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A review on the safety and efficacy of COVID-19 vaccinations

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Abstract---COVID-19 Vaccine helps in protecting and save the lives of many people against Corona Virus. It was conveyed that the unvaccinated people should get vaccinated as early as possible to protect oneself during the pandemic. A vaccine might not preserve us from getting COVID-19. If a person need to get the illness, the vaccine can also additionally preserve them from turning into severely ill. It can also preserve them from growing headaches because of the illness. Evidence maintains to construct displaying that COVID-19 vaccination earlier than and for the duration of being pregnant is secure and powerful. It indicates that the blessings of receiving a COVID-19 vaccine outweigh any recognized or capability dangers of vaccination for the duration of being pregnant.

Keywords---COVID-19 vaccination, types of covid-19 vaccines, vaccinations for children.

Introduction

COVID-19 vaccine

Vaccine is supporting human beings getting affected from coronavirus and might save you the signs or intense of illness. Unvaccinated human beings need to get vaccinated and preserve protecting till they're completely vaccinated. Vaccine isn't simplest for adults or vintage human beings however can which include for kids approximately 12 years and pregnant girls can also get vaccine. Covid -19 vaccine assist people to lose for paintings or faculty and medical examiners for handling with sufferers which include, home, hospital for being concerned disorder sufferers, take care of unique populations in HPC, CHC, PHC, for being concerned

human beings, manage contamination from rural place and city place. The vaccine changed into definitely evolved over a long term primarily based totally on years of studies used for different virus vaccines. This in advance studies made it viable to create the COVID-19 vaccine in a shorter time than usual ^(1, 2).

Vaccines assist construct the body's capacity to combat off a virus. Examples are the influenza vaccine, the chickenpox vaccine and plenty of others. A vaccine might not preserve you from getting covid-19. If you need to get the illness, the vaccine can also additionally preserve you from turning into severely ill. It can also preserve you from growing headaches because of the illness. That for the lifesaving gain of the vaccine. As researchers and fitness care vendors recognize greater approximately the covid-19 virus and the to be had vaccines, they advise that everybody who's eligible for a vaccine get one ^(2, 3).

Some benefits of vaccinating for the family include:

- If get vaccinated your family may not have to quarantine after exposure.
- If one did not get vaccine their child, get less to go school.
- If get vaccinated the family may be able to play sports and hang out with friends to take part in other activities and also not to worry more about anything.
- If get vaccinated the family's mental health is improve with a return to some normal. The vaccines for COVID-19 are safe and effective. Effective of vaccines are varies by type in the vaccine you have to receive, for the age and overall health as well as other factors.

Everyone who's eligible have to get vaccinated except their fitness care company tells them otherwise. Only the eligible humans are protected to people who are attempting come to be pregnant withinside the destiny and people who're pregnant and breastfeeding can get vaccination and the vaccine alternatives for a long time 18 and older.

These are types of covid-19 vaccines:

- mRNA - Nucleoside mRNA: It is produced from US-Pfizer Germany bio-Tech and has the highest efficacy out of all the covid vaccines, which is found to be about 90-94%. It is given for 2- doses. Eg; PFIZER-BION TECH.
- mRNA – Nucleoside modified mRNA: It is a vaccine which was produced from US and given for 2 shots. Its effectiveness is for 70 – 85%. Eg; MODERNA.
- Inactivated virus: This vaccine is being produced from India and has an efficacy of 70 – 81%. A person who gets this vaccine, are given for 2 shots. Eg; COVAXIN
- Viral Vector: The viral vector vaccine has effectiveness for about 70 – 80%; it is produced and distributed worldwide from UK and Sweden. Like other vaccines, this vaccine is also given for 2 shots. Eg; COVISHIELD.
- Protein Based: The vaccine is manufactured and distributed from US, with an efficacy of 85 – 89% for 2 shots differing in the time interval. Eg; NOVAMAX.
- Viral Vector: This particular vaccine has the second highest efficacy about 85 – 91% against covid virus, and is manufactured from Russia. It is given

for 2 shots with each shot having different time intervals. Eg; SPUTNIK V.

- **Viral Vector:** Unlike other vaccines which require 2 shots, this certain vaccine gives only 1 shot to an individual and has an efficacy of 70 – 85%. It is being manufactured from US and Belgium. Eg; JOHNSON & JOHNSON/JANSSRN.

Intervals between 2 doses of each of the following vaccines:

1. Covishield vaccine
12 - 16 weeks
2. Covaxin vaccine
4-6 weeks
3. Sputnik v vaccine
Currently 21 days in Russia. It is yet to be decided by India government

All the three vaccines are equally effective in protecting an individual against any serious COVID-19 related illness.

Duration of Immunity:

Available records display that absolutely vaccinated people and people formerly inflamed with SARS-CoV-2 have a low threat of next contamination for as a minimum 6 months. Data are presently inadequate to decide an antibody titer threshold that shows while an man or woman is covered from contamination. Multiple research display that antibody titers are related to safety on the populace level, however man or woman safety titers continue to be unknown. For a few populations, including the aged and the immunocompromised, safety stages can be decreased after each vaccination and contamination. Finally, modern-day records advise that the extent of safety won't be the identical for all versions of the virus.

As new records hold to emerge, tips will want to be up to date periodically. It is crucial to observe that at this time, there may be no legal or authorized take a look at that vendor or the general public can use to reliably decide if someone is covered from contamination.⁽³⁾

Common Side – Effects of Covid - 19 Vaccines: It may vary from person to person.

Covishield vaccine → certain side effects of the vaccine include pain, swelling, redness, itching can be seen in injection site, feeling feverish/chill, feeling tired and headache.

Covaxin vaccine → side effects of Covaxin are pain, swelling, redness, stiffness can be in injection site, felling feverish, malaise, weakness, nausea/ vomiting.

Sputnik vaccine → this particular vaccine have these side effects name; pain, swelling, redness, itching can be in injection site, flu like symptoms such as sore throat, runny nose, high temp, headache and fatigue.

Post-vaccination complications

Post-vaccination embolic and thrombotic events, termed vaccine-caused immune thrombotic thrombocytopenia (VITT), vaccine-caused prothrombotic immune thrombocytopenia (VIPIT), thrombosis with thrombocytopenia

syndrome (TTS) vaccine-caused immune thrombocytopenia and thrombosis (VITT), or vaccine-related thrombotic thrombocytopenia (VATT), are uncommon forms of blood clotting syndromes that had been first of all found in some of those who had formerly acquired the Oxford–AstraZeneca COVID 19 vaccine (AZD1222) at some point of the COVID 19 pandemic. It turned into finally additionally defined withinside the Janssen COVID 19 vaccine (Johnson & Johnson) main to suspension of its use till its protection have been reassessed. ⁽⁴⁾

Vaccine options for ages 15- 18 and older India

The vaccine opportunity toward COVID-19 for children withinside the age organization of 15-18 years they are covered from January 3. But only Covaxin constant with new suggestions issued through manner of manner of the Union health ministry on Monday. The prioritization and sequencing of the "precaution dose" (1/three dose) for healthcare workers (HCWs), frontline workers (FLWs) and citizens above 60 years of age with comorbidities, has finished for the very last contact of nine months from the date of control on the second dose, it has become above 39 weeks, the suggestions have become coming from the effect withinside the January 3 is stated. HCWs and FLWs and citizens aged of 60 years or above with comorbidities have to get proper of access to vaccination for the precaution and dose through their modern eligibility for the precaution dose have to the date of control of the second dose as recorded withinside the Co-WIN system, and they may deliver through SMS for availing the precaution dose for next dose emerge as due withinside the informed of ministry. ⁽⁵⁾

Covid-19 vaccinations for children

- The WHO recommends that youngsters above the age of 5 obtain COVID-19 vaccinations for 3 motives to defend the youngsters from getting sick, lessen transmission withinside the community, and allow economies and academic establishments to live open without the danger of getting to close down.
- All mother and father fear approximately their youngsters' fitness and safety, however maximum wholesome youngsters and teenagers don't get sick, despite the fact that they trap COVID-19.
- There are a few youngsters at a better danger of excessive contamination from the coronavirus, which include the ones who've underlying neurological situations or ailments along with obesity, diabetes, excessive bronchial allergies and higher respiration diseases. A percent of human beings then passes directly to have 'post-COVID syndrome' or 'lengthy COVID'.
- "This may be fatigue, headaches, and distinct varieties of signs and symptoms that on occasion persist for weeks or months.
- In uncommon cases, a few youngsters can get an inflammatory disease, referred to as MIS-C, so it's proper to defend youngsters from COVID-19.⁽⁶⁾

Vaccines recommended for children and its safety

- The WHO examines the dossiers furnished through agencies and gives the emergency use listing. At this factor of time, the Pfizer-Biotech vaccine is accredited for youngsters above the age of 5 and the Moderna vaccine is accredited for youngsters above the age of 12.
- Dossiers from different agencies are presently being tested through the WHO, however many nations have certified specific vaccines to be used in youngsters primarily based totally on their personal regulatory organizations having tested the information on protection and efficacy.
- The great aspect is to observe the country's recommendations due to the fact they all have regarded very cautiously and feature made certain that the blessings of vaccination exceed the risks.
- So, some distance from the hundreds of thousands of youngsters who've been vaccinated across the world, we recognize that facet consequences are very rare.
- Children can get fever and ache on the web page of injection, in addition to frame aches that closing for an afternoon or two, in addition to adults.⁽⁷⁾

Safety and Effectiveness of COVID-19 Vaccination during Pregnancy:

Evidence maintains to construct displaying that COVID-19 vaccination earlier than and for the duration of being pregnant is secure and powerful. It indicates that the blessings of receiving a COVID-19 vaccine outweigh any recognized or capability dangers of vaccination for the duration of being pregnant.

And the beneath is a quick precis of the developing evidence:

- COVID-19 vaccines do now no longer purpose COVID-19 contamination, which includes in folks who are pregnant or their toddlers. None of the COVID-19 vaccines incorporate stay virus. They cannot make everyone ill with COVID-19, which includes folks who are pregnant or their toddlers.

Data at the protection of receiving an mRNA COVID-19 vaccine, Modern or Pfizer-Biotech (Comirnaty), for the duration of being pregnant are reassuring. Early information from 3 protection tracking structures did now no longer locate any protection issues for folks who acquired an mRNA COVID-19 vaccine overdue in being pregnant or for his or her toddlers.¹ Scientists have now no longer determined an improved hazard for miscarriage amongst folks who acquired an mRNA COVID-19 vaccine simply earlier than and for the duration of early being pregnant (earlier than 20 weeks of being pregnant). In a examine of greater than 40,000 pregnant women, COVID-19 vaccination for the duration of being pregnant turned into now no longer related to preterm beginning or turning in a little one small for his or her gestational age.⁵ The tracking of COVID-19 vaccination for the duration of being pregnant is gonging and could maintain to observe human beings vaccinated for the duration of all trimesters of being pregnant to higher recognize results on being pregnant and toddlers ⁽⁸⁾

Data display that receiving an mRNA COVID-19 vaccine for the duration of being pregnant reduces the hazard for contamination and intense infection for folks who are pregnant, recent research as compared folks who had been pregnant and acquired an mRNA COVID-19 vaccine with folks who did now no longer. Scientists determined that COVID-19 vaccination reduced the hazard of contamination from the virus that reasons COVID-19 and turned into even greater powerful at decreasing the hazard of having very ill from COVID-19.

Vaccination for the duration of being pregnant builds antibodies that could guard the baby. When human beings acquire an mRNA COVID-19 vaccine for the duration of being pregnant, their bodies constructs antibodies in opposition to COVID-19, just like folks who aren't pregnant. Antibodies made after a pregnant character acquired an mRNA COVID-19 vaccine were determined in umbilical wire blood. This approach COVID-19 vaccination for the duration of being pregnant may assist guard toddlers in opposition to COVID-19. More information is had to decide how those antibodies, just like the ones produced with different vaccines, might also additionally offer safety to the baby. 11-13A current small examine determined that at 6 months vintage, the majority (57%) of toddlers born to pregnant folks who had been vaccinated for the duration of being pregnant had detectable antibodies in opposition to COVID-19, as compared to 8% of toddlers born to pregnant folks who had COVID-19 for the duration of being pregnant (8)

New information display that finishing a two-dose number one mRNA COVID-19 vaccine collection for the duration of being pregnant can assist guard toddlers more youthful than 6 months vintage from hospitalization because of COVID-19. In this report, the majority (84%) of toddlers hospitalized with COVID-19 had been born to pregnant folks who had been now no longer vaccinated for the duration of being pregnant.

No protection issues had been determined in animal research. Studies in animals receiving a Modern, Pfizer-Biotech, or Johnson & Johnson's Janssen (J&J/Janssen) COVID-19 vaccine earlier than or for the duration of being pregnant determined no protection issues in pregnant animals or their toddlers

F) No unfavorable being pregnant-associated results happened in preceding scientific trials that used the equal vaccine platform because the J&J/Janssen COVID-19 vaccine. Vaccines that use the equal viral vector because the J&J/Janssen COVID-19 vaccine were given to human beings in all trimesters of being pregnant, which includes in a large-scale Ebola vaccination trial. No unfavourable being pregnant-associated results in which includes unfavourable results affecting the baby, had been related to vaccination in those trials

COVID-19 vaccines cannot purpose COVID-19 contamination in everyone, which includes the mom or the baby. None of the COVID-19 vaccines incorporate stay virus. Vaccines are powerful at stopping COVID-19 in folks who are breastfeeding. Recent reviews have proven that breastfeeding human beings who've acquired mRNA COVID-19 vaccines have antibodies of their breast milk that could assist guard their toddlers. More information is had to decide what degree of safety those antibodies might also additionally offer to the baby (8).

Vaccines side effects for Pregnancy

Side consequences can arise after receiving any of the COVID-19 vaccines, particularly after the second one dose for vaccines that require 2 doses or a booster. People who're pregnant have now no longer suggested one of a kind facet consequence from folks who aren't pregnant after vaccination with mRNA COVID-19 vaccines (Modern and Pfizer-Biotech vaccines). Fever, for any reason, has been related to damaging being pregnant outcomes. Fever in being pregnant can be dealt with acetaminophen as needed, in moderation, and in session with a healthcare issuer. Although rare, a few human beings have had extreme allergies after receiving a COVID-19 vaccine. Talk together along with your healthcare issuer when you have a record of hypersensitive reaction to some other vaccine or injectable therapy (intramuscular, intravenous, or subcutaneous). ⁽⁹⁾

People are breastfeeding:

They recommend that mother and father which is probably breastfeeding get vaccinated and live updated with their COVID-19 vaccines, on the issue of having a COVID-19 booster shot while it's time to get one. Pfizer-Biotech or Modern (mRNA COVID-19 vaccines) are preferred over the J&J/Janssen COVID-19 vaccine for number one and booster vaccination, however the J&J/Janssen COVID-19 vaccine can be taken into consideration in a few situations. Clinical trials for the COVID-19 vaccines presently used withinside America did now not encompass folks that have been breastfeeding. Therefore, there are restrained information to be had at the

- Safety of COVID-19 vaccines in mother and father which is probably breastfeeding
- Effects of vaccination at the breastfed baby
- Effects on milk manufacturing or excretion

COVID-19 vaccines cannot cause COVID-19 infection in anyone, including the mother or the baby. None of the COVID-19 vaccines contain live virus. Vaccines are effective at preventing COVID-19 in people who are breastfeeding. Recent reports have shown that breastfeeding people who have received mRNA COVID-19 vaccines have antibodies in their breast milk, which could help protect their babies. More data are needed to determine what level of protection these antibodies may provide to the baby ⁽¹⁰⁾

Key considerations we can discuss with our healthcare provider include:

- The benefits of vaccination
- The unknown risks of developing a severe allergic reaction
- If one has an allergic reaction after receiving a COVID-19 vaccine during pregnancy, they can receive treatment for it. ⁽¹¹⁾

Misinformation and hesitancy

Anti-vaccination activists and different human beings in many nations have unfold plenty of unfounded conspiracy theories and different incorrect information approximately COVID-19 vaccines primarily based totally on misunderstood or misrepresented science, religion, exaggerated claims approximately facet effects, a tale approximately COVID-19 being unfold through 5G, misrepresentations approximately how the immune device works and while

and the way COVID-19 vaccines are made, and different fake or distorted information. This incorrect information has proliferated and might have made many human beings averse to vaccination. This has caused governments and personal organizations round the arena introducing measures to incentivize/coerce vaccination, which includes lotteries, mandates and unfastened access to events, which has in flip caused in addition incorrect information approximately the legality and impact of those measures. ⁽¹²⁾

Conclusion

As it is known, COVID – 19 Vaccines helps take precautions against COVID – 19 Virus and promotes the safety of many lives. Getting vaccinated will be the number one priorities of an individual during the pandemic. In this study, it is expected to see and observed, the number of people who have been vaccinated for covid-19 and those that have not been vaccinated during the pandemic period.

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