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ISSN: 2155-6121
Journal of
Allergy & Therapy

Commentary

Causes of Immunological Reactions on Allergic Broncho Pulmonary *Aspergillus*

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DESCRIPTION

Allergic Broncho Pulmonary *Aspergillus* (ABPA) is a complicated condition characterised by central tracheal dilatation and recurring pulmonary infiltration caused by an immunological reaction to *Aspergillus* adhering to the airway. Mucoid impaction, eosinophilic pneumonia, bronchiolitis obliterans, granulomatous bronchiolitis, and pulmonary fibrosis are all common pathological features of ABPA. Fever, wheezing, cough, bronchial hyper reactivity, or haemoptysis are common symptoms of ABPA. Th2 cells and related cytokines have a significant role in the course of ABPA, according to human and animal research. CEA is a well-known broad-spectrum tumour marker that is commonly increased in a wide range of cancers, including colorectal cancer, breast cancer, and lung cancer. Increased levels of CEA can be acquired by a blood test, which commonly used for diagnosis, recurrence or progression of malignant diseases. Some benign diseases such as viral hepatitis, cirrhosis, pancreatitis and ulcerative colitis have also reported elevated serum CEA levels. Rarely, ABPA has been described with elevated CEA. Due to ABPA remains under recognized and under diagnosed, it is often misdiagnosed as asthma, tuberculosis, lung cancer and other diseases. The typical features of laboratory investigations include increased total IgE level, serum specific IgE levels and peripheral blood eosinophils.

CEA is a glycoprotein involved in cell adhesion that is usually produced during fetal development but stops before birth. Serum CEA usually elevated in many cancers including lung, breast, gastric and so on. High levels can also be found in some benign lung conditions. This study has demonstrated serum CEA correlates with disease severity in Idiopathic Pulmonary Fibrosis (IPF). Scholars have found serum CEA elevated in a few ABPA patients. However, there are few studies on the significance of increased CEA levels in ABPA patients. Studies have reported that high CEA levels in serum and Broncho alveolar lavage fluid might connected with mucous embolism in asthma patients, CEA levels associated with airway changes in rheumatoid arthritis patients such as bronchial wall thickening, bronchiectasis and nodules. Recent studies have shown that the clinical characteristics and prognosis of ABPA are closely related to the mucus plugs in central bronchiectasis. In accordance with our study in bronchoscopy and imaging manifestations, we found that mucus plugs were seen more frequently in ABPA patients with elevated serum CEA levels, which indicate that serum CEA levels may relate with the prognosis of ABPA.

Currently, treatment efficacy of ABPA usually evaluated by monitoring pulmonary imaging and serum total IgE levels. There should be an improved radiographic lung changes and a 35% minimum reduction in total IgE levels. Researchers have found that serum CEA levels could be reduced after treatment compared to baseline in ABPA patients. The rare common characteristics of the six cases described in the paper is the extremely high serum CEA level, which decreased after treatment synchronizing with serum total IgE levels, suggesting that serum CEA level correlated with the progress in treatment of the disease. ABPA patients with elevated CEA levels show a more severe inflammatory response and a poor response to treatment compare to ABPA patients with normal CEA. This indicates that CEA may serve as a monitoring indicator for severity and treatment efficacy of ABPA.

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Received: 04-Apr-2022, Manuscript No. JAT-22-16814; **Editor assigned:** 07-Apr-2022, Pre QC No. JAT-22-16814 (PQ); **Reviewed:** 22-Apr-2022, QC No. JAT-22-16814; **Revised:** 29-Apr-2022, Manuscript No. JAT-22-16814 (R); **Published:** 06-May-2022, DOI: 10.35248/2155-6121.22.13.281.

Citation: Brown J (2022) Causes of Immunological Reactions on Allergic Broncho Pulmonary *Aspergillus*. J Allergy Ther. 13:281.