

Post Covid Vaccination Survey among Health Professionals- A 72 Hours Observational Study

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ABSTRACT: COVID vaccination campaigns are now underway across the world. Vaccines teach our body to fight the infection and the exit strategy from the pandemic. However all the vaccines has a large impact on chances of hospitalization or people dying from pandemic. As the vaccine is developed in less than a year, not much of the studies have been done on the appearance of post COVID symptoms based on various factors.

AIM : The present 72 hrs observational study was undertaken among health professional to check for the time of appearance of symptoms post COVID vaccination w.r.t age , sex and systemic disease.

MATERIAL AND METHODS: An open ended questionnaire was distributed to 500 health professionals who underwent Covashield (COVID-19) vaccination at SGT University, Gurugram, Haryana, India for the initial period of 72 hours. The procured data was further subjected to appropriate statistical analysis. P value of <0.05 was considered statistically significant.

RESULTS: The results clearly indicates that all the health professional showed symptoms after vaccination by Cova shield vaccine , the time of appearance and disappearance of symptoms varies with respect to age group , systemic diseases and also to the gender. Females showing more pronounced symptoms. It was also observed that preexposed covid patients developed nil or minimal symptoms after vaccination .

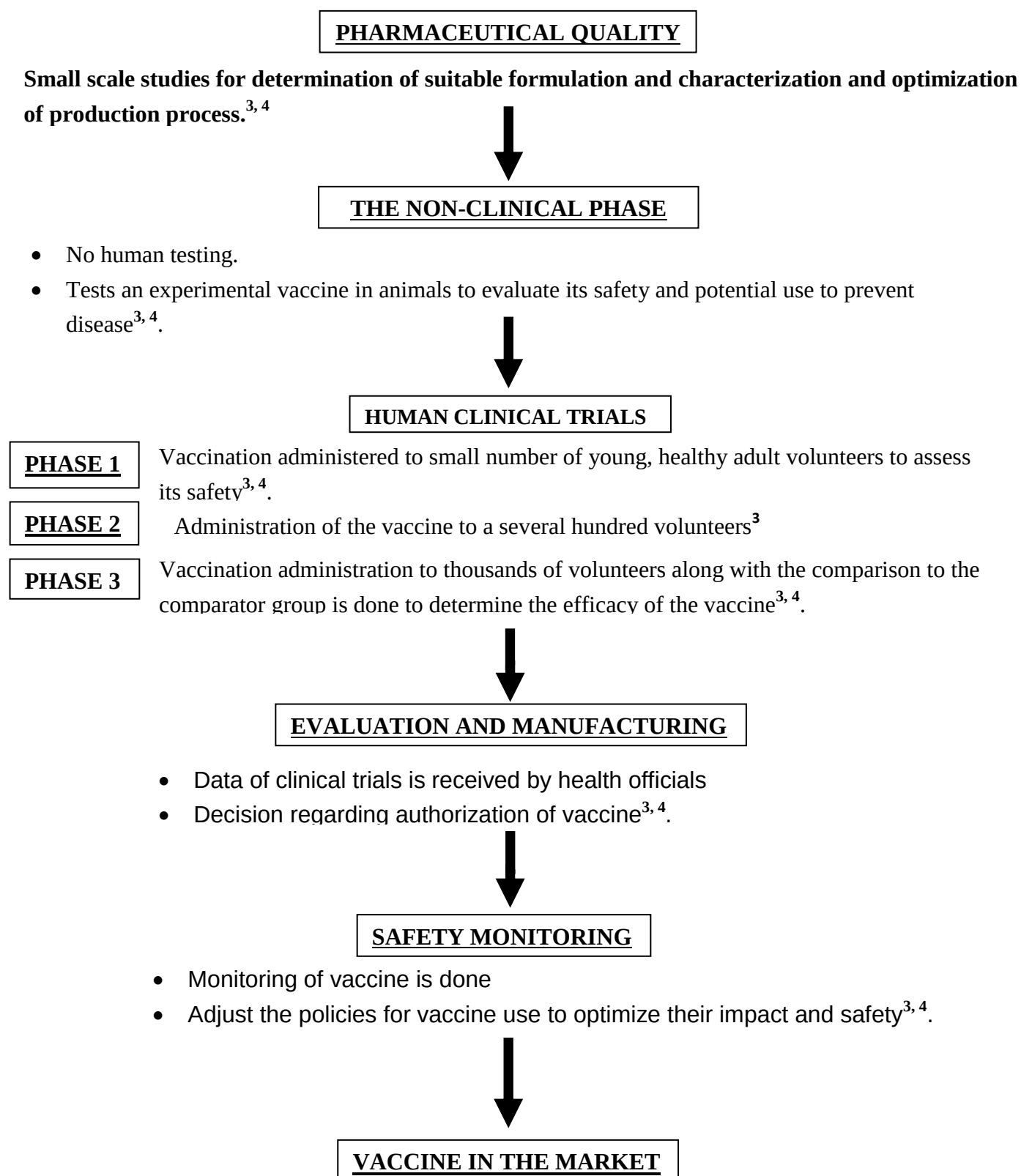
CONCLUSION: COVID 19 vaccination is a public health intervention which is rolled on a global scale in various parts of the world. The present study discussed in detail about the clinical features to be expected after vaccination. This study will enlighten and educate the general public about the vaccine and also will reduce vaccine hesitancy among the public

Keywords: COVID 19, vaccination, covashield, adverse reactions, symptoms.

INTRODUCTION:

On the 11th of March 2020, World Health Organization (WHO) declared one of the most catastrophic respiratory syndromes, originated in the heart of Wuhan city in China, as a pandemic. The spread of Covid-19 relentlessly caused a serious public health, social and economic cataclysm. The most reliable way to achieve immunity is vaccine. It's a time tested technology that humanity has often relied upon while battling infectious and communicable diseases. Since the declaration of outbreak of Covid-19, there is a race for development of a safe and effectual vaccine against the SARS-CoV2 virus. In these troubled times, the various scientists, doctors and researchers in world rose up to the occasion and came up with the vaccine that brimming the world with a ray of hope. The National vaccination programme against the SARS-CoV2 rolled out in India on 16th of January 2021¹. This nationwide vaccination drive prioritizes healthcare and frontline workers, and those over the age of 50 or suffering from certain medical conditions. According to the Union Health Ministry with this centralized goal of vaccinating the entire population, the individual states would be benefitted in reaching a level of herd immunity. According to Union Health Ministry, India has administered 3,744,334 vaccine doses across the country as of 30 January 2021².

TABULAR REPRESENTATION OF VACCINE DEVELOPMENT



The first vaccine against an infectious disease that is produced in less than a year is for coronavirus infection in humans. The established knowledge against SARS and MERS and about the species of coronavirus has accelerated the development of vaccine. Adenoviruses are proven effective vectors for inducing and boosting cellular immunity to the encoded recombinant antigens. The modified chimpanzee adenovirus (Titi monkey adenovirus/ECC-201)⁵ cannot replicate, therefore causes no infection, and instead acts as a vector to transfer the SARS-CoV-2 spike S1 protein⁶. The COVID-19 vaccine (COVISHIELD), also known as ChAdOx1 nCoV-19 or AZD1222, has this replication-deficient simian adenovirus vector, containing the full-length codon-optimized coding sequence of SARS-CoV-2 spike protein along with a tissue plasminogen activator (tPA) leader sequence⁷. If after the vaccination, this spike protein is produced, it stimulates an immune response against it⁸.

Pune-based Serum Institute of India (SII) partnered with the Oxford University along with the British pharmaceutical major, AstraZeneca to manufacture their Covid-19 vaccine (COVISHIELD) in India. The months of April and May 2020, saw the arrival of a 1ml vial of vaccine with the cellular material at SII from Oxford, England. By the month of August 2020, clinical trials began in India. And by the month of January 2021, DCGI granted an emergency use approval (EUA) for Covishield vaccine in India. The Covishield vaccination course consisted of two separate doses of 0.5 ml each, separated by an intervening time span of four to six weeks^{9, 10}.



FIGURE 1:COVISHIELD VACCINE

Drawbacks of vaccine

The effectiveness of new vaccine is defined by its efficacy in clinical scenarios regarding its transmission and immunity. But there is another global threat called vaccine hesitancy that is public perception of vaccination as unsafe or unnecessary, thus resisting vaccination. There is concern that the vaccine drive is might slow down due to low turnout, due to a combination of concerns about the vaccine safety, technical problems with the software used, and misinformation¹⁰. Nonetheless, some healthcare professionals in India even expressed concerns regarding not enough data being provided on the vaccines' safety and efficacy and were on edge regarding at the speed at which the vaccines were being rolled out. Although the vaccines are safe in clinical trials but as vaccine works by triggering the immune system, so that a reaction is produced, it is very much possible that the person will experience side effects after receiving vaccination. The common side effects include pain at injection site, myalgia, mild fever, headache, chills. More serious adverse effects such as palpitations, high blood pressure, nausea, vomiting are rarely reported. As this vaccine has entered the market through EULF that is, Emergency Use Listing Procedure (WHO)⁹, limited data is available about its usage and efficacy so the present study was undertaken with the aim of having 72 hours observation among 500 healthcare professionals in SGT university post COVID vaccination (COVASHEILD)- phase 1.

MATERIALS AND METHODS

500 health professionals who were vaccinated at SGT University were enrolled in the study. The participants were informed about the observational study and an informed consent was taken. The study was approved by ethical committee at SGT University. 500 health professional included medical doctors, dentist, nurses, lab technicians, support staff and research fellow. Primary data was collected by the researcher directly through an interview with the participant to speed up the process. The participants were tracked from the time they were vaccinated, to the time of appearance of symptoms till the symptoms subsided. The team of researchers were constantly were in touch with the participants for 72 hours to complete this observational study.

AIMS AND OBJECTIVES:

The present 72 hours observational study was conducted among health professionals to check for the time of appearance of symptoms post COVID vaccination with respect to age, sex, systemic disease.

OBJECTIVES:

1. Association of age with appearance of post COVID vaccination symptoms.
2. Association of sex with appearance of post COVID vaccination symptoms.
3. Association of presence of systemic disease with appearance of post COVID vaccination symptoms.
4. Association of COVID exposure history on appearance of post COVID vaccination symptoms.
5. Time of appearance and disappearance of symptoms post COVID vaccination.
6. Any adverse symptoms other than chills, fever, myalgia, chest heaviness, and burning sensation in eyes.

RESULTS

A total of 500 subjects were enrolled for this study. However, one data was found corrupt, hence the present analysis was done with a total of 499 subjects. For this study 54.5% of females and 45.5% of males were enrolled with mean age of 26.46 ± 7.75 years. A total of 3.2% of the subjects were found to have systemic involvement like asthma, bronchitis, diabetes, hypertensive, hypothyroidism. The time of appearance and disappearance of symptoms among males and females does not show any significant differences. In most cases the time of appearance of symptoms were less than 12 hours (65.1%) and only 1.2% of subjects showed any signs and symptoms after 24 hours. About 46.1% of subjects experienced chill and over 51.9% experienced fever. The appearance of these symptoms was more pronounced in the females than males.

32.5% of subjects had experienced fever of less than 101°C while 19.4% experienced not more than 101°C fever.

Myalgia was observed in 46.1% of subjects in the study cohort. Chest heaviness was experienced by 15.

4% in subjects post vaccination. The chest heaviness was experienced by 53 females and 24 males only. Pain was noticed at site of injection in about 45.7% cases and headache was noticed in 46.3% subjects and pain at the site of injection was observed in 144 females and 85 males. Other symptoms include nausea, sore throat, cough, abdominal pain, dizziness, fatigue/loss of appetite, metallic taste.

The ages were distributed under 6 groups: 18–25 years, 26–35 years, 36–45 years, 46–55 years, 56–65 years, and 66–75 years for the purpose of correlating the parameters. From a total of 499 subjects, 26 were preexposed to COVID-19 while 473 were not exposed. It was found from the present study that age group (26–35 years) was found to be exposed to COVID-19 prior to vaccination and was found to be highly significant ($p=0.000$). The statistical analysis showed a significant ($p=0.028$) finding among the age group and time of appearance of symptoms. The time of appearance of symptoms among younger age groups were within 12 hours i.e. 59.7% of individuals in age group of 18–25 showed symptoms in 12 hours and among 46–55 years only 1.5% showed symptoms in 12 hours. 33.5% of individuals in age group of 36–45 showed symptoms after 24 hours. The results were statistically highly significant ($p=0.001$) among the age group and time of disappearance of symptoms. The notable finding was that the participants who were already exposed to COVID had few or minimal symptoms.

DISCUSSION

COVID-19 vaccination is a public health intervention which is rolled out on a global scale in various parts of the world. But as this vaccine is into market in less than a year, so very little is known about the real world post vaccination symptoms and experience. The present study discussed in detail about the clinical features to be expected after vaccination. This study will enlighten and educate the general public about the vaccine and also will reduce vaccine hesitancy among the public.

Immediate description (72 hours) of the post vaccination (COVISHIELD) was provided by 500 health care professionals. The description was recorded by an open ended questionnaire and the

appearance of symptoms were correlated w.r.t. age, sex, systemic disease and previous exposure etc

Vaccine works on the specialized network of cells in immune system. Basically during vaccination, a disabled form of virus is introduced in the body. This disabled form of virus triggers the formation of viral proteins by activating the first responder cells which release chemical messengers to attract immune cells at the site of injection. The capillary permeability increases to help the immune cells to reach there. These cells further mount on adaptive and T cells which destroy virus infected cells and trigger post vaccination symptoms. This lead to priming of the immune system as that next time if the same virus is encountered the response will be faster.

There is nothing to be alarmed if the body showed symptoms. As the body recognizes the virus as antigen and monitors an effective response against it. Respondents not getting the symptoms may be because the immune system already primed due to undiagnosed infection. That could be one of the reason why individual preexposed to corona virus showed minimal symptoms .

COVID-19 vaccine are usually causing mild symptoms which include pain, swelling or redness at the injection site, fever, chills, tiredness etc. Reactions such as low grade fever, low grade body aches, swelling at the vaccine site are expected and show that antigenicity including an immune response. Fever is an increase in body temperature to more than normal range usually resulting from a complex physiologic reaction to the presence of substances that induces the production of endogenous cytokines. These cytokines, in turn alter the activity of hypothalamic neurons, raising the hypothalamic set point. Fever after vaccination is one such reaction which is temporary and manageable with simple measures. This is because of the body's immune system which brings an inflammatory reaction in response to the foreign substance that is vaccine. Mild fever in response to vaccine is very normal. It means that vaccine is working and body is producing antibodies to fight the infection. A mild fever usually develops within 24 hours of vaccine administration and may last for two to three days and this kind of fever is normal and harmless.¹¹ Most of the effects of vaccines such as pain, fever, chills, pain at the injection site, begin to subside after two to three days of vaccine administration. Vaccines are made with dead or weakened microorganism called antigens. The body's immune system identifies the antigen in the vaccine as foreign material and produces antibodies to fight the microorganisms. Later in

life, if body is infected by the actual disease, the body recognizes the microorganisms and produces antibodies sooner to fight the infection.¹²

It is clear from the results that women tend to experience higher incidence of post vaccination symptoms because of genetic or hormonal differences eg anatomical differences in skin thickness, blood flow and nervous system between men and women may favour the development of injection site inflammation in women.

The present study clearly states that appearance of symptoms was higher and early among younger age group. Adverse events reduce during adult life, possibly due to higher tolerance to pain and illness symptoms gained with life experience.¹³ Older people display lower systemic levels of IL-6, IL-10 and CRP after vaccination, which support the finding of our study that is why older group should less symptoms. These changes have implications for defence against infectious diseases at different ages, and can also influence susceptibility to adverse reactions to vaccination.^{14, 15} As chills are linked with fever, so mild chills are most common and it subsides in 24-48hours.¹⁶

Conclusion : The world is in the midst of a COVID-19 pandemic. The COVID-19 vaccines produce protection against the disease, as a result of developing an immune response to the SARS-Cov-2 virus. Developing immunity through vaccination means there is a reduced risk of developing the illness and its consequences. This immunity helps you fight the virus if exposed. Getting vaccinated may also protect people around you, because if you are protected from getting infected and from disease, you are less likely to infect someone else. This is particularly important to protect people at increased risk for severe illness from COVID-19, such as healthcare providers, older or elderly adults, and people with other medical conditions. The COVID-19 vaccines are safe for most people 18 years and older, including those with pre-existing conditions of any kind, including auto-immune disorders. These conditions include: hypertension, diabetes, asthma, pulmonary, liver and kidney disease, as well as chronic infections that are stable and controlled. **It is important to be vaccinated as soon as possible once it's your turn and not wait.** After vaccination one should follow all the protocols like Wearing masks and staying 6 feet apart from others help reduce your chance of being exposed to the virus or spreading it to others, but these measures are not enough. Avoid the 3Cs: spaces that are closed, crowded or involve close contact.

Vaccines will work with your immune system so it will be ready to fight the virus if you are exposed. Although we're still learning how strong this protection is, and how long it lasts.

So, to stop any pandemic requires using all the tools we have available. Please come forward to get yourself vaccinated to save ourself and to save our economy.

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