Beryllium Lung Disease


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Beryllium disease is a lung inflammation caused by inhaling dust or fumes that contain beryllium.

- Most people with beryllium disease have gradual development of coughing, difficulty breathing, fatigue, and night sweats.
- Diagnosis is based on a person’s history of exposure, chest x-rays, computed tomography, and tests of the immune system’s reaction to beryllium.
- Oxygen and corticosteroids may be needed for treatment.
- Some people need to take corticosteroids for the rest of their lives, and others may need lung transplantation.

(See also Overview of Environmental Lung Diseases.)

Beryllium is a metal that is used in small amounts in many industries. Beryllium exposure is a common but underrecognized cause of illness in people who mine and process beryllium and in many industries, including beryllium alloy production, metal alloy machining, electronics, telecommunications, nuclear weapon manufacture, defense, aircraft, automotive, aerospace, and metal scrap, computer, and electronics recycling. Because small amounts of beryllium are toxic and are added to many copper, aluminum, nickel, and magnesium alloys, workers are often unaware of their exposure and its risks. In addition to workers in these industries, a few people living near beryllium refineries also have developed beryllium disease.

Beryllium disease differs from other environmental lung diseases in that at low levels of exposure, lung problems seem to occur only in people who are sensitive to beryllium—about 2 to 6% of those who come in contact with it. The disease can occur in such people even with a relatively brief exposure to beryllium dust.

Beryllium disease may be

- Acute
- Chronic

Acute beryllium disease is now rare. Acute beryllium disease develops suddenly, mainly as inflammation of the lungs. The lungs are stiff and function poorly.
Chronic beryllium disease is more common. Abnormal tissue forms in the lungs and the lymph nodes enlarge.

**Symptoms**

People with acute beryllium disease have an abrupt onset of coughing, difficulty in breathing, and weight loss. Acute beryllium disease also can affect the skin (causing rashes) and eyes (causing redness and irritation).

In chronic beryllium disease, coughing, difficulty breathing, weight loss, night sweats, and fatigue develop gradually, often 10 to more than 40 years after exposure. When detected early, beryllium disease may initially cause no symptoms.

**Diagnosis**

- A history of exposure to beryllium
- Blood test for allergy to beryllium

The diagnosis is based on the person’s history of exposure to beryllium and on results of a blood test, called the beryllium lymphocyte proliferation test (BeLPT), which tests for allergy to beryllium.

If the disease is at a more advanced stage, characteristic changes on a chest x-ray or computed tomography (CT) help doctors make the diagnosis. However, x-rays and CT scans of people with beryllium disease resemble those of people with another type of lung disease called sarcoidosis. Definitive diagnosis is made by doing a test in which a tube, called a bronchoscope, is inserted into the lungs to obtain pieces of lung tissue and cells to test for an allergic reaction to beryllium.

**Prognosis**

Acute beryllium disease may be severe. Most people recover in 7 to 10 days, with appropriate treatment. However, some people with severe acute disease die or develop chronic beryllium disease.

The course of the disease in people who develop symptoms years after exposure is completely different. People with chronic beryllium disease continue to have symptoms, which tend to progress. If the lungs are severely damaged, the heart may become strained, causing a type of heart failure (cor pulmonale) and death.

**Prevention**

Beryllium disease can be prevented by strictly limiting exposure to beryllium.
Treatment

- For acute beryllium disease, support of breathing
- For chronic beryllium disease, corticosteroids

People with acute beryllium disease are given oxygen as needed and may need a mechanical ventilator to support breathing. Corticosteroid drugs are given.

In chronic beryllium disease, corticosteroids, such as oral prednisone, may be given. Some people need to take corticosteroids for the rest of their lives. In some people with very severe chronic beryllium disease, lung transplantation can be life saving. Other supportive measures, such as supplemental oxygen therapy, pulmonary rehabilitation, and drugs for treatment of right-sided heart failure, are used as needed.

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