



[Print](#) :: [Close](#)

FAST FACTS AND CONCEPTS #200

Author(s): Sean Marks MD and Drew A Rosielle MD

Background Cough is a common, and at times distressing, symptom. *Fast Fact* #199 discussed the use of centrally-acting drugs – opioids – for the symptomatic treatment of cough. This Fast Fact will address peripherally-acting agents.

Controversies Commonly used prescription and over-the-counter anti-tussive formulations which contain some combination of antihistamines (e.g. diphenhydramine), a mucolytic (e.g. guaifenesin), and/or dextromethorphan are often used for acute cough due to upper respiratory infections and acute bronchitis. Evidence for these agents in the acute setting is poor (either no better than placebo or sweet syrup) and cannot be recommended. Due to concerns about inadvertent overdose and lack of efficacy, these products are now being actively discouraged for use in the pediatric setting.

Peripherally-acting Anti-tussives

- *Sweet syrups* are commonly used as cough suppressants, whether as bases for prescription elixirs (such as codeine with guaifenesin) or home remedies (honey, simple syrup). The mechanism of action is unknown; some authors hypothesize it acts as a protective barrier to sensory receptors in the throat that heighten the cough reflex. A few controlled trials have shown sweet syrups reduce coughing in upper respiratory infections.
- *Benzonatate* inhibits cough by anesthetizing stretch receptors in the respiratory tract. Its duration of action is 3-8 hours; dosed at 100-200 mg three times a day. No published controlled studies confirm its effectiveness but multiple uncontrolled studies support its use. Side effects are uncommon but include sedation, headache, bronchospasm, and nausea. Expert opinion recommends adding it to an opioid.
- *Antihistamines and anticholinergics* are often part of combination anti-tussive elixirs with or without an opioid. Anticholinergics such as hyoscyamine and scopolamine are most helpful in the setting of copious upper respiratory secretions leading to cough. See *Fast Fact* #109 for dosing information.
- *Expectorants* thin bronchial secretions and ease expectoration. Examples include guaifenesin (200-400 mg every 4 hours) and nebulized acetylcysteine or hypertonic saline. Empirically they have been recommended for severe, chronic, wet coughs. Because they may increase fluid in the respiratory tract, they are not recommended if the cough reflex is diminished.
- *Nebulized local anesthetics* are thought to work by anesthetizing afferent receptors in the respiratory tract. There have been no trials evaluating their effectiveness; anecdotally they have been reported to be effective for refractory cough. Published regimens include lidocaine 2% solution, 5 mL nebulized every 6 hours; and bupivacaine 0.25%, 5 mL nebulized every 8 hours. Bronchospasm is a potential side effect.
- *Other agents* such as bronchodilators and corticosteroids have not been shown to be effective apart from specific indications (e.g. for COPD or asthma exacerbations). Paroxetine, amitriptyline, gabapentin, and benzodiazepines have all been anecdotally reported to have efficacy in chronic, refractory cough.

Recommendations Treatment for cough should be directed at the underlying cause if feasible and consistent with a patient's prognosis and goals of care. When symptomatic treatment for a distressing cough is necessary, it is reasonable to start with an opioid product, adding benzonatate if needed. A trial of anticholinergics and expectorants for the indications described above is reasonable, but they should be stopped after a couple days if they have no effect. Sweet syrups appear to be helpful in upper respiratory infections; their role otherwise is uncertain. If these strategies fail to control distressing symptoms, other less studied approaches such as inhaled

lidocaine are appropriate.

References

1. Homsy J, Walsh D, Nelson KA. Important drugs for cough in advanced cancer. *Support Care Cancer*. 2001; 9:565-74.
2. Estfan B, LeGrand S. Management of cough in advanced cancer. *J Support Oncol*. 2004; 2:523-7.
3. Von Gunten CF. Interventions to manage symptoms at the end of life. *J of Pall Med*. 2005; 8(1):88-94.
4. Adam J. Pan-Glasgow palliative care algorithm 2005 – Palliation of cough. *Palliative Care Formulary 2nd Edition*. Radcliffe Medical Press Ltd. 2002.
5. Davis CL. ABC of palliative care: breathlessness, cough and other respiratory problems. *BMJ*. 1997; 315:931-4.
6. Sutton PP, Gemmell HG, Innes N, Davison J, Smith FW, Legge JS, Friend JA. Use of nebulised saline and nebulised terbutaline as an adjunct to chest physiotherapy. *Thorax*. 1988; 43(1):57-60.
7. Irwin RS. Complications of cough. *Chest*. 2006; 129:54S-58S.
8. Homsy J, et al. Symptom evaluation in palliative medicine: patient report vs systematic assessment. *Support Care Cancer*. 2006; 14:444-453.
9. Lingerfelt BM, et al. Nebulized lidocaine for intractable cough near the end of life. *J Support Oncol*. 2007; 7:301-2.
10. Chung KF. Currently available cough suppressants for chronic cough. *Lung*. 2008 [E-pub ahead of print, available Oct 2, 2007]. DOI: 10.1007/s00408-007-9030-1.
11. Paul IM, Beiler J, McMonagle A, Shaffer ML, Duda L, Berlin CM. Effect of honey, dextromethorphan, and no treatment on nocturnal cough and sleep quality for coughing children and their parents. *Arch Pediatr Adolesc Med*. 2007; 161:1140-1146.
12. Schroeder K, Fahey T. Systematic review of randomized controlled trials of over the counter cough medicines for acute cough in adults. *BMJ*. 2002; 324:1-6.
13. Fuller RW, Jackson DM. Physiology and treatment of cough. *Thorax*. 1990; 45:425-30.
14. Smith SM, Schroeder K, Fahey T. Over-the-counter medications for acute cough in children and adults in ambulatory settings. *Cochrane Database of Systematic Reviews 2008, Issue 1*. Art. No.: CD001831. DOI: 10.1002/14651858.CD001831.pub3.

Fast Facts and Concepts are edited by Drew A Rosielle MD, Palliative Care Center, Medical College of Wisconsin. For more information write to: drosiell@mcw.edu. More information, as well as the complete set of Fast Facts, are available at EPERC: www.eperc.mcw.edu.

Version History: Originally published March 2008. Current version re-copy-edited in June 2009.

Copyright/Referencing Information: Users are free to download and distribute Fast Facts for educational purposes only. Marks S, Rosielle DA. Non-Opioid Anti-Tussives. Fast Facts and Concepts. March 2008; 200. Available at: http://www.eperc.mcw.edu/fastfact/ff_200.htm.

Disclaimer: Fast Facts and Concepts provide educational information. This information is not medical advice. Health care providers should exercise their own independent clinical judgment. Some Fast Facts cite the use of a product in a dosage, for an indication, or in a manner other than that recommended in the product labeling. Accordingly, the official prescribing information should be consulted before any such product is used.

ACGME Competencies: Medical Knowledge

Keywords: Non-Pain Symptoms and Syndromes

© 2008 Medical College of Wisconsin

Medical College of Wisconsin
8701 Watertown Plank Road, Milwaukee, WI 53226
www.mcw.edu | 414.456.8296

[Print](#) :: [Close](#)

