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Rapid Evidence Search and Summary

## Question submitted to RapidInfo4U

Is there a link between vaccinations for Covid-19 & developing Guillain-Barré syndrome?

Is one type/make of vaccine a higher risk than others?

## Answer

Currently, the available evidence does not support a link between COVID-19 vaccination and an increased risk of developing Guillain-Barré syndrome. Isolated cases of Guillain-Barré syndrome have been reported following COVID-19 vaccination but there is no proven association. There are currently no studies that show that the incidence of GBS that occurs following COVID-19 vaccination is greater than the incidence of GBS that normally occurs. Thus, there is currently no evidence to suggest that COVID-19 vaccines increase the risk of developing the syndrome above the natural incidence in a population. Cases of Guillain-Barré syndrome have been reported for different COVID-19 vaccine types. Continued surveillance of adverse events associated with COVID-19 vaccination and epidemiological studies should provide further clarity.

# Details of answer

Guillain-Barré syndrome (GBS) is a syndrome that develops over hours or days where the body's immune system attacks the nerves [1,2]. Initially, a person with GBS may experience numbness, pins and needles, muscle weakness, pain or coordination problems. It typically affects the feet and hands first before progressing to the arms and legs. Symptoms get worse over time. It often begins in the days or weeks following an infection such as diarrhoea or respiratory illness. The incidence of GBS increases with age. The incidence of GBS has been estimated to range from 0.9 per 100,000 population annually for young adults to 2.66 per 100,000 population annually for older adults [3]. A recent study found a GBS incidence of 1.65–1.88 per 100,000 people in the UK based on those treated in hospital for GBS from 2016-2019 [4].

Cases of GBS have been reported in people who have been vaccinated for COVID-19 with different types of vaccinations: Comirnaty BioNTech/Pfizer [5,6], Vaxzevria Astra Zeneca [7] and COVID-19 Vaccine Janssen from Johnson and Johnson [8]. However, many researchers have cautioned against assuming that the vaccine caused the development of GBS [5,8-10]. These researchers highlight that given the sporadic incidence of GBS in any given population, it is likely that some people will develop GBS by chance in the weeks after being vaccinated. Therefore, these cases of GBS may be temporally associated with COVID-19 vaccination but not causally associated. In the study of the COVID-19 vaccine Janssen trial, one person receiving the vaccine developed by GBS while one person receiving the placebo also developed GBS [8]. Lunn et al. [9] calculate that 68,000 cases of GBS would be expected to occur sporadically over one year for 4 billion people, regardless of COVID-19 vaccination. Therefore, cases of GBS will be reported following COVID-19 vaccination but these may not be caused by the vaccination.

Rigorous surveillance programmes and epidemiological studies will be key to continuous monitoring of the incidence of GBS following COVID-19 vaccination and to assess if the rate of GBS is increased by COVID-19 vaccination. An epidemiological and cohort study has previously been conducted to examine the association between covid-19 infection and GBS [4]. The study did not find an association between COVID-19 infection and GBS. The World Health Organisation (WHO) COVID-19 Vaccines: Safety Surveillance Manual published in December 2020 outlined the need for a process to be in place to assess causality of adverse events following immunisation in each country.

The COVID-19 vaccines approved by the European Medicines Agency (EMA) are detailed here. The latest vaccine research studies including those on the safety of COVID-19 vaccines are compiled by the HSE here.

## Conclusion

Therefore, the current data do not support an increased risk of GBS from COVID-19 vaccination. If GBS is developed by those vaccinated for COVID-19, it cannot be assumed to be attributed to the vaccine. Epidemiological studies are needed that can ascertain if the risk of GBS is increased by COVID-19 vaccination.



## References

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