

Mesothelioma: cancer and naturally occurring minerals assignment



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Mesothelioma Mesothelioma is a rare lung cancer that begins in the mesothelium. The mesothelium is made up of mesothelial cells which line the chest and abdominal cavities as well as the cavity around the heart. The mesothelium also produces a lubrication fluid that allows the organs to move easily. Mesothelioma is most often a cancer associated with large amounts of exposure to asbestos. Asbestos is a group of naturally occurring minerals whose characteristic feature is fibers.

Asbestos was commonly used between 1940 and 1980 for its durability, fire resistance and insulating properties, therefore it is found in the majority of homes built before 1990. Asbestos poses little risk unless broken, damaged or mishandled, which results in fibers becoming loose and airborne creating hazard when the dust fibers are inhaled. Besides mesothelioma, all forms of asbestos can potentially cause non cancerous pleural plaques and asbestosis and lung cancer. Mesothelioma affects about 2000-3000 Americans every year. It affects men more than women mostly because of occupational hazards they are exposed to on the job.

Occupations at risk include pipefitters, boilermakers, maintenance, machinist and electricians. Non occupational exposures include household contact and building occupants like teachers whose number of deaths are surprisingly high. The risk of developing a mesothelioma is related to how much asbestos a person was exposed to and how long this exposure lasted. People exposed at an early age, for a long period of time, and at higher levels are most likely to develop this cancer. Mesotheliomas take a long time to develop, likely 20 to 50 years after first being exposed.

It is important to know that although cigarette smoking does not cause mesothelioma, the combination of the asbestos exposure and smoking increases the chances of contracting the disease. There are three main types of mesothelioma, pleural, peritoneal, and pericardial mesothelioma. Pleural mesothelioma, which is cancer of the lung and chest cavity accounts for two thirds of reported cases. Peritoneal mesothelioma which is cancer of the abdominal cavity, probably deposited in the stomach after the intake of sputum contaminated by asbestos fibers.

Lastly, pericardial mesothelioma, the rarest form, that affects the lining of the heart. The exact mechanism of carcinogenicity is unknown although the type and length of the asbestos fiber is important because only certain fibers seem to make their way to the lower airways where the destruction is done. The crocidolite, chrysolite and amosite types of asbestos which have a long needle-like appearance are likely to cause mesothelioma because they are deposited in the parenchyma of the lung, and may penetrate the visceral pleura and then are carried to the pleural surface, where malignant plaques are formed.

The average age of diagnosis is 60 years of age, however, recent cases involving September 11th World Trade Center first responders and cleanup crews show that high concentrations of asbestos can cause the disease to develop much more rapidly. A few WTC workers have already died of the disease. The invasion of the mesothelium by cancer cells makes it very difficult to breathe, resulting in the need for supplemental oxygen especially as the disease progresses. Those with the pleural form of mesothelioma may also suffer from pleural effusions.

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These effusions prevent smooth movement of the lung and other organs of the chest. Peritoneal mesothelioma affects the stomach area and abdominal cavity, causing nausea, vomiting or loss of appetite, which can result in dangerous weight loss. In addition to breathing difficulties and loss of appetite, mesothelioma victims also complain of excessive coughing, sleeping difficulties, persistent chest pain, fever and pain in the lower back. Death is usually a result of progressive dyspnea and respiratory insufficiency. Metastases are seen in about 50% of autopsies.

Mesothelioma is often misdiagnosed and mistaken for other problems until it is in advanced stage which is unfortunate because this disease often spreads to other parts of the body and is rapidly fatal. Tests done to diagnose mesothelioma include chest xray where tumors may be present or also plural effusions, thoracic CT's, cytology from pleural fluid and open lung biopsy. Treatment if found in early stage is surgery and may even cure mesothelioma. Having radiation and chemotherapy before the surgery will increase the chance of a cure.

Surgery done in advanced stage is mainly for palliative care to keep the patient more comfortable and improve the quality of life. The FDA recently approved a new drug called Alimta. In a clinical study of 448 patients, Alimta was successful in increasing survival time by 30% and works by blocking specific enzymes thought to play a role in the rapid growth of these lung tumors. Alimta is administered in one ten minute infusion every three weeks. It is usually given in conjunction with Cisplatin, a standard chemotherapy drug. This drug combination has improved lung function in many patients.

Alimta's side effects include low white blood cell counts, vomiting, nausea, <https://assignbuster.com/mesothelioma-cancer-and-naturally-occurring-minerals-assignment/>

fatigue, diarrhea and rash. It is highly suggested that patients taking Alimta should take folic acid and vitamin B 12 to help reduce the side effects.

Supportive treatments, such as pain relief and oxygen may also help to relieve symptoms of the disease. Volunteering for a clinical trial is another option for treatment, there are currently over 50 clinical trials for the treatment of malignant mesothelioma under way.

Prognosis of patients diagnosed with mesothelioma in large part depends on what kind they have, how much and how long ago they were exposed and at what stage the disease is when diagnosed. With new drug therapies and early detection patients are living longer than they hoped for in the past. It is highly recommended that patients as well as close family members seek counseling and or support groups in dealing with late stage diagnosis. Works Cited Light, Richard.

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