

WHY DO WE COUGH?

COUGHING IS A REFLEX PROCESS BY WHICH OUR BODY GETS RID OF LUNG secretions within it. It can also occur when substances from outside the lungs irritate the upper airway. Coughing can also be an important factor in the spread of infection and is one of the most common complaints for which patients seek medical attention.

The upper airway is that part of our respiratory system that extends from the nostrils to the larynx (voice-box). It serves to protect the lower airway (the lungs). The upper airway protects the lower airway by filtering, humidifying and preventing the liquids and food that we take via the mouth from passing accidentally into the lower airway – it prevents food and liquid from being aspirated into the lungs. When there is fluid or other aspirated substances within the upper or lower airways it can trigger the cough receptors within these airways to initiate the cough reflex. The diaphragmatic and intercostal rib muscles contract to expel air in the lungs out to dislodge the secretions and other irritants out through the mouth.

A cough therefore occurs when we accidentally aspirate fluid or food when we talk or laugh when eating. This is a normal response and settles after the offending substance is expelled. Coughs that persist for several hours for days are abnormal and most commonly indicate problems in the lower or the upper airway.

The most common cause of a cough that persists for several hours or days is from a viral cold or flu infection of the respiratory tract involving both upper and lower airways. There are symptoms of sore throat, blocked nose and phlegm in the throat coming from the nose and sinuses (post nasal drip or catarrh) with symptoms of chest tightness and congestion from inflammation of the bronchus.

Viral infections are self limiting and clear after about five days to a week. It's important to have enough rest and hydration when ill with a cough, with symptomatic treatment to allow for uncomplicated recovery. A persistent cough is defined as that which is present for more than three weeks. In Singapore, children commonly experience persistent cough due to asthma and cough-variant asthma. In older children and adults, either post nasal drip (PND) syndrome alone or in combination with other conditions, is the most single common cause of persistent cough. The cough of asthma occurs usually in the early morning or late night – there may or may not be wheezing and the cough and breathlessness is triggered by flu or cold or vigorous exercises or a smoky environment as when the "haze" occurs. Locally, one in five children has asthma. Singapore has the highest incidence of asthma in the Asia-Pacific area for six to seven years olds.

Post nasal drip syndrome is second only to asthma as a cause of chronic cough in children and is most likely the principal cause of chronic cough in young adults. In children and adults with a sensitive nose, PND manifests itself with excessive mucus production which drips onto the back of the nose and down the throat causing a throat irritation. The cough occurs usually at night, when the child or adult lies down. It can also present as an irritating cough throughout the day with the constant clearing of the throat. There are often associated symptoms of a persistent nose blockage with nasal discharge and phlegm that lasts for more than seven days.

Gastro-esophageal reflux disease (GERD) is common in the older adult and

even in young children as the cause of chronic cough. It occurs when stomach content (mainly acid) gets backed up in to the gullet or esophagus. It can result from lower esophageal sphincter weakness, poor gastric emptying and over production of acid in the stomach (hyperacidity). The typical heartburn and bitter or sour taste in the mouth is often not present. Often there is chronic cough with hoarseness and a feeling of pain or a lump in the throat.

Lower respiratory tract infections such as bronchitis and bronchiolitis and pneumonia are infections mostly of viral origin but secondary bacterial super infections often intercede. Noteworthy non-viral conditions include pertussis (aka whooping cough or 100-day cough), which causes coughs that may last up to three months. Pertussis is uncommon now due to effective immunisation of young infants. Mycoplasma infection is the most common non-viral agent causing acute bronchitis especially in children younger than five years old but it can occur in out-breaks among teens and adults. It is also called "walking pneumonia" as the patient may be relatively well with minimal fever and a prolonged cough. Pulmonary tuberculosis still exists in Singapore, and lately more importantly, cases are resistant to the usual anti-TB drugs.

Chronic obstructive pulmonary disease (COPD), is another common cause of chronic cough in the older adult (above 45 years). It's associated with a long history of cigarette smoking and occupational exposure to irritant fumes and dust in industry. The airways in the lungs are damaged and replaced by scar tissue and there is excessive production of mucus within the airways. This needs to be expelled by coughing. There is a reduction in the lung function as the primary function of the lungs – the oxygenation of blood – is compromised.

Finally, a not uncommon cause of chronic cough is drug-induced of which the use of ACE-inhibitor is well known. ACE inhibitors are a class of medication used to treat high blood pressure and heart failure. As much as one in five people who take the drugs develop a dry cough. In some people, the cough can persist for weeks after they stop taking the medication. This drug must be substituted with another class of anti-hypertensive if coughing is an issue. ■

