

HYPERSENSITIVITY PNEUMONITIS (HP) IN RATS CAUSED BY *Aspergillus Umbrosus* AND *Thermoactinomyces Vulgaris*

By A. Manninen, V. Vallyathan, S. Olenchock, Ph.D., D. Lewis, W. Sorenson

NIOSH, Morgantown, West Virginia

E. Terho

University of Turku, Turku, Finland

K. Husman, M. Kotimas

Institute of Occupational Health, Kuopio, Finland



HP is an allergic lung disease in the terminal bronchioles, interstitium and alveoli resulting from repeated exposure to inhaled organic dusts. Thermophilic actinomycetes and fungal spores have been implicated as causes of HP in man. To evaluate the inflammatory potential of the two microorganisms, we exposed rats (Sprague-Dawley, VAF) to extracts of *Aspergillus umbrosus* (AU) and *Thermoactinomyces vulgaris* (TV) six times by intratracheal injection. We made a pathologic evaluation of the changes in the lungs and in the cellular influx in bronchoalveolar lavage fluids (BALF) of exposed and control animals. Initial installations of AU and TV caused an intense inflammatory reaction in and around respiratory bronchioles and blood vessels. The cellular infiltrate (CI) predominantly was lymphocytes, but the number of macrophages was also increased. Lymphatoid granulomas were seen as well as thickening of alveolar walls with type II cell hyperplasia. The number of the total cells in BALF increased dramatically, two-and-one-half to fivefold, compared to the controls. Differential estimates of CI showed 71 percent lymphocytes and 27 percent macrophages. Eight and 28 days after the final exposure, the lung appeared normal. These results indicate that these agents can cause an intense pulmonary inflammation, and that the inflammation subsides rapidly when the exposure ends, leaving no apparent permanent pulmonary injury.

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