

# Literature Review on Omicron and Covid-19 vaccines against Omicron

Shaik Shireen

Assistant professor, Brilliant Grammar school of Educational Institutions-Integrated campus( faculty of engineering & faculty of pharmacy)

Submitted: 01-04-2022

Revised: 06-04-2022

Accepted: 11-04-2022

**ABSTRACT:** This review paper discusses about Omicron and the covid -19 vaccines action against the Omicron. The seriousness of this variant is very less initially as everyone thought that our covid vaccines are immune enough against this strain. Slowly we realized how this variant is going to show its impact on our lives and immediately forcing us to check the capability of the vaccines available now and leaving us to question the necessity of inventing new vaccines for Omicron if needed. The main goal of this article is to create an awareness to public about the omicron, to discuss how effectively the treatments and vaccines of covid work for Omicron.

**KEYWORDS:** Omicron, detect omicron, covid vaccine, omicron treatment.

## I. INTRODUCTION:

The world has not yet adjusted or recovered from corona but got hit by new variant comeback from covid which is termed as OMICRON also tagged as B.1.1.529. WHO termed it as “variant of concern” based on evidence that it has several mutations that may have an impact on how it behaves. There is still a lot of uncertainty and lot of research is underway to evaluate.

**How it developed?** When a virus is circulating widely and causing numerous infections, likelihood of virus mutation is high. It is found that Omicron was first detected in South Africa.

**Symptoms :** Although any special symptoms were not observed, some symptoms include Fever, cough, excess exhaustion, body pains, breathlessness, chest pain, appetite loss, headache, itchy throat.

## Is prior Covid -19 infection effective against Omicron variant?

Youchun wang, the lead author of the research and Senior Research Fellow from the National Institutes for Food and Drug Control in China, believes the results support recent findings in

South Africa that the Omicron Covid variant can easily evade immunity. The average ED50 (protection level) against Omicron is still higher than the baseline which indicated there is still some protection effect observed.

According to Robert Bollinger prior covid 19 infection will not provide any immunity against Omicron variant but still, we will know more about it after further research.

## II. DETECTION AND TREATMENTS :

As per now we don't have any specific detectors for omicron test. So, we will be using the Commercial diagnostic PCR (Polymerase Chain Reaction) and antigen Covid tests as they still appear to work to identify Omicron variant.

Remdesivir is the only antiviral drug currently authorized for emergency use by FDA to treat Covid. Antivirals may work for other variants better than Omicron.

Monoclonal Antibody treatment reduce the risk of hospitalization and death due to covid to 70% but its effect on omicron is yet to be discovered.

## III. EFFECT OF COVID-19 VACCINES AGAINST OMICRON :

According to Bollinger and Ray, this is the most important to know, “My own expectation is that fully vaccinated including boosters will still provide reduced risk of hospitalization and death”.

UK governments health Security Agency stated that who have received a booster jab remain 70% protected. Two jabs do not offer strong protection against symptomatic infection from new variant, with current site of vaccines less effective than they were against Delta.

Results from studies conducted by German center for infection research likewise found that there were significant reduction in antibody potency for Pfizer, Moderna and AstraZeneca against Omicron.

**Pfizer -BioNTech effect against Omicron:** professor Ugur Sahin, CEO and Co-founder of

BioNTech said that who received 2 doses of vaccines will most likely not have a significant prevention from infection / any type of disease as they have T-memory cells. Preliminary study from South Africa Health Research Institute in South Africa which is released on Tuesday 7<sup>th</sup> December found there was 41 fold reduction in potency of antibodies after 2 doses of Pfizer against Omicron. Small study suggested that Omicron may be better evade the protection offered by Pfizer/BioNTech vaccine than initial Covid virus.

**Covishield effect against Omicron :** AstraZeneca said that its Covid -19 vaccine Covishield was effective against Omicron variant following 3 doses in study with neutralizing level similar to Delta variant after regular 2 dose vaccines.

**Covaxin effect against Omicron:** Covaxin vaccine is a whole virion inactivated coronavirus ( SARS-CoV-2).So, experts suggest that covaxin could be highly effective against Omicron.

**Sputnik effect against Omicron:** The Gamaleya Institute believes that its vaccine versions, Sputnik V and Sputnik Light will be effective against omicron variant.. Russian Ministry of Health recommended through its twitter recently stating that Sputnik Light boosters 6 months after vaccination to increase protection against Omicron and other mutations .

**Johnson and Johnson effect against Omicron:** A preliminary South African government study published that a booster of Johnson and Johnson vaccine which was given to 69000 health care workers during the heavy mutation of Omicron variant was 85% effective in preventing the hospitalization of those health care workers.

#### IV. RELEASE OF NEW VACCINE FOR OMICRON:

Pfizer– Pfizer stated that it can release an Omicron tailored vaccine in approximately 100 days if needed.

Moderna – Moderna chief medical officer Dr. Paul Burton mentioned that they can release the vaccine in 3 months if situation arises.

Johnson & Johnson – Dr. Mathai Mammen global head of research & development for company stated that they already began work to design and develop new vaccine against Omicron and will rapidly progress in the clinical trails if needed. They didn't mention specific timeline on releasing the vaccine.

AstraZeneca – did not reveal whether or not it will need to develop a new vaccine for Omicron.

#### V. CONCLUSION:

From the above review, we can conclude that there is no specific treatment for Omicron till date. All most all the vaccines reduce the hospitalization and risk of death upto 75-85% . According to WHO, it is better to take booster dose along with the 2 dose of the vaccines. Anyways we know prevention is better than cure. So, it is better to maintain 6 feet distance from each other, wear mask and use sanitizer for every 15 minutes. Avoid eating outside foods, prefer home cooked food.

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