

Correspondence

Self-reported, doctor-diagnosed "asthma" is not necessarily asthma: 78.9% of these "asthma" cases were atopic

To the Editor:

I commend Dr Arbes et al¹ for the work put into their recent article. Although the authors mention several possible study limitations, I believe that there is another: self-reported, doctor-diagnosed "asthma," is not the same as asthma diagnosed with reversible obstruction on spirometry. I think that the reader should be reminded of this, especially in the Journal, where asthma diagnosed by spirometry is the norm. It's likely that many of the "asthma" diagnoses in the study were made by physicians not specializing in asthma, and without the benefit of spirometry.

Cough, wheezing, shortness of breath, and/or chest tightness may indicate asthma, but the differential diagnosis in these patients also includes allergic rhinitis, rhinosinusitis, acid reflux, vocal cord dysfunction, anxiety, bronchiectasis, cystic fibrosis, sarcoidosis, and others.^{2,3} These conditions may be misdiagnosed as asthma by physicians who are not asthma specialists, especially when spirometry is not done. In addition, patients with a long smoking history and airway obstruction may be given the euphemistic diagnosis of asthma, where emphysema or chronic bronchitis might be more correct.

At least with regard to smoking, one could argue that the data in Table I are consistent with this theory; "asthma" subjects with the lowest serum cotinine levels had the highest percentage of atopy (84.5%) and population attributable risk (PAR%) (66.3%), whereas those with the highest cotinine levels had a lower percentage of atopy (75.2%) and PAR% (51.9%). If one were to restrict the diagnosis of asthma to subjects with a consistent history and examination and reversible obstruction on spirometry and eliminate those who might more correctly have a diagnosis of emphysema or chronic bronchitis, the percentage of asthma cases with atopy and the PAR% might be even higher than that reported in this study.

In addition, in Table II, 78.9% of "asthma" cases had at least 1 positive skin test result and were considered atopic. I think that this gives an equally valid assessment of the data and would be in line with what most allergists would expect.

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Reply

To the Editor:

We would like to respond to Dr Feigenbaum's¹ comments by clarifying some of the issues he raised with respect to our article,² which was published in the November 2007 issue of the Journal.

Although we agree with Dr Feigenbaum's general assertion that self-reported, doctor-diagnosed asthma is not the same thing as asthma diagnosed by specialists with the aid of spirometry, many large, cross-sectional studies, such as the National Health and Nutrition Examination Survey, use the former outcome measure for several reasons. First, information on self-report of diagnosis of asthma can be easily collected in population-based studies. It would be difficult, if not impossible, to perform certain diagnostic tests such as bronchial challenge or bronchodilatory responsiveness in large surveys. Second, self-report of asthma with or without a physician has been shown to have a high specificity (low number of false-positives) with a lower sensitivity (higher false-negative rate).^{3,4} Thus, self-reported asthma may undercount the number of patients with asthma in the population, but the patients with asthma identified will have a high probability of truly having asthma. High specificity is important in studies looking at correlates or risk factors such as ours. Third, self-report of diagnosis and/or symptoms of asthma without the use of spirometry to confirm the diagnosis is widely used in the literature, even in articles published in the Journal.⁵⁻⁷ Fourth, spirometry with bronchodilator responsiveness has some limitations. For example, in a recent study on the diagnostic accuracy of bronchodilator responsiveness in children, the value of bronchodilator responsiveness testing depended on the prevalence of wheeze in the population. With an estimated pretest probability of wheeze of 10% in the community and 50% in a specialist clinic, the positive predictive values were 29% and 78%, respectively, for a 9% change in FEV₁.⁸ Finally, it is generally thought that demonstrated reversibility may be of less value in diagnosis of asthma among individuals who receive inhaled corticosteroid treatment.

Dr Feigenbaum also argues that the data in Table I of our article are consistent with his theory, at least with regard to smoking, because subjects with asthma with the lowest serum cotinine levels had the highest percentage of atopy and population attributable risk, whereas those with the highest cotinine levels had a lower percentage of atopy and population attributable risk. It should be pointed out, however, that higher prevalences of asthma and atopy with lower levels of cotinine most likely reflect smoking avoidance by atopic subjects with asthma rather than the misdiagnosis of patients with smoking history and airway obstruction as having asthma.

In summary, although we acknowledge that misdiagnosis and underdiagnosis of asthma are potential limitations of our study, we believe that self-reported, doctor-diagnosed asthma is a reasonable outcome measure to use in large, population-based studies such as the National Health and Nutrition Examination Survey in which spirometric confirmation of the diagnosis by asthma specialists is neither feasible nor practical.