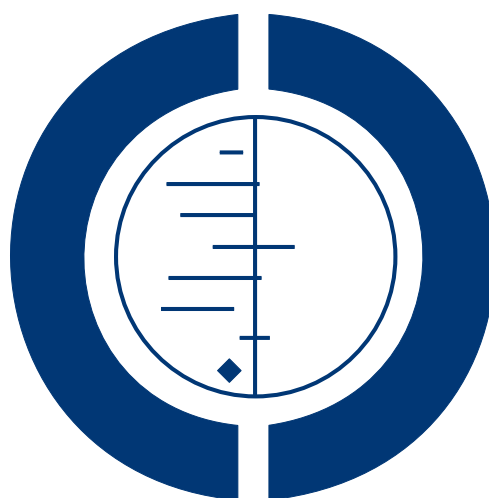


Injectable vaccines for preventing pneumococcal infection in patients with chronic obstructive pulmonary disease (Review)

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[Intervention Review]

Injectable vaccines for preventing pneumococcal infection in patients with chronic obstructive pulmonary disease

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Editorial group: Cochrane Airways Group.

Publication status and date: Edited (no change to conclusions), published in Issue 6, 2014.

Review content assessed as up-to-date: 13 May 2010.

Citation: Walters JAE, Smith S, Poole P, Granger RH, Wood-Baker R. Injectable vaccines for preventing pneumococcal infection in patients with chronic obstructive pulmonary disease. *Cochrane Database of Systematic Reviews* 2010, Issue 11. Art. No.: CD001390. DOI: 10.1002/14651858.CD001390.pub3.

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ABSTRACT

Background

As chronic obstructive pulmonary disease (COPD) progresses, exacerbations can occur with increasing frequency. One goal of therapy is to prevent these exacerbations, thereby reducing morbidity and associated healthcare costs. Pneumococcal vaccinations are one strategy for reducing the risk of infective exacerbations.

Objectives

To determine the safety and efficacy of pneumococcal vaccination in COPD. The primary outcomes assessed were episodes of pneumonia and acute exacerbations. Secondary outcomes of interest included hospital admissions, adverse events related to treatment, disability, change in lung function, mortality, and cost effectiveness.

Search methods

We searched the Cochrane Airways Group COPD trials register and the databases CENTRAL, MEDLINE and EMBASE using pre-specified terms. The latest searches were performed in March 2010.

Selection criteria

Randomised controlled trials assessing the effects of injectable pneumococcal vaccine in people with COPD were included.

Data collection and analysis

Two review authors independently extracted data and three review authors independently assessed trial quality.

Main results

Seven studies were identified that met the inclusion criteria for this review and were included in the 2010 review update. Two older trials used a 14-valent vaccine and five more recent trials used a 23-valent injectable vaccine.

In six studies involving 1372 people, the reduction in likelihood of developing pneumonia with pneumococcal vaccination compared to control did not achieve statistical significance, the odds ratio (OR) was 0.72 (95% confidence interval (CI) 0.51 to 1.01), with moderate

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heterogeneity present between studies. The reduction in likelihood of acute exacerbations of COPD from two studies involving 216 people was not statistically significant (Peto OR 0.58; 95% CI 0.30 to 1.13).

Of the secondary outcomes for which data were available there was no statistically significant effect for reduction in hospital admissions (two studies) or emergency department visits (one study). There was no significant reduction in pooled results from three studies involving 888 people for odds of all-cause mortality for periods up to 48 months post-vaccination (OR 0.94; 95% CI 0.67 to 1.33), or for death from cardiorespiratory causes (OR 1.07; 95% CI 0.69 to 1.66).

Authors' conclusions

The limited evidence from randomised controlled trials (RCTs) included in this review suggests that, while it is possible that injectable polyvalent pneumococcal vaccines may provide some protection against morbidity in persons with COPD, no significant effect on any of the outcomes was shown. Further large RCTs in this population would be needed to confirm effectiveness of the vaccine suggested by results from longitudinal studies.

PLAIN LANGUAGE SUMMARY

Injectable vaccines for preventing pneumonia in people with chronic obstructive pulmonary disease (COPD)

There is evidence that vaccines can protect healthy persons against invasive disease (bacteraemia, meningitis) and some evidence for prevention of community acquired pneumonia but little is known about the effectiveness of the vaccine in persons with chronic obstructive pulmonary disease (COPD). The results from seven randomised controlled trials involving 1709 people included in this review suggest that pneumococcal vaccination may provide some protection against disease caused by the bacteria but this needs to be confirmed by further studies.