

Chronic Obstructive Pulmonary Disease in Elderly Patients



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KEYWORDS

• COPD • Elderly • Dyspnea • Aging • Pulmonary rehabilitation

KEY POINTS

- Chronic obstructive pulmonary disease (COPD) is a prevalent disease in the elderly population with a high morbidity and mortality that will continue to increase.
- COPD is underdiagnosed in the elderly population because of nonspecific symptoms and underutilization of pulmonary function testing.
- Clinical symptoms of dyspnea, cough, or sputum production should trigger a spirometry evaluation in any elderly patient.
- The goal for treating elderly patients with COPD is to prevent further lung deterioration and complications associated with the disease and to improve the patients' symptoms.
- Pulmonary rehabilitation and inhaled medications have a special role in the individualized treatment of elderly patients with COPD.

PREVALENCE, UNDERDIAGNOSES, AND ECONOMIC IMPLICATIONS

Chronic obstructive pulmonary disease (COPD) is defined as a common preventable and treatable disease characterized by persistent airflow limitation that is usually progressive and associated with an enhanced chronic inflammatory response in the airways and the lung to noxious particles or gases, with exacerbation and comorbidities contributing to the overall severity in individual patients. It is a leading cause of morbidity and mortality worldwide and results in an economic burden that is both substantial and increasing.¹

Disclosure: V. Pinto-Plata has served as an advisory board member for Astra-Zeneca, Mylan Pharmaceutical, and GlaxoSmithKline.

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Clin Geriatr Med 33 (2017) 539–552
<http://dx.doi.org/10.1016/j.cger.2017.06.006>

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Prevalence

The prevalence of the disease in population-based studies depends on the definition of airway obstruction. Two different criteria have been used. One uses a fixed ratio (FR) of the forced expiratory volume in 1 second/forced vital capacity (FEV_1/FVC) equal to 0.7 and the other the lower limit of normal (LLN) of this ratio. **Table 1** indicates how the severity of airflow obstruction using the FEV_1 can determine the severity of the disease. The FR of 0.7 may overestimate the prevalence of obstruction. This concept is supported by the results of the National Health and Nutrition Examination Survey study, which included spirometry measurements from a representative sample of the American population between 2007 and 2010 and reported a prevalence of COPD of 10.2% using the LLN and 20.9% with the FR criteria.² The prevalence of the disease increases with age as shown in **Fig. 1**.³ At 40 to 59 years of age, the prevalence was of 8.1% (LLN) and 9.2% (FR); for 60 to 79 years of age, the prevalence was 14.4% (LLN) and 22.6% (FR). It is estimated that 15 million Americans have this condition, but another 13 million are undiagnosed.² The disease is more prevalent in men and current or former smokers; but it differs between countries, ranging from 7.8% to 19.6% of the population^{4,5} in well-conducted epidemiologic studies. The Global Burden of Disease estimated that 328 million people worldwide have COPD (168 million men and 160 million women),⁶ with an estimated mortality of 2.9 million annually. It was the sixth leading cause of death in 1990, fourth since 2000, and is projected to be the third by 2020.⁷ It is estimated that the prevalence will continue to increase because of a persistent exposure to risk factors, including direct and secondhand exposure to cigarette smoke, biomass fuel, and occupational exposure⁸ and also due to a worldwide aging of the population that is more likely to manifest the long-term effects of COPD risk factors.⁹

Underdiagnosis

Underdiagnosis has been shown to be prevalent in population and clinical studies. Talamo and colleagues¹⁰ reported a 6.9% to 18.2% prevalence of COPD underdiagnoses in 5 Latin American countries. A worldwide study (44 sites from 27 countries) determined that the COPD prevalence ranged between 3.6% and 19.0%, and only 26% of the cases had a previous spirometry test.¹¹ These numbers are similar to reports of clinical studies. Damarla and colleagues¹² found that 31% of patients admitted to an acute care facility with the diagnosis of COPD had a confirmatory spirometry.

Table 1
Spirometric classification of chronic obstructive pulmonary disease severity based on postbronchodilator forced expiratory volume in 1 second

Stage	Spirometric Findings
Mild	$FEV_1/FVC < 0.70$ $FEV_1 \geq 80\%$ predict
Moderate	$FEV_1/FVC < 0.70$ $50\% \leq FEV_1 < 80\%$ predict
Severe	$FEV_1/FVC < 0.70$ $30\% \leq FEV_1 \leq 50\%$ predict
Very severe	$FEV_1/FVC < 0.70$ $FEV_1 \leq 30\%$ predict

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