemics is associated with feelings of fears, anxiety, and worry. The pain that is experienced after vaccination is usually soreness of the muscle [4] where injection is given. 55.3% of patients had mild tenderness at the site of vaccination and 12.8 % had severe tenderness. In our study, maximum patients' i.e.78% did not experience any swelling at the site of vaccination. The results are in conjunction with results conducted by Saxena *et al.*, where they found that 96.2% of respondents didn't face any discomfort during vaccination [8]. Furthermore, to reduce the discomfort and pain at the site of vaccination, a clean, cool, wet wash towel is applied at the area or exercise of the arm is done. In our study, 1.4% had a mild swelling at the site and out of which 0.7% applied hot fomentation at the site, whereas 2.8% applied cold fomentation.

Almost half of the patients, 44.7% experienced rise in body temperature at 100-101°F, 5% patients had risen to $102 - 103^{\circ}F$ and 2.1% had above $103^{\circ}F$, whereas 48.2 % did not have any temperature rise. 54.6% of patients did not experience any chills, 7.1% of patients had severe chills after the vaccination. Post vaccination, generally there are symptoms and signs that occur which based on the frequency of occurrence are distinguished as very common, common, and uncommon. Generally local signs and symptoms i.e. signs of inflammation are very common with either rise in body temperature locally or systematically based on the immune response of the person. Fever can support the immune system to gain an advantage over infectious agents and make the body less favorable as a host for replicating microbes, which are temperature sensitive. Chills are subjective reports of shivering or shaking associated with rapid changes in body temperature and result from involuntary muscle contractions that occur in response to a sudden lowering of body temperature below the prevailing set point. As per literature, postvaccination there is the potential for dizziness and in our study as well, 31.6% experienced mild dizziness. Other side effects which were asked were burning sensation in the eyes, sore throat, and shortness of breath. 12.8% had mild and 2.8% had severe burning sensation of eyes. 17.7% had mild and 1.4% had a sore throat. 6.4% experienced mild and 2.1% had severe shortness of breath or uneasiness in the chest. The results of our study are contradictory to the study conducted by Djanas et al. where most of the participants did not face fever, headache, muscle pain, tiredness, coughing, diarrhea, nausea and vomiting, breathlessness, joint pain, fainted, anaphylactic reaction, tingling or swollen lymph nodes⁵ but fall with the results of the study conducted by Saxena et al. that most of the participants experienced fever (37.2%), chills (32.1%) [8, 9].

A maximum of 47.5% has mild myalgia and that prolonged for a day in 52.5%, two days in 47.5% and only 11.3% had more than 2 days of myalgia. Patients had suffered mildly through the following symptoms, headache (34%), shoulder pain (50%), running nose (11.4%), cough (9.3%), dryness of the mouth (15%), loss smell (11.4%) and taste sensation (10.3%), nausea (16.3%) and abdominal pain (7.8%). Almost 49.6% of patients had taken medications to reduce the symptoms, in which patients reported the discomfort prolonged for 1- 2 days in 65.2% of

individuals. In a study conducted by Saxena *et al.*, the respondents faced myalgia (41.7%) followed by headache (26.3%), weakness or fatigue (26.3%), dizziness (12.2%), and nausea & vomiting (7.1%). Approximately 20.5% of participants mentioned that they experienced no symptoms at all during the 48-72 hours post-vaccination period. Only a few participants experienced rashes (5.6%), rigor (5.6%), nasal stuffiness, neck stiffness, and dry cough (5.6%) [8].

The possible oral manifestations reported postvaccination in literature were dry mouth, ulcers, petechiae, taste alterations, burning sensations, oral aphthous-like lesions, xerostomia, tongue depopulation, in the present study 15 % of the surveyed population had dry mouth, 10.3% with altered taste sensation and only 1% of the population have reported ulceration in the mouth [11-13]. It is important to know and understand the possible oral manifestations that could be perceived post-vaccination to educate the general population.

When asked if the receivers were under medications or if they have any known co-morbidity or allergies, about 80.6% answered in negative and the rest of the remaining percentage was divided amongst diseases like hypertension, diabetes, and dust allergies. If there was any difference between the first dose of vaccine and the second dose of vaccine, more than 50 percent of the respondents said that the effects experienced from the first shot were more severe than those of the second shot. A very small percentage of the population faced no effects at all. When asked about any oral manifestations observed, the majority of respondents i.e. 85.3% had no manifestations while the rest of them had dry mouth or ulcers.

Jordan as one of the lowest countries in the acceptance of COVID-19 vaccines, where а considerable percentage of the population of Jordan (36.3%) indicated a refusal to get vaccinated, while 26.3% were not sure whereas in the study conducted by Saxena et al., Nearly 55.8% of the participants strongly agreed, 26.3 % just agreed while only 15.4% strongly disagreed that the vaccine could help in preventing the infection in future. The rest of the respondents were neutral to this question [8, 10]. The results of our study also prove that a maximum number of 81.4% respondents who wanted to get vaccinated said affirmatively about recommending it, while 16.4 percent would not do so, only 2.1 percent were skeptical about recommending or not. In an e-paper 'the mint' it has been reported that the Government data showed that 97% of people are satisfied with the covid-19 vaccination experience which further validates the results of our study[8].

CONCLUSION

• Our survey was answered by a variety of age groups, but predominantly those ranging from 18-30 years of age.

- A wide variety of questions were asked including all signs and symptoms of vaccination.
- This study elicits all the effects observed postvaccination, out of which most of the respondents had mild discomfort after vaccination.
- Most of the respondents had no oral manifestations apart from a few (15%) having dry mouth and (1%) ulcers.
- The difference between the first dose and second dose was considerable with the severity of effects more after the first dose and none after the second dose.
- Henceforth, we can conclude that in the absence of any co-morbidity and good immunity, the effects post-vaccination are mild, which can be subsided by taking appropriate symptomatic medications.

REFERENCES

- Simon, A. K., Hollander, G. A., & McMichael, A. (2015). Evolution of the immune system in humans from infancy to old age. *Proceedings of the Royal Society B: Biological Sciences*, 282(1821), 20143085.
- Ortona, E., Pierdominici, M., & Rider, V. (2019). Sex hormones and gender differences in immune responses. *Frontiers in Immunology*, 10, 1076.
- 3. https://www.cdc.gov/coronavirus/2019ncov/vaccines/expect/after.html
- 4. https://share.upmc.com/2016/12/arm-pain-aftervaccinations/#:~:text=If% 20you% 20have% 20ever % 20received,the% 20viruses% 20in% 20the% 20vacc in
- https://timesofindia.indiatimes.com/lifestyle/health-fitness/health-news/coronavirusvaccine-strangest-side-effects-of-covid-19-vaccinediscovered-so-far/photostory/81510633.cms

- https://www.bbc.com/news/world-asia-india-55748124, Covishield and Covaxin: What we know about India's Covid-19 vaccines
- 7. Kumar, V. M., Pandi-Perumal, S. R., Trakht, I., & Thyagarajan, S. P. (2021). Strategy for COVID-19 vaccination in India: the country with the second highest population and number of cases. *npj Vaccines*, *6*(1), 1-7.
- Saxena, S., Rani, R. (2021). Post covid-19 vaccination survey from medical professionals: a questionnaire-based study. ISJR Volume - 10, Issue - 04, April - 2021
- Djanas, D., Martini, R. D., Putra, H., Zanir, A., & Nindrea, R. D. (2021). Survey data of COVID-19 vaccine side effects among hospital staff in a national referral hospital in Indonesia. *Data in brief*, *36*, 107098.
- El-Elimat, T., AbuAlSamen, M. M., Almomani, B. A., Al-Sawalha, N. A., & Alali, F. Q. (2021). Acceptance and attitudes toward COVID-19 vaccines: a cross-sectional study from Jordan. *Plos one*, *16*(4), e0250555.
- Sayare, B., Bhardwaj, V. K., & Sharma, D. (2021). Palatal petechiae: an uncommon oral adverse effect of COVID-19 vaccine. *The Egyptian Journal of Otolaryngology*, *37*(1), 1-4.
- Manfredi, M., Ghidini, G., Ridolo, E., & Pizzi, S. (2021). Oral lesions postinjection of the first administration of Pfizer-BioNTech SARS-CoV-2 (BNT162b2) vaccine. *Oral Diseases*.
- Mazur, M., Duś-Ilnicka, I., Jedliński, M., Ndokaj, A., Janiszewska-Olszowska, J., Ardan, R., & Polimeni, A. (2021). Facial and oral manifestations following COVID-19 vaccination: A survey-based study and a first perspective. *International Journal* of Environmental Research and Public Health, 18(9), 4965.



Anil Kumar Gujjari et al., Saudi J Med Pharm Sci, Mar, 2022; 8(3): 113-119



Anil Kumar Gujjari et al., Saudi J Med Pharm Sci, Mar, 2022; 8(3): 113-119











Anil Kumar Gujjari et al., Saudi J Med Pharm Sci, Mar, 2022; 8(3): 113-119