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Comparison of Covishield Versus Covaxin in COVID- 19 Pandemic

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Abstract

Background: Viral diseases continue to emerge and represent a serious issue to public health. The present study compared Covishield versus Covaxin in COVID- 19 pandemic. **Methods**: 502 subjects were divided into 2 groups of 251 each. Group I subjects had received Covishield vaccine (both doses) and group II patients received Covaxin vaccine (both doses) too. Assessment of symptoms and any complication was recorded. **Results:** Symptoms in group I and group II were fever in 60% and 56%, headache in 65% and 62%, tiredness in 70% and 72%, body ache in 50% and 48%, joint pain in 22% and 40%, local pain in 85% and 90%, sore throat in 25% and 10%, vomiting in 6% and 12%, diarrhoea in 14% and 11%, allergic reaction in 5% and 2%, insomnia in 3% and 5% and chills in 35% and 22%. Both group I and II maximum symptoms were seen in females as compared to females. Age group 40-60 years had 78% in group I and 72% in group II and >60 years had 52% in group I and 48% in group II symptoms. The difference was significant (P< 0.05). **Conclusion:** Most common symptoms in both groups were fever, headache, tiredness, body ache and local pain. Age group 40-60 years and women had higher symptoms as compared to men.

Keywords:- Covaxin, Covishield, Fever.

INTRODUCTION

Viral diseases continue to emerge and represent a serious issue to public health. In the last twenty years, several viral epidemics such as the severe acute respiratory syndrome coronavirus (SARS-CoV) from 2002 to 2003, and H1N1 influenza in 2009, have been recorded. Most recently, the Middle East respiratory syndrome coronavirus (MERS-CoV) was first identified in Saudi Arabia in 2012.[1]

In a timeline that reaches the present day, an epidemic of cases with unexplained low respiratory infections detected in Wuhan, the largest metropolitan area in China's Hubei province, was first reported to the WHO Country Office in China, on December 31, 2019.[2] Published literature can trace the beginning of symptomatic individuals back to the beginning of December 2019. As they were unable to identify the causative agent, these first cases (n=29) were classified as "pneumonia of unknown etiology." The Chinese Center for Disease Control and Prevention (CDC) and local CDCs organized an intensive outbreak investigation program. The etiology of this illness was attributed to a

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novel virus belonging to the coronavirus (CoV) family.[3]

Compared with seasonal influenza, covid-19 was associated with a higher risk of acute kidney injury, incident renal replacement therapy, incident insulin use, severe septic shock, vasopressor use, pulmonary embolism, deep vein thrombosis, stroke, acute myocarditis, arrhythmias and sudden cardiac death, raised troponin, raised aspartate aminotransferase, raised alanine aminotransferase, and rhabdomyolysis.[4] Several modes have been developed to deliver the viral S protein via vaccines in the bloodstream of individuals. These vaccines employ inactivated virion, nanoparticle fat encapsulated mRNA, viral-vectored vaccines, and DNA plasmid methods. Many of these vaccines have entered clinical trials and some have also reported the efficacy and immunogenicity of the vaccines.[5] The present study compared Covishield versus Covaxin in COVID- 19 pandemic.

MATERIAL AND METHODS

The present study comprised of 502 subjects who had received either Covishield or Covaxin vaccine. All subjects were informed regarding the study and their written consent was obtained. All were those

Demographic data such as name, age, gender etc. was recorded. Subjects were divided into 2 groups of 251 each. Group I subjects had received Covishield vaccine (both doses) and group II patients received Covaxin vaccine (both doses) too. Assessment of symptoms and any complication was recorded. Results thus obtained were subjected to statistical analysis. P value less than 0.05 was considered significant.

RESULTS

[Table 1] shows that group I had 129 males and 122 females and group II had 123 males and 128 females. Age group 40- 60 years had 101 males and 150 females in group I and 98 males and 153 females in group II.

[Table 2, Figure 1] shows that symptoms in group I and group II were fever in 60% and 56%, headache in 65% and 62%, tiredness in 70% and 72%, body ache in 50% and 48%, joint pain in 22% and 40%, local pain in 85% and 90%, sore throat in 25% and 10%, vomiting in 6% and 12%, diarrhoea in 14% and 11%, allergic reaction in 5% and 2%, insomnia in 3% and 5% and chills in 35% and 22%. The difference was non- significant (P> 0.05).

[Table 3] shows that in both group I and II maximum symptoms were seen in females as compared to females. Age group 40-60 years had 78% in group I and 72% in group II and >60 years had 52% in group I and 48% in group II symptoms. The difference was significant (P< 0.05).

Table 1: Distribution of subjects

Groups	Group I	Group II
Vaccine	Covishield vaccine	Covaxin vaccine
M:F	129:122	123:128
Age group 40-60 years	101	98
>60 years	150	153

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Table 2: Comparison of symptoms in both groups

Symptoms	Group I	Group II	P value
Fever	60%	56%	0.12
Headache	65%	62%	0.32
Tiredness	70%	72%	0.15
Bodyache	50%	48%	0.26
Joint pain	22%	40%	0.02
Local pain	85%	90%	0.17
Sore throat	25%	10%	0.04
Vomiting	6%	12%	0.05
Diarrhoea	14%	11%	0.13
Allergic reaction	5%	2%	0.22
Insomnia	3%	5%	0.80
Chills	35%	22%	0.05

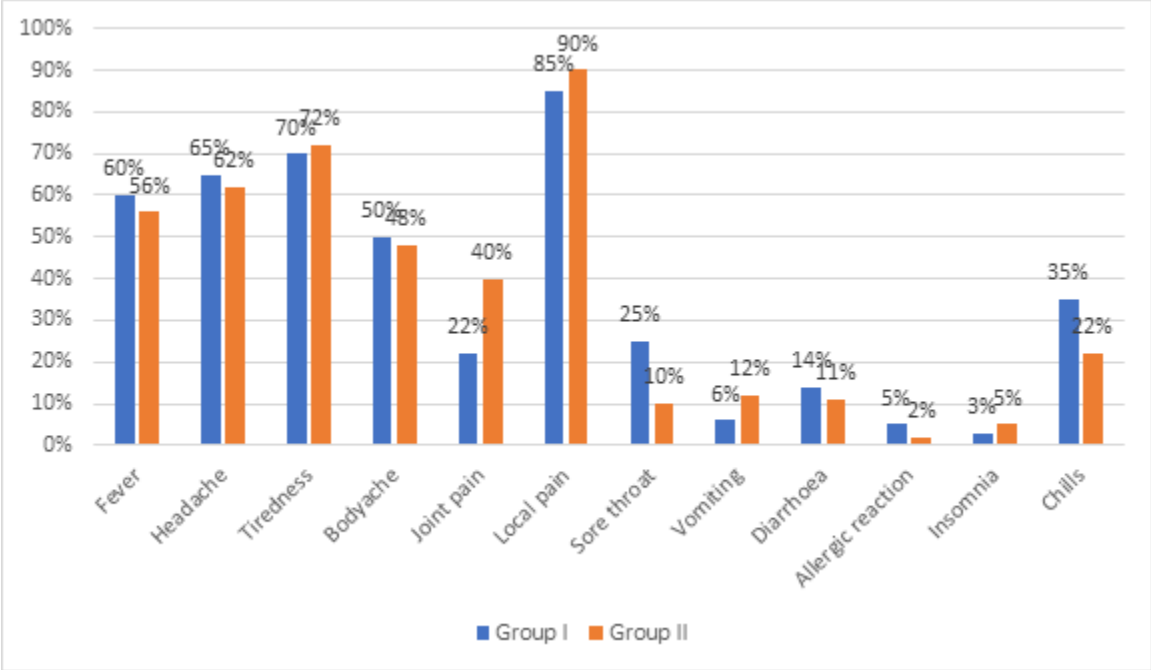

Figure 1: Comparison of symptoms in both groups

Table 3: Occurrence of symptoms based on age group and gender

Symptoms	Group I	Group II	P value
Male	56%	58%	0.03
Female	70%	67%	
Age group 40-60 years	78%	72%	0.05
>60 years	52%	48%	

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DISCUSSION

The CoVs have become the major pathogens of emerging respiratory disease outbreaks. They are a large family of single-stranded RNA viruses that can be isolated in different animal species. For reasons yet to be explained, these viruses can cross species barriers and can cause, in humans, illness ranging from the common cold to more severe diseases such as MERS and SARS. Interestingly, these latter viruses have probably originated from bats and then moving into other mammalian hosts — the Himalayan palm civet for SARS-CoV, and the dromedary camel for MERS-CoV before jumping to humans.[6] The dynamics of SARS-Cov-2 are currently unknown, but there is speculation that it also has an animal origin. The potential for these viruses to grow to become a pandemic worldwide represents a serious public health risk. Concerning COVID-19, the WHO raised the threat to the CoV epidemic to the "very high" level, on February 28, 2020. On March 11, as the number of COVID-19 cases outside China has increased 13 times and the number of countries involved has tripled with more than 118,000 cases in 114 countries and over 4,000 deaths, WHO declared the COVID-19 a pandemic.[7] The present study compared Covishield versus Covaxin in COVID- 19 pandemic.

In present study, group I had 129 males and 122 females and group II had 123 males and 128 females. Age group 40- 60 years had 101 males and 150 females in group I and 98 males and 153 females in group II. Jayadevan et al,[8] included a total of 5396 people responded to the survey over a one-week period. Overall, 65.9 % of respondents reported at least one post-vaccination symptom. Tiredness (45%), myalgia (44%), fever (34%), headache (28%), local pain at injection site (27%), joint pain (12%), nausea (8%) and diarrhea (3%) were the most prevalent symptoms. The chance of having symptoms decreased with advancing age. The frequency of symptoms was 81% (3rd decade or 20-29 years), 80% (4th decade or 30-39 years), 68% (5th decade), 58% (6th decade), 45% (7th decade), 34% (8th decade) and 7% (9th decade, 80-90 years). Post-vaccination symptoms were more likely to be reported by women (74.7%) compared to men (58.6%) ($p < 0.001$). Among those who reported symptoms, 79% noticed them within the first 12 hours. 472 out of 5396 (8.7%) reported past history of COVID-19. Their symptom profile was not different to those who did not have a past history.

We observed that symptoms in group I and group II were fever in 60% and 56%, headache in 65% and 62%, tiredness in 70% and 72%, body ache in 50% and 48%, joint pain in 22% and 40%, local pain in 85% and 90%, sore throat in 25% and 10%, vomiting in 6% and 12%, diarrhoea in 14% and 11%, allergic reaction in 5% and 2%, insomnia in 3% and 5% and chills in 35% and 22%. Covishield is based on the viral vector platform. A chimpanzee adenovirus called ChAdOx1 is the vector that has been modified to carry the coronavirus spike protein into human cells. The adenovirus vector platform for vaccines gained traction during the battle to stop Ebola. Covaxin is based on an inactivated whole SARS-CoV-2 virion, an old platform that is also used to make polio vaccines. A virus's disease-producing capacity is inactivated under this method.[9]

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Both Covishield and Covaxin have to be administered in two doses. Bharat Biotech's vaccine has been given approval for restricted use in emergency situations in the public interest as an abundant precaution, in clinical trial mode, which means consent has to be taken from the vaccine recipient.[10] The recipients will be monitored after receiving Covaxin shots. The Union Health Ministry has ordered the administration of the second dose of COVID-19 vaccination to those who have completed 28 days after receiving the first dose. Both Covishield and Covaxin are intramuscular injections.[11] SII's vaccine is approved for people aged 18 years and above, while Bharat Biotech's vaccine has been approved for those 12 years and above. There is no clarity on whether children and pregnant women can be given the vaccines. SII's vaccine at two full doses has been shown to have 62 percent efficacy in phase-3 clinical trials. Bharat Biotech said that its Covaxin vaccine was 81 percent effective in preventing COVID-19 after a third round of clinicals trials.[12]

CONCLUSION

Authors found that most common symptoms in both groups were fever, headache, tiredness, body ache and local pain. Age group 40-60 years and women had higher symptoms as compared to men.

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