Effectiveness of 23-valent pneumococcal polysaccharide vaccine against invasive disease and hospital-treated pneumonia among people aged 65+: A retrospective case-control study

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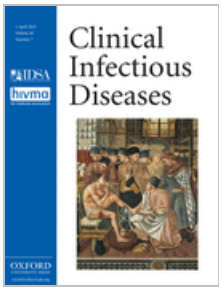
Abstract

Background. Streptococcus pneumoniae contributes considerably to the burden of pneumonia and invasive pneumococcal disease (IPD), with the effectiveness of the polysaccharide 23-valent vaccine (PPSV23) for preventing all-cause pneumonia still undetermined. The aim of this study was to control for common biases and confounders associated with previous observational studies and to assess the PPSV23 vaccine effectiveness in preventing IPD and the most resource intensive type of community-acquired pneumonia, hospital-treated pneumonia (HTP).

Methods. This is a retrospective case-control study nested in a population-based cohort, with age-sex-risk matched controls as the base case. Demographic information, laboratory data, and diagnoses were extracted from the chronic disease registry, and inpatient and outpatient regression. Sub-group, sensitivity, and secondary analyses were conducted to validate findings.

Results. There were 470,070 individuals aged 65+ who were members of CHS during the study period (January 1, 2007-December 31, 2010). The case cohort consisted of 212 participants with IPD and 23,441 with HTP. The adjusted association between vaccination and IPD was protective (OR=0.58, 95% CI:0.41-0.81), while there was no demonstrated protective effect between vaccination and HTP (OR=1.01, 95% CI:0.97-1.04). The sensitivity analysis and all but one subgroup analysis provided consistent results to the base case.

Conclusion. The PPSV23 vaccine is effective against the most severe



invasive forms of pneumococcal disease, but the lack of effectiveness of PPSV23 in protecting against all-cause HTP should be considered in future vaccine policy.

Received September 22, 2014.
Accepted February 1, 2015.

Online ISSN 1537-6591 - Print ISSN 1058-4838