

## **POST 9/11 SARCOIDOSIS IN RESCUE WORKERS**

### **Exposure to Airborne Toxins**

© Elaine Moore

Studies show that exposure to the airborne toxins generated by the WTC attacks triggered the development of sarcoidosis and sarcoidosis-like respiratory diseases.

### **Emergency Response Workers**

The death toll from 9/11 reached 2,750 when Felicia Dunn-Jones's name was added to the official death list. An attorney, Dunn-Jones fled her office, located a block away from the towers, and died of sarcoidosis 5 months after the attack. Dust from exposure to Ground Zero has also directly contributed to the death of others not yet on the list such as James Zadroga, a 34-year old police officer. Of the 10,000 clients represented by attorney David Worby involved in a lawsuit accusing the city of negligence, 5 have recently died of sarcoidosis.

The confirmation of Dunn-Jone's sarcoidosis came in a letter by Dr. Charles S. Hirsch, the city's Chief Medical Examiner on May 18 stating that "Accumulating evidence indicates that in some persons exposure to WTC dust has caused sarcoidosis or an inflammatory reaction indistinguishable from sarcoidosis."

### **Chemical Dust Exposure and Sarcoidosis**

Sarcoidosis, which is also known as Besnier-Boeck disease, is an autoimmune disorder that usually starts in the lungs or the lymph nodes of the chest cavity. Sarcoidosis of the thyroid gland can also develop. Since its identification in the 1860s, no direct cause of sarcoidosis had been identified.

Although airborne toxins had long been suspected, recent evidence confirms that toxins, such as those that clouded the World Trade Center, can trigger sarcoidosis. A pathologist for Ocean County, New Jersey concluded in April 2006 that the January 2006 death of James Zadroga was directly linked to 9/11 recovery operations.

### **Post WTC Sarcoidosis**

As of May, 2007, twenty-six New York City Ground Zero firefighters and emergency medical service workers have developed evidence of a sarcoid-like granulomatous pulmonary disease. The condition, called World Trade Center sarcoid-like granulomatous pulmonary disease, consists of abnormalities in the pulmonary parenchyma, hilar and/or mediastinal adenopathies, clinical features resembling asthma, and, occasionally, involvement of the bones, joints, skin, or spleen.

Investigators had previously shown that even before 9/11, New York City firefighters and rescue personnel had an elevated incidence of sarcoidosis or sarcoid-like granulomatous disease linked to occupational or environmental exposures to organic dusts, metals, chemical dust, silica, and wood dust or smoke.

However, the incidence of sarcoidosis or sarcoid-like pulmonary disease increased significantly after 9/11 compared to the years before the World Trade Center dust exposure, particularly during the first 12 months following 9/11/2001.

### **The Proof**

To determine whether prolonged, repeated exposure to airborne particulates might increase the risk of sarcoidosis or sarcoid-like granulomatous pulmonary disease in a population already at risk, the investigators followed fire department employees. Those with chest radiograph findings suggestive of sarcoidosis underwent additional evaluation using chest CT imaging, pulmonary function tests, airway challenge tests, and biopsies.

The investigators calculated an annual incidence rate of sarcoidosis and compared it with the 15 years before the World Trade Center attacks. They found that 26 patients, all at the World Trade Center site within 72 hours of the towers' collapse, when particulate levels were highest, had evidence of new-onset sarcoidosis.

### **Conclusion**

Studies of the 26 firefighters showed that 18 (69%) had findings that were consistent with asthma, and fifteen of these patients had clinical symptoms: cough, dyspnea, and/or wheeze exacerbated by exercise and/or irritant exposure, or improved by the use of bronchodilators. All patients had intrathoracic adenopathy, and six (23%) had extrathoracic disease, involving the spleen, abdominal and pelvic lymph nodes, bones, joints, skin, and, in one case, hematuria.

Half the patients were identified within the first year following exposure, indicating an annual incidence rate of 86 per 100,000. The remaining 13 patients were identified within the second to fifth years after 9/11, showing an annual incidence rate of 22 per 100,000.

The average annual incidence rate of sarcoidosis among firefighters during the 15 years before the World Trade Center attacks was 15/100,000, and among controls (rescue personnel without exposure to fire conditions) the rate was 12.9/100,000.

### **Resources**

Carren Bersch, Zac's Rocky Mountain High, From the Editor, Medical Laboratory Observer, August 2007, Vol 39 (8): 4.

Neil Osterwell, 9/11 Rescuers At Risk for Sarcoidosis, MedPage Today, Teaching Brief, May 9, 2007.

The copyright of the article Post 9/11 Sarcoidosis in Autoimmune Disease is owned by Elaine Moore. Permission to republish Post 9/11 Sarcoidosis in print or online must be granted by the author in writing.