

Chronic Cough

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Educational objectives:

1. Identify the most common causes of chronic cough
2. Recognize the predictive value of various elements of the history and physical exam in diagnosing chronic cough
3. Outline an efficient strategy for diagnosing and treating chronic cough

Ms. Bordetella is a 63 year-old overweight woman with hypertension and hyperlipidemia who complains of a persistent cough for the past 2 months. The cough is starting to make her feel self-conscious at work, and her husband is concerned that it may be something serious. Otherwise, she feels well. She denies malaise, weight loss, fever, or shortness of breath.

Questions:

1. **What is the definition of chronic cough?**
2. **What is the differential diagnosis of chronic cough, and what are the most common causes?**
3. **What are the important elements of the history, and which are predictive of a particular diagnosis?**

The patient is a non-smoker and does not take an ACE-I. She describes mild clear sputum production and thinks the cough is worse at night. She denies nasal congestion, wheezing, or heartburn.

4. **What features would you look for on the physical exam?**

The patient is overweight. Her physical exam is otherwise unremarkable.

- 5. How would you utilize diagnostic testing to determine the cause of her cough. What would your treatment strategy be?**

The patient fails all empiric therapy and diagnostic testing thus far is negative. You refer her to a cough specialist, but she is requesting something to help in the meantime.

- 7. What effective nonspecific cough treatments are available?**

Diagnosis and Treatment of Chronic Cough
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H&P, CXR^a

1. Constitutional sx, hemoptysis, abnormal lung exam or CXR --> evaluate and treat
2. Smoking, ACE-I --> d/c^b
3. Cause of cough is suggested:
 - UACS: H1B, decongestant, INCS/saline^c --> no response --> r/o sinusitis^d
 - Asthma: ICS + prn B2-agonist --> no response --> PFTs/BPC --> LTRI, OCS^e
 - GERD: PPI/TLC --> no response --> bid PPI^f --> no response --> EGD vs pHM^g
 - Post-infectious: UACS sx present : H1B; UACS sx absent: inhaled ipratropium^h
 - Other causes suggested: evaluate and treat

poor
response

Treat empiricallyⁱ

UACS --> asthma / eosinophilic bronchitis^j--> GERD
(if partial response, maintain tx while proceeding to next)

poor
response

1. PFTs/BPC, EGD/pHM if not done; induced sputum for eosinophils (eosinophilic bronchitis)
2. Chest CT +/- bronchoscopy (bronchiectasis, ILD, occult tumor/infx, foreign body, sarcoid)^k
3. Echo, consider Holter
4. Referral

- a. Recommended by ACCP, ETS (ETS also recommends spirometry for all). In practice, consider certain empiric measures first, eg withdrawal of ACE-I.
- b. Cough will improve or disappear in 94-100% of patients, usually within 1 month. Consider lung cancer in any smoker, especially if cough is new or changed, if it persists more than 1 month after cessation, and if it is associated with hemoptysis outside of the context of airway infection. ACE-I-induced cough resolves within a few days to 2 weeks of stopping the Rx.
- c. H1B = antihistamine, either oral or nasal (1st generation are more anticholinergic--good for all rhinitis [seromucus glands of the nose are under cholinergic control]; 2nd generation are primarily antihistamine--ineffective for nonallergic rhinitis). INCS = intranasal corticosteroids. Saline = saline sinus irrigation or nasal spray. H1B/decongestant tx leads to some improvement in a few days to 2 weeks; may take several weeks to months for marked improvement or resolution. Adjunctive tx: leukotriene inhibitor for allergic rhinitis, intranasal ipratropium bromide for nonallergic rhinitis.
- d. With sinus CT; tx of chronic sinusitis (>12 weeks) without polyps: INCS x several months, OCS x 10 days, Abx (eg Augmentin) x 3-6 weeks +/- short course of intranasal topical vasoconstrictor; with polyps: refer (may need surgery, ASA desensitization)
- e. ICS = inhaled corticosteroids. BPC = bronchoprovocation challenge (eg methacholine challenge). LTRI = leukotriene inhibitor. OCS = oral corticosteroids (eg, 10 days of prednisone 40¹⁹). Cough-variant asthma is treated as moderate asthma (daily ICS + prn B-agonist). Response is usually seen within 1 week; complete resolution may take up to 2 months. LTRI have been shown to improve cough in pts with cough-variant asthma who did not respond to ICS. A positive methacholine challenge is not specific for cough due to asthma (one study: 22% false positive, ie 22% of pts were found to have cough due disease other than asthma¹); best way to confirm that cough is due to asthma is by response to tx.
- f. TLC = therapeutic lifestyle changes. PPI = equivalent of omeprazole 20. Bid PPI = equivalent of omeprazole 20 bid or 40 qd. Cough due to GERD may take up to 3 mo to improve and up to 6 mo to resolve; improvement in cough may lag behind improvement in GI symptoms. ACCP 2006 recommendations call for prokinetic agents (eg metoclopramide) as tx for refractory GERD; American Gastroenterological Association Institute 2008 guidelines recommend against metoclopramide due to side effects. FDA issued a black box warning on metoclopramide in 2009 due to the risk of tardive dyskinesia.
- g. pHM = 24 hour ambulatory pH monitoring; more accurate than endoscopy but not widely available, lack of agreement on interpretation. Barium swallow has very low sensitivity. Refractory cough due to GERD may be due to non-acid reflux and may respond to surgery¹⁸
- h. ipratropium bromide may alleviate cough by 1) decreasing stimulation of cough receptors by altering mucociliary factors, and 2) blocking the efferent limb of the cough reflex
- i. Consider pt preference re: order of empiric tx. If partial response to one tx, continue that tx and add the next.
- j. Tx of eosinophilic bronchitis: ICS (eg, 400 mcg budesonide). Course OCS if refractory.
- k. Bronchoscopy usually adds little if chest CT is negative; occult foreign body is an exception.

Keep in mind that a clinically silent disease (eg GERD) may be causing cough even if there seems to be an obvious cause (eg, known pulmonary sarcoidosis).

2006 ACCP Guidelines for Management of Cough

