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Seasonal influenza vaccine and Guillain-Barré syndrome

A self-controlled case series study

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Study objective and summary result

This study tested the hypothesis that seasonal influenza vaccines increase the risk of developing Guillain-Barré syndrome (GBS), and the results revealed no association between seasonal influenza vaccinations and incident GBS.

What is known and what this paper adds

Several studies have reported associations between certain vaccines and incident GBS. However, this investigation's results indicate that no such association exists for seasonal influenza vaccines.

Participants and setting

The investigators analyzed data from 3,523 patients with incident GBS (58.4% male; mean age, 51.1 ± 21.8 years) whose cases occurred in metropolitan France during the September-to-March influenza seasons of 2010/2011 to 2013/2014. The investigators obtained these data from the French national health insurance database.

Design, size, and duration

The investigators analyzed health insurance claims to determine which individuals had received seasonal influenza vaccines between 2010 and 2014. After defining the estimated vaccination date for a vaccinated individual as day 0, the investigators defined the individual's risk period as extending from day 1 to day 42 and the individual's control period as extending from day 43 to March 31st. The investigators used a conditional Poisson regression model to determine whether the incidence of GBS was higher during the risk period than during the control period.

Primary outcome measures

The primary outcomes were comparisons of risk periods and control periods in terms of the incidence of GBS.

Table Associations between vaccine administration and GBS incidence rates with alternative risk period definitions

Risk period length	Adjusted incidence rate ratio (95% confidence interval) for GBS in the risk periods vs the control periods
28 d	1.27 (1.00–1.60)
56 d	1.03 (0.84–1.27)

Main results and the role of chance

The investigators found that 527 patients (15%) had received a seasonal influenza vaccine. The incidence of GBS during the risk periods did not differ from the incidence of GBS during the control periods (adjusted incidence rate ratio, 1.10; 95% confidence interval, 0.89–1.37; $p = 0.38$).

Bias, confounding, and other reasons for caution

The investigators had to estimate the dates of vaccine administration based on the dates of dispensing.

Generalizability to other populations

The present study's reliance on data from France may limit the generalizability of the results to dissimilar countries.

Study funding/potential competing interests

This study was funded by the French National Health Insurance system. The authors report no competing interests. Go to Neurology.org/N for full disclosures.

A draft of the short-form article was written by M. Dalefield, a writer with Editage, a division of Cactus Communications. The corresponding author(s) of the full-length article and the journal editors edited and approved the final version.

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