HYPERSENSITIVITY PNEUMONITIS (HP) OR ORGANIC DUST TOXIC SYNDROME (ODTS)?: THE CLINICAL DILEMMA IN ORGANIC DUST EXPOSURES

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Twelve hours after shovelling composed wood chips and leaves, a healthy 52-year-old male presented to the emergency room with fever (T 38.8°C), myalgia, and marked dyspnea. Inspiratory crackles, hypoxemia (room air arterial PO2 53mm Hg), and bilateral patchy pulmonary infiltrates were seen. Systemic steroids were given, and he improved over 3 days. No antibodies were found to 10 common HP antigens. Using respiratory protection, we repeated the exposure setting and made extensive environmental measurements. General area samples for respirable particulate were < 1 mg/m^3. Peak exposures were > 80 mg/m^3. Mass median aerodynamic diameter of the aerosol was approximately 3 micrometers. Microscopic analysis of the dust indicated a predominance of spores, with counts ranging from 106 to 109 spores/m^3. Airborne endotoxin concentrations ranged from 244 to 16,300 endotoxin units/m^3, levels previously associated with illness in similar settings. Cultures of air samples yielded high levels of mesophilic fungi and lower levels of thermophilic bacteria. Serum from the patient showed precipitation with extracts of bulk samples of the compost material. Inhalation of dust from contaminated organic materials may result in acute respiratory tract illness. Possible mechanisms include toxic and cellular reactions from microbial and other organic products or immunologic responses after prior sensitization to an antigen. Differentiation is based on clinical and epidemiologic clues. Our data suggest that, in a clinical setting even with extensive environmental measurements, separation of ODTS and HP may not be possible.

PAPERS AND PROCEEDINGS

of the

SURGEON GENERAL'S CONFERENCE ON

AGRICULTURAL SAFETY AND HEALTH

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Public Law 101-517

April 30 - May 3, 1991
Des Moines, Iowa

Convened by

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Public Health Service
Centers for Disease Control
National Institute for Occupational Safety and Health

September 1992

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Publication Dissemination, DSDTT
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Cincinnati, Ohio 45226
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U.S. Department of Commerce
National Technical Information Services
Springfield, VA 22161
NTIS PB 93-114890/$77.00 or A/06

Superintendent of Documents
U.S. Government Printing Office
Washington, DC 20402
GPO 017-033-00463-3

DHHS (NIOSH) PUBLICATION NUMBER 92-105

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