Original Article

Covid Vaccine: Is It the "Holy Grail" For Dental Profession?

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Received - 21 November 2020 *Initial Review –30 October 2020* *Accepted – 19 January 2021*

ABSTRACT

Objectives: The present survey attempts to assess the 1. Efficacy of both Covishield & Covaxin in protection against covid infection. 2. The time intervals between 1st and 2nd dose and duration after the 2nd dose of vaccine in protection against covid infection. 3. Role of protective measures post-vaccination. 4.General awareness about covid vaccine among dental professionals. **Methodology:** This cross-sectional study was conducted among dental professionals across India. An online structured questionnaire was created using Google Forms application and was sent to the dental professionals through WhatsApp mobile application. The questionnaire was administered between the months of March 2021 – April 2021 and was sent to 250 dentists from various parts of the country. Data were compiled and subjected to statistical analysis. **Results:** The questionnaire was sent to 250 dental professionals. Out of 250, 124 (49.6%) participants took part in the survey. Majority of the dentists (89.8%) have completed both the 1st & 2nd dose of vaccination. Though it cannot completely rule out their susceptibility to covid infection. **Conclusion:** Irrespective of the type of vaccine (Covishield/ Covaxin) more than 90% of the participants seemed to be protected against covid infection probably if there is adherence to the timing of both doses as well as the common infection control measures are followed post-vaccination.

Keywords: Covid vaccine, Dental, Survey, Covishield, Covaxin

The present crisis with the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) has created in a major impact on the global health and economics[1] and led to a series of challenges for the dental professionals [2-4]. The high rate of dissemination of the SARS-CoV-2 virus is due to the inhalation of small airborne particles from aerosols and droplets nuclei according to the latest data available is well [5]. Therefore among health professionals, dentists especially periodontists are at a higher risk of exposure because of their frequent use of ultrasound and polishing devices which generate aerosols in huge amounts[6].

This has proved to be a challenging scenario forcing dental health professionals to include drastic changes in their clinical routines namely stricter practices against cross-infection, resorting to procedures that generate less aerosols, reducing the number of patient visits[7], and developing tele-dentistry services[8]. This had led to a huge drop in the number and efficacy of dental services. There are mainly two vaccines widely available in India, Covishield and Covaxin. In spite of the mass vaccination drive, protection against covid infection does not seem to be absolute. This could be due to an ambiguity in the exact vaccination protocol and post vaccination instructions.

Thus the present survey attempts to assess the 1. Efficacy of both Covishield & Covaxin in protection against covid infection. 2. The time intervals between 1st and 2nd dose and duration after the 2nd dose of vaccine in protection against covid infection. 3. Role of protective measures post-vaccination. 4. General awareness about covid vaccine among dental professionals.

MATERIALS & METHODS:

This was a cross- sectional survey conducted among the dental professionals across India. An online structured questionnaire consisting of 16 questions in English was created using Google Forms application and was sent to all the dental professionals via WhatsApp mobile application. The questionnaire was administered between the months of MARCH 2021 and APRIL 2021.It was sent to 250 dentists spread across the various parts of country. The questionnaire consisted of two sections; first section was on basic demographic details and professional nature of the participants (e.g., age, gender, place of work, academic status). Second section consisted of questions on the experience with covid infection and vaccination (e.g. vaccination details, infection control measures used etc). These questions had multiple choice type answers.

The questionnaire was designed to be anonymous, and informed consent was obtained from every respondent. The data were kept confidential and the results did not identify the respondents personally. Statistical analyses were performed using the software Statistical Package for Social Sciences(SPSS) version 22.0 (SPSS, Inc., Chicago, IL, USA). Descriptive statistics were calculated. Comparison of distribution of responses among the study participants was done using Chi Square Goodness of Fit Test and gender wise comparison of responses to the study questionnaire was done using Chi Square Test.

RESULTS:

The questionnaire was sent to 250 dental professionals. Out of 250, 124 (49.6%) participants took part in the survey. Data were collected from the 124 participants and analysed for the study. The age of the participants ranged from 25-60 years. Out of 124 participants, 56 (45.2%) participants were male, 68(54.8%) were females. Among the total participants 71 (57.3%) were working in a hospital/ teaching institute, while the rest were working in a private clinic.

Majority of the respondents were general dental practitioners (n=46, 37.1%). A fraction of them were into speciality consultation practice (n= 25, 20.2%) followed by academicians with general practice (n=19, 15.3%). Others were post-graduate students of all specialities (n= 34, 27.4%). Out of 124 participants, Covishield were taken by 109 (87.9%) participants and Covaxin were taken by 9 (7.3%). Out of which 106 (89.8%) participants have taken both the doses and most of them had taken the second dose (n= 51, 48.1%) 4-6 weeks after the first dose, followed by 29 participants (27.4%) had taken at 4 weeks after the 1st dose, 22 participants (20.8%) had taken 6-8 weeks after the 1st dose and 4 participants (3.8%) had taken 8-12 weeks after the 1st dose.

Table 1: Distribution of Sociodemographic characteristics among study participants

Variable	Category	n	%
Age	25-35 yrs.	62	50.0%
	35-45 yrs.	44	35.5%
	45-55 yrs.	17	13.7%
	> 55 yrs.	1	0.8%
Gender	Males	56	45.2%
	Females	68	54.8%
Place of work	Hospital/Teaching Institute	71	57.3%
	Private clinic	53	42.7%
Academic status / Profession	General dentist	46	37.1%
	Academician with private practice	19	15.3%
	Specialist & consultant	25	20.2%
	Post-graduate student	34	27.4%

How long it's been after taking the 2nd dose? 2 weeks(n=15,14.2%), 4weeks (n=20 ,18.9%), 6 weeks(n=15,14.2%), > 6 weeks(n=56,52.8%). Did you face any side effects like fever, myalgia, malaise etc after taking either the 1st / 2nd dose of the vaccine? Yes (n=78) 66.1%, No (n=40) 33.9%. Were you tested COVID positive after taking the vaccine? Yes after 14 days of the 1st dose (n=2) 1.7%, Yes within 14 days of the 2nd dose (n=2) 1.7%, Yes after 14 days of the 2nd dose (n=5) 4.2%, No (n=109) 92.4%. Do you feel, COVID -19 is a new disease and vaccines have not been fully developed? Definitely (n=23) 18.5%, probably (n= 62) 50% and not sure (n= 39) 31.5%.

Even after you got vaccinated what are all the protocols you followed in the clinic? Gloves & 3 ply mask (n=13) 11.0%, N 95 mask (n=12) 10.2%, N 95 mask + face shield (n=60) 50.8%, Respirators (n=33)28.0%. In this pandemic do you think patients should be vaccinated before undertaking any dental procedure? Definitely (n=96) 77.4%, Probably(n=25) 20.2%, Not needed (n=3) 2.4%. Do you feel safe / protected after vaccination? Definitely(n=27,22.9%), Probably (n=74, 62.7%), No(n=17,14.4%) Will you recommend the vaccine for elderly family members / children? Yes(n=117) 94.4%, No (n=7) 5.6%. Details are represented in table 2.

DISCUSSION:

According to the recent epidemiological reports there have been almost 2 lakh Covid Positive cases on a daily basis in India alone. These staggering numbers have forced us to look into the various aspects of this disease. The ultimate solution at this point of time seems to be mass vaccination. Despite the large population there have been tremendous efforts to get every individual vaccinated whether in the urban or rural sectors of India. Preference has been given to the medical, dental and other allied health professionals in terms of vaccination.

Since dentistry involves close proximity to the nose and mouth which are the chief portals of covid infection, it becomes imperative to question the efficacy of vaccination and post vaccination protective measures. Majority of the surveys till date have concentrated on the general awareness, infection control and the type of dental practice during COVID-19. The present survey was unique in the fact that it not only touches upon the types of vaccine taken but even stresses on the protocol of time intervals between vaccination doses(time interval between the 1st and 2nddose, and time elapsed after the 2nd dose).It has also highlighted the importance of infection control measures following vaccination.

In a cross-sectional survey by Nikhil Singhania et al [9], on acceptance of covid vaccine among health-care personnel in Indiaduring the initial phase of vaccination it was found that 80% of the health care professionals supported COVID- 19 vaccination though they relied more on endorsement & testing first by the others[5]. In contrast our survey has found that out of 124 participants who took part 95.2 % (109+9) were vaccinated showing the awareness& universal acceptance of the dental professionals towards the vaccine.

In the present study 89.8% of the participants had taken both the doses and 52.8% of the participants had completed more than 6weeks after the second dose of vaccination.Out of the 95.2% of the participants who were vaccinated only 7.6% of them were affected by the covid infection.This could probably be attributable to the fact that 10.2% among them were yet to take the 2nd dose and 14.2 % have not yet crossed 2 weeks after vaccine. Another questionnaire-based study by Abanoub Riad et al [10] was on the prevalence of covid-19 vaccine side effects among healthcare workers in the Czech Republic. The reported side effects of COVID vaccine (Pfizer) in the above study were injection site pain, fatigue, headache, muscle pain, chills & joint pain[6].About 66.1 % of participants of our survey also suffered similar side effects of the vaccine. Women outnumbered the men in the incidence of side-effects(75.4%).

The dental professionals were of the strong opinion that there is a definite requirement for the vaccination of their patients before any kind of procedures (77.4%answered definitely). This emphasizes their educative role towards the general public. Regarding the question on “infection control protocols followed post-vaccination” the response was 50.8% used N95 face mask & face shields, 28% used respirators, N95 mask alone was used by 13.2% & 3 ply mask was used by 11% of the participants. This is a very important point from a clinician’s perspective.

Table 2: Comparison of distribution of responses among the study participants using Chi Square Goodness of Fit Test

Questions	Response	n	%	χ^2value	P-Value
1. Were you tested COVID positive before vaccination?	Yes	15	12.1%	71.258	<0.001*
	No	109	87.9%		
2. Did you get yourself vaccinated?	Yes, Covishield	109	87.9%	166.247	<0.001*
	Yes, Covaxin	9	7.3%		
	No	6	4.8%		
3. Have you taken both the doses?	Yes	106	89.8%	74.881	<0.001*
	No	12	10.2%		
4. If yes , at what time interval did you take the 2nd dose?	At 4 weeks after the 1st dose	29	27.4%	42.755	<0.001*
	4-6 weeks after the 1st dose	51	48.1%		
	6-8 weeks after the 1st dose	22	20.8%		
	8-12 weeks after the 1st dose	4	3.8%		
5. How long it's been after taking the 2nd dose?	2 weeks	15	14.2%	44.415	<0.001*
	4 weeks	20	18.9%		
	6 weeks	15	14.2%		
	> 6 weeks	56	52.8%		
6. Did you face any side effects like fever, myalgia, malaise etc after taking either the 1st / 2nd dose of the vaccine?	Yes	78	66.1%	12.237	<0.001*
	No	40	33.9%		
7. Were you tested COVID positive after taking the vaccine?	Yes after 14 days of the 1st dose	2	1.7%	285.864	<0.001*
	Yes within 14 days of the 2nd dose	2	1.7%		
	Yes after 14 days of the 2nd dose	5	4.2%		
	No	109	92.4%		
8. Do you feel , COVID -19 is a new disease & vaccines have not been fully developed?	Definitely	23	18.5%	18.597	<0.001*
	Probably	62	50.0%		
	Not sure	39	31.5%		
9. Even after you got vaccinated what are all the protocols you followed in the clinic?	Gloves & 3 ply mask	13	11.0%	51.559	<0.001*
	N 95 mask	12	10.2%		
	N 95 mask + face shield	60	50.8%		
	Respirators	33	28.0%		
10. Do you feel safe / protected after vaccination?	Definitely	27	22.9%	47.102	<0.001*
	Probably	74	62.7%		
	No	17	14.4%		
11. In this pandemic do you think patients should be vaccinated before undertaking any dental procedure?	Definitely	96	77.4%	114.306	<0.001*
	Probably	25	20.2%		
	Not needed	3	2.4%		
12. Will you recommend the vaccine for elderly family members / children?	Yes	117	94.4%	97.581	<0.001*
	No	7	5.6%		

CONCLUSION:

The evidence for the exact spread of Covid infection and the timings of vaccination doses has a changing trend from day to day with new data emerging constantly. The most notable findings of the current study were: -

- Irrespective of the type of vaccine more than 90% of the participants seemed to be protected against covid infection.
- The time interval between the 1st and 2nd dose of vaccine was more than 4 weeks and up to 12 weeks in majority of the participants(72.7%).
- More than half of the participants(52.8%) have crossed 6 weeks after the 2nd dose of vaccine.
- Even after vaccination a vast percentage of the dental professionals used advanced protective wear (N95 mask & face shield 50.8%, respirator 28%).
- All of the participants were fully aware about vaccination

Within the confines of the current survey, it could be concluded that both Covishield & Covaxin seem to render a defence against Covid Infection. The time interval between the 1st & 2nd dose should probably be 4 weeks or longer and more the time interval after the 2nd dose lower may be the probability of contracting Covid Infection, provided there is usage of fool proof protective measure. Just being vaccinated does not give us a license to practice with only a basic protective measure (3 ply mask) as in our Pre-Covid times.

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How to cite this article: Paramashivaih R, Rathana. M, Prabhuji. MLV, Bhavikatti SK. Covid Vaccine: Is It the "Holy Grail" For Dental Profession? J Orofac Res. 2021;10(1):11-15.

Funding: None; Conflict of Interest: None Stated.