



An Overview of COPD Treatment

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Abstract

A series of lung conditions known as COPD cause airflow obstruction and make breathing challenging. COPD is most frequently caused by chronic bronchitis and emphysema. The effects of COPD on the lungs cannot be undone. Shortness of breath, wheezing, or a persistent cough are symptoms. Rescue inhalers, oral or inhaled steroids, and other treatments can help manage symptoms and limit future harm. The most common chronic cause of disease and mortality in the world is COPD. Very few researches have examined its incidence, despite the fact that its prevalence is already well-documented. In order to better understand COPD in the general population, we looked into its prevalence, incidence, and lifetime risk.

Keywords: Rescue inhalers; Chronic bronchitis; Emphysema; Inhaled steroids

Introduction

The phrase "chronic obstructive pulmonary disease" (COPD) refers to two different chronic lung diseases. The main contributing factor is smoking. A person with COPD could also have emphysema or chronic bronchitis. These conditions impede the airways' ability to operate and make breathing difficult. Severe COVID-19 symptoms may also be more likely in people with COPD [1].

What is COPD?

Emphysema and chronic bronchitis are the two illnesses that COPD generally refers to as a whole. One or both of these problems may be present in someone with COPD, and each one's severity varies from person to person. Emphysema causes damage to the lungs' air sacs [2]. As a result, the lungs become less elastic and are less effective at exchanging oxygen and carbon dioxide. The lining of the airways is inflamed in chronic bronchitis. Mucus is produced more frequently and thickens as a result of this. When bronchitis lingers and defies therapy, it becomes chronic [3]. A history of asthma can raise the likelihood of getting COPD, and asthma symptoms themselves may be a feature of the disease. The airways become inflamed due to asthma, and they spasm and overreact to things that are inhaled [4].

COPD is a chronic condition that causes irreparable lung damage, deteriorating breathing problems, and airway obstruction. A someone with advanced COPD might not be able to climb stairs or prepare food. They could require prescription drugs and more oxygen. The third most common cause of mortality in the US in 2014 was COPD.

What constitutes COPD's four stages?

According to the type and severity of their symptoms, their history of symptom progression, and the presence of additional medical diagnoses that could either cause or exacerbate their symptoms, doctors can determine whether a patient has COPD using the COPD Gold Guidelines from the Global Initiative for Chronic Obstructive Lung Disease [5].

The recommendations also categorise the severity of airflow limitation in COPD based on Forced Expiratory Volume (FEV). During a spirometry test, FEV measures how much air a person can expel in a single second from their lungs. The more breathing problems a someone have, the lower the value. Four categories are used by health specialists to categorise the degree of airflow restriction [6].

Symptoms

The following symptoms of COPD may be present in some or all patients: wheezing, exhaustion, dyspnea, especially after exertion, a persistent cough, excessive sputum production, and shortness that gets worse over time. In addition, someone with severe symptoms could experience bluish tinge to the lips or fingernail beds, talkative shortness of breath, decreased mental alertness, and a quick heartbeat [7].

Anyone exhibiting any serious symptoms ought to see a doctor right away. A person may not be aware that they have COPD if their symptoms are minimal. Although COPD has been identified in about 6.4 percent of Americans, its true incidence may be far higher [8].

People with COPD are more prone to chest infections, such as the common cold, flu, and pneumonia, since their lungs are not functioning as effectively as they should.

Other symptoms of COPD include:

- Unintended weight loss; lower-leg oedema; itching; dry mouth; and sexual issues
- Sleepiness; lethargy; bloating; bladder issues; dizziness

Reasons and danger signs

Up to 75% of COPD sufferers in the US currently or previously smoke. In addition to smoking, other factors that increase the risk of developing COPD include exposure to secondhand smoke, other air pollutants, and toxins, whether at home or at work. Rarely, asthmatic individuals may also be at risk due to genetics, which may result in a lack of the protective protein alpha-1 antitrypsin, or they may have a family history of the disease [9].

If COPD appears before the age of 40, there is typically an

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underlying medical condition, such as a deficit in alpha-1 antitrypsin. Due to the inflammation and narrowing of the airways caused by asthma, COPD risk can be increased. However, asthmatic damage is typically repairable with medication [10].

Diagnosis

Coughing and breathing issues can be brought on by a number of conditions. These symptoms last and get worse over time in COPD patients.

A doctor can recognise COPD by:

- Takes personal and family medical history into account
- Inquires about past smoking habits and exposure to other contaminants
- Examines the patient physically and listens to their respiration with a stethoscope.

Carries out or asks for:

- A test of lung function
- A test of the arterial blood to determine the blood's oxygen content
- Imaging examinations, such as a CT scan or X-ray

Spirometry, a lung function test, assesses the volume and rate of airflow during a brief breath. A spirometer, which measures spirometry, receives a forceful breath from the user and outputs a reading.

This test and others like it can detect COPD or help rule out other illnesses.

The Global Initiative for Chronic Obstructive Lung Disease recommendations will also be used by the physician to evaluate the symptoms of COPD and the likelihood that they will deteriorate.

Discussion

Treatment

For COPD, there is no cure. The goal of treatment is to control the symptoms in order to enhance quality of life, lower the risk of consequences, and halt the advancement of the underlying medical conditions.

Quitting smoking

Smoking cessation can lessen COPD symptoms and reduce the disease's progression. Additionally, doing so can avert COPD. Learn how to control nicotine withdrawal here.

Avoiding air pollution

People should try to limit their exposure to air pollution wherever possible.

This could involve:

- Keeping open fires at bay
- Requesting that no one nearby smoke
- Avoiding areas where individuals are using insect repellent or paint spray
- Keeping the windows closed at home when the air quality is bad

- Operating in an environment that is dusty while wearing safety gear, such as a mask

Drug therapies

Medications can aid in controlling the symptoms of COPD and avoiding consequences.

A doctor may recommend an inhaler that contains a number of medications to help with breathing. For instance, an inhaler may contain a drug known as a bronchodilator to ease breathing by relaxing the muscles around the airways [11].

A glucocorticoid, a class of corticosteroid that can lessen inflammation in the airways, may also be present in an inhaler. Some inhalers are intended for occasional use. They take immediate action and last for a short time. They may ease breathing when a COPD flare-up occurs. Some are intended for continuous, daily use [12, 13].

In order to assist control worsening symptoms and flare-ups, the doctor may modify the medication regimen during subsequent appointments. They might also suggest vaccination against the flu and pneumonia as well as medications to treat any developing acute bacterial infection [14].

Even with an efficient inhaled treatment for COPD, a patient may nevertheless endure recurrent flare-ups that necessitate hospitalisation. To lessen the frequency of flare-ups, the doctor may suggest the oral anti-inflammatory drug roflumilast (Daliresp) or the oral antibiotic azithromycin (Zithromax).

Since researchers haven't yet explicitly compared the effectiveness of the two drugs, doctors typically make their decision based on expected adverse effects. Find out more about controlling a COPD flare-up [15].

Oxygen treatment

This treatment, which involves breathing oxygen through a device a mask or nasal prongs attached to a tank, may be advised by a doctor if blood oxygen levels are low.

This can be used at home, either constantly or only during particular times of the day.

Surgery

For some COPD sufferers, the following procedures may be an option:

- A single or double lung transplant;
- A bullectomy to remove the bigger air sacs that interfere with breathing;
- Lung volume reduction surgery, which involves removing damaged lung tissue;
- The implantation of endobronchial valves in the area of the lung that has the most damage;
- To implant endobronchial valves, a surgeon needs specialised training and tools.

Symptom management

There are numerous ways to lessen the effects and development of COPD.

Breath control drills

Examples of these include diaphragmatic breathing, also known as "belly breathing," and pursed-lip breathing.

Rehabilitation of the lungs

The purpose of pulmonary rehabilitation is to improve a patient's quality of life and activity level.

- Increasing exercise tolerance
- Practising breathing techniques
- Changing one's diet
- Learning about the lungs
- Learning how to take medication most efficiently
- Learning how to conserve energy and lessen dyspnea
- Learning about the lungs. Counselling sessions to handle any anxiety or despair

Complications

People who have COPD are more likely to:

Mobility issues brought on by breathing difficulties;

- Mental health conditions like depression;
- Fair or poor general health;
- Additional chronic illnesses like heart disease, diabetes, or asthma;
- Confusion and memory loss;
- A loss of employment and money; and social isolation.

Attending all doctors' appointments and following up with the healthcare team might assist manage or prevent issues.

Diet Tips for People with Chronic Obstructive Pulmonary Disease

Although a nutritious diet won't cure COPD, it can aid your body in warding off illnesses like chest infections that might necessitate hospitalisation. You may feel better if you eat healthfully. It need not be dull or challenging to maintain a healthy diet while managing this illness. Just stick to these dietary recommendations. A diet with less carbohydrate produces less carbon dioxide. It might make it easier for those who have COPD to manage their health [16].

The carbon dioxide emission and carbon dioxide end-tidal partial pressure (PETCO₂) of healthy people who followed a ketogenic diet were found to be lower than those who followed a Mediterranean diet, according to a study published in the Lung journal in 2015 [17]. Furthermore, a 2003 Trusted Source study found that taking a high-fat, low-carb supplement instead of eating a high-carb diet helped persons with COPD. A balanced diet includes a range of foods even when carbohydrates are restricted. Try including these foods into your everyday diet [18].

Protein-rich foods: Consume high-protein, high-quality foods like fish, particularly oily fish like salmon, mackerel, and sardines, pastured chicken and eggs, and grass-fed meat.

Complex carbohydrates: If you do consume carbohydrates, choose complex carbohydrates. These meals have a lot of fibre, which helps the

digestive system work better and regulate blood sugar. Include peas, bran, potatoes with the skin on, lentils, quinoa, beans, oats, and barley in your diet.

Fresh produce: Essential vitamins, minerals, and fibre can be found in fresh fruits and vegetables. These nutrients will support the wellness of your body. Non-starchy veggies can be incorporated into any diet because they are low in carbohydrates (apart from peas, potatoes, and maize). Some fruits and vegetables are better choices than others; for more information, see the list of foods to stay away from in the next section.

Foods high in potassium: Since potassium is essential for lung health, a lack can lead to breathing problems. Eat more of the following foods to increase your intake of potassium: avocados, dark leafy greens, tomatoes, asparagus, beets, potatoes, bananas, and oranges.

Healthy fats: When opting to consume a higher fat diet, choose snacks and meals that contain fats such as avocados, nuts, seeds, coconut and coconut oil, olives and olive oil, fatty fish, and cheese rather than fried foods. In the long run, these meals will offer better total nourishment.

Understand the pitfalls: Certain foods might create difficulties such as gas and bloating or may have little to no nutritional value. Avoid or limit the following foods:

Salt: A diet high in sodium or salt leads to water retention, which may impair breathing. Don't salt your food, and take the salt shaker from the table. To flavour meals, use unsalted herbs and spices. Ask your dietician or other healthcare professional for information on low-sodium salt replacements. They might have components in them that are harmful to your health. Contrary to popular belief, the majority of sodium consumption comes from the food itself rather than the salt shaker. Make sure to read the food labels before purchasing. Each portion of your snacks shouldn't have more sodium than 300 milligrams (mg). No more than 600 mg should be present in a whole meal.

Fruits: Due to their fermentable carbohydrates, apples, stone fruits like apricots and peaches, and melons may give some people bloating and gas. People with COPD may experience breathing issues as a result of this. Instead, concentrate on fruits like berries, pineapple, and grapes that are low in fermentable or fodmaps. You can include these foods in your diet, though, if they aren't a problem for you and your carbohydrate goal permits fruit.

Vegetables and legumes: Vegetables and legumes that are known to produce gas and bloating are numerous. What counts is how your body functions. You might want to watch how much of the following foods you eat. Beans, Brussels sprouts, cabbage, cauliflower, maize, leeks, certain lentils, onions, peas, and soybeans may also induce gas, but you can still enjoy them if they don't bother you.

Dairy products: Some people discover that dairy items like milk and cheese cause their phlegm to become thicker. You can keep consuming dairy products, though, if they don't seem to worsen your phlegm.

Chocolate: Caffeine, which is present in chocolate, may affect your medicine. To learn whether you should avoid or limit your intake, speak with your doctor.

Fried foods: Fried, deep-fried, or oily foods can give you gas and indigestion. Foods with a lot of spice might be uncomfortable and have an impact on your respiration. When possible, stay away from these meals.

Monitor alcohol intake:

People who have COPD should make an effort to hydrate themselves well throughout the day. It is advised to drink six to eight 8-ounce cups of caffeine-free beverages daily. Water intake that is adequate maintains mucus thin and facilitates coughing out. Caffeine should be consumed in moderation or avoided altogether as it may affect your medicine. Coffee, tea, soda, and energy drinks like Red Bull are among the beverages that contain caffeine. Consult your doctor regarding alcohol. Due to their potential for interactions with drugs, alcohol use may be discouraged or restricted. Additionally, drinking alcohol may slow your breathing and make it more difficult for you to cough out phlegm. Additionally, if you have been diagnosed with both COPD and heart disease, consult your physician. People with cardiac issues may occasionally need to decrease their fluid consumption [19].

Keep an eye on your weight in both directions.

People with emphysema tend to be underweight, while those with chronic bronchitis tend to be obese. As a result, evaluation of diet and nutrition is crucial to the management of COPD [20].

Obesity: Being overweight causes your heart and lungs to work harder, which makes breathing more challenging. The need for oxygen may rise as a result of excess body weight. By adhering to a personalised food plan and a doable exercise routine, your doctor or dietitian can provide you advice on how to lose weight and maintain a healthy body weight.

Underweight: Some COPD symptoms, such as loss of appetite, depression, or a generalised sensation of ill health, might make you underweight. You might feel weak and exhausted if you're underweight, and you might be more prone to infections. You must exert more effort to breathe when you have COPD. A person with COPD may burn up to ten times as many calories while breathing as someone without COPD, according to the Cleveland Clinic. You must incorporate nutritious, high-calorie snacks in your diet if you are underweight [21]. You should include the following items to your shopping list: granola, cheese, milk, eggs, oats, quinoa, and beans.

Outlook: COPD can be fatal, and a person's life expectancy mostly relies on whether or not they smoke as well as the degree of lung damage already present. In addition to the 4 years that smoking alone reduces life expectancy, people who smoke and have advanced COPD may lose about 6 years of that life expectancy. Smokers can lower their risk by quitting as soon as feasible since COPD cannot be reversed.

Conclusion

COPD is a lung disease that cannot be cured and results in breathing problems. A person with COPD may have emphysema, chronic bronchitis, or both. Although there is no cure, medication can help control the symptoms and improve quality of life. Anyone who is diagnosed with COPD should take steps to safeguard their lungs. Quitting smoking is crucial for smokers.

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Conflict of Interest

None

References

- Salvi SS, Barnes PJ (2009) Chronic obstructive pulmonary disease in non-smokers. *Lancet* 374: 733-743.
- Brashier B, Londhe J, Madas S, Vincent V, Salvi S (2012) Prevalence of self-reported respiratory symptoms, asthma and chronic bronchitis in slum area of a rapidly developing Indian city. *Open J Respir Dis* 2: 73-81.
- de Marco R, Accordini S, Cerveri I, Corsico A, Sunyer J, et al. (2004) An international survey of chronic obstructive pulmonary disease in young adults according to GOLD stages. *Thorax* 59: 120-125
- Csikesz NG, Gartman EJ (2014) New developments in the assessment of COPD: early diagnosis is key. *Int J Chron Obstruct Pulmon Dis* 9: 277-286.
- Gordon S, Mortimer K, Grigg J, Balmes J (2017) In control of ambient and household air pollution-how low should we go? *Lancet Respir Med* 5: 918-920.
- Mannino DM, Homa DM, Akinbami LJ, Ford ES, Redd SC (2002) Chronic obstructive pulmonary disease surveillance - United States, 1971-2000. *MMWR Surveill Summ* 51: 1-16.
- Snider GL (2003) Nosology for our day: its application to chronic obstructive pulmonary disease. *Am J Respir Crit Care Med* 167: 678-683.
- Celli BR, MacNee W (2004) Standards for the diagnosis and treatment of patients with COPD: a summary of the ATS/ERS position paper. *Eur Respir J* 23: 932-946.
- Pellegrino R, Viegi G, Brusasco V, Crapo RO, Burgos F, et al. (2005) Interpretative strategies for lung function tests. *Eur Respir J* 26: 948-968.
- Mannino DM, Doherty DE, Sonia AS (2006) Global Initiative on Obstructive Lung Disease (GOLD) classification of lung disease and mortality: findings from the Atherosclerosis Risk in Communities (ARIC) study. *Respir Med* 100: 115-122.
- Flegal KM, Carroll MD, Kuczmarski RJ, Johnson CL (1998) Overweight and obesity in the United States: prevalence and trends, 1960-1994. *Int J Obes Relat Metab Disord* 22: 39-47.
- Lamb D, Gillyool M, Farrow AS (1991) Microscopic emphysema and its variations with age, smoking, and site within the lungs. *Ann NY Acad Sci* 624: 339-340.
- Franceschi C, Bonafè M, Valensin S, Olivieri F, De Luca M, et al. (2000) Inflamm-aging. An evolutionary perspective on immunosenescence. *Ann NY Acad Sci* 908: 244-254.
- Hogg JC, Timens W (2009) The pathology of chronic obstructive pulmonary disease. *Annu Rev Pathol* 4: 435-459.
- Postma DS, Timens W (2006) Remodeling in asthma and chronic obstructive pulmonary disease. *Proc Am Thorac Soc* 3: 434-439.
- Zhu J, Qiu YS, Majumdar S, Gamble E, Matin D, et al. (2001) Exacerbations of bronchitis: bronchial eosinophilia and gene expression for interleukin-4, interleukin-5, and eosinophil chemoattractants. *Am J Respir Crit Care Med* 164: 109-116.
- Brandsma CA, Hylkema MN, van der Strate BW, Geerlings M, Luinge MA, et al. (2008) Heme oxygenase-1 prevents smoke induced B-cell infiltrates: a role for regulatory T cells? *Respir Res* 9: 17.
- Jeffery PK (2000) Comparison of the structural and inflammatory features of COPD and asthma. Giles F. Filley Lecture. *Chest* 117: 251S-260S.
- Zandvoort A, Postma DS, Jonker MR, Noordhoek JA, Vos JTVM, et al. (2006) Altered expression of the Smad signalling pathway: implications for COPD pathogenesis. *Eur Respir J* 28: 533-541.
- McDonough JE, Yuan R, Suzuki M, Seyednejad N, Elliott WM, et al. (2011) Small-airway obstruction and emphysema in chronic obstructive pulmonary disease. *N Engl J Med* 365: 1567-1575.
- McWilliams AM, Mayo JR, Ahn MI, MacDonald SL, Lam SC (2006) Lung cancer screening using multi-slice thin-section computed tomography and autofluorescence bronchoscopy. *J Thorac Oncol* 1: 61-68.

