



Mesothelioma Articles

Virus linked to cancer caused by asbestos

A high-profile research team is exploring why exposure sickens few

By Helen Altonn, haltonn@starbulletin.com

November 12, 2006

A noted Hawaii cancer researcher and his team say they believe they are unraveling the mystery of why some workers heavily exposed to asbestos develop cancer, while most do not.

It's not just a case of good vs. bad luck, but a combination of the mineral fibers and viruses that's responsible, said Dr. Michele Carbone, director of the Thoracic Oncology Program, Cancer Research Center of Hawaii, in an interview. Those factors work together to cause [malignant mesothelioma](#), an aggressive cancer of membranes lining the chest and abdominal cavities, he said.

The finding has general implications, he said. "It opens a new area of research, because other cancers could be caused by interaction of these things."

People who work in shipyards have high incidence of mesothelioma, meaning 5 percent of those with more than 10 years' exposure will die of cancer, Carbone said. "That's a lot, but it also tells you 95 percent of them equally loaded with asbestos do not get it. So the issue is, why?"

"The 'why' is not just an academic curiosity," he said, noting that identifying why some people are more susceptible might help to detect and treat asbestos-related cancer.

More than 10,000 workers have been exposed to asbestos at the Pearl Harbor Naval Shipyard since World War II, and many more at building and construction sites in Hawaii, according to Galiher DeRobertis Ono, the leading law firm for malignant mesothelioma cases.

The Honolulu firm represented the first asbestos claimants from the Pearl Harbor shipyard in 1978, and has since represented more than 2,000 workers with asbestos-related diseases, Gary Galiher said. About 90 percent of the plaintiffs have been Pearl Harbor workers, he said.

Galiher disputes Carbone's contention that co-factors are involved in causing mesothelioma. That may be true in Turkey, where Carbone is studying an epidemic of cases that arose in some villages because of the type of stones used in houses, Galiher said. But "in human beings in the United States, asbestos is the only cause of mesothelioma," he said. "Trying to look for other causes of it is pretty bizarre."

Carbone's large resources would be better spent trying to find more effective treatments, Galiher added.

Galiher said his firm files probably 20 to 30 asbestos-related cases each year, and six to 15 involving mesothelioma. It could be 50 to 60 years before victims exposed to asbestos develop symptoms, he pointed out. "It's tragic."

Carbone, formerly at the Loyola University Medical Center in Chicago, came to Hawaii June 1. He brought some of his key researchers and record federal funding for malignant mesothelioma studies.

Those funds -- about \$15 million for five years -- support the largest research team in the world focusing on asbestos-related cancer. He's working with colleagues on the mainland and in Turkey.

Dr. Carl-Wilhelm Vogel, Cancer Research Center of Hawaii director, said Carbone's appointment represents "an investment in developing a new area of leadership in the field of thoracic oncology, lung cancer and asbestos-related malignancies."

Carbone said he visited the cancer center here about a year ago and learned of plans to build a new facility next to the University of Hawaii medical school in Kakaako. "I said: 'Call me when it's ready.' "

Construction hasn't started on the new cancer center, but laboratory and office space has been provided for his group in the new John A. Burns School of Medicine.

Carbone has been studying thoracic cancers, and specifically malignant mesothelioma, for more than 10 years, resulting in a series of published discoveries.

In the latest paper last month in the Proceedings of the National Academy of Sciences, Carbone reported finding a link between asbestos fibers and a monkey virus called SV40. His group administered SV40 and asbestos to human mesothelial cells in tissue culture and to live hamsters to test the idea that the two are co-carcinogens. Low amounts of asbestos believed insufficient to cause mesothelioma will cause the disease more often among humans infected with the virus, the researchers reported.

Carbone's team had previously discovered the monkey virus in some human mesotheliomas, but he said he was surprised to find that the virus and asbestos cooperate to cause human cancer.

Monkey cells were used to develop polio vaccines, and some prepared from 1954 to 1961 were contaminated with infectious SV40, but it was believed all polio vaccines after 1962 were SV40-free, Carbone said. A study he headed, however, found that vaccines produced in the former Soviet Union remained contaminated with the monkey virus until 1978. That means supposedly safe levels of asbestos exposure might not be safe for the millions of people exposed to SV40-contaminated polio vaccines, Carbone said.

About 2,000 to 3,000 Americans die annually from mesothelioma, and cases have been increasing, associated with widespread asbestos use in the past century, researchers said.

The virus doesn't cause a lot of cancer in humans, most likely because their immune systems are stronger than those of animals, Carbone said.

But some people are less resistant, and mesothelioma cells harbor the virus better than other cells, he explained. "In the presence of asbestos, transformation of human cells increased 10 times or more. What it shows is if you are infected with the virus and also exposed to asbestos, probably your risk to the disease is much higher."

More specific drugs could be developed for mesothelioma if the mechanism were understood, Carbone said.

Mesothelioma is one of the most aggressive cancers, with about one year survival after diagnosis, he said. "By the time symptoms bring you to the doctor -- pain and trouble breathing -- the cancer is advanced. We need to be able to detect it before the patient is sick."

Source: <http://starbulletin.com>

www.MIRG.org