Reviewer's report

Title: Invasive Pneumococcal Infections Among Persons Without Underlying Medical Conditions: Implications for Prevention Strategies

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Reviewer: Angel Vila-Corcoles

Reviewer's report:

General comments

In this study, the authors investigated all episodes of invasive pneumococcal infections (bacteraemias and meningitis) identified by Finnish microbiology laboratories during 1995-2002 and evaluate the incidence and mortality of invasive pneumococcal disease according to age groups, sex and with various underlying medical conditions among the Finnish population.

In the study design, the authors have linked different data sources including the National Infectious Disease Register (NIDR), the National Cancer Registry, the National Social Insurance Institution (KELA), the National Hospital Discharge Register (HILMO) and NIDR (HIV infection).

This reviewer believes that the strength of the paper lies not in its design, which is inherently limited, but in the opportunity to compare the results (basically incidence rates and lethality) with data previously reported in other settings. I believe that the paper could be published after a minor revision, and that this journal provides an appropriate forum. If approved for publication, I would hope for a little revision based on the following discussion.

Minor comments.

1.- This study describes a number of cases and incidence rates of invasive pneumococcal diseases in Finnish all-age population. Although the authors make a special emphasis on the population of working-age adults, the Study population was really all-age inhabitants, so the title does not reflect the true content of the paper. I believe that the title should be changed to reflect the content more accurately.

2.- In the Results section of the abstract, the sentences are too long and it is difficult for readers to understand well some phrases. I suggest this paragraph be rewritten using shorter sentences, clearly separated by points.

3.- I suggest changing the term IPI (invasive pneumococcal infections) for IPD (invasive pneumococcal disease) throughout the manuscript. The abbreviation IPD is commonly used in articles about pneumococcal infections and it is more familiar to readers than IPI, which is not generally used.

4.- Invasive pneumococcal infections represent only 15-25% of overall pneumococcal infections. Thus, although invasive disease is the most severe
manifestation of the pneumococcal infections, it represents very incompletely the overall burden of pneumococcal disease and this concern should be adequately commented on in the Discussion.

5.- in the Statistical analysis section, the authors should described more extensively the method that they used to select the variables in their multivariable analysis

6.- In the Discussion section, the authors says: "In Finland, the coverage of PPV23 among the elderly and high risk groups is about 3%. This coverage is very small. Could the authors provide some explanation for this data?

7.- Two large studies on pneumococcal vaccine effectiveness were conducted among Finnish people in the 1990s (Koivula et al, Am J Med 1997; Honkanen et al, Vaccine 1999). I think that these two studies should be mentioned in the Introduction or in the Discussion and referenced in the Bibliography, because they are related to some concerns mentioned in the Discussion of this paper.

8.- Do the authors have data on serotype distribution of cases? This data could be very interesting to evaluate the serotype coverage of both 7-valent and 23-valent vaccines and to estimate the potential impact of pneumococcal vaccination programs in the Finnish study population, as is mentioned in the Discussion.

9.- In my opinion, the “conclusion” is not adequate. It says “Routine childhood immunisation with PCV7 has not yet been introduced in Finland. However, increasing evidence has been accumulating about the substantial indirect effects of childhood PCV7 immunisation in reducing rates of adult pneumococcal disease in the U.S. and elsewhere…”

Although I agree with this sentence, in my opinion it can not be the conclusion of this study because it is not supported by the data provided in the study. The aim of the study was to know the incidence of invasive pneumococcal disease among the Finnish population, but it did not assess pneumococcal vaccine impact for different indications. Thus, I suggest moving this paragraph into the Discussion and rewriting a more balanced “Conclusion” based on data provided by the study. For example: “…. The burden of invasive pneumococcal infections is high in Finland, not only in young children and elderly people, but also in working age people without high-risk conditions. In the general population of non-elderly adults, two-thirds of invasive infections and one half of fatal cases occur in persons without a recognised PPV23 indication. Thus, policy makers should consider alternative prevention strategies to reduce the burden of pneumococcal disease among the overall population…”

FINAL REVISION

Discretionary Revisions (which the author can choose to ignore)
No

What next?:
I think that the paper could be accepted after minor revisions
Level of interest: An article of interest in its field
Quality of written English: acceptable
Statistical review: No
Declaration of competing interests: I declare that I have no competing interests

Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Acceptable

Statistical review: No, the manuscript does not need to be seen by a statistician.