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GUILLAIN BARRE SYNDROME AFTER COVID-19 VACCINATION

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The Covid-19 vaccination was a critical tool in the fight against the pandemic. Getting vaccinated not only helps to safeguard one's own health but also contributes to building immunity within the community eventually leading to a reduction in the spread of virus. Out of all, the spectrums covering the side effects of vaccine, the one that stood out was the occurrence of Guillain Barre syndrome. Guillain-Barré syndrome (GBS) is a rare neurological disorder where the body's immune system mistakenly attacks the peripheral nerves, leading to muscle weakness and sometimes paralysis. The exact cause of GBS is not fully understood, but it is often triggered by an infection, such as a respiratory or gastrointestinal illness. In GBS, the body's immune system mistakenly targets the peripheral nerves, leading to an inflammatory response. This immune-mediated attack can result from molecular mimicry, where antibodies produced in response to an infection cross-react with components of the peripheral nerves. The immune response primarily targets the myelin sheath.

Demyelination disrupts nerve conduction and impairs the transmission of signals along the nerves, leading to muscle weakness and sensory disturbances. Symptoms of GBS typically start with tingling or weakness in the legs and can progress to involve the arms and upper body. In severe cases, muscle weakness can lead to paralysis and breathing difficulties. The hallmark feature of GBS is ascending paralysis, where symptoms start in the lower limbs and move upwards. The researchers used data from multiple international studies to examine the potential for a link between COVID-19 vaccines and the incidence of GBS. To this end, adenovirus vector vaccines were associated with an increased risk of GBS. One United Kingdom study reported a three-times greater risk of admission or death from GBS following Oxford adenovirus vaccine administration. Moreover, the risk of developing GBS within one to 1.5 months of vaccination was increased to about 30 cases for every one million vaccination doses. Most cases occurred after the first dose. The U.K. National Immunoglobulin Database/NHSE IVIG identified a maximum of 140 cases of GBS in excess of the expected number, peaking 24 days from the first dose of the Oxford vaccine. The excess risk was about 0.6 cases for every 100,000 vaccine doses. However, a prospective study covering many centers in the U.K. failed to identify any GBS cases post-vaccination. German researchers showed a three to four-times rise in GBS cases with adenovirus vector vaccines. In France, there were six additional cases reported for every one million first doses of either adenoviral vaccine, all above 50 years of age, and including only hospitalized cases. This syndrome has occurred in the administration of covid-19 vaccine too. Using the PubMed database, a comprehensive evaluation of the literature on post-vaccination GBS was carried out. There were seventy papers in total. Following COVID-19 immunization, the pooled prevalence of GBS has been determined to be 8.1 (95% CI 30-220) per 1,000,000 vaccinations. There has been evidence linking vector vaccination—but not mRNA vaccination—to a higher incidence of GBS. Within 21 days of the first vaccine dose, GBS was discovered in almost 80% of the patients. Patients who received mRNA vaccinations compared to vector vaccines experienced a shorter time gap between vaccination and GBS (14.7±6.7 days versus 14.2±6.6 days). The prevalence of post-vaccination GBS was shown to be higher in men and in individuals between the ages of 40 and 60, with a mean age of 56.8±16.1 years. The acute inflammatory demyelinating polyneuropathy kind was the most prevalent. Treatment worked satisfactorily in the majority of patients.

In summary, the use of vector vaccinations to prevent COVID-19 appears to raise the chance of contracting GBS. There are differences between GBS that occurs after vaccination and GBS that occurred before COVID-19. The GBS secondary to the vaccination against COVID-19 was the demyelinating type which is not so common among the GBS occurring without vaccination.