

Acute bronchitis

Summary

- Acute bronchitis is a mild, self-limiting illness that often follows an upper respiratory tract infection and can last for three weeks.
- It is difficult to distinguish acute bronchitis from community-acquired pneumonia on the basis of individual signs and symptoms or combinations of clinical findings. However, an otherwise healthy, non-elderly adult patient who presents with cough as the main symptom is unlikely to have pneumonia if there are no new focal chest signs on auscultation and all vital signs are normal.
- Antibiotic treatment is not indicated for the majority of previously well patients with acute bronchitis.
- Patients should be reassured and offered a patient information leaflet explaining the nature of the illness, and the risks and limited efficacy of antibiotic treatment.
- Delayed prescriptions are also an option, as these are associated with reduced reattendance during the next month.
- Analgesics and antipyretics may be used where appropriate. There is insufficient evidence to support the use of other over-the-counter cough medicines. The simplest and cheapest treatment for a cough may be a home remedy such as honey and lemon.



Background — what is acute bronchitis?

The term 'chest infection' is used to describe a wide range of lower respiratory tract infections (LRTI) of varying severity, including acute bronchitis, acute exacerbation of chronic obstructive pulmonary disease (COPD) and community-acquired pneumonia (CAP).¹ This document focuses on the management of acute bronchitis, a mild, self-limiting illness, that often follows an upper respiratory tract infection² in previously well adults, rather than those with pre-existing chronic lung disease.

Acute bronchitis is commonly caused by a viral or sometimes bacterial infection, but will resolve without antibiotic treatment, regardless of the cause.^{1,2} The diagnosis is usually made if a previously well person presents with cough as the predominant symptom, in the absence of focal chest signs or severe systemic upset. Other symptoms may include sputum production, breathlessness or wheeze. Cough usually lasts for seven to ten days but can persist for three weeks.¹

Cough is also common in patients with CAP, which can be severe, and even fatal, especially in those aged over 50 years and

those with co-existing diseases. CAP should be treated promptly with antibiotics.^{3,4} It is difficult to distinguish CAP from acute bronchitis on the basis of individual signs and symptoms or combinations of clinical findings.^{3,4} Some studies have suggested that pneumonia is unlikely if chest auscultation and vital signs are normal (heart rate <100 beats/minute, respiratory rate <30 breaths/minute or temperature <37.8°C).⁵ Elderly and very young people, and those with chronic lung disease such as asthma or COPD, may not have typical clinical features of CAP and may present with non-specific features such as general malaise, fatigue or confusion.^{1,4}

The British Thoracic Society defines CAP in adults when the following are present:⁴

- cough and at least one other lower respiratory tract symptom, **and**
- new focal chest signs on examination, **and**
- either a symptom complex of sweating, fevers, shivers, aches and pains **and/or** temperature of 38°C or more, **and**
- no other explanation for the illness.

In summary, an otherwise healthy, non-elderly adult patient who presents with cough as the

Acute bronchitis is a mild, self-limiting illness, which can last for three weeks

**This publication was correct at the time of preparation:
December 2006**

main symptom is unlikely to have pneumonia if there are no new focal chest signs on auscultation and all vital signs are normal.

Management options

Analgesics and antipyretics may be used where appropriate.^{1,3} However, there is insufficient evidence for or against the effectiveness of over-the-counter (OTC) medicines to relieve acute cough (e.g. antitussives, expectorants or antihistamines).⁶ A Cochrane review, which looked at OTC medicines for acute cough, found that studies of these therapies were small, difficult to compare and often had conflicting results.⁷ A recent guideline from the British Thoracic Society on the management of cough in adults advises that the simplest and cheapest treatment for cough may be a home remedy such as honey and lemon.²

There is also little evidence to support the use of oral or inhaled β_2 -agonists (e.g. salbutamol) in adults or children with acute cough or bronchitis and no underlying pulmonary disease.⁶ A Cochrane review found that patients given β_2 -agonists were more likely to report tremor, shakiness, or nervousness than patients in the control group.⁸

Who needs an antibiotic?

Routine antibiotic treatment is unnecessary for previously well patients with acute bronchitis, regardless of the duration of cough.^{1,3,9} The Scottish Intercollegiate Guidelines Network advises that antibiotics should not usually be prescribed for previously well patients who do not have signs in the chest or severe features (see **Table**).³ Coloured sputum can result from either viral or bacterial infection,⁹ and is not an indication for antibiotic therapy unless the patient has COPD, which is outside the scope of this document.

Table: Severe features that are associated with worse outcomes in LRTI, which may mean that antibiotic treatment is required³

Raised respiratory rate (>30 breaths/min)
Low blood pressure (systolic <90 mmHg and/or diastolic <60 mmHg)
Confusion of recent onset
Co-existing disease (e.g. cardiac failure, cerebrovascular, neoplastic, renal or liver disease)
High or low temperature (<35°C or >40°C)
Tachycardia (>125 beats/min)

A Cochrane review (9 trials, n=750) assessed the effects of antibiotic treatment in acute bronchitis patients aged eight to over 65 years. It found that, although patients receiving antibiotics generally improved more than those receiving placebo, the size of the

improvements may not be clinically significant. For example, antibiotics only reduced the mean duration of cough by half a day over one to two weeks compared with placebo (weighted mean difference 0.58 days, 95%CI 0.01 to 1.16). The authors concluded that any benefits of antibiotic treatment must be balanced against the risk of adverse effects, medicalisation of a self-limiting condition, increased bacterial resistance, and cost.¹⁰

In summary, antibiotics should be reserved for patients with chest signs and severe features as they are at a higher risk of pneumonia. Antibiotic treatment is not indicated for the majority of previously well patients with acute bronchitis.

Patient education

Reconsultation is common in LRTI. For example, a prospective study of 518 patients with LRTI in primary care found that 30% reconsulted for similar symptoms within the next 28 days.¹¹ Prescribing antibiotics has been shown to increase a patient's belief that they should consult their doctor for similar infections in the future.¹² Doctors can reduce a patient's expectation of being prescribed an antibiotic and reduce unnecessary reconsultations by explaining the illness and discussing treatments. The following should be addressed:^{3,9}

- Acute bronchitis is a self-limiting illness but the cough may last for three weeks
- When explaining the condition, the descriptive term 'chest cold' or 'chesty cough' may be less likely to lead to the belief that antibiotics are necessary
- Treatments such as antibiotics and cough mixtures are of limited or unknown efficacy
- Antibiotic use carries risks (e.g. adverse effects, increased likelihood of carriage of, and infection with, antibiotic-resistant bacteria at an individual and population level)
- For smokers, it is an ideal opportunity to advise them to stop.

What about patient information leaflets?

Patient information leaflets can be used to reinforce the points outlined above. Evidence to support the use of leaflets comes from a study in which 76 GPs recorded details for 1,014 previously well patients who presented with a LRTI. Half of the patients were randomly allocated to receive an information leaflet about the natural history of LRTI at the end of the consultation, blinded from the GP. Fewer patients who received the leaflet returned to the surgery compared with those who did not receive a leaflet (14.9% vs. 21.4%, respectively, P=0.007). This was independent of whether or not the patient initially received antibiotics.¹³ Examples of patient information leaflets are available from www.prodigy.nhs.uk and www.sign.ac.uk.

Routine antibiotic treatment is unnecessary for previously well patients with acute bronchitis, regardless of the duration of cough

Coloured sputum is not an indication for antibiotic therapy

What about delayed prescriptions?

The use of delayed prescriptions, which can be collected if symptoms worsen, or do not improve after two weeks, has been shown to be a useful strategy. A randomised controlled trial was conducted in 807 patients with acute uncomplicated LRTI in primary care. They were assigned to immediate antibiotics, no offer of antibiotics, or delayed antibiotics. Patients completed a symptom diary. Compared with no antibiotics, the other strategies did not significantly alter the duration or severity of symptoms. Fewer patients in the delayed and no treatment groups used antibiotics than in the immediate treatment group (20% vs. 16% vs. 96%, respectively, $P < 0.001$ for delayed and immediate antibiotics vs. no antibiotics) and fewer believed in the effectiveness of antibiotics (40% vs. 47% vs. 75%, respectively, $P < 0.001$). Fewer patients given delayed antibiotics or immediate antibiotics returned for reconsultation during the next month compared with no offer of antibiotics. However, the study suggests that strategies of not offering antibiotics, or using delayed prescriptions, are both acceptable to patients with acute LRTI and are likely to reduce antibiotic use and belief in the effectiveness of antibiotics.¹⁴

In summary, previously well patients with acute bronchitis should be reassured and offered a patient information leaflet explaining the nature of the illness, and the risks and limited efficacy of treatment. A delayed prescription is another option.

Antibiotic treatment — which drug, dose and duration?

On the limited occasions when an antibiotic is indicated, a five-day course of amoxicillin (500mg three times a day), oxytetracycline (250–500mg four times a day) or doxycycline (200mg on the first day, then 100mg daily) is a suitable first choice.¹⁵ The doses shown are for adults.

References

1. Sowerby Centre for Health Informatics at Newcastle. PRODIGY guidance. Chest infections. July 2005. Accessed from www.prodigy.nhs.uk on 15/09/06
2. British Thoracic Society Cough Guideline Group. Recommendations for the management of cough in adults. Thorax 2006;61(suppl 1):i1–i24. Accessed from www.brit-thoracic.org.uk on 15/09/06
3. Scottish Intercollegiate Guidelines Network. Community management of lower respiratory tract infection in adults. SIGN guideline No.59. June 2002. Accessed from www.sign.ac.uk on 15/09/06
4. British Thoracic Society. Guidelines for the management of community acquired pneumonia in adults. Thorax 2001;56(suppl iv) and 2004 update. Accessed from www.brit-thoracic.org.uk on 15/09/06
5. Metlay JP, Kapoor WN, Fine MJ. Does this patient have community-acquired pneumonia? JAMA 1997;278:1440–5
6. Wark P. Bronchitis (acute). Clinical Evidence. January 2006. Accessed from www.clinicalevidence.com on 15/09/06
7. Schroeder K, Fahey T. Over-the-counter medications for acute cough in children and adults in ambulatory settings. Cochrane Database of Systematic Reviews 2004, Issue 4. Art. No.: CD001831. DOI: 10.1002/14651858.CD001831.pub2. Accessed from www.thecochranelibrary.com on 15/09/06
8. Smucny J, Flynn C, Becker L, et al. Beta2-agonists for acute bronchitis. Cochrane Database of Systematic Reviews 2004, Issue 1. Art. No.: CD001726.pub2. DOI: 10.1002/14651858.CD001726.pub2. Accessed from www.thecochranelibrary.com on 15/09/06
9. Gonzales R, Bartlett JG, Besser RE, et al. Principles of appropriate antibiotic use for treatment of uncomplicated acute bronchitis: background. Ann Intern Med 2001;134:521–9
10. Fahey T, Smucny J, Becker L, et al. Antibiotics for acute bronchitis. Cochrane Database of Systematic Reviews 2004, Issue 4. Art. No.: CD000245. DOI: 10.1002/14651858.CD000245.pub2. Accessed from www.thecochranelibrary.com on 15/09/06
11. Holmes WF, MacFarlane JT, MacFarlane RM, et al. The influence of antibiotics and other factors on reconsultation for acute lower respiratory tract illness in primary care. Br J Gen Pract 1997;47:815–8
12. Butler CC, Rollnick S, Kinnerley P, et al. Reducing antibiotics for respiratory tract symptoms in primary care: consolidating 'why' and considering 'how'. Br J Gen Pract 1998;48:1865–70
13. MacFarlane JT, Holmes WF, MacFarlane RM. Reducing reconsultations for acute lower respiratory tract illness with an information leaflet: a randomized controlled study of patients in primary care. Br J Gen Pract 1997;47:719–22
14. Little P, Rumsby K, Kelly J, et al. Information leaflet and antibiotic prescribing strategies for acute lower respiratory tract infection: a randomized controlled trial. JAMA 2005;293:3029–35
15. Health Protection Agency. Management of infection guidance for primary care. For consultation and local adaptation. Accessed from www.hpa.org.uk on 13/09/06

Antibiotics should be reserved for patients with chest signs and severe features as they are at higher risk of pneumonia

The National Institute for Health and Clinical Excellence (NICE) is associated with MeReC Publications published by the NPC through a funding contract. This arrangement provides NICE with the ability to secure value for money in the use of NHS funds invested in its work and enables it to influence topic selection, methodology and dissemination practice. NICE considers the work of this organisation to be of value to the NHS in England and Wales and recommends that it be used to inform decisions on service organisation and delivery. This publication represents the views of the authors and not necessarily those of the Institute.

NPC materials may be downloaded / copied freely by people employed by the NHS in England for purposes that support NHS activities in England. Any person not employed by the NHS, or who is working for the NHS outside England, who wishes to download / copy NPC materials for purposes other than their personal use should seek permission first from the NPC. Email: copyright@npc.nhs.uk Copyright 2006

National Prescribing Centre, The Infirmary, 70 Pembroke Place, Liverpool, L69 3GF Tel: 0151 794 8146 Fax: 0151 794 8139 www.npc.co.uk www.npc.nhs.uk