Review Calls for Increased Attention to Cancer Risk from Silica

Action Could Help Millions of Americans Exposed to Silica at Work

ATLANTA December 10, 2013—A new review highlights new developments in understanding the health effects of silica, and calls for action to reduce illness and death from silica exposure at work, including stronger regulations, heightened awareness and prevention, and increased attention to early detection of silicosis and lung cancer using low dose CT scanning.

For centuries, silica has been known to cause lung disease (silicosis). Evidence that silica causes lung cancer has been more recent, accumulating over the last several decades. Writing in *CA: A Cancer Journal for Clinicians*, Kyle Steenland, PhD, at the Rollins School of Public Health at Emory University in Atlanta, and Elizabeth Ward, PhD, of the American Cancer Society highlight three important developments that hold potential to prevent illness and death from silica exposure at work.

The first development is the publication of recent studies providing detailed exposure-response data, enabling regulations based on quantitative risk assessment. New studies have also shown that silica-exposed workers who do not have silicosis and who do not smoke still have increased rates of death from lung mortality.

Second, a new rule lowering the permissible occupational exposure for the estimated 2.2 million US workers currently exposed to silica is currently under consideration. Risk assessments estimate that lowering occupational exposure limits from the current to the proposed standard will reduce silicosis and lung cancer mortality to approximately one-half of the rates predicted under the current standard.

Third, low-dose computed tomography scanning has now been proven to be an effective screening method for lung cancer. The authors recommend that clinicians ask about occupational history to determine if silica exposure has occurred, and if it has, that extra attention might be given to the early detection of silicosis and lung cancer, as well as extra emphasis on quitting smoking. The authors recommend that individuals with significant occupational exposure to silica be offered screening beginning at age 50 years if they also have smoked the equivalent of one pack a day for at least 20 pack-years; what experts call 20 pack-years of smoking.

The report says while there is some low-level silica exposure on beaches and in ambient air in general, there is no evidence such low-level exposure causes health effects. The more concerning exposures occur on the job, most often in the construction industry. Exposure occurs when workers cut, grind, crush, or drill silica-containing materials such as concrete, masonry, tile, and rock. About 320,000 workers are exposed in general industry operations such as brick, concrete, and pottery manufacturing, as well as operations using sand products, such as foundry work. Others are exposed during sandblasting. Silica exposure also occurs from hydraulic fracturing (fracking) of oil and gas wells.

The most effective measures for the control of occupational silica exposures include banning sandblasting, substituting metal grits for abrasive blasting, modifying processes and equipment, and controlling dust transmission by using enclosures, air curtains, water spray, and ventilation techniques, and the use of personal protective equipment.

“Current regulations have substantially reduced silicosis death rates in the United States, but new cases of silicosis continue to be diagnosed,” says Dr. Steenland. “And while the lung cancer risk associated with silica

exposure is not as large as some other lung carcinogens, like smoking or asbestos exposure, there is strong and consistent evidence that silica exposure increases lung cancer risk.”

Article: Silica: A Lung Carcinogen, Kyle Steenland, PhD; Elizabeth Ward, PhD, CA Cancer J Clin 2013
