# ASTHMA COPD OVERLAP SYNDROME

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Asthma-chronic obstructive pulmonary disease (COPD) overlap syndrome (ACOS) is a term to describe patients with both features of asthma and COPD, firstly proposed by a joint section of the Global Initiative for Asthma (GINA) and the Global Initiative for Chronic Obstructive Pulmonary Disease (GOLD) in 2014, and revised to ACO (Asthma COPD Overlap) in GINA 2017. ACO is epidemiologically considered in 2% of the general population, 29.6% of asthmatic patients and 26.5% of COPD patients. Patients with ACO have a greater burden of symptoms, frequent exacerbations, poor quality of life, a more rapid decline in lung function and greater use of healthcare resources compared to patients with asthma or COPD alone, but global diagnostic criteria for ACO are inconclusive. Clinical definitions and classifications for ACOS vary widely, which impacts our understanding of prevalence, diagnosis and treatment of the condition. The diagnosis and differentiation of asthma from chronic obstructive pulmonary disease (COPD) in clinical practice is relatively straightforward in the majority of cases; however, some patients exhibit characteristics of both diseases. Where uncertainty exists regarding the correct diagnosis of asthma, COPD or both, this may represent a phenotype known as asthma-COPD overlap syndrome (ACOS) COPD is highly prevalent in the global population of older adults (40 years of age and older) and has been associated with smoking and exposure to environmental tobacco smoke or fumes. COPD is typically characterized by persistent airflow obstruction and chronic inflammation of the airways. Airway inflammation is also seen in asthma; however, there are distinct differences in the type of inflammatory cells seen in these two respiratory diseases. Biopsies reveal that inflammation in COPD is characterized predominantly by increases in $CD8^+$ T-lymphocytes, neutrophils, and macrophages , although increases in eosinophils have been observed in sputum at the time of exacerbation . In contrast, inflammation in asthma is commonly characterized by increases in $CD4^+$ T-lymphocytes and eosinophils. Asthma is also a chronic obstructive lung disease, but in mild and moderately severe asthma, airflow obstruction responds to treatment with inhaled corticosteroids and bronchodilators and is therefore not persistent and is reversible. Patients with ACO usually have the same asthma and COPD symptoms, including cough, sputum production, shortness of breath, and wheezing. However, exacerbation rates were 4 to 5 times higher in ACO patients compared with those with asthma or COPD alone. Also, it was found that patients with ACO have more emergency department visits and hospital admission. The physical examination findings include wheezing and hyperinflation signs, the same as in chronic obstructive lung disease findings. However, findings can be normal, with periodic exacerbations in between. More research is needed to better characterize patients and to obtain a standardized definition of ACOS that is based on markers that best predict treatment response in individual patients.

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