

Adverse effects on Covid 19 vaccination

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Abstract

Introduction: There are 9 COVID-19 vaccine candidates in different phases of development in India, of these 3 are in pre-clinical phase whereas 6 are under clinical trials. Two of them are used in emergency basis, which include Covaxin by Bharat Biotech and Covishield by Serum Institute of India. **Misbelieves:** There are some misbelieves regarding use of these vaccination in terms of side effects and effectiveness. **Adverse Events Following Immunization:** These are the symptoms recognized after immunization in some individuals. It can be minor, severe or serious. **AEFI prevention and management:** AEFI can be prevented and managed by careful monitoring and symptomatic treatment with detailed history collection.

Keywords: DNA (Deoxyribonucleic Acid); RNA (Ribonucleic acid); AEFI (Adverse Event Following Immunization).

Introduction

There are 9 COVID-19 vaccine candidates in different phases of development in India, of these 3 are in pre-clinical phase where as 6 are under clinical trials. Country earlier gave nod to emergency use of two indigenous covid-19 vaccines. Covishield by serum institute of India and Covaxin by Bharat bio-tech. Both the vaccines have been tested on thousands of people and side effects are negligible.

Covishield vaccine

1. Vaccine type - Live vaccine.
2. Composition - L - histamine, I-histamine hydrochloride monohydrate, magnesium chloride hex hydrate, ethanol, sucrose, sodium chloride and disodium edentate dehydrate (EDTA).
3. Covishield vaccine made of genetically modified virus (adenovirus) from chimpanzees.
4. Dose - 0.5ml.
5. Route - IM (deltoid muscles).
6. Interval - 28 days (4 - 8 weeks).
7. Do not give vaccine to those persons who have allergic reaction.

Covaxin vaccine

1. Vaccine type - inactivated vaccine.
2. Covaxin vaccine contain - dead virus (incapable of infection), antibody and T cell memory responses (3 months after vaccination).
3. Dose - 0.5ml.

4. Route - IM (deltoid muscles).
5. Interval - 28 days (4 - 8 weeks).
6. Do not give vaccine to those persons who have allergic reaction.²

Misbelieves regarding COVID vaccination

There are some misbelieves and frequently asked questions regarding vaccination which are as follows.¹

Is it compulsory to take the vaccine?

Vaccination for COVID-19 is voluntary. However, it is advised to take all doses so as to protect oneself from this pandemic as well as to protect family, friends and others from self.

If one person presently having covid-19 (confirmed or suspected) infection is he or she vaccinated?

Infected individuals should wait until symptoms subside i.e. after 14 days, because they can be carrier or spread disease at the site of receiving vaccination.

Is it essential for a COVID Recovered Person to Take the Vaccine?

Yes, it is advised to complete the prescribed schedules doses of vaccine in already recovered personnel as it can help in boosting their immunity.

If one is taking medicines for illnesses like cancer, diabetes, hypertension etc., can she take the covid-19 vaccine?

Yes, as these person are at greater risk for having COVID 19, they should be vaccinated despite of having these comorbidity.

Which is the Possible Side-effects From COVID-19 Vaccine?

COVID vaccine will be introduced only when the safety is proven. As is true for other vaccines, the common side effects in some individuals could be mild fever, pain, etc. at the site of injection.

Adverse effects following immunization (AEFI)

An adverse effect following immunization (AEFI) is an adverse reaction following immunization which actually does not have relation with vaccine.

The adverse effect may be any unfavorable or unintended disease, symptom, sign or abnormal laboratory finding. These can be true events which is actually due to vaccination or coincidental events which can be due to immunization. For purposes of reporting, AEFIs can be classified as minor, severe and serious. (Tab. 2)

Table no. 1 Vaccines tested and found.

Sr no.	Name of vaccines
1	Covishield (Chimpanzee Adenovirus)
2	Covaxin (Inactivated Virus)
3	ZyCoV-D (DNA vaccine)
4	Sputnik V (Human Adenovirus vaccine)
5	NVX-CoV2373 (Protein Subunit)
6	Recombinant Protein Antigen based vaccine
7	HGCO 19 (mRNA based vaccine)
8	Inactivated rabies vector platform
9	Vesiculo Vax Platform

Table no. 2 AEFI.

Minor AEFI	<ul style="list-style-type: none"> • Common, self-limiting reactions • E.g. pain, swelling at injection site, fever, irritability, malaise etc.
Severe AEFI	<ul style="list-style-type: none"> • Can be disabling and rarely life threatening; do not lead to long-term problems. • Examples of severe reactions include non-hospitalized cases of: anaphylaxis that has recovered, high fever (>102 degree F), etc.
Serious AEFI	<ul style="list-style-type: none"> • Results in death • Requires inpatient hospitalization • Results in persistent or significant disability • AEFI cluster • Evokes significant parental/community concern

Preventing anxiety reactions

Session sites should be planned in such a way that there is a separate area for those waiting for vaccination, site of actual vaccination and post vaccination observation area.

Ensure vaccinations occur in comfortable, well-ventilated and airy settings. Beneficiaries who seem anxious or nervous should be identified.

And made to calm down or their attention diverted from the process and the pain. After vaccination, they should be asked to remain seated for some time and observed. If they feel light-headed or giddy, they should be asked to lie down for some time.

AEFI management

Vaccinators and supervisors at the vaccination site will provide primary treatment of all AEFIs. If needed, cases should be immediately referred to the nearest AEFI

management center/ health facility and reported to the appropriate authority.

All beneficiaries must be counseled about adverse events which may occur after COVID-19 vaccine. These are expected to be minor events such as local pain and swelling and mild to moderate fever, etc. However, the list of expected events could be different based on the safety profile of the COVID19 vaccine(s) which finally gets approved for use.^{1,3} (Tab. 2)

In case of any type of discomfort or illness following COVID-19 vaccination, vaccine recipient should visit the nearest health care facility for treatment. At fixed session sites, an AEFI management kit or an emergency tray should be available for use.

All vaccinators must be trained to suspect signs and symptoms of anaphylaxis and to use the contents of the anaphylaxis kit to provide a single, age-appropriate dose of injection Adrenaline and arrange transportation of the patient to the nearest AEFI management center/hospital for further treatment. This is crucial for saving lives in case of rare but life-threatening anaphylactic reactions.

Ensure that is enough stock/supply of injection adrenaline during the campaign, keeping in mind the short expiry period of the adrenaline.

Each outreach session site should be linked to an identified AEFI management center to provide immediate treatment for serious AEFI cases.

Adequate transportation should be available to transfer persons with serious adverse reactions to nearest identified AEFI management center or health facility. The vaccinators at the session sites must be aware of all relevant contact numbers like ambulance services (108 or 102), AEFI management centers, higher health care facilities, etc.

The contents of the AEFI kit are:

1. Inj. Adrenaline 1:1000 (3).
2. Inj. Hydrocortisone (3).
3. Ringer lactate/normal saline (2).
4. 5% dextrose (2).
5. IV drip set (2).
6. Scalp vein sets or IV cannula (2).
7. Disposable syringes-5 ml with 2425G IM needle (3 sets).
8. Adhesive tape and blank case reporting formats (CRF).

Conclusion

The adverse effect may be any unfavorable or unintended disease, symptom, sign or abnormal laboratory finding. The articles include about vaccines, misbeliefs regarding vaccination, adverse effects following vaccination, management of adverse events, and prevention of adverse events.

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