



Diagnosis of Hypersensitivity Pneumonitis

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DESCRIPTION

Hypersensitivity is a complicated immunological reaction of the lung parenchyma in response to repeated inhalation of a sensitized allergen characterizes pneumonitis, which is classed as an interstitial lung disease. Because the inflammation affects not only the alveoli but also the bronchioles, the label HP is a better fit than the prior term extrinsic allergic alveolitis. The severity of the disease and its clinical manifestations are affected by the amount and type of antigen breathed. The first precise clinical descriptions of the disease were published in 1932, detailing symptoms in workers at a Michigan company who were exposed to a fungus on Maple bark and agricultural workers in England who were exposed to moldy hay. Since these first observations, numerous HP-causing exposures have been reported from around the world. Based on the time course and presentation, it has recently been divided into acute, sub-acute, and chronic types. However, based on clinical, radiologic, and pathologic characteristics, it has lately been proposed to divide it into Acute or Inflammatory HP (symptoms lasting less than six months) and Chronic or Fibrotic HP (symptoms lasting more than six months).

Hypersensitivity Extrinsic allergic alveolitis, also known as pneumonitis, is a lung inflammatory condition induced by repeated inhalation of antigenic substances in a susceptible host. The severity, clinical presentation, and natural history of the syndrome differ based on the triggering factor and the level of exposure. In most situations, disease can be reversed with early detection and identification of and removal of exposure dangers. Shortness of breath, which may be accompanied by a dry cough, is the most common symptom of pneumonitis, according to the prognosis. If untreated pneumonitis goes untreated, it can progress to chronic pneumonitis, which causes scarring (fibrosis) in the lungs.

Pneumonitis under diagnostic evaluation

The diagnosis is made through clinical judgment using a combination of findings because there doesn't exist single, universal diagnostic criteria for the disease. The diagnosis is

most commonly ascertained first with a detailed exposure history followed by a battery of clinical tests including: imaging, histopathology, pulmonary function testing, serology, bronchoscopy, and more. In 2020, official guidelines were published by the American Thoracic Society and the Japanese Respiratory Society. If you suspect symptoms of hypersensitivity pneumonitis, you should see a doctor. Prompt diagnosis is important because of the risk of progressive chronic illness.

Laboratory: Normally, blood counts and metabolic panels are normal. Typically, inflammatory indicators including erythrocyte sedimentation rate (ESR) and C-reactive protein (CRP) are high.

Patients' serum can be tested for serum precipitins (IgG antibodies) against possible organic antigens such as moulds, fungus, and grain dust. In order to diagnose HP and recommend preventive actions, the harmful agent must be identified. Furthermore, these tests have a high probability of false negatives, and the antigen of interest may not be represented in the testing panel. As a result, a positive test does not confirm a diagnosis of HP, while a negative test does not rule it out.

Environmental sampling: If the suspected instigating factor isn't commercially available, a sample of settled dust from your home or office may be requested. Specific IgG-inhibition tests with the patient's serum can be performed using dust extracts from these samples.

Inhalation challenges: This helps to confirm the diagnosis if the patient develops clinical symptoms after being exposed to the suspected antigen, such as a decline in spirometry values and radiographic abnormalities. Only specialist centres may conduct this, and standardised antigen preparations are rarely accessible.

Pulmonary Function Testing (PFT): Due to minor airway involvement, spirometry frequently reveals a restrictive pattern with a markedly reduced FEF. A restricted ventilatory pattern is revealed by lung volume measurements. Diffusion capacity is also significantly reduced. PFTs that are obstructive or mixed have also been described. PFTs help define illness severity, track disease progression, and predict prognosis.

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Chest plain radiograph: Chest radiographs are frequently normal in patients. Patchy or diffuse airspace opacities are found, with uncommon consolidations sparing the apices and

bases. When fibrosis progresses to the chronic stage, an upper zone predominant reticular interstitial pattern with volume loss may appear.