

Practice Tips

Treating persistent cough

Try a nebulized mixture of lidocaine and bupivacaine

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Coughing is a common symptom in both healthy and sick people, accounting for up to 50% of consultations with primary care physicians in winter months. In the United States, coughing, the fifth most common symptom for which patients seek medical attention, is the reason for more than 30 million visits to physicians each year.¹

Coughing is a normal mechanism of the respiratory system that protects us from potential harm. When it is associated with disease and becomes a chronic symptom, however, it can inhibit conversation, disrupt eating or sleeping, and become extremely debilitating physically and mentally. For these reasons, coughing has become the subject of scientific scrutiny even though it is often a harmless phenomenon.

In normal, healthy people, coughing serves to maintain the patency and purity of the airways. It helps the bronchial cilia to bring mucus, fluids, and inhaled foreign bodies to the larynx where they are expelled into the pharynx and either expectorated or swallowed.

A refractory cough in a patient with normal chest x-ray examination results usually falls into one of five etiologic categories: drug-induced (especially by angiotensin-converting enzyme inhibitors); secondary to postnasal discharge; as a result of gastroesophageal reflux; due to hyperactive airway disease; or idiopathic, but responsive to lidocaine.¹ A patient's history often points to the most likely cause, and empiric therapy might confirm the diagnosis.

We treated three patients who presented with intractable cough following upper respiratory tract infections. Results of their chest x-ray examinations were normal. We used a nebulized mixture containing 1 mL of 1% lidocaine hydrochloride, 1 mL of 0.5% bupivacaine, and 1 mL of saline solution. At completion of the inhalation therapy the cough stopped completely in all three cases and did not recur.

Inhalation of lidocaine has been reported to relieve intractable cough that has lasted up to several weeks in patients with malignant neoplasms.² Bupivacaine has been used to relieve cough precipitated by captopril.³ Lidocaine, an antiarrhythmic agent, is a sodium channel blocker that acts as a membrane stabilizer; it prevents ectopic and spontaneous electric activity. Sodium channel blockers can affect the peripheral and the central nervous system by blocking terminal branches of nociceptors.⁴ Lidocaine has a suppressive effect on spontaneous ectopic discharges of injured nerves without blocking normal nerve conduction.⁵ A single administration of the drug can lead to complete elimination of a persistent cough,¹ most probably through a change in the nerve-action potential setting.

Bupivacaine also acts as a membrane stabilizer, but its effect can last several hours. Nebulized local anesthetics must be administered under controlled circumstances because patients cannot eat or drink for 1¹ to several³ hours after treatment due to potential loss of gag reflex. No other adverse effects have been reported.

We prefer to combine lidocaine and bupivacaine by inhalation to achieve a good response for a prolonged period. This is a simple office management strategy that can be useful to family physicians in treating persistent cough and as palliative therapy in other circumstances. ❖

References

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