Correspondence

Chlamydia pneumoniae and airway remodeling

To the Editor:

I would like to comment on the interesting study by Pasternack et al,[1] who reported on relationships among *Chlamydia pneumoniae* antibodies, asthma incidence, and lung function in a 15-year prospective, population-based, adult cohort using a nested case-control methodology of 83 cases and 162 controls selected from a total population of 8000 subjects. For nonatopic asthma, they found a significant association of *C pneumoniae* antibodies (microimmunofluorescence IgG $\geq$ 128 and IgA $\geq$ 32) with accelerated decrease in (presumably) prebronchodilator FEV_1, but no association with new asthma. They concluded that chronic *C pneumoniae* infection promotes airflow limitation (ie, lung remodeling) in adults with nonatopic asthma but is unlikely to be significant in asthma incidence. I applaud this prospective study, and hope others will follow; however, I would like to point out some methodological issues that might limit their conclusions.

Postbronchodilator FEV_1 is a better measure of lung remodeling (irreversible airflow limitation) than prebronchodilator FEV_1, which is a better measure of severity (reversible airflow limitation). Longitudinal population trends in these measures do not necessarily correlate with one another.[2] Thus, it is not clear to me whether their results indicate an association with severity, irreversibility, or both. Nevertheless, either of these possibilities deserves further investigation.

The authors are incorrect to state that ''no studies have so far been published describing serological findings before and after asthma diagnosis.'' Hahn and McDonald[3] published a prospective practice-based series of 10 adult outpatients previously without asthma with acute (incident) wheezing illnesses who had acute, convalescent, and long-term follow up *C pneumoniae* serologies. All 10 subjects had serologic evidence of acute infection manifested by 4-fold titer increases of IgG antibodies, and 8 also had significant titers of IgM, indicating primary infections. Five patients then developed chronic asthma meeting American Thoracic Society criteria, and an additional patient developed chronic bronchitis with positive *C pneumoniae* culture isolation from his sputum 6 months after illness initiation. All of these 6 patients with chronic respiratory sequelae developed long-lasting high titers of IgG (and some had IgA), suggesting the possibility of chronic infection. I calculate an unexpectedly low incidence of new adult-onset asthma in the study by Pasternack et al[1] (0.7 cases per 1000 per year) compared with an expected incidence of around 2 to 3 per 1000 per year.[4] The prevalence of background *C pneumoniae* antibodies in adult populations is quite high.[5] For investigating *C pneumoniae* infection and asthma incidence, prospective practice-based primary care research studies may be more powerful, sensitive, and specific than traditional epidemiological studies.[6]

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Reply

To the Editor:

We thank Professor Hahn[1] for his letter and interest in our article, ''*Chlamydophila* (*Chlamydia*) *pneumoniae* serology and asthma in adults: a longitudinal analysis.''[2] We want to acknowledge fully Professor Hahn's trailblazing work and numerous publications dealing with the association between *Chlamydia pneumoniae* infection and asthma. As we went through the literature, we categorized the study by Hahn and McDonald[3] into ''case series with acutely symptomatic patients or patients referred to a specific institution.'' In the study, the first serological measurements were taken when patients already had symptoms including wheezing. The diagnosis of asthma was subsequently confirmed in 5 out of 10 subjects. We want to let the readers to judge for themselves whether it is appropriate in this case to say that serological samples were taken before or during asthma diagnosis.

Our case-control study was designed primarily to show whether adults with chronic or recent *C pneumoniae* infection run a higher risk for persistent asthma. The study subjects were identified from among participants of the Mini-Finland Health Survey. From all incident asthma cases, we included in our analysis all those who participated in the follow-up study and, additionally, had at least 1 matched control with sufficient data. Therefore, the asthma incidence in the Mini-Finland Health Survey cohort cannot be calculated by using the number of asthma