



Press Release

28 February 2022

HKUMed finds COVID-19 vaccines in Hong Kong safe for various vulnerable patient groups; encourages vaccine uptake by these patients to prevent severe COVID-19 complications

Researchers from Department of Pharmacology and Pharmacy and Department of Medicine, LKS Faculty of Medicine, The University of Hong Kong (HKUMed) have conducted four studies to examine the relationship between COVID-19 vaccination and adverse events among various vulnerable patient groups such as patients with chronic diseases and rheumatoid arthritis in Hong Kong. No significant association could be found between the adverse events and COVID-19 vaccination in these studies. HKUMed research team thus believes that COVID-19 vaccines in Hong Kong are safe for various vulnerable patient groups; and encourages vaccine uptake by these patients to prevent severe COVID-19 complications.

Background

COVID-19 does not affect all population groups equally. Research shows that patients with underlying medical conditions are more vulnerable to COVID-19 infection and prone to develop severe complications with higher chance of intensive unit admission and mortality. COVID-19 vaccines are effective measures to prevent severe complications as well as reduction the risk of COVID-19 infection. To examine the safety profile of COVID-19 vaccine among potentially vulnerable sub-populations, the Centre for Safe Medication Practice and Research of the Department of Pharmacology and Pharmacy, HKUMed, has recently conducted and published four research studies in internationally renowned scientific journals, namely *Nature Communications*, *Annals of the Rheumatic Diseases*, *Gut*, and *Journal of Internal Medicine*. The four studies used data acquired under the COVID-19 vaccine Adverse Event Response and Evaluation (CARE) Programme, an active surveillance system, to evaluate adverse events following immunisation (AEFI) data from the general population using electronic medical records from Hospital Authority and vaccination records from the Department of Health.

Research findings

The first study published in *Nature Communications* ([link to publication](#)) is a population-based retrospective cohort study of nearly 900,000 individuals (Comirnaty: 153,178; CoronaVac: 182,442; unvaccinated: 547,796) examining the relationship between COVID-19 vaccination and adverse events of special interest (AESI) among patients with chronic diseases in Hong Kong. This study also investigated the potential additional AESI risk imposed by multimorbidity, the co-occurrence of two or more chronic conditions. During the 28-day observation period, a total of 2,807 (0.3%) patients had AESI: 2,046 were among the unvaccinated group, 469 among the CoronaVac group, and 292 among the Comirnaty group. Analyses showed vaccinated patients did not have a higher risk of AESI than unvaccinated individuals did for Comirnaty or CoronaVac. Multimorbidity did not impose extra risks associated with COVID-19 vaccines (HR = 0.88, 95% CI 0.67–1.15 for Comirnaty; HR = 1.03, 95% CI 0.84–1.27 for CoronaVac). There is no evidence that patients with multiple chronic conditions are more likely to develop AESI following COVID-19 vaccination.



The second population-based retrospective cohort study published in the *Annals of the Rheumatic Diseases* ([link to publication](#)) investigated the relationship between receiving two doses of COVID-19 vaccines and possible arthritis flare among patients living with rheumatoid arthritis. Among 5,493 patients (Comirnaty: 653; CoronaVac: 671; unvaccinated: 4169), analyses showed no significant association between arthritis flare and COVID-19 vaccination [incidence rate ratio (IRR) = 0.86 (95% CI: 0.73–1.01) for Comirnaty; IRR = 0.87 (95% CI: 0.74–1.02) for CoronaVac]. The distribution of weekly rheumatic drug prescriptions showed no significant differences between the three groups since the launch of the mass vaccination programme. In summary, current evidence does not support an association of full vaccination of mRNA or inactivated virus COVID-19 vaccines with possible arthritis flare.

The third study published in *Gut* ([link to publication](#)) investigated the risk of inflammatory bowel disease (IBD) flare-up following two doses of Comirnaty in patients with IBD (Comirnaty: 941; unvaccinated: 1,196). This study found that during a median follow-up of 64 days, there were no significant increase in risks of unplanned IBD-related hospital admission (IRR: 0.69, 95% CI 0.35–1.36) and 28-day emergency department attendance (IRR: 1.00, 95% CI 0.71–1.41) between Comirnaty recipients and unvaccinated IBD patients. A series of stratified analyses, including patients with Crohn's disease (n = 378) or ulcerative colitis (n = 553), who received immunosuppressants (n = 454) or biologics (n = 192), all showed that receiving two doses of Comirnaty is not associated with a higher risk of probable IBD flare compared with those unvaccinated.

The last study published in *Journal of Internal Medicine* ([link to publication](#)) examined whether COVID-19 vaccine recipients having a history of SARS-CoV-2 infection had a higher risk of AESI or healthcare utilisation compared with those without an infection history. In a retrospective cohort of more than one million vaccine recipients having received two doses (with infection history: 3,922; without infection history: 1,137,583), the incidence was very rare (Comirnaty: 0.16%; CoronaVac: 0.14%) and there was no evidence of significant differences in AESI risks between those having an infection history and those who did not (Comirnaty: HR = 1.09, 95% CI 0.40–3.00). In fact, the incidence of AESI was too small for an estimate for CoronaVac. Also, there is no increase in post-vaccination healthcare utilisation among vaccine recipients with an infection history, compared with those without a history.

Other research studies in various disease populations have also been conducted and most are in the process of peer review. Among those living with diabetes, thyroid disorder, dementia, tuberculosis, cancer, and cardiovascular diseases, we did not identify any increased risk of adverse events following COVID-19 vaccination. These studies will be disseminated in due course.

Significance of the study

'With this unprecedented massive amount of well-maintained electronic health records used for our comprehensive search and timely identification of adverse events through active surveillance, it is unlikely any important safety signals in these particular patient groups have been missed. Hence, we are confident the vaccines are safe for these vulnerable groups who are at a heightened risk of severe COVID-19 and associated complications if left unvaccinated amid the fifth wave of COVID-19 in Hong Kong',



summarised Professor Ian Wong Chi Kei, Principal Investigator of the CARE Programme.

In conclusion, the overall risk of AESI and autoimmune disease flare-up following COVID-19 vaccination is low. There is no evidence for any elevated risk of AESI imposed by multiple chronic conditions or a previous COVID-19 infection for both CoronaVac and Comirnaty vaccines. These studies are important to reassure the public with regard to the widespread concern about vaccine safety among vulnerable patient groups who might be hesitant towards vaccine uptake.

About the research team

Research team members including

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Acknowledgements

The researchers gratefully acknowledge funding support from the Health and Medical Research Fund subsidies COVID-19 research, Food and Health Bureau (Reference no.: COVID19F01) and give heartfelt thanks to the Hospital Authority and Department of Health for the provision of data for the research.

Media enquiries

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