Nocturnal Wheeze in Asthmatic Patients

To the Editor:

Nocturnal wheeze and cough are considered to be common features of asthma. Previous studies suggested that nocturnal asthma was related to many factors, including allergen exposure, decreased mucociliary clearance, or circadian rhythm of circulating hormones and nervous tone. However, little is known about the influence of sleep on persistent wheeze in asthmatic patients. To study whether asthma attacks worsen in the night, we recorded the wheezing sounds for 3 days in patients with sustained asthma attacks.

Thirty-two adult patients (14 female and 18 male; mean [SE] age, 67 [2] years) complained of sustained wheeze over 72 h and were enrolled in this study. All subjects fulfilled the clinical criteria of bronchial asthma. The patients, from whom written informed consent was obtained, were isolated in a quiet, single room. A microphone was attached to the suprasternal notch and connected to a tape recorder. The recorder ran for 5 min every hour using an internal time unit for 72 h for a total of 6 h. Wheeze was recorded from 9:00 AM on the first day. Apparent depth of sleep was carefully observed and recorded. Audible wheeze every hour from the tape recorder was counted as one, and nonaudible wheezing was counted as zero by investigators. We calculated wheeze distribution in four 6-h periods.

Mean (SE) vital capacity percent predicted was 87 (7), and mean (SE) FEV₁ percent predicted was 66 (7), when they were stable. From 11:00 PM to 5:00 AM, a sharp decline in wheeze counts was noted in the patients (Fig 1). Wheeze counts from 11:00 AM to 5:00 AM were significantly lower than those in the other three periods (p ≤ 0.001, by analysis of variance and post hoc test). Wheeze counts in the other three periods did not differ significantly.

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Figure 1. Wheeze counts in four 6-h periods over 72 h in 32 asthmatic patients, 18 wheeze counts/period over 72 h. Data are expressed as mean ± SE. 11:00–1700 = 11:00 AM to 5:00 PM; 1700–2300 = 5:00 PM to 11:00 PM; 2300–0500 = 11:00 PM to 5:00 AM; 0500–1100 = 5:00 AM to 11:00 AM.

Nocturnal exacerbation of wheeze is one of the characteristics of asthma. In the present study, however, we showed that wheezing in asthmatics is suppressed during sleep. Sleep reduces spontaneous cough in patients with chronic respiratory disease. As well, a reduction in wheeze may be related to sleep itself.

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References

1 Busse WW. Pathogenesis and pathophysiology of nocturnal asthma. Am J Med 1988; 85(suppl 1B):24–29
2 Medical Section of the American Lung Association. Standards for the diagnosis and care of patients with chronic obstructive pulmonary disease (COPD) and asthma. Am Rev Respir Dis 1987; 136:225–244

Chronic Cough Revisited

To the Editor:

I read with interest the article by Palombini et al (August 1999). As the authors indicate, chronic cough is very common and may adversely affect the quality of life of many patients. The addition of rhinoscopy, sinus high-resolution CT (HRCT), and chest HRCT in the workup had a good deal of merit. Their attempts to validate the presumptive diagnoses by a trial of treatment is noteworthy.

The authors have collected a large amount of data, and reexamining it may be very enlightening. The study used history, physical examination, and diagnostic tests to evaluate cough and then validated the underlying diagnosis with specific treatment. It would be of interest to give the sensitivity, specificity, and predictive values of each of these components for the specific cause of cough. For instance, it would be valuable to know how well their symptom complex of “heartburn, burning, and/or a sour taste in the mouth” actually predicted cough secondary to gastroesophageal reflux disease (GERD). Likewise, it would be valuable to know the predictive values of their various diagnostic tests for the individual diagnoses. How valuable is rhinoscopy in diagnosing the cause of chronic cough when one has postnasal drip?

Unfortunately, this information cannot be found in this publication. The reader is uncertain as to what the authors’ wish to communicate in their Table 1, where the sensitivity and specificity for various diagnostic tests are presented. According to the article, carbachol inhalational challenge has a sensitivity of 100% as a diagnostic test for cough. Given what diagnosis? Surely not in GERD. The information necessary to interpret their Table 1 is not communicated anywhere in the article.

The authors have once again highlighted asthma, postnasal drip, and GERD as important causes of chronic cough. By their own admission, they employed more tests than other studies, but achieved a similar therapeutic success rate. The study, as it

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