Influenza and pneumococcal vaccinations for patients with chronic obstructive pulmonary disease (COPD): an evidence-based review

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Record Status
This is a bibliographic record of a published health technology assessment from a member of INAHTA. No evaluation of the quality of this assessment has been made for the HTA database.

Citation

Authors' objectives
The objective of this analysis was to determine the effectiveness of the influenza vaccination and the pneumococcal vaccination in patients with chronic obstructive pulmonary disease (COPD) in reducing the incidence of influenza-related illness or pneumococcal pneumonia.

Authors' conclusions
Influenza vaccination significantly reduces the risk of acquiring influenza-related ARIs in patients with COPD, especially in patients with severe airflow obstruction. Although it was shown that the rates of hospitalization and subsequent mechanical ventilation due to episodes of influenza-related ARI were lower in patients who received the vaccine compared with those who did not, the study did not have sufficient power to demonstrate the presence of a statistically significant difference. The study showed that patients' age, sex, severity of COPD, smoking status, or comorbid diseases do not modify the effectiveness of the vaccine. Adverse effects of the influenza vaccination included both systemic reactions (headache, myalgia, fever, and skin rash) and local reactions (swelling and itching) at the site of vaccination. The influenza vaccination was regarded as safe since systemic reactions and measures of lung function, dyspneic symptoms, exercise capacity, and total ARI (influenza-related and non-influenza-related) were not significantly different between the vaccinated group and the control group up to 4 weeks following the vaccination. The pneumococcal vaccination does not result in a significant reduction in the risk of acquiring CAP due to pneumococcus or of unknown etiology, but it significantly reduces the risk of acquiring pneumococcal pneumonia in patients with COPD. However, for pneumonia due to pneumococcus and of unknown etiology, there were significant findings when data were analyzed according to subgroups of patients (age < 65 years) and severe airflow obstruction (FEV1 < 40% predicted). The accumulated percentage of patients without pneumonia due to pneumococcus and of unknown etiology across time was significantly lower in the vaccine group than in the control group in patients younger than 65 years of age and also in patients with severe airflow obstruction (FEV1 < 40% predicted). The study showed that the efficacy of the vaccine is dependent on the age of the patient. The vaccine was not effective in patients 65 years of age or older, but it reduced the risk of acquiring pneumonia by 80% in patients younger than 65 years. Hospital admission rates and median lengths of hospital stay were lower in the vaccine group than the control group, but the difference was not statistically significant. No patients reported any local or systemic adverse reactions to the vaccine, and the mortality rate was not different between patients who received the vaccine and patients who did not.

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