

Post immunization COVID-19 disease

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ABSTRACT

One hundred and two patients reported to peripheral hospital, of these 73 (77%) and 23 (95%) suffered from COVID-19 disease, were immunized as per availability of Covishield 78 (77%) and Covaxin 24 (23%), respectively. Of these, three died (3%). Inflammatory markers were raised in Covishield vs. Covaxin 26 (36%) vs. 7 (31%), 46 (63%) vs. 8 (35%), 57 (78%) vs. 14 (61%), 29 (40%) vs. (73%), C-reactive proteins and serum ferritin, and positive for COVID-19 antigen and RTPCR and COVID-19 pneumonia, respectively. Irrespective of immunization status of victim with symptoms should be investigated for possibility of severe acute respiratory syndrome COVID-beta 2 (SARS-CoV-2) virus infection. These findings confirmed the need for a Booster dose of COVID-19 vaccination.

Keywords: COVID-19, HRCT, vaccine

Introduction

India is facing severe life-threatening emergencies due to daily surge of more than four hundreds thousands cases of COVID-19. Now the antigen test kit is easily available at the chemist and these antigen-positive cases remained unreported. In the second wave, the virus is more aggressive and rapidly spreading to almost all family members with high morbidity and mortality, because of this now there is a heavy rush at the vaccination centers and there is no more stigma left regarding myth of COVID-19 vaccination. In India, there is deep-rooted concept among general practitioners and peripheral doctors and even a general population that once an immunization is done for any disease, it is sufficient to protect the person from infectious disease, and the immunized victim will never suffer from COVID-19 once they are immunized, which is not true in case of COVID-19 disease. Here, we report patients who suffered from COVID-19 irrespective of full immunization. During pandemic or postpandemic period, for patients having

COVID-19 symptoms, in a immunized patient, one should always keep in mind the possibility of COVID-19.

The health department is overburdened with active and post-COVID-19 complicated cases. Health workers are exhausted, many infected with severe acute respiratory syndrome-CoV-2 virus, and many died. Active immunization of all age groups is most vital to reduce the load of active cases. Irrespective of social distancing, washing of hands, proper use of masks, and lockdown, the incidence of active cases did not improve. Home isolation or quarantine did not prevent the spread of the virus to family members. Vaccination campaigns are arranged almost at all health centers to cover maximum cases before India faces the third wave.^[1]

Patients and Method

Symptoms

Covaxin and Covishield vaccines are available since March 2020. Patients who gave history of either vaccination of a single dose or double dose, irrespective of vaccination, and patients who suffered from COVID-19 disease were investigated for complete blood examination, inflammatory biomarkers, and chest scan HRCT score and antigen and RT-PCR test for SARS-CoV-2 viral antigen. Duration between vaccination and symptoms and fatal [Figure 1 and Tables 1-4].

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A total of 102 patients were reported to peripheral hospital. Of these, 73 (77%) and 23 (95%) patients who suffered from COVID-19 disease, were immunized as per availability of Covishield 78 (77%) and Covaxin 24 (23%), respectively. Of these three died (3%). Inflammatory markers were raised in Covishield vs. Covaxin; 26 (36%) vs. 7 (31%), 46 (63%) vs. 8 (35%), 57 (78%) vs. 14 (61%), 29 (40%) vs. (73%), C-reactive proteins and serum ferritin and positive for COVID-19 antigen and RT-PCR and COVID-19 pneumonia, respectively. Irrespective of immunization status, victim with symptoms should be investigated for possibility of SARS-CoV-2 virus infection. Number of patients suffered from various symptoms [Table 4]. Number of patients was more from those who received Covishield vaccine as compared with Covaxin. Two (2.56%) and one (4.16%) cases died from Covishield vs. Covaxin, respectively. There is a short supply of Covaxin as compared with Covishield. Because of the short supply of Covaxin and freely available Covishield and poor attendance by paramedical staff, the benefit of Covishield is that second dose is to be administered after 84 days of the first dose as against Covaxin which has to be administered within 4 weeks.

Discussion

Patients with preliminary symptoms of COVID-19 report to the general practitioner. Patients who received complete immunization against COVID-19 are usually denied to accept recurrence COVID-19. In such situations, general practitioner should be aware of recurrence of the disease. The present report confirmed the recurrence of COVID-19 irrespective of immunization [Tables 3 and 4].

The efficacy rate of each vaccine played an important role in determining the advent of COVID-19 disease. Covishield, the COVID-19 vaccine was developed by Oxford University in partnership with British-Swedish firm Astra-Zeneca. It is being manufactured in India by Pune-based firm, Serum Institute of India. BBV152, a SARS-CoV-2 Covaxin, is prepared by Bharat Biotech India. Whole virus vaccine

to evoke antibody-dependent enhancement of infection including vaccine-associated enhanced respiratory disease upon SARS-CoV-2 infection, immune complex deposition with T-helper-2 cell biased allergic inflammation.^[2] To find

Table 1: Age- and sex-wise distribution

Age in years	M/F	Covishield Single dose	Covishield two doses	Covaxin Single dose	Covaxin Two doses
<20	M	1	0	0	0
21-40	M	4	0	3	1
41-60	M	17	2	5	1
>61	M	17	3	4	1
Total	M	39	5	12	3
<20	F	1	0	0	0
21-40	F	3	0	1	0
41-60	F	19	2	5	2
>61	F	7	2	1	0
Total	F	30	4	7	2
Total male and female		69	9	19	5

Table 2: Inflammatory markers

Laboratory Investigation	Covishield	Covaxin
Lymphopenia <1,500	36	8
Eosinopenia <40	40	10
C-reactive protein [n-0-6 mg/L)		
6-10	8	0
11-15	3	1
16-30	9	5
>30	26	7
Serum ferritin (n-<204 ng/mL)		
204-500	42	8
>500	4	0
D-Dimer (n-<500/mL FEU)		
501-1,000	7	0
>1,000	6	2
HRCT [score out of 25]		
<5	3	0
6-10	11	3
11-15	11	1
>15	4	0
SpO ₂		
<90	6	1
91-94	26	7
95-97	42	12
COVID-19 test		
Antigen +	50	11
RTPCR +	7	3

Table 3: Time lapse between vaccination and symptoms

Symptoms in days after vaccination	Covishield	Covaxin
<5	2	0
6-10	23	2
11-15	13	8
16-30	22	11
>31	18	3

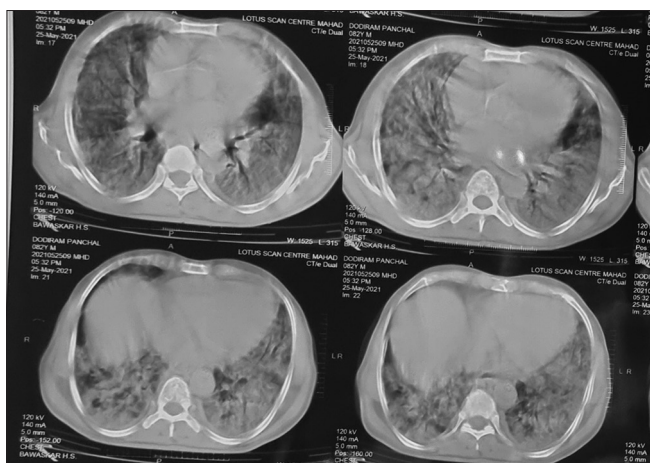


Figure 1: Showing the HRCT score 23/25 in a 69 years old male 15 days after the second dose of covaxin, died on 7th day of hospitalizations

Table 4: Symptoms after vaccination

Symptoms	Covishield (%)	Covaxin (%)
Fever	73 (94)	23 (96)
Myalgia	75 (96)	22 (92)
Anorexia	56 (72)	13 (54)
Diarrhea	17 (22)	5 (21)
Headache	40 (51)	12 (50)
Loss of taste	40 (51)	10 (42)
Loss of smell	36 (46)	8 (33)
Cough	55 (71)	17 (71)
Breathlessness	28 (36)	6 (25)
Death	2 (2.56)	1 (4.16)

the most safe and effective vaccine for COVID-19, more than 50 COVID-19 vaccines are at various phases of trials across the globe. In India, vaccines for COVID-19 are routinely available and administered in older than 15 years of age. India is a “Pharmacy capital” of the world, hence entire world is looking at India with a great hope to eradicate the SARS-CoV-2 virus by mass immunization.^[3] Cytokine and Bradykinin storm play important role in the pathogenesis of COVID-19 disease, resulting in increased coagulation state and thromboembolism phenomenon. Thrombosis is induced by the existing diseases or Covishield vaccination because the incidence is similar to that seen in other patients.^[4] Raised inflammatory markers for symptomatic diseases in present victims of vaccination attributed to antibody-dependent enhancement as a result of immune cells recruitment, complement cascade activation, and proinflammatory cytokine release.^[5] Severe clinical manifestation raised HRCT scores, and hospitalization was required for those who suffered from COVID-19 diseases after the first dose compared with the second dose.^[6] Similar findings have been reported from the United Kingdom.^[7]

In the present study, the symptoms and inflammatory markers are more significant in victims who received the Covishield vaccine as compared with Covaxin (see Tables). In the present study, three cases died suddenly due to cardiac arrest and due to acute myocardial infarction [Table 3]. A similar report of ST-elevation myocardial infarction due to plough thrombosis has been reported from India.^[8,9]

Conclusion

One should be careful to investigate details of a victim having symptoms such as fever, myalgia, body ache, upper respiratory tract infection, dry cough, and raised inflammatory markers of COVID-19, who has received COVID-19 vaccination.

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Conflicts of interest

There are no conflicts of interest.

References

1. India's Covid-19 emergency. *Lancet* 2021;397:1683.
2. Graham BS. Rapid COVID-19 vaccine development. *Science* 2020;368:945-6.
3. Raina SK, Kumar R. Diagnostic tools for evaluating the effectiveness of COVID-19 vaccines: Challenges and solution. *J Family Med Prim Care* 2021;10:2059-61.
4. Wise J. Covid-19: European countries suspend use of Oxford -AstraZeneca vaccine after report of blood clot. *BMJ* 2021;372:n699.
5. Lee WS, Wheatley AK, Kent SJ, DeKosky BJ. Antibody - dependent enhancement and SARS-cov-2 vaccines and therapies. *Nat Microbiol* 2020;5:1185-91.
6. Thathai A, Gahlot R, Gahlot NK, Ravindra B, Singh MM, Prakash P, *et al*. Study of COVID-19 infection, its severity and outcome in COVID-19 vaccinated people at tertiary health care center, North west Rajasthan. *J Assoc Physicians India* 2021;69:11-2.
7. Hippisley-Cox J, Patone M, Mei XW, Saatci D, Dixon S, Khunti K, *et al*. Risk of thrombocytopenia and thromboembolism after covid-19 vaccination and SARS-CoV-2 positive testing: Self-controlled case series study. *BMJ* 2021;374:n1931.
8. Srinivasan KN, Satthyamurthy I, Neelagandan M. Relation between COVID -19 vaccination and myocardial infarction - causal or coincidental? *Indian Heart J Cardiovasc Case Rep* 2021;5:71-4.
9. Kumar B, Sabbarwal V, Nigam A, Gore P, Chauhan G, Darbari A. Two cases reports of acute ST-elevation myocardial infarction after COVID-19 vaccination: Co-incidence or causal-association? *J Health Soc Sci* 2021;6:293-8.