

# Quelling Public Fears About Guillain-Barré Syndrome and COVID-19 Vaccination

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*The only thing we have to fear is fear itself...which paralyzes needed efforts to convert retreat into advance.*

—President Franklin Roosevelt, 1933, first inaugural speech

In late 2020, after nearly a year of fighting the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) pandemic with masks and isolation, the first vaccines for the viral infection became available. These miracles of biotechnology offer the hope of ending the pandemic once manufacturing and distribution problems are resolved. By vaccinating 70% to 90% of the population, we can achieve herd immunity and end the pandemic. Unfortunately, many people are resistant to being vaccinated. A recent poll found that 20% of Americans say they will not be vaccinated unless it is forced on them, and 20% say they remain hesitant about being vaccinated because of fears about safety.<sup>1</sup> Resistance to vaccination in Europe is comparable.<sup>2</sup> A recent questionnaire study emphasizes the potential of physicians to increase willingness to get vaccinated by >20%.<sup>2</sup> The number of people who are hesitant to receive the coronavirus disease 2019 (COVID-19) vaccine is declining, but that trend could easily shift if potential concerning side effects lead to more fear.

In this issue of *Neurology*®, Márquez Loza et al.<sup>3</sup> present the case of a patient with Guillain-Barre syndrome (GBS) after COVID-19 vaccination. The patient developed typical GBS 10 days after receiving a recombinant, replication-incompetent adenovirus vector vaccine (Ad26.COV2.S, Johnson&Johnson) as part of A Study of Ad26.COV2.S for the Prevention of SARS-CoV-2-Mediated COVID-19 in Adult Participants (ENSEMBLE) trial (NCT04505722). The patient recovered after treatment with IV immunoglobulins. Importantly, GBS also occurred in a participant in the trial who received placebo. The authors emphasize that the temporal association of the GBS with the COVID-19 vaccination does not establish causation. They also appropriately point out that epidemiologic studies will be required to determine whether COVID-19 vaccination increases the risk of GBS above background rates. Given that the annual incidence of GBS is ≈10 to 20 cases per 1 million among adults<sup>4</sup> and hundreds of millions of people are to be vaccinated in North America and Europe, and hopefully billions worldwide, many cases of GBS will occur in temporal relationship to vaccination coincidentally. Indeed, a second case of GBS in association with the mRNA Pfizer COVID-19 vaccination was reported in February 2021.<sup>5</sup> Reports of GBS after COVID-19 vaccination risk raising fears about the safety of the vaccines, particularly among those who are hesitant or fearful about being vaccinated.

While the association of viral infections with GBS has long been recognized, whether vaccinations can increase the risk of GBS is less certain. Despite this uncertainty, the association of GBS with 1 vaccine contributed to the collapse of a national immunization program.<sup>6</sup> Because of concerns about the possibility of an H1N1 influenza pandemic, in 1976, the US government embarked on a national program to immunize large numbers of the population. Ultimately, >40 million people received the H1N1 vaccine. Reports of cases of GBS in association with the

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vaccine began to appear in the fall of 1976 and were widely reported in the media. This led to concerns among the public about the safety of the vaccine. The association of GBS with the vaccine, coupled with evidence that a pandemic of influenza was not materializing, led to the termination of the vaccination program in December 1976. Subsequent epidemiologic studies suggested that the H1N1 influenza vaccine may have increased the number of cases of GBS by  $\approx 1$  per 1 million on a background incidence of 10 to 20 cases per 1 million. Had the pandemic occurred, it is possible that fear of GBS may have seriously affected acceptance of the vaccine. Today, we have a pandemic, and we do not want fears arising among the public over the possibility that COVID-19 vaccines are causing GBS.

The enormous global impact of the COVID-19 pandemic has led to fast-tracked development of vaccines.<sup>7-10</sup> This accelerated development, combined with the importance of a successful campaign in terms of societal impact, obviously led to extensive and critical monitoring of possible safety issues. During the ongoing worldwide vaccination plan, numerous adverse events after vaccination will be reported. In the majority, these will be without evidence of causality. However, it is important to maintain vigilant and complete reporting, and transparency will be an important pillar of a successful worldwide vaccination strategy. Therefore, neurologists should report cases of GBS and other autoimmune diseases occurring within 6 to 8 weeks after a COVID-19 vaccination even if causation is not suspected.

The potential of vaccines to possibly trigger GBS and other autoimmune neurologic syndromes may increase unwillingness to get vaccinated. There is consensus, however, that the benefits of recommended vaccinations outweigh possible risks, even of GBS and other autoimmune diseases. Vaccination prevents infections, which can be life-threatening, and the infection being prevented may also trigger GBS or other autoimmune diseases. Given the severity of COVID-19, we emphasize that in general all adults should be vaccinated against COVID-19.

Neurologists should be prepared to address concerns expressed by their patients and others when reports of GBS temporally associated with COVID-19 vaccines appear in the news and online. Our position should be that such associations are most likely coincidental and that it is unlikely that

COVID-19 vaccination causes GBS. We should also provide reassurances that there is ongoing monitoring of serious health problems, including GBS, occurring after COVID-19 vaccinations. Finally, we should emphasize that preventing COVID-19 with its proven risks of serious consequences outweighs any theoretical risks of GBS after vaccination. We must do everything that we can to assuage fears that the public might have about COVID-19 vaccination. Only through a successful international vaccination program will we end this pandemic.

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