Asbestos exposure, asbestosis, and smoking combined greatly increase lung cancer risk

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The chances of developing lung cancer associated with asbestos exposure, asbestosis and smoking are dramatically increased when these three risk factors are combined, and quitting smoking significantly reduces the risk of developing lung cancer after long-term asbestos exposure, according to a new study.

"The interactions between asbestos exposure, asbestosis and smoking, and their influence on lung cancer risk are incompletely understood," said lead author Steven B. Markowitz, MD DrPH, professor of occupational and environmental medicine at the School of Earth & Environmental Sciences at Queens College in New York. "In our study of a large cohort of asbestos-exposed insulators and more than 50,000 non-exposed controls, we found that each individual risk factor was associated with increased risk of developing lung cancer, while the combination of two risk factors further increased the risk and the combination of all three risk factors increased the risk of developing lung cancer almost 37-fold."

The findings were published online ahead of print publication in the American Thoracic Society's *American Journal of Respiratory and Critical Care Medicine*.

The study included 2,377 long-term North American insulators and 54,243 male blue collar workers with no history of exposure to asbestos from the Cancer Prevention Study II. Causes of death were determined from the National Death Index.

Among non-smokers, asbestos exposure increased the rate of dying from lung cancer 5.2-fold, while the combination of smoking and asbestos exposure increased the death rate more than 28-fold. Asbestosis increased the risk of developing lung cancer among asbestos-exposed subjects in both smokers and non-smokers, with the death rate from lung cancer increasing 36.8-fold among asbestos-exposed smokers with asbestosis.

Among insulators who quit smoking, lung cancer morality dropped in the 10 years following smoking cessation from 177 deaths per 10,000 among current smokers to 90 per 10,000 among those who quit. Lung cancer rates among insulators who had stopped smoking more than 30 years earlier were similar to those among insulators who had never smoked.

There were a few limitations to the study, including the fact that smoking status and asbestosis were evaluated only once and that some members of the control group could have been exposed to relatively brief periods of asbestos.

"Our study provides strong evidence that asbestos exposure causes lung cancer through multiple mechanisms," said Dr. Markowitz. "Importantly, we also show that quitting smoking greatly reduces the increased lung cancer risk seen in this population."

Provided by American Thoracic Society