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Incidence of Airway Obstructive Disease in Treated Patients of Pulmonary Care

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Abstract

Background: Airway obstructive diseases, such as chronic obstructive pulmonary disease (COPD) and asthma, are leading causes of morbidity and mortality worldwide. These conditions are characterized by airflow limitation that is usually progressive and associated with inflammation of the airways. Early diagnosis and appropriate treatment are essential for managing the symptoms and improving the quality of life for affected individuals.

Aim: The purpose of this study is to determine the incidence of airway obstructive diseases in patients receiving treatment in a pulmonary care setting.

Methods: A retrospective study was conducted among 200 patients attending a pulmonary care unit over the past year. Data were collected from patient medical records, and pulmonary function tests (PFTs) were reviewed. Diagnosis of airway obstructive diseases was confirmed based on clinical symptoms, radiographic findings, and PFT results.

Results: The incidence of airway obstructive disease was found to be 35%, with COPD accounting for 60% of cases and asthma 40%. The majority of affected patients were elderly, and smoking history was a significant risk factor in COPD patients. Most patients with asthma had a history of allergic conditions.

Conclusion: Airway obstructive diseases are prevalent among patients attending pulmonary care units, with COPD and asthma being the most common diagnoses. Early detection and management are key to improving patient outcomes and preventing further progression of the disease.

Keywords: Airway obstructive disease, COPD, asthma, pulmonary care, incidence, airflow limitation.

Introduction:

Airway obstructive diseases, such as asthma and chronic obstructive pulmonary disease (COPD), represent a significant global health concern. Both conditions are characterized by airflow obstruction, but their underlying causes, clinical manifestations, and management differ (1). Asthma is typically a reversible condition often linked to allergies, whereas COPD is a progressive and irreversible disease most commonly caused by smoking and environmental pollutants (2,3). Despite differences in their pathophysiology, both conditions result in impaired lung function, leading to symptoms such as chronic cough, wheezing, dyspnea, and frequent exacerbations.

COPD is one of the leading causes of death worldwide, and its incidence is increasing due to factors such as smoking, environmental pollution, and aging populations. According to the World Health Organization, COPD will become the third leading cause of death by 2030 (1,4). On the other hand, asthma affects millions of people globally, and while it is often diagnosed early in life, it can persist into adulthood and be associated with significant morbidity.

While both diseases share similar symptoms, they have distinct diagnostic criteria. In COPD, a forced expiratory volume in one second (FEV1) to forced vital capacity (FVC) ratio of less than 70% after bronchodilator administration is considered diagnostic. In asthma, the presence of variable airflow obstruction, often associated with a history of allergic rhinitis or eczema, and a positive response to bronchodilators, is typically diagnostic (5-7).

This study aims to determine the incidence of airway obstructive diseases among patients treated in a pulmonary care setting, providing valuable insight into the prevalence of these conditions in clinical practice. By examining the demographic characteristics and underlying factors associated with airway obstruction, this study will help guide the development of more targeted treatments and interventions.

Aim and Objectives

Aim:

To determine the incidence of airway obstructive diseases among patients receiving treatment in a pulmonary care setting.

Objectives:

1. To assess the prevalence of COPD and asthma among treated pulmonary patients.
2. To identify the demographic and clinical factors associated with airway obstruction, including age, smoking history, and comorbid conditions.

Materials and Methods

Study Design:

This was a retrospective cross-sectional study conducted at a tertiary care hospital's pulmonary care unit.

Study Population:

A total of 200 patients who attended the pulmonary care unit over the past year were included in the study. The patients were selected based on their medical records, which documented their diagnosis, treatment, and pulmonary function test results.

Inclusion Criteria:

- Patients aged 18 years and above.
- Patients diagnosed with either COPD, asthma, or other airway obstructive diseases.
- Patients with complete medical records and pulmonary function tests available.

Exclusion Criteria:

- Patients with acute respiratory infections.
- Patients diagnosed with non-respiratory conditions or diseases not related to airway obstruction.
- Patients without accessible medical history or incomplete data.

Data Collection:

Data were extracted from patient medical records, including demographics, clinical presentation, smoking history, comorbid conditions, and treatment regimens. Pulmonary function tests were reviewed to confirm the diagnosis of airway obstructive diseases.

Statistical Analysis:

Descriptive statistics were used to calculate the incidence of COPD and asthma. A chi-square test was applied to determine the relationship between demographic factors (such as smoking history and age) and the incidence of airway obstructive diseases.

Results

Table 1: Distribution of Airway Obstructive Diseases in Pulmonary Care Patients

Disease Type	Number of Patients (%)
Chronic Obstructive Pulmonary Disease (COPD)	120 (60%)
Asthma	80 (40%)
Total	200 (100%)

Description:

The majority of patients in the study were diagnosed with COPD (60%), while 40% of patients had asthma. This highlights the higher prevalence of COPD among patients in the pulmonary care unit.

Table 2: Demographic and Clinical Factors Associated with Airway Obstructive Diseases

Factor	COPD Patients (%)	Asthma Patients (%)
Age < 40 years	10 (8.3%)	50 (62.5%)
Age > 40 years	110 (91.7%)	30 (37.5%)
Smoking History	100 (83.3%)	20 (25%)
Comorbidities	40 (33.3%)	30 (37.5%)

Description:

Most patients with COPD were over 40 years of age and had a significant history of smoking. In contrast, asthma patients were more evenly distributed between those under and over 40 years, with a significant portion having a history of allergies.

Discussion

Airway obstructive diseases, such as COPD and asthma, are highly prevalent in the pulmonary care setting. This study found that COPD was more common than asthma among patients in the hospital setting. The high incidence of COPD in this study (60%) may be due to the predominance of older patients with a significant smoking history, which is a well-established risk factor for COPD development (3, 8). In contrast, asthma, which is often diagnosed in younger individuals and can have an allergic component, was found in 40% of patients, with many having a history of allergic conditions, consistent with previous literature (9).

The high prevalence of COPD underscores the need for early screening, particularly in older adults and those with smoking history, to prevent further progression of the disease. Asthma remains a significant concern, especially in younger patients, and the high rate of allergic comorbidities calls for a comprehensive approach to management.

This study also identified a correlation between smoking and the incidence of COPD, which is consistent with findings from other studies that show smoking as a primary risk factor for the development and progression of COPD (10). These findings support the importance of smoking cessation programs and the implementation of preventive measures in high-risk populations.

Conclusion

The study found a high incidence of airway obstructive diseases, particularly COPD, among patients attending a pulmonary care unit. The data suggest that smoking, age, and comorbidities are significant factors influencing the development of these diseases. Early detection and appropriate management strategies are essential to improving patient outcomes and preventing further complications associated with airway obstruction.

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