ECRONICON OPEN ACCESS

EC PHARMACOLOGY AND TOXICOLOGY
Editorial

COVID-19 Vaccines: Issues and Concerns

Novy Gupte* and Sapna Pradhan

Department of Pharmacology, Army College of Medical Sciences, New Delhi, India

***Corresponding Author:** Novy Gupte, Assistant Professor, Department of Pharmacology, Army College of Medical Sciences, Delhi Cantonment, New Delhi, India. **E-mail:** drnovyguptemd@gmail.com

Received: January 23, 2021; **Published:** January 29, 2021

Notwithstanding worldwide endeavours over the past one year or so, no acceptable drug stands discovered or developed for effective therapeutic use in COVID-19. Mercifully, quite a few vaccines are already rolled out in several countries for the adult population [1,2]. For instance, vaccines from the Pfizer-BioNTech and Moderna in United States and from Oxford-Astra Zenec in the United Kingdom and other European countries are already in active use since December 2020. So are the Chinese vaccines in Republic of China and other countries, including Brazil and UAE.

Back home In India, Serum Institute of India's Covishield and Bharat Biotech's Covaxin are being administered in a phased manner, beginning with the healthcare providers, since 16th January 2021 as a national programme [3].

Notably, so far, only parenteral vaccines are being employed. However, India's Bharat Biotech is ready with a nasal version of COVID-19 vaccine (BBV154) which is about to enter Phase 1 clinical trial. The nasal route is known to possess an excellent potential for vaccination due to the well-organized immune systems of the nasal mucosa.

With this backdrop and fond hope that COVID-19 vaccines may prove a "game-changer", quite a few issues and concerns about the current COVID-19 vaccines have emerged as the "talking points".

Firstly, will the vaccines turn out to be the beginning of the end of COVID-19? Widespread vaccination for the corona virus means that the virus, as a result of development of the protective antibodies in the body, will not be able to cause serious infection in a large majority of the people. Moreover, it will limit its spread through communities and considerably safeguard against future breakouts. Both Pfizer and Moderna report that their vaccines show approximately 95% efficacy at preventing symptoms of COVID-19. In a nutshell, though COVID-19 in due course is likely to be contained, absolute elimination of the virus is not quite likely in foreseeable future.

Secondly, is the protection immediate following the shot? Obviously, the answer is "No". Full course of two injections at a specified interval (usually 4 weeks) is mandatory to expect a protection from COVID-19. A minister in the north Indian State of Haryana suffered from COVID-19 following the first dose of the vaccine. This raised instant eyebrows. Not many appreciated that the minister had received just the first dose which was not expected to safeguard against the wretched infection unless it was augmented with the second dose.

Thirdly, do all individuals who receive the vaccine become unequivocally immune to Covid-19 after the administration of the vaccine? The answer is "No". Both Pfizer and Modena vaccines provided about 95% protection in clinical trials. Clearly, a small proportion of people might still catch the virus even after two shots. This holds good in a yet lager measure in case of other vaccines that offer protection in a lower range than 95%. Overall, the claims are that, on an average, these vaccines offer 80-95% protection. No claim has been made for a fool-proof protection.

Fourthly, what about the folks who already recovered from COVID? Well, these people should too get the vaccine. Development of immunity against this virus may not always be good enough to safeguard them from another attack.

Fifthly, do the current vaccines cover the mutations in the virus strains, the so-called "emerging variants". The limited information indicates that they may or may not [4]. Clearly, more work is warranted on this front. In any case, the availability of the nRNA technology can easily and in a weeks time update the current vaccines to cover the emerging mutation in strains.

Sixthly, we are in the thick of perplexing concerns about the likely adverse reactions. Well, in the spectrum of medical sciences, each and every drug has the potential to cause some adverse effect. The COVID-19 vaccine is by and large a drug. So, an occasional mild adverse event following immunization (AEFI) may well be associated with this vaccine as with other vaccines. Studies carried out on thousands of participants in trials have shown only mild reactions in a small proportion of cases. Recently, some severe adverse events (including allergic reactions) became a major event thanks to the print and electronic media's "hype" and "hunger for "sensation". But, it has subsequently been clarified by the experts that these AEFIs had nothing to do with the vaccination per se. Yet, continuing caution and vigilance on this front should never been given a backseat.

Finally, let's concede that there is still a vast amount of work for researchers and clinicians to do, including:

- Determining how well the vaccines work in individuals who are at high risk of COVID-19, e.g. senior citizens, people with co-morbid conditions like obesity, diabetes, cardiovascular disease, chronic lung disease, immune-compromised state, etc.
- Determining the extent to which the vaccines prevent those who have received a COVID-19 vaccine from getting the corona virus infection (symptomatic or asymptomatic) and passing the virus on to others.
- Preventing emergence of new mutations and variants altogether.
- Evaluation of the COVID-19 vaccines in children and adolescents.

All in all, we need to accept that the COVID-19 vaccines are here to stay, notwithstanding occasional risks, in our fight against the COVID-19. After all, we have nothing else at our disposal as yet to contain the blasted pandemic and considerably safeguard against future breakouts. Neither "hype" about its safety and "downplaying" of serious reactions on one hand nor "exaggeration" and "scary overshooting" about the serious AEFIs on the other hand can help. What is warranted is a balanced view.

Bibliography

1. World Health Organisation. Coronavirus disease (COVID-19) (2021). https://www.who.int/news-room/q-a-detail/coronavirus-disease-(covid-19)-vaccines?adgroupsurvey={adgroupsurvey}&gclid=CjwKCAiAgJWABhArEiwAmNVTB7flferPoa9UctMdXPTTkkzcf-8Bi8KIkU9bZbIi5tMngmAEdwtRichoCY3UQAvD_BwE

2. Centre for Disease Control and Prevention. COVID-19 Science Updates (2021). https://www.cdc.gov/library/covid19/01152021_covidupdate.html

3. Ministry of Health and Family Welfare, Government of India. COVID-19 India (2021). https://www.mohfw.gov.in/

4. Otto S. Why new COPVID-19 variants are on the rise and spreading around the world (2021). https://theconversation.com/why-new-covid-19-variants-are-on-the-rise-and-spreading-around-the-world-153530

Volume 9 Issue 2 February 2021