Exposure to road material containing erionite may increase risk of lung cancer

Doctors propose preventive measures

CHICAGO – New data shows that people exposed to the mineral erionite found in gravel used as road material in North Dakota may be at significantly increased risk of developing mesothelioma, a type of lung cancer most often associated with asbestos exposure, according to research presented at the 2010 Chicago Multidisciplinary Symposium in Thoracic Oncology.

Erionite is a mineral that occurs naturally and is often found in volcanic ash that has been altered by weathering and ground water. Erionite forms brittle, wool-like fibrous masses in the hollows of rock formations.

Erionite deposits are present in parts of the U.S., including California, Oregon, North Dakota, South Dakota, Arizona and Nevada. In North Dakota, researchers have found that more than 300 miles of roads, including many school bus routes, were paved with erionite-contaminated gravel over the last 30 years.

With properties similar to asbestos, erionite may pose health risks to those who breathe in the fibers. It is a known carcinogen associated with increased risk of mesothelioma. Erionite exposure has been linked to an unprecedented mesothelioma epidemic in some Turkish villages in Cappadocia, and it was widely believed that exposure to erionite was limited to that part of the world.

“Based on the results of our study and considering the known latency period for lung disease, there is concern for increased risk of mesothelioma for exposed residents in North Dakota,” said Michele Carbone, M.D., Ph.D., lead author of the study and director of the University of Hawaii Cancer Center in Honolulu. “Precautionary measures should be undertaken to reduce human exposure to erionite in North Dakota and other areas of the U.S. where large deposits of erionite are present. Our findings provide an opportunity to implement novel preventive and early detection programs in the U.S., similar to what we have been doing in Turkey.”

In the study, international researchers from the U.S., Italy and Turkey sought to examine the potential health risks for those exposed to erionite by comparing air samples, microchemistry, tissue samples and other data from North Dakota with those found in affected parts of Turkey.

Mesothelioma is a disease in which cells of the mesothelium become abnormal and divide without control or order. They can invade and damage nearby tissues and organs. It is one of the most virulent forms of lung cancer and can be difficult to diagnose. Though relatively rare in the U.S., reported incidence rates have increased
in the past 20 years.

Dr. Carbone and colleagues have studied the mesothelioma epidemic in Turkey for the past decade. He and Izzetine Baris, a Turkish physician, were the first to identify the link between erionite exposure and the high incidence of mesothelioma among the local populace in the Cappadocia region. Subsequently, Drs. Carbone and Baris worked to bring the health crisis to the attention of the Turkish Ministry of Health. Efforts are now underway to reduce erionite exposure by moving villagers away from areas where erionite exposure is high, and into new housing built out of materials that do not contain erionite. The National Cancer Institute has announced funding for (what)

The abstract “Erionite Exposure in North Dakota is Comparable to That Found in Turkish Villages Which Experience a High Incidence of Mesothelioma” will be presented at 4:30 p.m. Central time on December 9, 2010. To speak with Michele Carbone, M.D., Ph.D., please call Kellie Tormey at 808-564-5814 or reach her by email at ktormey@crch.hawaii.edu. The symposium is co-sponsored by the American Society for Radiation Oncology (ASTRO), the American Society of Clinical Oncology (ASCO), the International Association for the Study of Lung Cancer (ISLAC) and The University of Chicago.