The Break Down some of the side effects of COVID-19 vaccination (CoV-19 or SARS-CoV-2)

J.A.Shalini
B.sc, M.sc, Sri Krishna Arts and Science College, Coimbatore, Pollachi

Abstract **- COVID -19 vaccines safety and is it normal to develop these various kinds of side effects to the vaccinated subjects a question that is making rounds in most conversations these days is- what are the side effects associate with the vaccines, and they should they be a cause of worry?**
People should expect mild to moderate side effects in the few days following the vaccination. And are there any - long term effects associate with the vaccination. Mainly what causes these side effects. vaccination causes side effects considered essentially to be a good sign .The side effects are pointers that your immune system . The risk factor before vaccination and benefits after vaccination to the subjects of publics advices to get vaccinated. Government and healthcare institutions are monitoring the vaccine administration.

I.INTRODUCTION

The world is in the midstod a COVID-19 pandamic. COVID -19 is an unpredictable and deadly diseases . Vaccination against the virus is the best thing that bears semblance to a promising solution for this situation. Ever since the vaccine roll –out in December 2022, millions of people administrated doses against SARS –CoV-2. Some of these people have experienced the side effects after receiving the vaccine. However, none of these are cause for alarm or something that should prevent you from getting vaccinated.
Side effects are just indication that your body preparing immunity against the virus . some of the people may not show any side effects at all. Everyone is affected differently , and it is best not to panic
If you are experience minimal side effects. If these symptoms persists for more than the prescribed time. Immediate reaction may also occur in unusual cases. This is why it is essential that you do not skip the observation period at the vaccination center after getting the shot .

II.WORLD HEALTH ORGANISATIONS (WHO) VACCINES

RNA
• Pfizer/BioNTech – BNT162b2
- Approved in 130 countries
- 49 trials in 23 countries
-Approval sources : WHO

• Moderna - mRNA – 1273
-Approved in 83 countries
-35 trials in 9 countries
- Approval sources : WHO

Non-Replicating Viral vector
• Janssen (Johnson & Johnson) – Ad26.COV2.S
-Approved in 99 countries
- 16 trials in 18 countries
-Approval sources : WHO

• Oxford /AstraZeneca – AZD1222
-Approved in 134 countries
- 53 trials in 24 countries
-Approval sources : WHO

• Serum Institute of India
Covishield (Oxford /AstraZeneca formulation)
-Approved in 47 countries
- 2 trials in 1 country
-Approval sources : WHO

Inactivated
• Bharat Biotech
Covaxin
-Approved in 13 countries
-7 trials in 1 country
-Approval sources : WHO

• Sinopharm (Beijing).
BBIBP – CorV (Vero Cells)
-Approved in 83 countries
-21 trials in 11 countries
-Approval sources : WHO

• Sinovac
CoronaVac
-Approved in 51 countries
-28 trials in 8 countries
-Approval sources : WHO

Protein Subunit
• Novavax
NVX-CoV2373

-Approved in 30 countries
-11 trials in 7 countries
-Approval sources : WHO

• Serum Institute of India
Covovax (Novavax formulation)
-Approved in 3 countries
- 2 trials in 1 country
-Approval sources :WHO

III.POSSIBLE SIDE EFFECTS CAUSES

COVID-19 vaccination will help protect people from getting COVID-19. Adults and children may have some side effects from the vaccine, which are normal signs that their body is building protection. These side effects may affects their ability to do daily activities, they should go away in a few days. Some people have no side effects, and allergic reaction are rare.

IV.IS IT NORMAL TO DEVELOP THE SIDE EFFECTS

A question that is making round in most conversations these days is – what are the side effects associated with vaccines , and should they be a cause of worry? People should expects mild to moderate side effects in a few days following vaccination. These effects will disappear on their own in a few days. Some of the side effects that are being commonly observed in vaccinated people. Included –

- Fever
- Body ache
- Pain ,redness, and swelling on the site of vaccination
- Head ache
- Chill
- Nausea

It is absolutely normal for you to experience these side effects . After administering the vaccine dose, the health workers keep the recipient under observation for 15 to 30 minutes at the vaccination site. This is done to make sure that any immediate unexpected reaction to the vaccine may be take care of health professional.

The side effects to the vaccines are essential considered to be a good sign. This immune response is triggered by an antigen present in the vaccine. The blood flow in the body is increased to increased the circulation of the defensive immune cells in the body. This can lead to increase in body temperature, which can consequently show up as fever. The side effects are pointers that your immune system is functioning properly and is gearing up to fight against the infection. On the contrary, you may not experience any side effects at all. This does not imply that your body's immune system is not working or the vaccine is ineffective. Every individual is bound to have a varying immune response to the vaccine. It is also observed that the side effects may be more prominent after receiving the second dose of vaccine. These effects will also subside on their own after a few days.

V.ARE THEY ANY LONG –TERM EFFECTS ASSOCIATED WITH THE VACCINES?

Side effects after the vaccine are observed with in the first few days. No long –term side effects of the vaccine are knows. Government and health institutions are monitoring the vaccine administration closely to keep track of any unexpected side effects of the vaccine. After the vaccine, your body will require sometimes (a few days) to build immunity against the virus. There are chances of the person getting affected by the virus after the vaccination. Therefore, it is important to take appropriate precautions after getting the vaccine to make sure that you remain safe from the virus until your body has had enough time to build immunity against the virus. There also have been misconceptions about the vaccine causing COVID-19. None of the vaccines contains live viruses, so the

concerns about the vaccine making people infected with the virus are baseless. You can be assured that any of the approved vaccines will not infect your body with the virus. However, you need to make sure that you follow the required protocols and procedure to avoid contracting the diseases even after getting vaccinated.

VI.RELIEVING THE SIDE EFFECTS OF THE VACCINE

While it is highly likely that the side effects will diminish on their own in the few days, you can also consult your doctor about medications that can help. You can choose to take over-the-counter medications at the advice of a healthcare professional to relieve the side effects.

VII.RARE SIDE EFFECTS

In extremely rare cases, severe side effects may be observed in the person. These include unexpected events such as allergic reactions like anaphylaxis or side effects lasting more than three day. In such situations, it is critical to immediately consult a healthcare professional for further information and treatment. Other cases where you should seek professional help is when redness or pain at the spot where you got the shot keeps worsening with time. Such severe reactions may occur immediately after vaccinations. This is why it is suggested to stay at the vaccination site for 15-30 minutes after receiving the vaccine. These allergic reactions to the vaccines are characterized by symptoms like difficulty in breathing, swelling of the face, pain in the throat, rashes on the body, or low blood pressure. This condition is curable and requires epinephrine which is being made available in vaccination centers.

VIII.COVID-19 ADVICE FOR THE PUBLIC: GETTING VACCINATED

As WHO and partners work together on the response – tracking the pandemic, advising on critical interventions, distributing vital medical supplies to those in need—they are racing develop and deploy safe and effective vaccines.

Vaccines save millions of lives each year. Vaccines work by training and preparing the body's natural defences – the immune system- to recognize and fight off the viruses and bacteria they target. After vaccination, if the body is later exposed to those disease- causing germs, the body is immediately ready to destroy them, preventing illness.

There are several safe and effective vaccines that prevent people from getting seriously ill or dying from COVID-19.This is one part of managing COVID-19, in addition to the main preventive measures of staying at least 1 meter away from others, covering a cough or sneeze in your elbow, frequently cleaning your hands, wearing a mask and avoiding poorly ventilated rooms or opening a window.

As of 15 November 2021, WHO has evaluated that the following vaccines against COVID-19 have met the necessary criteria for safety and efficacy: nearly 19 vaccines are approved by WHO

- Astrazeneca/ Oxford vaccine
- Johnson and Johnson
- Moderna
- Pfizer/ BionTech
- Sinopharm
- Sinovac
- Covaxin

Some national regulators have also assessed other COVID-19 vaccine products for use in their countries. Take whatever vaccines is made available to you first, even if you have already had COVID-19. It is important to be vaccinated as soon as possible once it's ypur turn and not wait. Approved COVID-19 vaccines provide a high degree of protection against getting seriously ill and dying from the disease, although no vaccine is 100% protective.

IX.WHO SHOULD GET VACCINATED

The COVID-19 vaccines are safe for most people 18 years and older, including those with preexisting condition of any kind, including auto immune disorders. These conditions lnclude:

- Hypertension
- Diabetes
- Asthma
- Pulmonary
- Liver and
- Kidney diseases
- Chronic infections

That are stable and controlled.

If supplies are limited in your area, discuss your situation with your care provider if you:

- Have a compromised immune system
- Are pregnant (if you are already breastfeeding, you should continue after vaccination)
- Have a history of severe allergies, particularly to a vaccine(or any of the ingredients in the vaccines)
- As severely frail

Children and adolescents tends to have milder diseases compared to adults, so unless they are part of a group at higher risk of severe COVID-19, it more evidence is needed on the use of the different COVID-19 vaccines in children to be able to make general recommendations on vaccinating children against COVID-19.

WHO's Strategic Advisory Group of Expects (SAGE) has concluded that the Pfizer/BionTech vaccines is suitable for use by the people aged 12and above. Children aged between 12 and 15 who are at high risk may be offered this vaccine alongside other priority groups for vaccination. Vaccine trials for children are ongoing and WHO will updates its recommendation when the evidence or epidemiological situation warrants a change in policy.

It's important for children to continue to have the recommended childhood vaccines.

X. After a second shot

Side effects after the second shot may be more intense than the once experienced after the first shot. These side effects are normal signs that the body is building protection and should go away with in a few days.

XI. IF YOU RECEIVED A BOOSTER SHOT

So far , reactions reported after getting a Booster shot were similar to those after the two-dose or single-dose primary series.

- Fever
- Headache
- Fatigue
- Pain at the injection site

The most commonly reported side effects, and overall, most side effects were mild to moderate. However, as with the two-dose or single-dose primary series, series side effects are rare but may occur.

XII. DEVELOPMENT OF NEW VACCINES

The general stages of the development cycle of a vaccines are:

- Exploratory stage
- Pre-clinical stage
- Clinical development
- Regulatory review and approval
- Manufacturing
- Quality control

Clinical development is a three-phase process. During phase 1, small group of people receive the trial vaccine. In phase 2 the clinical study is expanded and vaccine is given to people who have characteristics (such as age and physical health) similar to those from whom the new vaccine is intended. In phase 3, the vaccine is given to thousands of people and tested for efficacy and safety.

Many vaccine undergo phase 4 formal, ongoing studies after the vaccine is approved and licensed.

XIII. TRACKING SIDE EFFECTS ONCE A VACCINE IS ADMINISTRATED

The Vaccine Adverse Event Reporting System (VAERS) is a national vaccine safety surveillance program co-sponsored by the Food and Drug Administration (FDA) and the CDC.

VAERS collects and analyze information from the reports of adverse events (side effects) that occur after the administration of US licensed vaccine. Reports are welcome from all concerned individuals: patients, parents, healthcare providers, pharmacists, and vaccine manufacturers.

XIV. IN CONCLUSION

Encountering any side effects after getting vaccinated should be expected. However, these shouldn't be the reason for you to avoid vaccination. Severe allergic reactions have a rare chance of occurring. Consult your doctor in cases you experience such side effects. The side effects are markers that show that your immune system responds effectively, and the vaccine is functioning. The effects will reduce in severity in a few days. The vaccines are safe, and they are your best shot at protection against COVID-19. It is essential to follow all the prescribed guidelines until you are fully vaccinated and sometime after that to ensure that you do not acquire the infection.

REFERENCE

[1] P Conti et al .J Biol Regul Homeost Agents.2020 March-April, How to reduce the like hood of coronavirus-19 (CoV-19 or SARS-CoV-2) infection and lung inflammation mediated by IL-1

[2] Conti P ,et al. J Biol Regul Homeost Agents.2020.PMID:32253888 COV-19/SARS-CoV-2 affects women less than men :clinical response to viral infection.adults with COVID-19: A structured summary of the study protocol for a randomized controlled trial.

[3] Mills WR, et al. J intellect disabil res.2020. PMID :32490559 Supporting individuals with intellectual and developmental disability during the first 100 days of the COVID-19 outbreak in the USA.

[4] Ortiz –Prado E, et al. Diagn microbial infect dis.2020.PMID: 32623267 clinical, molecular, and epidemiological characterization of the SARS-COV-2 virus and the coronavirus disease 2019 (COVID-19), a comprehensive literature review.

[5] Ye Q, et al. Zool res.2020. PMID:32772513 Delayed severe cytokine storm and immune cell infiltration in SARS-COV-2-infected aged Chinese rhesus macaques.

[6] song TZ, et al. Zool res.2020.PIMD : 32772556 Safety and efficacy assessment of allogeneic human dental pulp stem cells to treat patients with severe COVID-19:Structure summary of a study protocol for randomized controlled trial (phase I/II).

[7] Zabetakis I, et al. inflamm res.2020. PMID:32656666 SARS-COV-2 will constantly sweep its track: a vaccine containing CpG motifs in lasso for the multi-faced virus

[8] YAO z, et al. Aging (Albany Ny).2020. PMID: 32364527 Immune environment modulation in pneumonia patients caused by coronovirus :SARS-COV-2, MERS-COV and SARS-COV-2.

[9] Prete M,et al. int J Mol Sci.2020.PMID:32397684 SARS-COV-2 Inflammatory syndrome. Clinical featurs and rationale for immunological treatment.

[10] Edler C, et al. int J Legal Med.2020. PMID: 32500199 Dying with SARS-COV-2 infection-an autopsy study of the first consecutive 80 cases in hambrug, Geermany.