Lack of Association of Vaccinations With Guillain-Barré Syndrome


Investigators from the Kaiser Permanente Medical Group and Vaccine Study Center and the Centers for Disease Control and Prevention (CDC) retrospectively evaluated a cohort of individuals with documented Guillain-Barré syndrome (GBS) to see if there was an association with vaccination in the 6 or 10 weeks prior to onset. Cases were classified based on a review of medical records by a neurologist according to the Brighton Collaboration case definition criteria.1 The study population was comprised of the >3 million individuals in Northern California insured by Kaiser Permanente. Cases included all individuals hospitalized with first occurrence of verified GBS between 1995 and 2006. Only those who received any vaccine dose within a year of onset of GBS (9 months for influenza vaccine to avoid confounding from the previous year’s vaccine) were included. Odds ratios were calculated by comparing the observed odds that vaccination of cases occurred within the risk interval prior to GBS onset compared to the expected odds derived from the proportion of the vaccinated health plan population, matched for age and sex, who were vaccinated with that same vaccine within the same risk interval.

Electronic medical record review revealed 415 confirmed cases of GBS during the study follow-up period of over 32 million person-years, yielding an incidence of 1.27 cases/100,000 person-years. Two thirds of cases had a documented respiratory or gastrointestinal illness in the 90 days preceding onset of GBS. Cases peaked in March and were more common in winter compared to nonwinter months \((P = .003)\). Among the 415 cases, 25 (6%) had received any vaccine in the 6 weeks prior to onset. The odds ratio for receipt of influenza vaccine (TIV) within 6 weeks of onset of GBS compared to the prior 9 months was 1.1 (95% CI, 0.4-3.1). The odds ratios of receipt of tetanus-diphtheria-containing vaccine, 23-valent pneumococcal vaccine, or all vaccines combined in the 6 weeks prior to onset of GBS compared to the prior 12 months were 1.4 (95% CI, 0.3-4.5), 0.7 (95% CI, 0.1-2.9), and 1.3 (95% CI, 0.8-2.3), respectively. Using the 10-week risk interval, 37 (9%) of the individuals with GBS had been vaccinated. However, only injectable typhoid vaccine had an elevated odds ratio (10.75; 95% CI, 1.14-285.04) for GBS. For childhood vaccines, there were no cases of GBS during the risk intervals, despite administration of >8 million doses. Of the 18 persons with onset of GBS within 6 weeks of receipt of TIV, 13 (72%) had a documented antecedent respiratory or gastrointestinal infection.

The authors conclude that there is no evidence for an association of GBS with antecedent vaccination, including influenza vaccination. They point out that a very small increased risk of GBS cannot be excluded, however, because of the rarity of the outcome (despite the large numbers included in the study).

Editors’ Note

GBS, an acute inflammatory polyneuropathy, has been associated with one universally administered vaccine, the 1976 Swine influenza vaccine — and, despite continuing concerns as underscored by this report, none since. Pediatricians might well be reminded that the most frequent antecedents of GBS are infectious. Campylobacter jejuni, the most commonly associated agent, is a preventable foodborne and zoonotic pathogen.

References


Key words: Guillain-Barré syndrome, vaccination, influenza

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