IN RE: ABRAMS November 1992

1006 Asbestos, An Intrinsic Factor in the Pathogenesis of Bronchogenic Carcinoma and Mesotheli
W. M. O'Donnell, R. H. Mann, and J. L. Grosh. Cancer 19, 1143-1148 (Aug. 1966).

In 55 asbestos textile workers who had pathologically proven asbestosis, 28 malignant neopla were found—23 bronchogenic carcinomas and five mesotheliomas of peritoneum or pleura. C the 28 patients with neoplasms, 26 had been exposed to asbestos dust before 1936; the mediu occupational exposure was 20 years. The interval from initial exposure until the recognitior the neoplasms varied from 20 to 40 years. Thirteen of the individuals no longer were emplo in the industry when evidence of the neoplasms appeared. The primary anatomical site of th carcinomas was in the lower lobes of the lungs in 22 patients and in one instance was multice in origin. In the morphologic classifications of the neoplasms, ten were of the squamous cel variety; seven were anaplastic; five were adenocarcinoma and one was bronchiolar. The fre association of pulmonary asbestosis with bronchogenic carcinoma (42%) and mesothelioma (8 as seen in this study, lends further support to the opinion that asbestos is a carcinogen in su pectible individuals after critical exposure in the textile phase of the industry.-- Authors' abs

1007 Biological Action of Glass Dust. K. Szymdzykiewicz. Med. Pracy (Lodz) 16, (4) 263-277 (19(

In experimental conditions the biological action of two kinds of dust has been examined. Thes polygonal glass dust, its geometric mean of particle size distribution being 2.5 microns, and fibrous dust, its geometric mean being 10.5 microns. Several experiments were carried out the first, both kinds of dust were administered to rats of Wistar race in doses of 0.5 mg., 2. and 5.0 mg. in the form of suspension in 0.02 ml. of 0.9% sodium chloride between mesenter laminae of the small intestine. The animals were called (sacrificed) after three months; the nodules formed in places of dust injection were weighed and examined histopathologically. Th increase of nodule weight in relation to the mass of injected dust was considered to be the me of dust aggressiveness. It was stated that the mean increase of nodules weight after polygona glass administration amounted to 3.7% and after fibrous glass administration to 270.0%. In the nodules the development of collagenous fibers was observed. In further experiments both dusts (in the amount of 50 mg./animal) were given by means of intratracheal injection to rats of Wistar race and to guinea pigs. The lungs and mediastinum lymphatic glands of the rats we examined after ten months and those of guinea pigs after 22 months. The hydroxyproline in th lungs was determined with Neuman Logan's method, and the histopathological and histochemic examinations were made. In all animals, statisically significant collagen increases (p 0.01) were found in comparison with animals of the control group; however, no difference was seen the collagen level in the lungs of animals which were given polygonal and fibrous dusts. Resul of histopathological examinations have shown in all animals atelectasis foci and emphysema, f celled infiltrations around dust deposits and the increase of acid and neutral mucopolysacchari In animals which lived over ten months the slight development of silver absorptive and collage fibers was observed. Emphysema foci and atelectasis were greater in animals which were giv fibrous glass dust. In animals which received polygonal dust, the inflammatory changes were prevalent. In the mediastinum lymphatic glands, were observed catarrhal alterations in sinus dust deposits, and abortive gigant (sic) cells. Fibrous glass dust provokes more severe injury lungs than polygonal dust. There exists a great probability of the development of fibrous chan of pneumoconiosis-like type when the exposure to great concentration of glass dust is prolonge -- APCA Absts.

EDITOR'S NOTE: Assuming that the abstract accurately translates the author's findings, the following comments are pertinent: (1) Quantitation of morphologic changes such as those of inflammation in sections of lung is subjective and uncertain. When possible, chemical determination of hydroxyproline as a measure of connective tissue proliferation is a much more reliable indicator of degree of chronic inflammation. The author's findings indicate insignificant difference in hydroxyproline content of lungs exposed to filamentous glass versus those exposed to polygonal glass. The author's predictions of fibrous changes from glass dust exposure are not supported by his own findings or by work in our own laboratory. (2) As no mention is made of the Ciba Symposium[1] definition of emphysema, it is likely that the emphysema described may be an artefact. (3) Inflammatory changes observed in animal lungs at autopsy may be due to epizootic infection. As they are often found in control as well as exposed animals, the greatest caution and judgment is required to avoid erroneous interpretation. (4) Pulmonary pathological effects should not be predicted from connective tissue changes in the mesentery (or elsewhere), because of basic differences in tissues and also conditions of exposure (i.e. respirability of particles). --PG

[1] Ciba Guest Symposium Report: Symposium, Sept. 1958. Thorax 14:286, 1959.

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