

Comparative Effectiveness of Covid-19 Vaccines

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Received Date: May 05, 2023; **Accepted Date:** May 15, 2023; **Published Date:** May 26, 2023

Citation: Khalid Javed, Hamza Niaz, Muhammad Shafiq Khan (2023), A Rational Approach to the Diagnosis of Narrow Complex Tachycardia. *J. Clinical Cardiology and Cardiovascular Interventions*, 6(5); DOI:10.31579/2641-0419/316

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Abstract

Comparative effectiveness of covid-19 vaccines is a research study that includes 23 cases of commonly used covid-19 vaccines administered in Pakistan. The data was collected through semi-structured interviews in tertiary healthcare hospitals in the Hazara region

Keywords: Covid-19; Individual vaccine

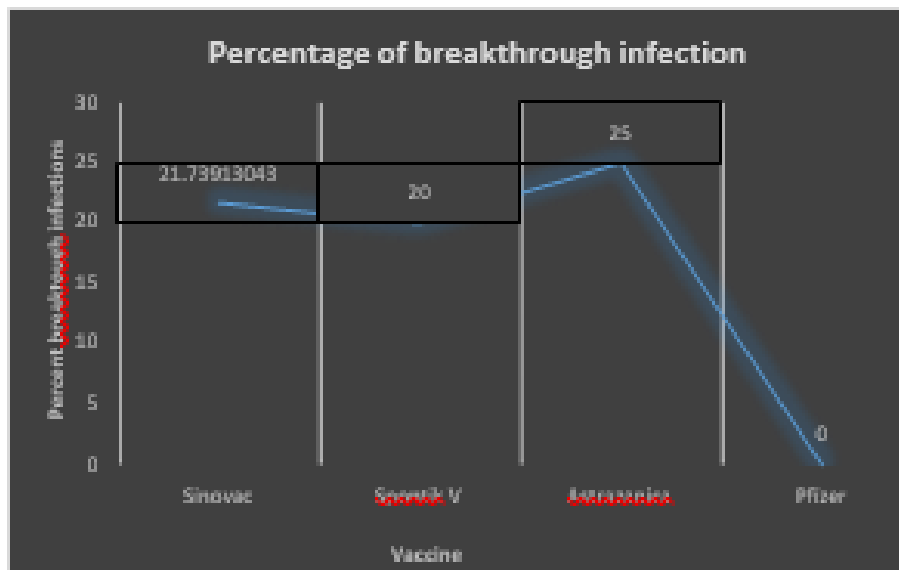
Introduction

Comparative effectiveness of covid-19 vaccines is a research study that includes 23 cases of commonly used covid-19 vaccines administered in Pakistan. The data was collected through semi-structured interviews in tertiary healthcare hospitals in the Hazara region. The study utilized post-vaccination relapse of disease or breakthrough infections as criteria to assess the comparative effectiveness of covid-19 vaccines. The data was analyzed

using SPSS and Microsoft Excel-2016. Results suggested that Pfizer was most effective to prevent breakthrough infection and relapse of disease, while Sputnik-V was most effective to reduce the severity of symptoms on relapse. Investigate SARS-CoV-2 breakthrough infections among healthcare workers who received the COVID-19 vaccine to identify trends or clustering in patient characteristics, the administered vaccine, and their comparative effectiveness to prevent relapse and severity of symptoms.

Data Collected

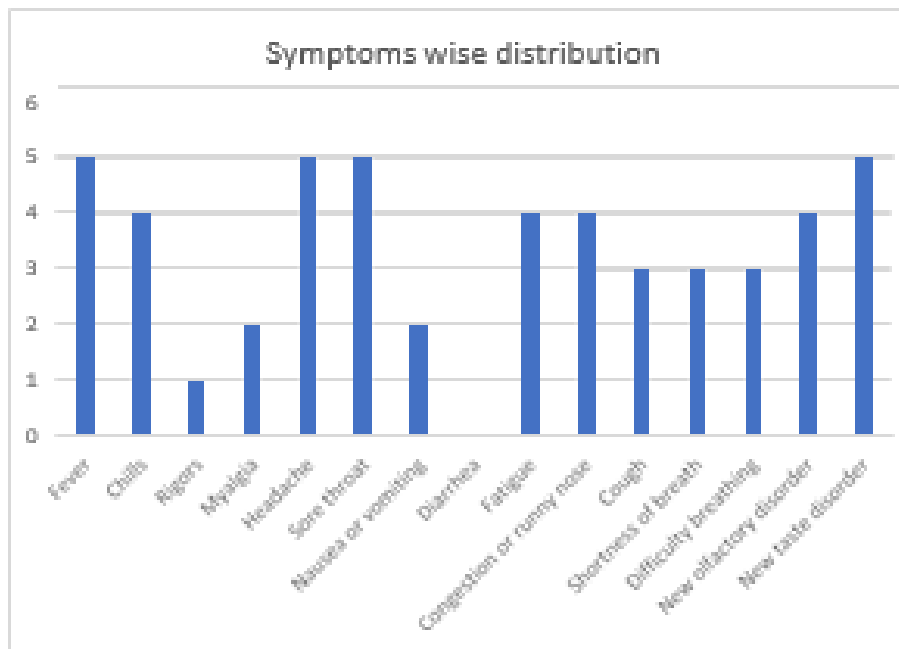
- > Total 23 healthcare workers included i.e., 15 doctors, 5 nurses and 3 other HCW.
- > Sinovac cases = 15
- > Sputnik-v cases = 4
- > AstraZeneca cases = 3
- > Pfizer cases = 01
- > Total relapse cases = 05



Comparative Effectiveness

The data analysis using SPSS and Microsoft Excel-365. suggests that the majority (95%) of the HCWs who reported clinical symptoms of breakthrough infection had either severe fever (100%) New olfactory

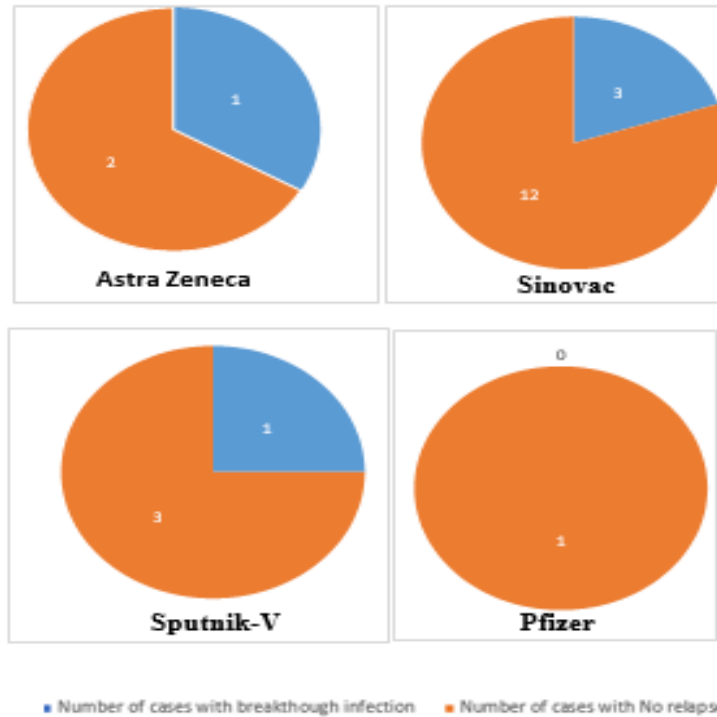
disorder (100%) and new taste disorder (100%) while 90% of the HCWs had >3 severe and moderate symptoms. The most frequent symptoms included fever (100%), cough (60%), headache (100%), malaise (60%), sore throat (70%), runny nose (70%), and shortness of breath (90%).



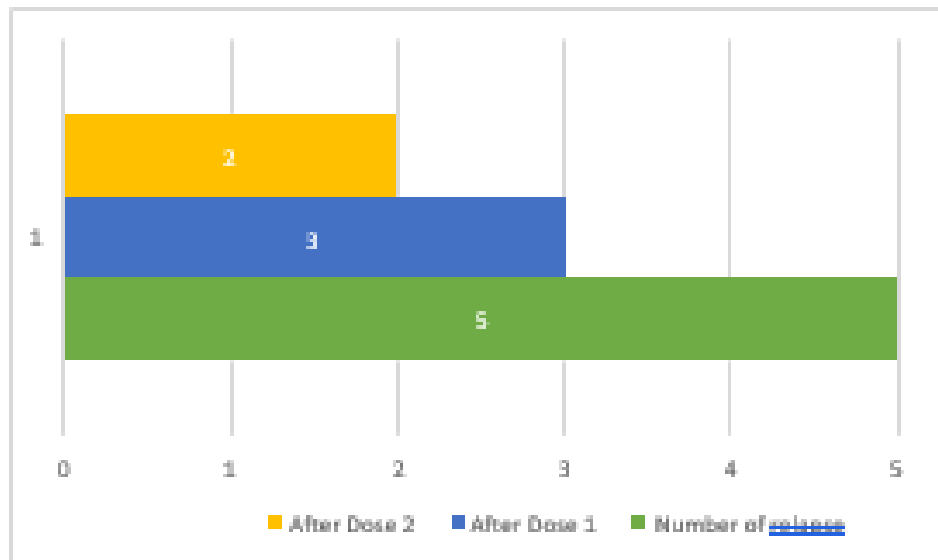
Individual Vaccine Analysis

Individual vaccine analysis suggested that most breakthrough infections occurred with AstraZeneca 1/3 (33.3%) followed by Sinovac 3/16 (21.7%), Sputnik-V 1/4 (25%), and Pfizer 0/1 (0%). A comparison of the vaccine based on the percentage of relapse of breakthrough infections suggests that

Pfizer was most effective in preventing post-vaccination relapse of disease while AstraZeneca was least effective in the population studied. Most relapse or breakthrough infections occurred after the first dose 3/5 (60%) while 2/5 (40%) after the second dose. The data on effectiveness for Pfizer is currently limited due to a shortage of vaccines in-country online foreign visitors are allowed to take this vaccine.



Relapse after Dose number



Conclusion

In conclusion, the current report reconfirms the possibility of post-vaccination COVID-19 infection among HCWs. Although the results cannot be generalized because of limited population inclusion and neglecting the other elements including individual condition, rate of exposure, underlying health conditions, and medications. A comparison of vaccine effectiveness based on clinical symptoms on relapse shows that all vaccine is equally effective to reduce the severity of symptoms in a post- vaccination relapse of disease. Sputnik-v was found more effective in reducing the severity of the new olfactory disorder in a patient with a relapse of the disease as well as it reduces the severity of all other symptoms compared to other alternatives.

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DOI:10.31579/2641-0419/316

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