

**MANAGEMENT OF CHRONIC OBSTRUCTIVE PULMONARY DISEASE IN TURKEY:
A GUIDE TO PREVENTION, DIAGNOSIS AND TREATMENT STANDARDS**

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Executive Summary

Chronic obstructive pulmonary disease (COPD) is a common, preventable and treatable disease characterized by persistent airflow restriction and respiratory tract symptoms due to airway or alveolar disorders, caused by severe exposure to harmful particles or gases. The most common symptoms of this disease are dyspnea, cough, and sputum. COPD usually occurs in the middle – elderly age group and shows a slow progression.

Being a very common chronic airway disease, COPD has very important individual and social effects and is seen as a serious public health problem all over the world. There are 300 million people living with COPD around the world and each year, 3.2 million patients lost their life due to COPD and its complications. It is estimated that one in 10 in the global adult population suffers from COPD and is the third most common cause of death in the world. According to the estimates in Turkey, there are approximately 4 million patients with COPD, and it ranks third in the list of diseases that cause the most deaths, and nearly 30,000 people die from this disease every year.

The evidence that has emerged over the past decade has significantly changed our traditional approach to COPD. Most importantly, COPD cannot be considered that it is simply a disease caused by patients' lifestyle preferences only; it is rather, a disease that develops as a result of the complex interactions of a series of contributing factors. Therefore, COPD is not seen as a disease of elderly smoking men only anymore. Nowadays, due to the detrimental effects of air and/or environmental pollution on health, it has become a disease that can be encountered in almost all ages and genders including young people and women. From the global perspective, exposure to air pollution is considered to be a risk factor almost as important as tobacco use; At least half of the patients, especially in the prenatal and postnatal periods, have insufficient lung development related to malnutrition, infections, or environmental pollutants, and as a result, COPD develops later in life.

The contribution of risk factors changes from country to country. The knowledge we have reached today, suggests that COPD develops as a result of a series of different and dynamic environment-gene interactions that occur throughout the life of the individual (from the intrauterine period to old age). This makes COPD a multicomponent (complex), diverse and variable (heterogeneous) disease at both clinical and biological levels. The risk factors for the development of COPD are defined as genetic features, tobacco use, exposure to particles; exposure to occupational -organic and inorganic dust, indoor and outdoor air pollutants,

oxidative stress, gender, age, respiratory tract infections, socioeconomic status, nutrition, and comorbidities are determinant factors of lung growth and development. Exposure to organic and inorganic particles, biomass, chemical agents, and tobacco products, precipitates the development of COPD. The elimination of these risk factors especially cigarettes is crucial.

The diagnosis of COPD should be considered in people who have shortness of breath, chronic cough, sputum production, and who are over 40 years old, have a history of frequent lower respiratory tract infections and/or have been exposed to disease-related risk factors before. Spirometry is required for diagnosis. A post-bronchodilator measured FEV1/FVC <70% indicates persistent airflow limitation. Patients are evaluated by grouping according to the risk level determined based on their symptoms and exacerbation history during the previous year, and the initial treatment plan is designed based on this evaluation.

Informing patients about their diseases; smoking cessation programs, prevention of other exposures, vaccination and training for correct use of inhaler medications; early recognition of COPD exacerbation, and training on how to deal with will have a positive effect on the patient's quality of life and reduce hospital admissions. Pulmonary rehabilitation programs have positive effects on the shortness of breath, exercise capacity, and general health of COPD patients. Due to long-time smoking and advancing age, patients with COPD also need to cope with many comorbid conditions (e.g. heart failure, arrhythmia, malnutrition, depression, etc.).

The reason for acute exacerbations is mostly respiratory viral infections. However, bacterial infections and air pollution can also initiate the attacks. Even short-term contact with fine particulate matter increases hospitalization and mortality rates. It has been well-known that each exacerbation leads to a little more progression of COPD. Patients who have one or more of the complaints such as dyspnea, sputum production, cough, wheezing, effort intolerance if they are not in an emergency situation should be evaluated by the family physician first; the patients whose clinical condition does not improve or worsens within 24 hours, despite treatment arrangements, should be referred to the emergency service or referred to a pulmonologist. Patients with new-onset hypoxemia or increasing the level of hypoxemia and worsening general condition should be treated in the emergency service.

In addition to the prevention of COPD, which will be applied by the family physician in this guide; evaluations to be made in the clinic, emergency service, and intensive care unit with treatment and follow-up algorithms; and then the rehabilitation follow-ups of the chronic patient are explained in detail. The levels of evidence for recommendations are classified according to the criteria in the table below.

Table of the evidence level of recommendations

Evidence class	Sources of evidence	Definition
A	Randomized clinical trials (RCTs)	Evidence was drawn from the results of well-designed RCTs that provided consistent findings in the population for which the recommendation was made, without major limitations.
	Studies rich in high-quality evidence without limitations or biases	Evidence was obtained from at least two clinical trials with a large number of participants or from a single high-quality RCT with no bias and many participants.
B	RCTs that do not have major limitations	Evidence was obtained from post hoc or subgroup analyzes of RCTs or meta-analyses of RCTs in which a limited number of patients were studied.
	Trials with limited evidence	Evidence was obtained from a small number of RCTs available or trials with significant limitations (method flaws, a limited number of participants, short duration, in a population different from the target population, or with partially inconsistent results).
C	Non-randomized trials	Evidence was obtained from uncontrolled, non-randomized, or observational trials.
	Observational trials	
D	Panel consensus decisions	Providing guidance is valuable but clinical literature evaluating the condition is scant.
		Panel consensus is based on clinical experience or knowledge that does not meet the above-mentioned criteria.

Reference: 1. Lozano R, Naghavi M, Foreman K, et al. *Lancet* 2012;380(9859):2095-128; 2. Mathers CD, Loncar D. *PLoS Med* 2006;3(11):e442.

Individuals with COPD should be at an ideal weight and maintain their body weight. While consumption of high-fat foods should be increased, carbohydrate intake should be reduced in the diet. The diet program should be rich in calcium, magnesium, phosphorus, and potassium. Moreover, in order to achieve the optimum benefit, at least two, if possible three sessions weekly, and on average 6-8 weeks of supervised exercise is recommended.

The studies have shown that annual vaccination for seasonal influenza dropped the serious lower respiratory tract infections that require hospitalization and reduces the death rate in COPD patients. In addition to this, pneumococcal vaccination has been revealed to reduce the incidence of community-acquired pneumonia, especially in COPD patients under 65 years of age with cardiac disease.

Unfortunately, medications used for COPD treatment are not sufficiently effective on morbidity and mortality. The goal of treatment is to reduce symptoms and exacerbations, and the effect of treatment is low to moderate. Thus, interventions on the prevention of disease development should constitute the basis of studies on COPD control.

The prevention of COPD should be held in four levels:

- 1- Basic protection: Improving the social determinants of health (social, political, economic, and cultural factors) known as the causes of disease development
- 2- Primary protection: Preventing the disease onset and reducing the risk factors to decrease the incidence
- 3- Secondary protection: Detecting the symptoms at the earliest period of disease before arising and preventing or slowing the progress
- 4- Tertiary protection: Ceasing or slowing down the progress of the disease in existing patients and preventing the development of complications.