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FROM THE FAMILY PRACTICE INQUIRIES NETWORK

Is pneumococcal vaccine effective in nursing home patients?

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EVIDENCE-BASED ANSWER

Evidence from clinical trials supports the use of pneumococcal polysaccharide vaccine for prevention of pneumonia in nursing home patients (strength of recommendation: **B**, based on randomized, nonblinded clinical trials).

Case-control studies have consistently shown the efficacy of pneumococcal vaccine in preventing invasive pneumococcal disease and bacteremia for patients with chronic medical illnesses and the elderly, patients typically found in nursing home populations (SOR: **B**, based on consistent case-control studies).

EVIDENCE SUMMARY

Two clinical trials directly addressed the prevention of pneumonia in nursing home patients. A prospective, risk-stratified, randomized study of the 14-valent pneumococcal vaccine in 1686 patients living in hospices and nursing homes in France showed an absolute risk reduction (ARR) of 2.9% in the incidence of all-cause pneumonia, corresponding to a number needed to treat (NNT) of 35.[1] This study has 2 major limitations: the authors did not comment on whether the study was blinded, and 31% of patients were lost to follow-up.

A 6-year randomized clinical trial that studied the trivalent pneumococcal vaccine in preventing pneumonia in New York City Home (a nursing home) subjects showed an ARR=2.7% and NNT=37.[2] While this report also did not specify whether there was blinding, any bias introduced by absence of blinding is unlikely to account for the large effect size (relative risk reduction=0.56).

Nursing home residents may be especially vulnerable to acquiring pneumococcal infection due to advanced age, chronic illnesses, and their communal setting. The Centers for Disease Control and Prevention (CDC) has reported outbreaks of invasive pneumococcal disease in nursing homes where vaccination rates are low.[3] Pneumococcal bacteremia is seen in only 10%–20% of patients with pneumococcal pneumonia but confers a

significant risk of death. Therefore, pneumococcal vaccination is indicated for patients ≥ 65 years or those with chronic medical conditions.

Case-control studies have consistently shown efficacy in preventing invasive pneumococcal disease. Farr and colleagues found efficacy of 70% (95% confidence interval [CI], 37%–86%) among 2 groups of patients: those ≥ 2 years of age with chronic disease or those ≥ 65 years.[4] A case-control study by Sims and colleagues also found the vaccine to have efficacy of 70% (95% CI, 37%– 86%) in preventing invasive pneumococcal disease in immunocompetent patients aged ≥ 55 years.[5]

RECOMMENDATIONS FROM OTHERS

The CDC Advisory Committee on Immunization Practices (ACIP) recommends pneumococcal vaccination of persons aged ≥65 years and those aged 2 to 64 who have chronic cardiovascular disease, chronic pulmonary disease, or diabetes mellitus (SOR: **A**).[6]

The ACIP also recommends the pneumococcal vaccine for persons aged 2 to 64 years who have alcoholism, chronic liver disease, or cerebrospinal fluid leaks (SOR: **B**).

The Canadian Task Force on Preventive Health Care endorses vaccination for immunocompetent patients 55 years residing in institutions (SOR: **A**).[7]

CLINICAL COMMENTARY

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The importance of pneumococcal vaccine for the elderly is well established. However, the vaccine is underused in long-term care settings, despite being indicated for most residents.

Patient confusion about the need for both influenza and pneumococcal vaccines, poor documentation of adult immunization status, poor availability of records from previous care facilities, and frequent changes in physician all contribute to low vaccination rates.

An optimal strategy to ensure high vaccination rates is to administer the pneumococcal vaccine to patients on admission to long-term care facilities. Patients who are uncertain about their vaccination status may safely receive the vaccine, as revaccination is relatively well tolerated.[8]

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