

Duration of cough in acute upper respiratory tract infections

Barbara F Jones, Moira A Stewart

Barbara F Jones, MBBS, FRACGP, GradDipClinEd, MCISc, is Associate Professor, School of Medicine, James Cook University, Queensland.

Moira A Stewart, PhD, is Director, Centre for Studies in Family Medicine, University of Western Ontario, Canada.

OBJECTIVE To determine the duration of cough in patients without pre-existing respiratory problems presenting to general practitioners with acute upper respiratory tract infections (URTIs).

METHOD Patients without chronic chest problems who presented to two general practices with an URTI during the winter of 1999 were surveyed to assess the duration of cough.

RESULTS One hundred and seventy-nine patients were recruited, of whom 131 could be followed until their cough ceased. Of these, 93% developed a cough, 78% coughed for at least one week, 58% for at least two weeks, 35% for three weeks, and one continued into the tenth week.

CONCLUSION The acute cough associated with an URTI often continues for several weeks. There may be benefits from educating the community and medical profession about this natural history.

Upper respiratory tract infections (URTIs) are one of the most common presentations in family practice.¹⁻⁶ The average adult has 2-4 URTIs per year and children 6-8 such infections.^{7,8} They are usually mild, self limiting, and of short duration,^{9,10} although they are a leading cause of absenteeism from school and work and have considerable economic cost.¹¹⁻¹³ In 1994 over-the-counter sales of cough and cold products in the United States was worth USD19 billion and cough remedies accounted for 38-50% of respiratory product sales.¹⁴ There is little evidence that any of these products are effective in either symptom control or cure.¹⁵⁻¹⁷

Cough is a common symptom of URTIs. In Australia in 1990/1991, cough was treated in 7.5% of general practice consultations.¹ Most textbooks suggest it is of short duration (less than 10 days).^{9,10,18,19} However, there has been little research to support these assertions. Most studies that

examined the symptoms of URTIs had a follow up period of no more than three weeks, some for as little as three days.¹⁹⁻²² One study found that 26% of adults still had a cough at 14 days (the end point of their study),¹⁵ and another in children similarly found 10% at 20 days.²³ We aimed to describe the duration of cough associated with URTIs in a population without pre-existing respiratory problems.

Method

Two general practices in North Queensland participated in this study during the winter months of July and August 1999. Both were group teaching practices in a large regional town, with approximately five general practitioners in each. On presentation to reception, all patients were asked whether they were attending for a cough or cold. If so, they were given a letter of information, consent form, and questionnaire.

The only exclusion criterion was a self

reported chronic chest problem. Consenting patients were contacted by telephone a week later and administered a questionnaire which asked about the cough and any treatment taken for it. They were contacted weekly until the cough ceased.

Ethical approval for this study was from the University of Western Ontario Review Board for health sciences research involving human subjects.

Results

Completed questionnaires were obtained from 179 patients. The number who decided not to take part cannot be determined. Six returned incomplete data, 23 were excluded because of a chronic chest condition, and 19 were unable to be contacted on a subsequent occasion, leaving 131 who could be followed until their cough ceased. Few were smokers, and many had a university education (Table 1).

One-third (34%) saw the doctor within three days of the development of

Table 1. Characteristics of the participants

	Complete data N (%)	Incomplete data, withdrew, or lost contact N (%)
Sex		
Male	47 (37)	10 (40)
Female	80 (63)	15 (60)
Age		
0-5	15 (11)	0 (0)
6-17	26 (20)	2 (8)
18-40	43 (33)	13 (52)
41-64	37 (28)	9 (36)
>65	10 (8)	1 (4)
Education		
Not yet at school	15 (13)	0 (0)
At school	21 (18)	1 (4)
Left year 10	15 (13)	7 (30)
Left year 12	21 (18)	5 (22)
Trade/Tafe	8 (7)	3 (13)
University	39 (33)	7 (30)
Smoking		
Nonsmoker	114 (87)	18 (72)
Rarely smokes	4 (3)	1 (4)
5-10/day	3 (2)	1 (4)
10-20/day	7 (5)	5 (20)
>20/day	4 (3)	0 (0)
Duration of symptoms before first visit		
0-3 days	44 (34)	8 (32)
4-7 days	37 (29)	7 (28)
>7 days	48 (37)	10 (40)
Severity of cough		
No cough	11 (9)	2 (8)
Mild	39 (30)	5 (21)
Moderate	57 (45)	16 (67)
Severe	16 (13)	1 (4)
Very severe	5 (4)	0 (0)

Table 2. Duration of cough among the 156 subjects

End of week	Number coughing N (%)		
	Yes	No	Unsure
1	145 (93)	1 (1)	10 (6)
2	121 (78)	17 (11)	18 (12)
3	90 (58)	44 (28)	22 (14)
4	55 (35)	77 (49)	24 (15)
5	26 (17)	105 (67)	25 (16)
6	12 (8)	119 (76)	25 (16)
7	3 (2)	128 (82)	25 (16)
8	1 (1)	130 (83)	25 (16)
9	1 (1)	130 (83)	25 (16)
10	1 (1)	130 (83)	25 (16)
11	0 (0)	131 (84)	25 (16)

their URTI symptoms; one-third (28%) had symptoms for 4-7 days; and the remainder (38%) for more than one week. Most (91%) had a cough at the time of first presentation. Almost half were taking over-the-counter medication for the cough before presentation.

At one week, half (51%) were still coughing, 35% had recovered, and the others were not contactable or withdrew. Only one patient contacted had not developed a cough. Half began a new prescription - 61% of which was the antibiotic prescribed at their first visit. By the fourth week, 35% were still coughing. One coughed into the tenth week. Mean duration of cough (adjusted as above) was 2.4 weeks, and the median was 2.0 weeks (Table 2).

Discussion

There are limitations to the accuracy and generalisability of these data. Busy receptionists probably neglected to ask some patients to take part, perhaps selectively recruiting some types of patients. The demographic characteristics of this group are not representative of the community. The sample contained twice as many females as males in the 18-65 year age groups, although women are more likely than men to visit a doctor.²⁴ Nearly three times more had a university qualification than in the general community. Although the age distribution was representative, the elderly population was under represented.²⁴ We selected 20% of adult smokers, compared with 28% in the community.²⁶

The very high percentage of participants who had a cough at presentation also suggests selection bias. Previously reported rates for the development of a cough with URI in the literature are 72%,²¹ 80%,²⁴ and 89%.¹⁵

The results may have underestimated the duration of the cough, as data are not available on the commencement time of coughing. We found a longer duration of cough in this study than previously reported, perhaps because we recorded

for a longer period of time. A more realistic prognosis for cough in URTIs may reduce unrealistic expectations and future attendance for similar illnesses.^{27,28}

Acknowledgments

Thanks to Craig Veitch for advice and statistical skills, Jane Hollins for data analysis, Melanie Turner and staff of the RACGP Training Program in Townsville for research assistance, and the general practices involved.

References

1. Bridges-Webb C, Britt H, Miles D A, Neary S, Charles J, Traynor V. Morbidity and treatment in general practice in Australia. *Aust Fam Physician* 1993; 22(3):336-391.
2. Schappert S M. National Ambulatory Medical Care Survey. Hyattsville, MD: National Center for Health Statistics. *Vital Health Statistics series* 1991; 13(1994):116.
3. Kendall H J C. Acute respiratory infections in the population. *J R Soc Med* 1985; 78:282-290.
4. Fry J. *Common diseases*. 3rd edn. Lancaster: MTP Press Ltd, 1983.
5. Cypress B K. Office visits for diseases of the respiratory system. Hyattsville, MD: US Department of Health, Education and Welfare, 1979:18.
6. Finch R G. Epidemiological features and chemotherapy of community acquired respiratory tract infections. *J Antimicrob Chemother* 1990; 26(Suppl):53-61.
7. Dingle J H, et al. Illness in the home: Study of 25 000 illnesses in a group of Cleveland families. Cleveland, Ohio: Press of Western Reserve University, 1964.
8. Gwaltney J M, Hendley J O, Simon G, Jordan W S Jr. Rhinovirus infections in an industrial population. Part 1: The occurrence of illness. *N Engl J Med* 1966; 275:1261-1268.
9. Mainous III A G, Zoorob R J, Oler M J, Haynes D M. Patient knowledge of upper respiratory infections: Implications for antibiotic expectations and unnecessary utilisation. *J Fam Pract* 1997; 45:75-83.
10. Harrison's Principles of Internal Medicine. 14th edn. New York: McGraw-Hill, 1998.
11. Farr B M, Conner E M, Betts R F, Oleske J, Minnefor A, Gwaltney J M Jr. Two randomised controlled trials of zinc gluconate lozenges therapy of experimentally induced rhinovirus colds. *Antimicrob Agents Chemother* 1987; 31:1183-1187.
12. Benson V, Marano M A. Current estimates from the National Health Interview Survey. Hyattsville, MD: National Center for Health Statistics. *Vital Health Statistics. Series 10*, 1994:189.
13. Gwaltney J M Jr. The common cold. In: Mandell G, et al. Principles and practice of infectious disease. Churchill Livingstone 1990:489-493.
14. Nicholas Hall. OTC yearbook reports (MSP); 1996-1997.
15. Curley F J, Irwin R S, Pratter M R, et al. Cough and the common cold. *Am Rev Respir Dis* 1998; 138(2):305-311.
16. Editorial. Cough suppressants for children. *Br Med J* 1976; 2:493.
17. Smit M B H, Feldman W. Over-the-counter cold medications: a critical review of clinical trials between 1950 and 1991. *JAMA* 1993; 269:2258-2263.
18. Rakel R E. *Saunders Manual of Medical Practice*. Philadelphia: W B Saunders & Co, 1996.
19. Korppi M, Laurikainen K, Pietikainen M, Silvasti M. Antitussives in the treatment of acute transient cough in children. *Acta Paediatr Scand* 1991; 80(10):969-971.
20. Macknin M L, Piedmonte M, Calendine C, Janosky J, Wald E. Zinc gluconate lozenges for treating the common cold in children. A randomised controlled trial. *JAMA* 1998; 279:24:1962-1967.
21. Parvez L, Vaidya M, Sakhardande A, Subburaj S, Rajagopalan T G. Evaluation of antitussive agents in man. *Pul Pharmacol* 1996; 9:299-308.
22. Mossad S B, Macknin M L, Medendorp S V, Mason P. Zinc gluconate lozenges for treating the common cold. A randomised, double blind, placebo controlled study. *Annals Int Med* 1996; 125(2):81-88.
23. Gulbrandsen P, Fugelli P, Kvarstein G, Moland L. The duration of acute respiratory tract infections in children. *Scand J Prim Health Care* 1989; 7:219-223.
24. Australian Bureau of Statistics. *National Health Survey 1995/1996*. Canberra: Australian Government Publishing Service.
25. National Drug Abuse Information Centre. *Tobacco fact sheet*. Canberra: Australian Government Publishing Service, 1992.
26. Little P, Gould C, Williamson I, Warner G, Gantley M, Kinmonth A L. Re-attendance and complications in a randomised trial of prescribing strategies for sore throat: the medicalising effect of prescribing antibiotics. *Br Med J* 1997; 315:350-352.
27. Roberts C R, Imrey P B, Turner J D, Hosokawa M C, Alster J M. Reducing family physician visits for colds through consumer education. *JAMA* 1983; 250:1986-1989.

AFP

Correspondence

Associate Professor B Jones

School of Medicine

James Cook University

Queensland, 4811

Email: barbara.jones@jcu.edu.au