Which cough mixture should be used to treat a dry cough and a productive cough?

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What causes coughing?

Irritants and allergens

An irritant or allergen may cause coughing, due to sensitivity or allergic reactions. Examples include smoking or inhaling second-hand smoke, air pollution, paint fumes, dust, or pollen from trees, grasses and flowers.

Medical conditions

Most acute coughs are caused by viral infections of either the upper- or lower-respiratory tract, and usually clear up on their own. Other possible causes for an acute cough include allergic rhinitis, pneumonia, or an exacerbation of an underlying lung disease, e.g. bronchitis.

The most common causes of chronic coughing are postnasal drip, asthma and acid reflux. Causes of chronic coughing may differ between adults and children.

Medicines

Medicines, for example angiotensin-converting enzyme inhibitors and beta blockers, may cause a chronic cough.

Treatment of coughing

There has been much debate surrounding the clinical value of cough mixtures. Currently, there is limited proof that they work, and because coughing is important in maintaining the health of the lungs, their use may not always be indicated. The potential side-effects of cough mixtures, especially in children, are another important concern.

Regulatory authorities in the UK and the USA have recommended that over-the-counter (OTC) medicines for coughs and colds should not be given to children under the age of six years due to the risk of side-effects, which they believe to outweigh any potential benefit provided by the medicines.

In South Africa, the Medicines Control Council reviewed safety data and advised that manufacturers update their package inserts for promethazine-containing medicines to state that these products are contraindicated for use in children under the age of two years.

Nevertheless, research shows that many patients who take cough medicines consider them to be effective.
To successfully treat a cough, it is important to find out what underlying condition is causing it. Most acute coughs are self-limiting, and improve within a few days, with or without treatment.

The following situations may require referral:

• Coughs that last longer than two weeks.
• Patients who were treated previously with appropriate cough remedies without success.
• Cases in which severe infection is suspected.
• Where symptoms such as chest pain, shortness of breath, wheezing, croup or whooping cough, are present.
• If the cough is suspected to be due to the patient’s prescribed medicine.
• If there is a history of heart disease in a patient with a persistent cough.
• Night-time coughing in patients with asthma indicates a decline in the level of asthma control, and requires referral.
• Gastro-oesophageal reflex disease may also cause coughing, and should be treated appropriately if this is the suspected cause.

Once patients with potentially serious conditions have been referred, OTC cough medicines can be helpful in cases where a cough is particularly annoying. A number of options are available, and recommended treatment depends on whether the cough is dry or productive.

Expectorants may be used in the treatment of productive coughs as they loosen the mucus, making it easier to “cough up”. Expectorant ingredients include guaiphenesin, ammonium chloride, sodium citrate and ipecacuanha. Getting enough fluids and steam inhalation may also assist with expectoration.

Mucolytics decrease the viscosity of the mucus, making it easier to cough up. Examples of mucolytics that are used in the treatment of productive coughs are acetylcysteine, carbocysteine, bromhexene and mesna.

Demulcents, such as honey, lemon, or simple linctus BP, coat the throat, soothe inflammation and reduce irritation. They may be used in the treatment of both productive and dry coughs, and are particularly useful in children and pregnant women as they contain no active ingredients.

Cough suppressants, such as dextromethorphan, noscapine, pholcodine and codeine phosphate, act by suppressing the cough centre in the brain, and should only be used to treat dry coughs. Suppression of a productive cough could lead to the retention of mucus in the airways, increasing the risk of infection.

Antihistamines that are used in cough preparations include the first-generation antihistamines, diphenhydramine, promethazine and triprolidine. These antihistamines act as cough suppressants. They may also reduce coughing by drying up postnasal mucous production. The first-generation antihistamines appear to be more effective than non-sedating antihistamines because they have greater anticholinergic activity. Their sedative effect may also be helpful when treating nocturnal coughs.

Sympathomimetics, such as pseudoephedrine or ephedrine, are sometimes included in cough and cold preparations. They may be effective due to their decongestive effects, as well as their ability to relax the airways. They may cause sleeplessness if taken at night.

Bronchodilators, such as theophylline or orciprenaline, may be prescribed if a cough is associated with a tight chest and airway narrowing, as occurs in patients with asthma. They are not considered to be of benefit when treating other forms of coughing, and usually, are not recommended for non-asthmatic patients. Due to its narrow therapeutic window, care should be taken not to recommend theophylline to a patient who is already taking theophylline for another condition.

Conclusion

Although there does not seem to be good evidence for or against the effectiveness of OTC cough medicines to treat an acute cough, patients perceive them to be effective, and may consider not being offered such treatment to be unacceptable. Once patients who present in the pharmacy have been screened and referred as appropriate, treating adults (for whom coughing is particularly distressing) with an OTC cough medicine, may be appropriate. The most suitable product should be selected, based on the patient’s symptoms. The combination of ingredients in the selected product should be rational, with fewer rather than several active ingredients. Special care should be taken when treating children.

Bibliography