Chronic obstructive pulmonary disease

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Introduction

Chronic obstructive pulmonary disease (COPD) is a common and treatable disease characterized by respiratory symptoms and airflow limitation caused by exposure to noxious particles or gases. Emphysema is a condition in which the alveoli at the end of the smallest air passages (bronchioles) of the lungs are destroyed as a result of damaging exposure to cigarette smoke and other irritating gases and particulate matter. COPD may include Shortness of breath, during physical activities, Wheezing, Chest tightness, Frequent respiratory infections, Lack of energy, Unintended weight loss, Swelling in ankles. Narrowing of the airways occurs due to inflammation and scarring within them. This contributes to the inability to breathe out fully. The greatest reduction in air flow occurs when breathing out, as the pressure in the chest is compressing the airways at this time. Low oxygen levels, and eventually, high carbon dioxide levels in the blood, can occur from poor gas exchange due to decreased ventilation from airway obstruction, hyperinflation, and a reduced desire to breathe. Spirometer measures the amount of airflow obstruction present and is generally carried out after the use of a bronchodilator, a medication to open up the airways. Screening using spirometer in those without symptoms has uncertain effect and is generally not recommended. However, it is recommended for those without symptoms but with a known risk factor. During exacerbations, airway inflammation is also increased, resulting in increased hyperinflation, reduced expiratory airflow, and worsening of gas transfer. This can also lead to insufficient ventilation, and eventually low blood oxygen levels. The main cause of COPD is tobacco smoking. COPD often occurs in people exposed to burning fuel for cooking and heating in poorly ventilated homes.

Only some chronic smokers develop COPD. Some smokers develop less common lung conditions. They may be misdiagnosed as having COPD until a more thorough evaluation is performed. The combination of asthma and smoking increases the risk of COPD. COPD causes lungs to lose their elasticity and over-expand, which leaves some air trapped in your lungs when you exhale. Chronic bronchitis inflames and narrows bronchial tubes and lungs produce more mucus, which blocks the narrowed tubes. Inhaled drugs are used in the pharmacological treatment of COPD. Pressurized metered-dose inhalers, dry powder inhalers and nebulizers are also widely used for the treatment of COPD. Inhaling the appropriate volume of medication, inhalation rate, compatibility between inspiration and drug inhalation, preparing medication, breathing out before inhaling and holding the breath for a period of time after inhaling are some of the main skills needed. While individuals with COPD struggle with the negative symptoms caused by the disease, their self-efficacy decreases. In this sense, it is also difficult for inhabitants to take medicines properly, which are used to combat symptoms. It is believed that the education given to individuals with COPD can increase self-efficacy in this sense, and by enabling the patient to use the inhaler appropriately, it will be able to cope with symptoms. People with COPD are more likely to catch colds, flu and pneumonia. Any respiratory infection can make it much more difficult to breathe and could cause further damage to lung tissue. It can increase your risk of heart disease, including heart attack, Lung cancer, pulmonary hypertension, Depression. In those who smoke, stopping smoking is the only measure shown to slow down the worsening of COPD. Even at a late stage of the disease, it can reduce the rate of worsening lung function and delay the onset of disability and death. No cure for COPD is known, but the symptoms are treatable and its progression can be delayed. COPD may need to be differentiated from other causes of shortness of breath such as congestive heart failure, angina, pulmonary embolism, pneumonia, pulmonary hypertension, severe anaemia, asthma, or pneumothorax. Many people with COPD mistakenly think they have asthma. People with COPD can experience flare-ups that are often triggered by a viral or bacterial respiratory infection. The major goals of management are to reduce risk factors, manage stable COPD, prevent and treat acute exacerbations, and manage associated illnesses. The only measures that have been shown to reduce mortality are smoking cessation and supplemental oxygen. A chest X-ray and complete blood count may be useful to exclude other conditions at the time of diagnosis. Characteristic signs on X-ray are hyperinflated lungs, a flattened diaphragm, increased retrosternal airspace, and bullae. While a chest X-ray can help exclude other lung diseases, such as pneumonia, pulmonary edema, or a pneumothorax, it is not meant to definitively diagnose COPD. Palliative care may reduce symptoms, with morphine improving the feelings of shortness of breath. Non-invasive ventilation may be used to support breathing. Acute exacerbations are typically treated by increasing the use of short-acting bronchodilators. This commonly includes a combination of a short-acting inhaled beta agonist and anticholinergic. These medications can be given either via a metered-dose inhaler with a spacer or via a nebulizer, with both appearing to be equally effective. Nebulization may be easier for those who are more unwell. Oxygen supplementation can be useful. Excessive oxygen; however, can result in increased CO2 levels and a decreased level of consciousness. Corticosteroids are usually used in inhaled form, but may also be used as tablets to treat acute exacerbations. While inhaled corticosteroids have not shown benefit for people with mild COPD, they decrease acute exacerbations in those with either moderate or severe disease. Long-term antibiotics, specifically those from the macrolide class such as erythromycin, reduce the frequency of exacerbations in those who have two or more a year. This practice may be cost effective in some areas of the world. Concerns include the potential for antibiotic resistance and side effects including hearing loss, tinnitus, and changes to the heart rhythm. Minimally invasive bronchoscopic procedures may be carried out to reduce lung volume. These include the use of valves, coils, or thermal ablation. Endobronchial valves are one-way valves that may be used in those with severe hyperinflation resulting from advanced emphysema; a suitable target lobe and no collateral ventilation are required for this procedure.

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