Influenza vaccination reduces hospitalization for acute coronary syndrome in elderly patients with chronic obstructive pulmonary disease: a population-based cohort study.


Abstract:
BACKGROUND:
Elderly patients with chronic obstructive pulmonary disease (COPD) are at a higher risk of hospitalization for cardiovascular complications, especially during respiratory infections. Previous studies showed that vaccination for influenza may reduce the risk of recurrent major cardiovascular events in patients with acute coronary syndrome (ACS). The purpose of this study was to evaluate the hypothesis that influenza vaccination could reduce hospitalizations for ACS in elderly patients with COPD.

METHOD:
Using the Taiwan Longitudinal Health Insurance Database 1996-2008, this cohort study comprised elderly patients (≥ 55 years old) with a recorded diagnosis of COPD (n=7722) between January 1, 2000 and December 31, 2007. Each patient was followed until the end of 2007. A propensity score was derived by using a logistic regression model to reduce vaccine therapy selection bias. The hazard ratio (HR) and 95% confidence interval (CI) for the association between the influenza vaccination and the occurrence of first hospitalization for ACS in elderly COPD patients was examined by Cox proportional hazards regression analysis. In addition, we categorized the patients into four groups according to vaccination status (unvaccinated, total number of vaccinations: 1, 2-3, and ≥ 4).

RESULTS:
We found that elderly patients with COPD receiving influenza vaccination had a lower risk of hospitalization for ACS (adjusted HR=0.46, 95% CI (0.39-0.55), p < 0.001). We observed similar protective effects in both sexes and all age groups (55-64, 65-74, ≥ 75) regardless of influenza seasonality. When the patients were stratified according to the total number of vaccinations, the adjusted HRs for hospitalization because of ACS were 0.48 (0.38-0.62) and 0.20 (0.14-0.28) for patients who received 2-3 and ≥ 4 vaccinations during the
follow-up period.

CONCLUSION:

Our data showed that there was a lower risk of ACS hospitalization in elderly patients with COPD receiving annual influenza vaccination.

Influenza vaccine and survival in acute heart failure.


Abstract:

AIMS:

Influenza vaccine is a well-recommended secondary prevention measure for improving survival in patients with coronary artery disease, but it has generally been less studied in heart failure. We ask whether having influenza vaccination is associated with survival among patients with acute heart failure (HF).

METHODS AND RESULTS:

This was a prospective population-based cohort study accompanied by an analysis of two cross-sectional population samples for external validation of baseline characteristics differences. We analysed all 1964 ambulatory patients with acute HF aged ≥50 years who were admitted to the Heart Failure Survey in Israel (HFSIS). We used the Israel Health Survey (IHS) 2009 and the Behavioural Risk Factor Surveillance System (BRFSS) 2003-2004 surveys (75 535 participants) for external validation. In the HFSIS, the multivariate-adjusted hazard ratios for in-hospital, 1 and 4 year mortality outcomes of influenza-vaccinated patients were 0.71 (P = 0.19), 0.81 (P = 0.04), and 0.83 (P = 0.006), respectively. In the IHS validation sample, a recent physician visit [odds ratio (OR) 1.61; 95% confidence interval (CI) 1.43-1.80] or having supplementary health insurance (OR 1.39; 95% CI 1.19-1.61) were associated with higher likelihood of being vaccinated against influenza. In the BRFSS validation sample, having > 1 healthcare providers (OR 2.31; 95% CI 2.22-2.40) or having any healthcare coverage were associated with higher likelihood of being vaccinated (OR 1.59; 95% CI 1.54-1.65).

CONCLUSIONS:

Influenza vaccine might improve survival among patients with acute HF. This association, however, could be affected by unmeasured confounding and bias due to baseline medical surveillance and socioeconomic differences between vaccinated and non-vaccinated patients.

Young and elderly patients with type 2 diabetes have optimal B cell responses to the seasonal influenza vaccine.


Abstract:

We evaluated immune response to the seasonal influenza vaccine in young and elderly patients with type 2 diabetes (T2D). Immune measures included the in vivo serum response to the vaccine by hemagglutination inhibition (HAI) and ELISA in 22 patients (14 young, 8 elderly) and 65 healthy age-matched controls (37 young, 28 elderly). B cell-specific biomarkers of optimal vaccine response were measured ex vivo by switched memory B cells and plasmablasts and in vitro by activation-induced cytidine deaminase (AID) in stimulated cells. Markers of systemic and B cell-intrinsic inflammation were also measured. Results show that in vivo responses, as well as B cell-specific markers identified above, decrease by age in healthy individuals but not in T2D patients. This occurred despite high levels of B cell-intrinsic inflammation (TNF-α) in T2D patients, which was surprising as we had previously demonstrated this negatively impacts B cell function. These results altogether suggest that valid protection against influenza can be achieved in T2D patients and proposed mechanisms are discussed.