

ABSTRACT

Vaccination against COVID-19 and It's Morbidity and Mortality Protection In hospitalized Patients – A Cross Sectional Study

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Introduction

Though COVID-19 vaccines are an effective tool, none of them are a 100% effective in the prevention of COVID-19 illness. A small percentage of those who are fully immunized, will still get sick to varying degrees from COVID-19 disease. They are known as vaccine breakthrough cases.

Objective

To assess the vaccine effectiveness and determine the severity of illness among COVID-19 positive patients admitted in an Indian private tertiary care hospital with level 2 ICU.

Methods

All COVID-19 positive patients admitted between July 2021 and February 2022 were included in the study. Their demographic data was compared, vaccination status, morbidity (need for advanced oxygen therapy) and mortality (in-hospital death) was determined.

Results

Out of 209 symptomatic COVID-19 positive patients admitted in the hospital, 164(88%) were fully vaccinated (had received both doses of vaccine more than 14 days ago-78% received CHADOX1 NCOV-19 CORONA VIRUS RECOMBINANT VACCINE(COVISHIELD) while 22% COVAXIN) and 45(22%) were partially or not vaccinated. Demographic data like age, gender and comorbidities (risk factors for severe COVID-19) were similar in both groups. About 10% (17) among the fully vaccinated individuals and 25% (11) of the remaining patients needed advanced oxygen therapy (includes invasive and non- invasive ventilation, high flow nasal cannula and non-rebreathing mask for oxygen delivery). Mortality rate was 3% (5) among fully vaccinated and 9% (4) among other patients. Majority of the patients, who were fully vaccinated

(60%) and were hospitalized, had their last COVID-19 vaccine dose more than 6 months ago.

Discussion

In a study by Muthukrishnan et al, the fully vaccinated (CHADOX1 NCOV-19 CORONA VIRUS RECOMBINANT VACCINE(COVISHIELD)) individuals had 70% lower odds of mortality than unvaccinated persons among hospitalized severe cases. (1) This is similar to our study which has shown 60% decreased risk of severe illness and 67% reduced risk of mortality compared to unvaccinated individuals. The WHO recommends a booster dose after 4-6 months of complete vaccination by CHADOX1 NCOV-19 CORONA VIRUS RECOMBINANT VACCINE(COVISHIELD). (2) Our study has shown that the vaccine efficacy seems to decrease after 6 months leading to need for hospitalisations due to symptomatic COVID-19 illness. Hence, the need for booster doses is important along with non-pharmacologic interventions to mitigate the spread of COVID-19 virus.

Conclusion

This study validates that the vaccination prevents the incidence of severe illness and decreases the risk by 60%, it also reduces the mortality by 1/3rd. Vaccine effectiveness decreases after 6 months and hence the need for booster dose is important to maintain the effectiveness of vaccination.

References

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