

The association of influenza vaccination with influenza-like illness among adults aged 65 years and older in the United States

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Objective

To explore the association of influenza vaccination with influenza-like illness (ILI) among adults aged 65 years and older

Introduction

After the 2009 H1N1 influenza pandemic, CDC initiated community-based surveillance of self-reported influenza-like illness (ILI) (1), defined as the presence of fever with cough or sore throat. Although ILI is frequently attributed to other pathogens, including rhinovirus, routine surveillance of ILI at the population level does aid in the detection of nascent influenza outbreaks. In the United States, approximately 90% of influenza-related deaths occur among adults aged 65 years and older (2). We explored the association of influenza vaccination with ILI, among this vulnerable age group.

Methods

Self-reported survey data from the 2010 Behavioral Risk Factor Surveillance System (BRFSS) was analyzed. Because the relationship between ILI and influenza infection is strongest during the influenza season, we limited the study sample to adults aged 65 years and older who participated between January and March 2010 (N=35,628). We adjusted for three categories of individual-level factors: sociodemographics, health behaviors, and history of chronic disease diagnoses. We used stratified, weighted multivariable logistic regression to estimate the association between receipt of the influenza vaccine in the past year and report of ILI in the past month via adjusted odds ratios (aOR) and 95% confidence intervals (95% CI).

Results

Recent ILI was reported by 3.37% (95% CI: 3.02–3.73%) of responders. 67.7% (95% CI: 66.8–68.6%) reported receiving the influenza vaccine in the past year. After adjusting for sociodemographics, health behaviors, and chronic disease diagnoses, receipt of influenza vaccination was significantly

associated with recent ILI, with vaccine recipients being more likely to report ILI (aOR = 1.50, 95% CI: 1.01–2.24). Persons who are underweight (BMI < 18.5, compared with normal weight) (aOR = 3.21, 95% CI: 1.19–8.65), and those diagnosed with asthma (aOR = 2.45, 95% CI: 1.65–3.62), coronary heart disease (aOR = 1.77, 95% CI: 1.17–2.65), and stroke (aOR = 1.75, 95% CI: 1.07–2.87) were also more likely to report ILI.

Conclusions

Our study showed an association between influenza vaccination and influenza-like illness among persons aged 65 years and older. This is a counterintuitive finding as vaccines are known to reduce the burden of influenza. Although our study is cross-sectional and we cannot determine a causal pathway, it is possible that individuals with greater susceptibility to influenza infection (e.g., persons with chronic diseases) were more likely to get vaccinated. Indeed, these findings suggest the success of targeted public health messaging regarding the importance of vaccination among high risk individuals.

Keywords

Influenza; vaccination; influenza-like illness; surveillance

References

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