

Side effects of Sinopharm Vaccine experienced by healthcare professionals of Holy Family Hospital, Rawalpindi, Pakistan

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Author's Contribution

^{2,3,4} Conception of study

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¹ Analysis/Interpretation/Discussion

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Abstract

Objective: To determine the gender and age-based disparities in side effects among healthcare workers in response to COVID-19 (Sinopharm) vaccination

Materials and Methods: A total of 216 healthcare workers were vaccinated against COVID-19 by administering Sinopharm vaccine during February and March 2021 at the Infectious Diseases Department of Holy Family Hospital, Rawalpindi. They were enrolled in the study through consecutive sampling. Data for this cross-sectional descriptive study was gathered pertinent to age, gender, and side effects of Sinopharm vaccination. The information regarding vaccination side effects was inquired through telephonic calls. Statistical analysis of data was done by SPSS version 25.0. Gender-based differences in post-vaccination side effects with a first and second dose of vaccine were statistically confirmed by the application of the chi-square test. P-value < 0.05 was taken as significant.

Results: Mean age of healthcare workers in our study was 35.7 ± 9.5 years. Most (54.6%) of them were females and 79.2% of health professionals were 21-40 years old. Side effects after the first dose of Sinopharm vaccine were experienced by 46.3% males and 42.4% females. About 45.2% and 42.3% of males and females respectively overlooked the second jab adversity. A greater proportion (43.6%) complained of vaccine-related side effects after the second dose than 37.5% of subjects who noted side effects after the first dose of vaccine. Body aches, injection site pain, headache, and fever were established as the commonest post-vaccination side effects. Gender-based variations between post-vaccination side effects were statistically insignificant both with the first dose ($P > 0.1$) and second dose ($P > 0.2$) of the Sinopharm vaccine.

Conclusion: Side effects resulting from the Sinopharm vaccine among our healthcare personnel were minimal. Fortunately, none of them complained of serious aftereffects. Despite the COVID vaccination, our healthcare workers should strictly adhere to COVID SOPs amidst pandemics in order to avoid catastrophe in the future.

Keywords: COVID-19, Sinopharm vaccine, side effects, body aches, injection site pain, healthcare professionals.

Introduction

COVID-19 pandemic has led to the confrontation with gigantic challenges of disrupted social, economic, educational, and health facets across the globe. This state of affairs has stimulated our policymakers to strive for the survival of humanity by sustainable development.¹ Diverse research funds are being granted worldwide in wake of COVID-19 to arrest the spread of this calamity by exploring the culprit and evolving the way out for its mitigation.²

The ending of COVID infection into fatal complications and mortalities prompted the scientists universally to initiate the production of vaccines.³ GAVI & WHO in collaboration with other agencies intended to control the spread of coronavirus infection by expediting the development of efficacious vaccines. The need-based issuance and availability of vaccines were also ensured across the globe apart from their development.⁴ The National Command Operation Center (NCOC) Government of Pakistan established a portal to facilitate frontline healthcare workers and senior citizens in getting vaccinated against COVID-19 through the development of an apt registration system and provision of guidelines for vaccination.⁵

The COVID-19 vaccines produced worldwide have undergone numerous phases of a clinical trial before getting safety verification.⁶ Undoubtedly, the vaccination against COVID-19 has been proven to substantially reduce the likelihood of infection transmission and hence the escalation of cases.⁷ But side effects might be obvious following COVID vaccines due to the production of antibodies in response to inflammation.⁸ The alarming lift in a number of COVID cases reported during the third wave is attributed to the contagiousness and fatal of the British variant. The government of Pakistan is battling the third surge of COVID-19 by means of numerous healthcare weapons in order to limit the resultant fatalities. Non-adherence to the COVID SOPs is proven to be the culprit. The only optimism in this distressed situation appears to be the COVID vaccination national campaign carrying out across the country with prioritization of the most vulnerable population.⁹

About 95% of healthcare workers of Pakistan got vaccinated themselves against COVID-19 without the fear of its side effects. The event they did not bother about limited evidence on vaccine effectiveness.¹⁰ About 224,000 healthcare personnel of Pakistan are known to receive two doses of the Sinopharm vaccine safely. Efforts for vaccination of maximum healthcare

providers are again promulgated by providing opportunities for re-registration of missed personnel¹¹. Mild side effects resultant of vaccination should be catered to by symptomatic treatment as they are an indication of the body's immune response.¹²

The current study is planned to outlook the side effects experienced by our healthcare professionals following the Sinopharm vaccine. Their vaccination is meant to safeguard them against fatal coronavirus infection as a majority of COVID confirmed and suspected cases are visiting tertiary healthcare facilities. The identification of ensuing vaccine side effects may facilitate in mitigation of unfavorable effects for further vaccinated staff by relatable timely intervention.

Materials and Methods

Cross-sectional descriptive research was carried out among 216 healthcare workers who got vaccinated with Sinopharm vaccine during February and March 2021 in Infectious Diseases department of Holy Family Hospital Rawalpindi after getting confirmation SMS through NCOC Government of Pakistan registration platform⁵. Health care professionals who received either one or two jabs of Sinopharm vaccine at Holy Family Hospital were enrolled in this study through consecutive sampling. Data were collected regarding the age and gender of our healthcare staff along with their post-vaccination side effects through telephonic calls. However, the past medical history of the study participants was not inquired. Data analysis was done by using SPSS version 25.0. Percentages and frequencies for all variables were computed. Gender-based differences in post-vaccination side effects experienced after the first and 2nd dose of Sinopharm vaccine were statistically verified by chi-square test. P-value <0.05 was considered significant.

Results

Of the total 216 healthcare professionals vaccinated against COVID-19 by administering Sinopharm vaccine, 118 (54.6%) were females while 98 (45.4%) were males. The mean age of our study participants was 35.7 ± 9.5 years. The majority of our health care professionals who were vaccinated against COVID-19 were 21-40 years old as depicted below in Table 1.

Table 1: Age distribution of Vaccine recipients at Holy Family Hospital Rawalpindi (n = 216)

Sr. No.	Age groups (years)	No. of vaccine recipients	Males	Females
1	11-20	02	0	02
2	21-30	84	33	51
3	31-40	87	41	46
4	41-50	24	13	11
5	51-60	17	09	08
6	61-70	02	02	0
Total		216	98	118

Adverse effects experienced after 2nd dose of vaccine were comparatively more than those experienced after the first dose. However, gender-based differences in side effects experienced by healthcare professionals after the first and second dose of the Sinopharm vaccine were determined to be statistically insignificant as depicted below in Table 2.

Table 2: Gender-based differences in side effects experienced after 1st and 2nd dose of Sinopharm vaccine

Gender (n = 216)	Side effects experienced after 1 st dose of vaccine		Total
	Yes	No	
Males	31 (46.3%)	67 (53.7%)	98
Females	50 (42.4%)	68 (57.6%)	118
Total	81 (37.5%)	135 (62.5%)	216
$\chi^2 = 2.63$		$P > 0.1$	
Gender (n = 94)	Side effects experienced after 2 nd dose of vaccine		Total
	Yes	No	
Males	19 (45.2%)	23 (54.8%)	42
Females	22 (42.3%)	30 (57.7%)	52
Total	41 (43.6%)	53 (56.4%)	94
$\chi^2 = 0.09$		$P > 0.2$	

Table 3: Age-based differences in adverse effects experienced with 1st and 2nd dose of Sinopharm vaccine

Age groups	Adverse effects overlooked with Sinopharm vaccine	
	1 st dose (n = 216)	2 nd dose (n = 94)
11-20 years	0	0
21-30 years	35	17
31-40 years	32	14
41-50 years	7	6
51-60 years	7	3
61-70 years	0	1
Total	81 (37.5%)	41 (43.6%)

About 62.5% and 55.3% of healthcare workers did not experience post-vaccination side effects after the first and second dose of Sinopharm vaccine respectively. However, mild resultant symptoms experienced are shown below in Figure 1.

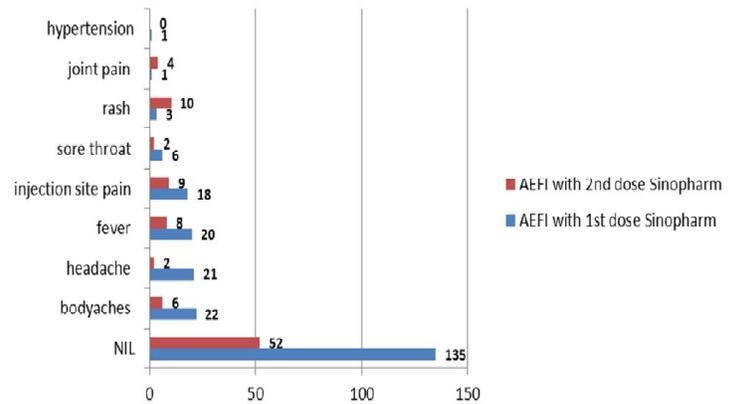


Figure 1: COVID vaccine-related side effects among healthcare personnel (AEFI - Adverse Effects Following Immunization)

Discussion

People across the globe have ensured the best possible means to limit the spread of coronavirus infection but lack of immunity to this virus still makes them vulnerable to this infection.¹³ The induction of immune response is of prime concern predominantly among our healthcare personnel and elders¹⁴ and hence protection against SARS-CoV-2 by means of vaccination is globally prioritized.¹⁵ This issue triggered worldwide efforts towards the development of a vaccine in wake of the COVID-19 pandemic.

Of the total 216 healthcare professionals vaccinated against COVID-19 by administering Sinopharm vaccine at Holy Family Hospital Rawalpindi, minimal side effects were experienced by approximately 81 recipients after the first dose of vaccine. The second dose was administered to only 93 healthcare workers and among them, 41 complained of some adverse effects. The Sinopharm vaccine also labeled as Vero contains inactivated virus. This vaccine is being administered in a Phase-III trial that was conducted in 10 countries across the world including Pakistan. The resulting adverse effects following immunization are known to subside gradually and their occurrence is an indication of a functional immune system.¹⁶

Fortunately, 62.5% of our Sinopharm vaccine first jab's recipients did not experience any side effects. However among the rest of the 37.5% having adverse

effects with the first dose of vaccine, most (22) complained of body aches while 21, 20, and 18 suffered from headache, fever, and injection site pain respectively. On the other hand, among 91 healthcare personnel receiving the 2nd dose of vaccine about 43.6% experienced unfavourable symptoms. The majority (24.4%) complained of dermal rash while 22% and 19.5% had injection site pain and fever respectively. Although preliminary overview about Sinopharm vaccine confirms its safety for human beings and ensures minimal resultant side effects sufficient data pertinent to side effects experienced altogether with Sinopharm vaccine is not available as numerous vaccines including Pfizer, Moderna, CoronaVac, and Sinopharm vaccines with provisional efficacy are sanctioned for administration across the globe in order to protect human beings against the fatal virus.^{17,18} Likewise, in the current study, the majority of the participants undergoing phases 1 and 2 of Randomized Controlled Trial with aforementioned sanctioned vaccines overlooked vaccine-associated adversity after 2nd dose. Injection site pain, erythema, fever, headache, and myalgia were experienced by vaccine recipients up to 7 days after 2nd dose administration.¹⁹ Similarly approximately 50% of Pfizer vaccine recipients experienced injection site pain, headache, or fatigue after 2nd dose administration.²⁰ It is essential to counsel layman vaccine recipients about the vaccine-related proposed side effects in order to ensure symptomatic management rationally and avoidance of nuisance. This approach will facilitate a great deal to reduce the additional burden on healthcare facilities amidst the COVID pandemic.

The results of the present study illustrated that mainstream (46.3%) COVID vaccine first jab recipients complaining of post-vaccination side effects were males. Even after the second dose, adverse effects in high magnitude (45.2%) were reported among our male healthcare professionals. Contrary to our research, COVID vaccine-related side effects explored by Yale School of Medicine were identified in high propensity (72%) among females.²¹ A similar study by Folegatti A, et al concluded that only mild and moderate post-vaccination adverse effects were determined.²² Centre for Disease Control and Prevention (CDC) reported that more females experienced COVID vaccine-associated side effects than males.²³ In addition, fever was reported to be the commonest side effect, particularly among females.²⁴ According to experts, the intense COVID vaccine-related side effects among females are attributed to

their strong immune response and this might be accounted to gender-based hormonal differences.²⁵ These gender-based discrimination in adversity following COVID vaccination can better be streamlined by enrolling a large study population in this regard.

In the current study, as most of our vaccinated subjects were youngsters with only little study population older than 60 years, so an almost equal proportion of youth and elders was observed to have side effects. On the other hand, more young adults internationally seemed to have adverse effects with the COVID vaccine.²⁶ A second dose of vaccine in our study was received by only 94 healthcare workers, this age-based disparity can better be discovered by securing data pertinent to side effects from the majority of our vaccinated populates including other than those of healthcare personnel.

Almost all COVID vaccines are determined to have two doses; the first dose is meant to elicit immune response while the second one is intended to boost immunity. Almost similar side effects of all COVID vaccines (Russian, American, Chinese or British) are reported with most frequently established to be flu-like symptoms and injection site allergies.²⁷ These variations in post-vaccination side effects however can best possibly be unmasked by the conduction of more countrywide researches.

Conclusion

The Sinopharm vaccine was determined to be quite favorable for our healthcare workers as the minority of the workers experienced its side effects. However, precautionary measures against COVID-19 should still be observed religiously in order to keep safe and healthy during pandemic waves.

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