David Anderson

Dispelling the myths, discerning the truth

Few conditions are surrounded by more misinformation than the common cold, cough and flu

BY MARTIN ROWLAND, BPHARM, MSC, MRPHARMS, BCPS

The common cold is appropriately named, as it is possibly the most common disease suffered by mankind. Indeed, it is estimated that the typical North American child suffers from six to 12 colds a year. Adults average two to four colds per year, although this varies widely and is higher in women aged 20 to 30 years—possibly because they have a higher chance of interacting with school age children. Fortunately, a cold is a self-limiting condition that rarely causes serious disability, although the economic effects caused by taking time off work or school are considerable.

Over 200 viruses have been shown to cause colds. The most common culprits are rhinoviruses and coronaviruses. Other possible causative organisms include respiratory syncytial viruses, which rarely cause symptoms in adults but can cause severe illness in younger children. The cold season is typically from late August to April, which coincides with the school year and the colder weather that leads people to spend more time indoors.

Symptoms of a cold include malaise, cough and sore throat, nasal congestion and discharge that usually starts clear and becomes mucopurulent. Fever and headache can occur but are rare. Symptoms typically last five to seven days but in severe cases may persist for two weeks. If symptoms are not accompanied by fever and last for more than two weeks, another cause for illness—in particular, allergy— should be suspected. While coughing and sneezing may spread viral particles, the primary source of transmission is the hands, hence adequate and frequent hand washing is the most effective method of reducing or preventing the infection of others.

In some individuals, colds can lead to complications requiring medical referral. For example, colds have been shown to cause worsening of asthma and to provoke asthma attacks. Although the mechanism is not clear, it is advisable for people at risk from asthma attacks to try to avoid contact with others known to have a cold.

Patients who develop acute bacterial sinusitis should also be referred to a physician. This condition, the most common complication of the common cold, develops in 1% to 5% of colds, and should be suspected in cases where the cold seems not to have improved or seems to have worsened after seven to 10 days. Antibiotic treatment is usually required.

Medical referral is also required when a patient develops an acute bacterial middle ear infection. This should be suspected when a patient complains of significant ear pain, as opposed to pressure or locked feeling due to obstruction of the Eustachian tubes, which is usual in a cold.

Another common reason for medical referral for possible antibiotic treatment is an acute worsening of chronic bronchitis. This will manifest as cough, fever, shortness of breath and production of purulent sputum.

Treatment and prevention of the common cold

The majority of patients will attempt to self-treat a cold and will use over the counter (OTC) medications to do this. The options available are shown in Table 1. In general, while it is worthwhile to alleviate symptoms, it must be recognized that there is no cure for a cold and that antibiotics have no place in treatment.

One agent, now in phase three studies, has shown some promise as a cure for the cold. Pleconaril shows some activity against picornoviruses; however, while preliminary studies show that it can significantly reduce symptom severity

Continued on page 30

MARTIN ROWLAND IS CLINICAL PHARMACIST AT THE QUEENSWAY CARLETON HOSPITAL IN OTTAWA, ONTARIO. HIS MAIN PRACTICE IS INTERNAL MEDICINE AND PSYCHIATRY, AND HE HAS CONSIDERABLE EXPERIENCE IN COMMUNITY PHARMACY.

Special report see pages 29-35

Continued from page 29

and time to recovery in some individuals, it is too early to make any predictions about its place in treatment.

Children's special needs

The World Health Organization (WHO) has recommendations for treatment of minor acute respiratory infections in younger children. These can be viewed at www.who.int/child-adolescent-health/New_Publications/CHILD_HEALTH/WHO_FCH_CAH_01.02.pdf.

Recommendations for treatment of fever in children and adolescents can be found at www.who.int/child-adolescenthealth/New_Publications/CHILD_HEALTH/WHO_ARI_93.30.htm#SUMMARY.

In general, the efficacy of OTC drugs typically used by adults for the relief of cough and cold symptoms—antihistamines, cough suppressants and decongestants—has not been demonstrated in children; these agents pose toxicity risks and consequently cannot be recommended. The only treatments the WHO recommends for younger children are acetaminophen, saline nose drops and hydration.

Cough— a warning sign

Cough is usually a symptom of another medical condition, but many patients will complain of cough as the primary symptom on presentation to the pharmacy. Any cough of longer than three weeks in duration is generally considered chronic and should be referred to a physician. Cough accompanied by these symptoms suggest serious conditions that warrant medical referral:

- thick yellow or green sputum;
- wheezing;
- significant unintentional weight loss;
- haemoptysis (coughing up blood);
- drenching night sweats; or
- fever (38.5°C or greater).

Chronic cough (three weeks or more duration) can usually be diagnosed and treated, so it is important to ensure patients receive medical advice. In smokers, chronic bronchitis will often cause cough; however, this does not mean that "smoker's cough" does not need assessment by a physician. For non-smokers, the three most common causes of cough, accounting for about 85% of cases, are postnasal drip syndrome, asthma and gastroesophageal reflux disease (GERD). Less common causes include cancers (especially lung cancer), chronic infections such as pertussis or tuberculosis, chronic bronchitis, sarcoidosis, heart failure, bronchiectasis, aspiration from pharyngeal dysfunction and concomitant drug therapy.

Possible drug-related causes

Several drugs can cause cough as a side effect, the most common example being angiotensin-converting enzyme inhibitors (ACEIs). The incidence of this is controversial and is probably less common than formerly supposed. Occasionally, a cough can be mitigated by administering the drug at night (in the HOPE study, ramipril was given at bedtime as part of the protocol). Angiotensin receptor blockers (ARBs) produce a lower incidence of cough than ACEIs, but may still cause a higher incidence than placebo. In comparative studies, the incidence of dry cough was 7.9% in ACEI-treated patients compared with 2.6% in valsartan-treated patients and 1.5% in placebo-treated patients; however, losartan was shown to have an incidence of cough no greater than placebo. ACEI-induced cough can occur after the first dose or may not appear until several years of treatment. The agent should be stopped if suspected as a cause of cough, but four weeks may be needed for the cough to completely resolve. Treatment with an ARB is usually an appropriate alternative.

Beta-blockers are commonly cited as causing cough, although this is probably due to worsening or unmasking asthma symptoms. Certain medications, such as amiodarone, nitrofurantoin or vinorelbine can cause serious pulmonary toxicity, and cough in patients using these agents will warrant further investigation. Other drugs causing cough in greater than 2% of patients include abacavir, fluoxetine, infliximab, tamoxifen and tolterodine.

Influenza issues

Although the lay public may describe a multitude of different infectious diseases as "flu," influenza is an upper respiratory infection, typically sudden in onset, accompanied by a fever, chills, generalized aches and pains, headache and

Table 1: Common cold management options

Symptom	Drug category (Examples)	Comments	Cautions
Post nasal drip Sneezing Runny nose	Antihistamines (Brompheniramine Chlorpheniramine)	Older first generation agents tend to be more effective than the newer "non-drowsy" drugs for control of nasal symptoms due to their anticholinergic activity.	Drowsiness. Use with caution if prostate enlargement or glaucoma is present.
Fever Malaise Muscle ache	Antipyretics Analgesics (Ibuprofen. ASA Acetaminophen)	NSAIDs and ASA are more effective for inflammatory symptoms. Some preliminary studies suggest that NSAIDs may have some activity against cough.	ASA is not first line due to Reye's syndrome, contraindicated in children. Use NSAIDs with caution in GI, heart or renal disease.
Nasal obstruction	Oral Decongestants (Pseudoephedrin, Phenylephrine)	Somewhat effective, may be used for longer period than topical decongestants.	May cause tachycardia, hypertension, CNS stimulation or worsening of blood sugar control in patients with diabetes mellitus. Patients with hypertension, prostatic enlargement, open angle glaucoma, diabetes, heart disease or hyperthyroidism may need to consult their physician before use. Contraindicated with monoamine oxidase inhibitors.
Nasal obstruction	Topical Decongestants (Naphazoline) Oxymetazoline Phenylephrine Xylometazoline)	Faster acting and often more effective than oral agents.	May cause rebound congestion if used for more than a few days. Local burning or stinging. Although similar systemic effects to oral agents may be seen, these are rare.
Dry cough	Cough suppressants (Dextromethorphan Codeine)	Demonstrated effective in chronic cough but little published evidence for effectiveness in short-term use for coughs due to colds.	Codeine is a weak opiate; constipation and drowsiness possible. DM contraindicated with MAOIs.
Productive cough	Expectorants (Guaifenasin)	No evidence of effectiveness.	Adequate hydration is more effective.
Cold symptoms	Foods (Chicken soup)	Small studies are shown to reduce nasal symptoms and reduce inflammation.	Traditionally used since medieval times with low risk of side effects.
Cold symptoms	Herbal medicines (Hyssop, Yarrow Goldenseal)	No evidence for the effectiveness of any of these agents.	Goldenseal and yarrow likely safe. Hyssop may cause convulsions if used orally.
Cold symptoms & prevention	Herbal medicines (Echinacea)	Conflicting evidence. Overall, studies tend to suggest that echinacea is not effective for treating or preventing upper respiratory tract infections.	Likely safe.
Cold symptoms & prevention	Vitamins (Ascorbic acid [Vitamin C])	Conflicting evidence. Overall, studies tend to suggest a very mild diminution of duration of colds when used at high (possibly unsafe) doses.	Likely safe when taken in doses of 2 g daily or less. No effect to prevent colds.
Cold symptoms & prevention	Minerals (Zinc)	Zinc lozenges may have some activity to modestly reduce the duration of cold symptoms. No activity to prevent colds.	Zinc lozenges are typically used every two hours; oral zinc is not effective, as the action appears to be localized to the oral mucosa. Taste disturbance is the major complaint.
Sore throat	Topical anesthetic (Benzocaine)	Some short-lasting mild relief.	Not safe or effective for children.

This special OTC Clinical Report has been made possible by the unrestricted support of the companies advertising in this section.

Editor Vicki Wood
Associate editor Christina Campbell
Assistant editor Victoria Fulford
Clinical consulting editor Lu-Ann Murdoch, B.Sc.Phm.
Copy editor Allison Hay

Art director Veronica DeVriese
Publisher Janet Smith
Account managers Mike Rightmyer, Caroline Bélisle, Nichol Pelchat

significant malaise. Many people with influenza have few or mild symptoms and recover within 10 days. For a minority, particularly the young, old and those with comorbidities, the illness may be more serious. Health Canada says 500 to 1,500 deaths are attributable to influenza in a typical year. In general, the same agents used to ease symptoms of the common cold can be used to treat the flu. Prevention is the best strategy, and the influenza vaccine should be offered to those groups identified by the provincial government as requiring it. In Ontario, this is almost all of the population. Heath Canada maintains a useful website with information about influenza in Canada at www.hc-sc.gc.ca/pphb-dgspsp/publicat/info/infflu_e.html#information.

There are three strains of influenza: A, B and C. Influenza A and B are usually responsible for outbreaks in humans; all previous pandemics have been caused by influenza A, which tends to be more severe than influenza B. Amantadine has some activity against influenza A and is the agent often used to contain outbreaks in nursing homes. Dosages must be individualized in the elderly, according to renal function. Two neuraminidase inhibitors, oseltamivir and zanamivir, are available in Canada; both are indicated for influenza A and B. These agents have been shown to be effective in a population without comorbidities, reducing symptoms by less than one day, but having no effect on the severity of symptoms.

Reye's syndrome is a rare but serious neurological condition that shows an increased incidence if salicylates, particularly ASA, are used during or while recovering from an acute viral illness such as influenza. While adults can be affected, the incidence is much greater in children; consequently, ASA-containing preparations should not be administered to children for symptom relief.

Severe Acute Respiratory Syndrome (SARS)

Early in 2003, pharmacists and other healthcare professionals were confronted with a hitherto unknown disease: Severe Acute Respiratory Syndrome (SARS). At press time, Health Canada had reported 438 cases of SARS leading to 43 deaths. SARS is characterized by many of the same symptoms that typify other respiratory illnesses. When a patient presents with a fever (38°C or greater) and other symptoms of respiratory disease, the pharmacist must be highly suspicious and refer for assessment. Once the influenza season begins, differentiating the two illnesses promises to present some challenges.

Pharmacists can find more information on the websites of official agencies:

- www.sars.ca
- www.cdc.gov/ncidod/sars/ic.htm # healthcare
- www.who.int/csr/sars/guidelines/en

Common cold myths

Myth	Fact
Feed a cold, starve a fever.	There is no scientific basis for this. Some foods (e.g. chicken soup) have been found helpful,
Milk will increase nasal mucous.	A 1990 Australian study showed that milk had no effect on mucous.
Do not treat a cold because treatment will lengthen the duration of the illness.	In fact,treatment has almost no effect on the duration of a cold and certainly will not lengthen it. Coughing and sneezing will spread the virus to others and nose blowing can propel secretions containing viruses and bacteria into the sinuses increasing the chance of a sinus infection. So it makes sense to treat cold symptoms. Also, 25% of infected people remain asymptomatic and they recover as quickly as those who develop symptoms.
Being cold or chilled leads to a cold.	A 1968 *New England Journal of Medicine* study showed that this is not the case.
The dry air caused by central heating causes colds.	The nasal mucosa is very resistant to the effects of dry air and viral infection has been shown to be unaffected by this dryness. The cold season starts in late August or September, before central heating is used in most areas, but when there is more interpersonal contact in enclosed spaces such as school.
Susceptibility to cold requires a weakened immune system.	In fact, 95% of those exposed to cold viruses in studies become infected (although only 75% of those will exhibit symptoms).Immune status does not affect the likelihood of either infection or symptoms.