To the Editor:

The article entitled “Respiratory Findings in Tobacco Workers” by Mustajbegovich et al in CHEST (May 2003) evoked great interest. Because of our extensive experience in this field (>30 years), we hope we are able to add some important facts to the health aspects of occupational exposures in the tobacco industry.

First, one of our studies, which to the best of our knowledge is the largest study of its kind, included 610 tobacco workers from Plovdiv, Bulgaria. One hundred seventy-one subjects (28%; 80 men, 91 women; mean ± SD age, 41.6 ± 9.4 years) who had respiratory symptoms and/or FEV1 or vital capacity below the lower limits of normal reference values were subjected to comprehensive lung function assessment (ie, body plethysmography, diffusivity measurement, slow and fast spirometry, closing volume, and N2 slope and blood-gas analysis) in the referral laboratories of the Pathophysiology Department, Medical University, Plovdiv, Bulgaria. We have to emphasize the fact that the cited article deals with a contingent of subjects who had already undergone a field screening.

Second, a complete functional assessment of those workers found that women, despite working in an environment with lower levels of pollution, had more frequent respiratory symptoms and lung impairments. Our study also showed that smoking can potentiate the effect of tobacco dust. Those workers who had pronounced functional disorders (70.8%) displayed several typical patterns of change, as follows: (1) obstructive ventilatory defects and lung hyperinflation, a pattern suggestive of emphysema (33.1%); (2) a restrictive ventilatory defect with diffusion limitation and dyspnea during exercise testing, a pattern suggestive of diffuse parenchymal lung disease (20.7%); (3) occupational asthma with work-shift changes (5.8%); and (4) in the rest of the studied workers, a mixed pattern or difficulty in defining a pattern.

Third, we subjected tobacco dust to electron microscopy. It was determined that the majority of the particles had an almost isometric form and a size of 0.3 μm (range, 0.05 to 16 μm). In addition, there were some with anisometric forms (eg, triangular and polygonal) ranging in size from 0.1 to 2.0 μm. Keeping in mind the size of the particles of tobacco dust, it is evident that those particles can reach and damage different levels of the respiratory system, including respiratory bronchioles and alveoli.

Fourth, we developed an index for the quantitative assessment of individual risk for the development of lung damage, which was calculated by the following formula:

\[ RI = \kappa, C, T, \]

where RI is the index of risk, \( \kappa \) is the “personal” quotient (including age, smoking history, and medical history), C is the mean dust concentration for the entire length of service of the worker, and T is the time of dust exposure (ie, length of service in dust environment). The validation of the index of risk on other contingents and the follow-up of the initial one showed very good discriminative power, and it was incorporated into the lung function surveillance system in the tobacco industry in our country.

Finally, our long experience with respiratory findings in tobacco workers shows that harmless tobacco dust does not exist.

Ivan Yanev, MD, PhD
Stefan Kostianev, MD, PhD
Medical University
Plovdiv, Bulgaria

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2 Yanev I. Investigation on respiratory function in tobacco workers. PhD thesis, Plovdiv Medical University, 1987

Respiratory Findings in Tobacco Industry Workers

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