

Chronic cough

The ability to cough is an important part of normal lung function. Coughing from time to time helps clear particles and secretions from the lungs and prevent infection. However, sometimes a cough can become a chronic condition that requires a medical evaluation.

Chronic cough is usually defined as a cough that lasts for three weeks or longer. It is a very common problem, and is the fifth most common symptom for which outpatient care is sought.

Although chronic cough is usually not serious, it can be associated with a variety of unpleasant effects, including physical exhaustion, self-consciousness, insomnia, headache, dizziness, muscle strain, hoarseness, excessive perspiration, and leakage of urine during coughing. In addition, the patient's mood may be disturbed because of an underlying worry that "something is wrong."

In almost all cases, an underlying cause for chronic cough can be found and treated.

CAUSES OF CHRONIC COUGH – The most common causes of chronic cough are postnasal drip, asthma, and gastroesophageal reflux disease (GERD) [1]. These three causes are responsible for up to 90 percent of all cases of chronic cough. Less common causes include infections, medications, and chronic lung diseases.

Postnasal drip – Postnasal drip is the most common cause of chronic cough. Postnasal drip is a condition that develops when secretions from the nose chronically drip into the back of the throat. These secretions can cause throat inflammation and trigger a cough.

Underlying causes of postnasal drip include allergies, colds, and sinusitis. In addition, some people have chronic inflammation of the nasal passages and runny nose, which can also cause postnasal drip.

People with postnasal drip may complain of symptoms including stuffy or runny nose, sensation of liquid in the back of the throat, or frequent throat clearing. However, some people have so-called "silent" postnasal drip; they have postnasal drip but don't realize it. The physician will sometimes suspect postnasal drip based on the appearance of the patient's throat. The physician will always consider, and sometimes treat, postnasal drip in a patient with chronic cough when no other apparent cause is present.

Asthma – Asthma is generally reported to be the second most frequent cause of chronic cough in adults, and is the leading cause in children. A cough due to asthma is

often accompanied by wheezing and shortness of breath. However, some people have a condition, known as cough variant asthma, in which cough is the **only** symptom of asthma. (See "Patient information: Overview of managing asthma").

A diagnosis of asthma as the cause of the cough is also suspected when the patient has a history of multiple allergies, or has a family history of asthma. Asthma-related cough may be seasonal, may follow an upper respiratory infection, or may get worse on exposure to cold, dry air, or certain fumes or fragrances.

Gastroesophageal reflux disease – Gastroesophageal reflux disease, or GERD, is a disease in which acid from the stomach flows back (refluxes) into the tube connecting the stomach and the throat (the esophagus). The presence of this acidic material in the esophagus, and/or its subsequent presence in the throat or even the lungs, can lead to chronic irritation and coughing. (See "Patient information: Gastroesophageal reflux disease").

GERD is believed to be the third most common cause of chronic cough. Many patients with cough due to GERD complain of symptoms including heartburn or a sour taste in the mouth. However, these symptoms are absent in more than 40 percent of patients with cough due to reflux.

Other causes – A number of other conditions can lead to chronic cough. These include:

Respiratory tract infection – An infection such as a cold can sometimes cause a cough that lasts more than eight weeks. This may be due to postnasal drip (as described above), or to sensitivity or inflammation of the airways that came about because of the infection. Some studies have suggested that a certain percentage of adults with chronic cough following an upper respiratory infection may have pertussis, or whooping cough.

Use of ACE inhibitors – Medications known as angiotensin converting enzyme (ACE) inhibitors are known to cause chronic cough in up to 20 percent of patients who take them. ACE inhibitors are used in the treatment of heart disease, high blood pressure, and kidney disease. The reason these medicines cause cough is not entirely clear, but may be related to chemical changes that lead to stimulation of cough receptors in the airways.

Chronic bronchitis – Chronic bronchitis is a condition in which there is long-standing inflammation of the airways, with coughing and the production of sputum. Most patients with chronic bronchitis are smokers or have a history of smoking. The sputum produced with chronic bronchitis is typically clear or white.

Bronchiectasis – Bronchiectasis refers to airway damage that results from severe, repeated, or ongoing airway infection and inflammation. The air sacs become dilated, secretions pool in the airways, and chronic cough with sputum production results.

Lung cancer – Although lung cancer can cause coughing, **very few** patients who seek treatment for chronic cough have lung cancer as a cause. Cancer is often suspected in a smoker whose chronic cough changes suddenly, or who continues to cough more than one month after quitting smoking. Coughing up blood can sometimes be seen with lung cancer.

Eosinophilic bronchitis – Eosinophilic bronchitis is a condition in which a patient has many symptoms suggestive of asthma, including cells called eosinophils in the sputum, but does not have the abnormal lung function typical of asthmatic disease. Eosinophilic bronchitis is an increasingly recognized cause of chronic, dry cough in adults, particularly in patients for whom no other cause can be found.

DIAGNOSIS – The doctor will ask the patient for a careful, detailed description of the history of the cough, and of any other symptoms that may be present. In particular, the doctor will be interested in symptoms suggesting postnasal drip, asthma, or GERD [1]. Taken together, these three conditions account for 90 percent of cases of chronic cough. In one study, these conditions were responsible for 99.4 percent of cases of cough in patients who were nonsmokers, did not take ACE inhibitors, and had normal (or near normal) and stable chest X-rays.

In most cases, the history and the patient's response to treatment (see below) give the doctor enough information to determine the probable cause of the cough. The doctor may wish to obtain a chest X-ray as part of the initial evaluation.

If asthma is suspected but cannot be confirmed, the doctor may perform lung function tests. These allow the doctor to study the pattern of air flow into and out of the lungs. A test called a methacholine challenge may also be used to help diagnose asthma. In this test, lung function is measured before and after a patient inhales a medicine called methacholine. A patient with asthma will have a decrease in lung function after inhaling this medicine. The effect of this medicine is short-lived, easily reversed with additional medication, and generally not noticeable to the patient. It is a safe and commonly used test.

If the doctor needs additional information to confirm a diagnosis of GERD, a test may be ordered in which the acidity of the fluid in the esophagus is measured using a small probe that the patient swallows. Prolonged periods of high acidity suggest the presence of GERD.

If lung disease, such as bronchiectasis or lung cancer, is suspected, additional tests and a referral to a lung specialist may be required.

TREATMENT – Treatment of chronic cough should be directed at the underlying cause [2]. Treatment of the most common causes of chronic cough is discussed here. Patients with lung disease or less common causes of cough may be treated differently.

Treatment of postnasal drip – Patients with or without symptoms of postnasal drip may be treated for this condition to see if the cough improves. Therapy may include antihistamines and decongestants [3], nasal steroids, or ipratropium nasal spray. If sinusitis is suspected as the cause of the postnasal drip, antibiotics may be helpful.

Treatment of cough variant asthma – Patients whose cough is due to asthma will receive standard treatment for asthma, which includes inhaled bronchodilators and inhaled steroids. These inhaled medicines act to decrease inflammation (swelling) of the airways. In some cases, oral steroids are given for a limited period of time. (See "Patient information: Overview of managing asthma").

Treatment of gastroesophageal reflux – Cough due to GERD usually responds to a regimen that includes one or more of the following:

- Avoiding intake of substances that increase reflux, such as foods with high fat content, chocolate, and excessive alcohol
- Cessation of smoking
- Eating three meals a day without snacking
- Avoiding meals for two to three hours before lying down
- Elevating the head of the bed while sleeping
- Taking medication to decrease acidity in the stomach

These measures are usually effective in someone with confirmed GERD, but the time it takes for patients to see improvement in cough can be as long as six months. (See "Patient information: Gastroesophageal reflux disease").

Other – Many patients with chronic cough following respiratory infections respond well to treatment for postnasal drip, or cough variant asthma. Patients who develop a cough while on ACE inhibitors will usually be advised to replace the ACE inhibitor with a different medicine to see if the cough improves.

Finally, so-called nonspecific therapies are available for patients in whom the exact cause of cough cannot be found, or in whom additional treatment is needed. Cough medicines such as dextromethorphan or codeine or can be used to help suppress the cough reflex. Codeine is a narcotic and is generally used only if non-narcotic medicines have not been effective. Inhaled steroids, which are used to treat asthma, may sometimes be used for non-asthmatic patients to help manage cough. Inhaled ipratropium, which can be used for cough that follows an infection, can also be used as non-specific therapy when a cause of the cough is not known.

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