

One hundred coughs

Family practice case series

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ABSTRACT

OBJECTIVE To record the presentation, diagnosis, management, and outcome of acute coughs presenting in family practice.

DESIGN A case series of consecutive patients with acute cough as their main symptom.

SETTING Rural family practice clinic and walk-in centre.

PARTICIPANTS One hundred consecutive patients with cough, ages 1 to 90.

MAIN OUTCOME MEASURES Clinical diagnosis of the cause of the cough, management of cough, and whether patients returned for a second visit.

RESULTS Seventy-three patients had viral respiratory tract infections; 15 had asthma; 6 had influenza; 4 had pneumonia; and 2 had croup. Eighty-one patients needed no prescription medication; 13 were prescribed steroids or bronchodilators for asthma; and 6 were prescribed antibiotics. No prescriptions for cough suppressants or decongestants were written. Only 7 patients returned to the clinic; 2 were prescribed antibiotics, and the others had no change in treatment.

CONCLUSION Most patients with cough require reassurance rather than medications, as their cough is self-limiting. Of the minority that requires medication, twice as many will benefit from adjustment of asthma medication as from antibiotics.

EDITOR'S KEY POINTS

- This case series looking at 100 consecutive cases of cough in a rural Newfoundland community clinic follows on Worrall's previous case series on earache (*Can Fam Physician* 2000;46:1081-4).
- This paper illustrates that most patients with cough have viral respiratory tract infections and can be managed without prescription medication.

*Full text is available in English at www.cfp.ca.

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Cent cas de toux

Série de cas en médecine familiale

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RÉSUMÉ

OBJECTIF Décrire les modes de présentation, de diagnostic, de traitement et d'issues de cas de toux aiguë rencontrés en pratique familiale.

TYPE D'ÉTUDE Une série de cas de patients consécutifs ayant comme principal symptôme une toux aiguë.

CONTEXTE Clinique rurale de médecine familiale et clinique sans rendez-vous.

PARTICIPANTS Cent patients consécutifs avec toux, âgés de 1 à 90 ans.

PRINCIPAUX PARAMÈTRES ÉTUDIÉS Diagnostic clinique de la cause de la toux, traitement choisi et si le patient est revenu une deuxième fois.

RÉSULTATS Il y avait 73 cas d'infection virale des voies respiratoires; 15 d'asthme; 6 de grippe; 4 de pneumonie; et 2 de croup. Chez 81 patients, aucune médication n'a été nécessaire; 13 cas d'asthme ont reçu des stéroïdes ou des bronchodilatateurs; et 6 cas ont reçu des antibiotiques. On n'a prescrit aucun médicament contre la toux ou la congestion. Seulement 7 patients sont revenus consulter; 2 ont reçu des antibiotiques et les autres ont poursuivi le même traitement.

CONCLUSION La plupart des patients qui toussent ont besoin d'être rassurés plutôt que de médication, puisque leur toux se guérit habituellement d'elle-même. Parmi les quelques patients qui requièrent des médicaments, deux fois plus bénéficieront d'un ajustement de la médication anti-asthmatique plutôt que d'antibiotiques.

POINTS DE REPÈRE DU RÉDACTEUR

- Cette série de 100 cas de toux consécutifs dans une clinique communautaire rurale de Terre-Neuve fait suite à une série antérieure du même auteur portant sur des maux d'oreille (*Can Fam Physician* 2000;48 :1081-4).
- Cet article montre que la plupart des patients qui toussent ont une infection virale des voies respiratoires qu'on peut traiter sans médication.

*Le texte intégral est accessible en anglais à www.cfp.ca.

Cet article a fait l'objet d'une révision par des pairs.

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Acute cough is perhaps the most common presentation of acute illness in primary care, especially during the colder part of the year. This has been found in general practice surveys done in Australia,¹ Great Britain,² and the United States.³ Although most acute coughs are due to community-acquired viral infections,⁴⁻⁶ studies of family doctors repeatedly show that an inappropriately high number of antibiotics are being prescribed for this self-limiting illness in Canada,⁷ Australia,⁸ and the United States.⁹ At the same time, rates of asthma-related hospitalization and death, especially among the young, are increasing in developed countries.^{10,11}

Surveys in various countries have found several reasons why family doctors prescribe so many antibiotics: doctors are worried about missing pneumonia¹²; their patients are more severely ill or more vulnerable¹³; there is time pressure at work¹⁴; and they desire to please their patients.^{15,16} Surveys of patients, on the other hand, have found that many patients value explanation and advice rather than an antibiotic prescription.^{17,18}

It is clear that many family doctors prescribe “against the evidence” when treating patients with acute cough; they appear to ignore systematic reviews¹⁹ and the evidence-based clinical guidelines, which recommend fewer antibiotics and cough syrups.²⁰

These facts inspired me to develop a case series of consecutive patients who presented to me with acute cough, so that I could observe my diagnostic spectrum, my management, and the outcomes of the illnesses.

METHOD

Ethical approval for this study was given by the Human Investigations Committee of Memorial University of Newfoundland in St John’s.

During the fall and winter of 2005-2006, I collected data on 100 consecutive patients who presented to me with acute cough that had a duration of 14 days or less. The setting was a rural community health centre. This centre provides family practice appointments and walk-in services in a small emergency department, which is open 24 hours a day. Two other nearby physicians provide office hours service on weekdays, and there are 2 hospital emergency rooms about 1 hour’s drive away.

All patients were seen within 30 minutes of presentation. The age and sex of the patient was noted. A careful history was taken, and a focused examination of the respiratory system, ears, nose, and throat was done. The following symptoms were recorded: duration of cough, presence of fever and hemoptysis, productivity of cough, and presence of viral respiratory tract infection

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(VRTI) symptoms other than cough. The recorded signs were temperature levels and the presence of runny nose, pharyngitis, enlarged cervical lymph nodes, and added respiratory sounds.

Following history and examination, a clinical diagnosis was made. No laboratory or radiologic tests were done. All patients were given the appropriate advice and treatment. For example, if a patient had pneumonia, an antibiotic was prescribed and advice was given; if a patient had asthma, medications and advice were given for that condition; if a viral respiratory condition was diagnosed, standard advice was given. All patients were informed of their diagnoses and all were requested to return after 2 to 3 days, if they were not feeling better by then.

Two months after the initial visit, the patient’s chart was examined to see whether or not any subsequent visits to the health centre had occurred—to be seen by me or any of the other doctors—and whether or not the initial diagnosis or management had changed.

RESULTS

Table 1 shows the mean duration of cough before presentation was 4.8 days (standard deviation 4.0 days). Duration of cough before presentation ranged from 1 to 14 days. The age group with the shortest mean cough duration (2.8 days) was children aged 0 to 4 years (**Table 2**).

The condition with the shortest cough duration before presentation was influenza, with a mean of 2.0 days (**Table 1**). The mean duration for VRTI, pneumonia, and croup were all in the range of 3 to 5 days, while asthma patients waited the longest before coming to the doctor (mean 5.3 days).

Table 1 also shows the diagnoses made for the 100 patients with cough. By far the most common diagnosis was VRTI (73%). The next most common cause of cough was asthma (15%). Fewer patients had influenza, pneumonia, and croup.

Most patients were managed by advice and reassurance (81%). The most commonly prescribed medications were steroids or bronchodilators for asthma (13%). Antibiotics were prescribed for 4 patients at presentation, and 2 more were given antibiotics on a second visit. No cough suppressants, mucolytics, or decongestants were prescribed.

Of the patients who presented with a cough, only 7 returned for a second visit; upon my request, 4 of these patients returned the next day:

- a middle-aged asthmatic woman whose peak expiratory flow rate had fallen to less than 50% of normal (I asked her to stay under observation in a holding bed, but she declined);
- an elderly man with pneumonia;
- another elderly man with pneumonia and pulmonary fibrosis; and

Table 1. Cough by diagnosis, patient age, and duration of cough before presentation: Mean duration of cough before presentation was 4.8 days (standard deviation 4 days).

| DIAGNOSIS | NO. OF DIAGNOSES FOR AGES 0-4 | NO. OF DIAGNOSES FOR AGES 5-16 | NO. OF DIAGNOSES FOR AGES 17-64 | NO. OF DIAGNOSES FOR AGES ≥65 | TOTAL NO. OF DIAGNOSES | MEAN DURATION OF COUGH BEFORE PRESENTATION (D) |
|-----------------------------------|-------------------------------|--------------------------------|---------------------------------|-------------------------------|------------------------|--|
| Viral respiratory tract infection | 18 | 11 | 35 | 9 | 73 | 5.0 |
| Asthma | 1 | 2 | 10 | 2 | 15 | 5.3 |
| Influenza | 1 | 1 | 3 | 1 | 6 | 2.0 |
| Pneumonia | 2 | 0 | 1 | 1 | 4 | 3.0 |
| Croup | 2 | 0 | 0 | 0 | 2 | 3.0 |

Table 2. Mean duration of cough before presentation of all illnesses (ie, viral respiratory tract infection, asthma, influenza, pneumonia, and croup) by age group

| AGE GROUP | MEAN DURATION OF ALL COUGHS (D) |
|-----------|---------------------------------|
| 0-4 y | 2.8 |
| 5-16 y | 4.3 |
| 17-64 y | 5.8 |
| ≥65 y | 5.2 |

- a middle-aged woman using immunosuppressant drugs because of a lung transplant 4 years ago.

All 4 patients were doing well when they returned, and no management changes were made by me.

Of the other 3 patients who returned, 1 needed a sick note from me, and 2 were prescribed antibiotics by colleagues of mine (for the diagnoses of bronchitis and otitis media).

DISCUSSION

In this case series, the coughs that presented earliest were those due to influenza, where cough is a prominent symptom, and those among children aged 0 to 4 years, where parental anxiety is often high.

Although many experienced family doctors think *acute bronchitis* is just another term to describe an acute cough, it is the most common cause of acute cough in primary care and the fifth most common new problem dealt with by FPs in Australia^{1,8} and in the United States.²¹ This case series, however, shows that asthma is also a common cause of acute cough.

It is rare that FPs need to prescribe antibiotics for patients with acute cough; antibiotics were needed only 4 times at the first visit in this case series of 100 patients. Only a few of the remaining 96 patients came back because of continued symptoms and only 2 of them needed antibiotics. These results make it all the more surprising that FPs in many countries continue to prescribe antibiotics for most patients with acute cough. In Australia, antibiotics were prescribed for 86% of acute

bronchitis patients⁸; in the United States, the percentage ranged from 60% to 80%.⁹ When the patient is a smoker, the chances of getting an antibiotic increases to 90%.²² Also, a recent survey of British GPs found that 89% of them would prescribe antibiotics if the cough produced purulent sputum.²³ In contrast, a survey of Dutch GPs found that only 30% of them said they would prescribe antibiotics for acute bronchitis.²⁴

There have been 6 reviews of the antibiotic trials for acute bronchitis. Three reviews found no benefit^{19,25,26} and the other 3 found there was a modest treatment effect of antibiotics over placebo²⁷⁻²⁹; the use of antibiotics decreased the duration of productive cough by about half a day, and reduced time lost from work by 0.3 days. The consensus seems to be that antibiotics possibly have a modest effect for some patients, but there is no way of clearly identifying those people who will benefit.

A recent evidence-based guideline on the management of cough by the American College of Chest Physicians²⁰ found that over-the-counter antitussive medications, which are sold by the barrel during the cough season, “are generally ineffective but can be offered to adults for short-term symptomatic relief of coughing.”

Conclusion

Despite the well-known limitations of the case-series method, this study confirmed that when asthma and pneumonia have been excluded in otherwise healthy patients (of all ages) who present with acute cough, the least harmful management is advising patients of the benign nature of their illness and its favourable prognosis without treatment. This should be emphasized to family doctors and residents. Whether or not the FP should mention that there is no effective treatment for most acute coughs is another matter. ❁

Competing interests

None declared

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