Colds and flu

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- The common cold comprises a mixture of viral upper respiratory tract infections (URTIs).
- Although colds are self-limiting, many people choose to buy (OTC) medicines for symptomatic relief.
- Some of the ingredients of OTC cold remedies may interact with prescribed therapy, occasionally with serious consequences.
- Therefore, careful attention needs to be given to taking a medication history and selecting an appropriate product.

Significance of questions and answers

- **Age**
- Establishing who the patient is – child or adult – will influence the pharmacist's decision about the
  - necessity of referral to the doctor and
  - choice of treatment.

- Children are more susceptible to URTI than are adults

- **Duration**
- Patients may describe a
  - rapid onset of symptoms (more commonly true of flu)
  - a gradual onset over several hours(common cold).

- Such guidelines are general rather than definitive.

- The symptoms of the common cold usually last for 7– 14 days.

Symptoms

- *Runny/blocked nose*
- *Sneezing/coughing*
- *Aches and pains/headache*
  - *A persistent or worsening frontal headache (pain above or below the eyes) may be due to sinusitis.*
  - *muscular and joint aches and this is more likely to occur with flu than with the common cold*
- *High temperature*
  - *The presence of fever may be an indication that the patient has flu rather than a cold*
- *Sore throat*
- *Earache*

Earache

- common complication of colds, especially in children.
- When nasal catarrh is present, the ear can feel blocked.
- This is due to blockage of the Eustachian tube.
- This situation often resolves spontaneously, but decongestants and inhalations can be helpful

- Sometimes the situation worsens when the middle ear fills up with fluid.
- This is an ideal site for a secondary infection. When this does occur, the ear becomes acutely painful and is called acute otitis media (AOM).
- AOM is a common infection in young children.
- In summary, a painful ear can initially be managed by the pharmacist.
- There is evidence that both *paracetamol* and *ibuprofen* are effective treatments for AOM.
- However, if pain were to persist or be associated with an unwell child (e.g. high fever, very restless or listless, vomiting), then referral to the GP would be advisable.

Facial pain/frontal headache

- Facial pain or frontal headache may signify sinusitis.

- A recent systematic review indicated only a small benefit from antibiotics even in sinusitis that had lasted for longer than 7 days infection.

- Antibiotics are, however, recommended if the symptoms of sinusitis:
  - persist for more than 10 days;
  - are severe with fever, facial pain, nasal discharge over 3–4 days;
  - or when sinusitis symptoms develop following a recent cold which has started to settle.

Flu

- Differentiating between colds and flu may be needed to make a decision about whether referral is needed.

- Patients in 'at-risk' groups might be considered for antiviral treatment.

- Flu is generally considered to be likely if:
  - temperature is 38◦C or higher (37.5◦C in the elderly);
  - a minimum of one respiratory symptom – cough, sore throat, nasal congestion or rhinorrhoea – is present;
  - a minimum of one constitutional symptom – headache, malaise, myalgia, sweats/chills, prostration – is present.

- Flu often starts abruptly with sweats and chills, muscular aches and pains in the limbs, a dry sore throat, cough and high temperature.
- Someone with flu may be bedbound and unable to go about usual activities.
- There is often a period of generalised weakness and malaise following the worst of the symptoms.
- A dry cough may persist for some time.

complications

- Flu can be complicated by secondary lung infection (pneumonia).

- Complications are much more likely to occur in
  - the very young,
  - the very old and
  - those who have pre-existing heart disease, respiratory disease (asthma or chronic obstructive pulmonary disease (COPD)), kidney disease, a weak immune system or diabetes.

When to refer

Earache not settling with analgesic (see above)

In the very young

In the very old

In those with heart or lung disease, for example, COPD, kidney disease, diabetes, compromised immune system

With persisting fever and productive cough

With delirium

With pleuritic-type chest pain

Asthma

Treatment timescale

- Once the pharmacist has recommended treatment, patients should be advised to see their doctor in 10–14 days if the cold has not improved.

Management

- The use of OTC medicines in the treatment of colds and flu is widespread.
- There is little doubt that appropriate symptomatic treatment can make the patient feel better;
- the placebo effect also plays an important part here.

- UK Medicines and Healthcare products and Regulatory Agency (MHRA) advised that OTC cough and cold remedies should no longer be sold for children under 6 years.

- Children aged between 6–12 can still use these preparations, but with an advice to limit treatment to 5 days or less.

- The MHRA rationale was that for children aged over 6 years, ‘the risk from these ingredients is reduced because:
  - they suffer from cough and cold less frequently and consequently require medicines less often;
  - with increased age and size, they tolerate the medicines better; and
  - they can say if the medicine is working’.

Decongestants
Sympathomimetics

- Sympathomimetics (e.g. *pseudoephedrine) can be effective in reducing* nasal congestion.

- Nasal decongestants work by constricting the dilated blood vessels in the nasal mucosa. The nasal membranes are effectively shrunk, so drainage of mucus and circulation of air are improved and the feeling of nasal stuffiness is relieved.

- These medicines can be given orally or applied topically.

- Tablets and syrups are available, as are nasal sprays and drops.

- If nasal sprays/drops are to be recommended, the pharmacist should advise the patient not to use the product for longer than 7 days.

- Rebound congestion (rhinitis medicamentosa) can occur with topically applied but not oral sympathomimetics.

- The decongestant effects of topical products containing *oxymetazoline or xylometazoline are longer lasting (up to 6 h) than those of some other* preparations such as *ephedrine.*

Problems

- *Ephedrine and pseudoephedrine, when taken orally, have the theoretical* potential to keep patients awake because of their stimulating effects on the central nervous system (CNS).

- In general, *ephedrine is* more likely to produce this effect than does *pseudoephedrine.*

- *A systematic* review found that the risk of insomnia with *pseudoephedrine* was small compared with placebo.

- Sympathomimetics can cause stimulation of the heart, an increase in blood pressure and may affect diabetic control because they can increase blood glucose levels.

- They should be used with caution (current *British National Formulary (BNF) warnings) in people with*
  - diabetes,
  - those with heart disease or
  - hypertension and those with
  - hyperthyroidism.

- The hearts of the hyperthyroid patients are more vulnerable to irregularity, so stimulation of the heart is particularly undesirable.

- Sympathomimetics are most likely to cause these unwanted effects when taken by mouth and are unlikely to do so when used topically.

- Nasal drops and sprays containing sympathomimetics can therefore be recommended for those patients in whom the oral drugs are less suitable.

- Saline nasal drops or the use of inhalations would be other possible choices for patients in this group.

Interactions with sympathomimetics

- The interaction between sympathomimetics and monoamine oxidase inhibitors (MAOIs) is potentially extremely serious; a hypertensive crisis can be induced and several deaths have occurred in such cases.
- This interaction can occur up to 2 weeks after a patient has stopped taking the MAOI, so the pharmacist must establish any recently discontinued medication.
- There is a possibility that topically applied sympathomimetics could induce such a reaction in a patient taking an MAOI.
- It is therefore advisable to avoid both oral and topical sympathomimetics in patients taking MAOIs.

- *Interactions: Avoid in those taking*
- MAOIs (e.g. *phenelzine, moclobemide)*
- beta-blockers
- tricyclic antidepressants (e.g. *amitriptyline) – a theoretical interaction* that appears not to be a problem in practice

Restrictions on sales of pseudoephedrine and ephedrine

- In response to concerns about the possible extraction of *pseudoephedrine* and *ephedrine from OTC products for use in the manufacture* of methamphetamine (crystal meth), restrictions were introduced in 2007.

- The medicines are available only in small pack sizes, with a limit of one pack per customer, and their sale has to be made by a pharmacist.

Antihistamines

- Antihistamines could theoretically reduce some of the symptoms of a cold: runny nose (rhinorrhoea) and sneezing.
- These effects are due to the anticholinergic action of antihistamines.
- The older drugs (e.g. *chlorphenamine (chlorpheniramine), promethazine) have more pronounced* anticholinergic actions than do the non-sedating antihistamines (e.g. *loratadine, cetirizine, acrivastine).*
- *Antihistamines are not* so effective at reducing nasal congestion.

- Some (e.g. *diphenhydramine)* may also be included in cold remedies for their supposed antitussive action or to help the patient to sleep (included in combination products intended to be taken at night).

- Evidence indicates that antihistamines alone are not of benefit in the common cold but that they may offer limited benefit for adults in combination with decongestants, analgesics and cough suppressants.

Interactions:

- *The problem of using antihistamines, particularly the* older types (e.g. *chlorphenamine), is that they can cause drowsiness.*

- Alcohol will increase this effect, as will drugs such as *benzodiazepines* or *phenothiazines that have the ability to cause drowsiness or CNS* depression.

- Antihistamines with known sedative effects should not be recommended for anyone who is driving, or in whom an impaired level of consciousness may be dangerous (e.g. operators of machinery at work).

- Because of their anticholinergic activity, the older antihistamines may produce
    - dry mouth, blurred vision, constipation and urinary retention.

- These effects are more likely if antihistamines are given concurrently with anticholinergics such as *hyoscine or with drugs that have anticholinergic* actions such as tricyclic antidepressants.

- Antihistamines should be avoided in patients with
  - prostatic hypertrophy and
  - closed-angle glaucoma

- In patients with closed-angle glaucoma, they may cause increased intraocular pressure.

- Anticholinergic drugs can occasionally precipitate acute urinary retention in pre-disposed patients, for example, men with prostatic hypertrophy.

- At high doses, antihistamines can produce stimulation rather than depression of the CNS.

- There have been occasional reports of fits being induced at very high doses of antihistamines and it is for this reason that it has been argued that they should be avoided in epileptic patients.

- However, this appears to be a theoretical rather than a practical problem.

- *Side effects:*
  - Drowsiness (driving, occupational hazard)
  - Constipation
  - Blurred vision

- *Cautions:*
  - Closed-angle glaucoma
  - Prostatic obstruction
  - Epilepsy
  - Liver disease

Zinc

- Two systematic reviews have found limited evidence that *zinc gluconate* or *acetate lozenges may reduce continuing symptoms at 7 days* compared with placebo.

Echinacea

- A systematic review of trials indicated that some echinacea preparations may be better than placebo or no treatment for the prevention and treatment of colds.

- However, due to variations in preparations containing echinacea, there is insufficient evidence to recommend a specific product. Echinacea has been reported to cause allergic reactions and rash.

Vitamin C

- A systematic review found that high-dose vitamin C (over 1 g/day) taken prophylactically reduced the duration of colds by about 8%.

Inhalations

- These may be useful in reducing nasal congestion and soothing the air passages, particularly if a productive cough is present.
- Inhalants that can be used on handkerchiefs, bedclothes and pillowcases are available.
- These usually contain aromatic ingredients such as eucalyptus. Such products can be useful in providing some relief.

Nasal sprays or drops?

- Nasal sprays are preferable for adults and children over 6 years because the small droplets in the spray mist reach a large surface area.
- Drops are more easily swallowed, which increases the possibility of systemic effects.
- For children under 6 years, drops are preferred because in young children the nostrils are not sufficiently wide to allow the effective use of sprays.
- Paediatric versions of nasal drops should be used where appropriate.
- Nasal saline drops or sprays are a useful option to consider in nasal congestion in babies and young children.

- Pharmacists should encourage those in at-risk groups to have an annual flu vaccination.

- In the United Kingdom, the health service now provides vaccinations to all patients over 65 years and those below that age who have
  - chronic respiratory disease (including asthma),
  - chronic heart disease,
  - chronic renal failure,
  - diabetes mellitus or
  - immunosuppression due to disease or treatment.

- Community pharmacists are in a good position to use their patient medication records (PMRs) to target patients each autumn and remind them to have their vaccination.

Prevention of flu

- Increasing attention is being paid to ways of reducing transmission of the influenza virus.
  - Routine handwashing with soap and water reduces the transmission of cold and flu viruses.
  - Hand sanitizers have become widely used because immediate access to soap and water is difficult in many everyday settings.
- Transfer of the cold or flu virus usually occurs directly from person to person when an infected individual coughs or sneezes.
- Droplets of respiratory secretions come into contact with the mucous membranes of the mouth and nose of another person.
- Ethanol based hand sanitizers are widely used in health care settings and can contribute to reducing transmission of colds and flu.
- The influenza virus is susceptible to alcohol in formulations of 60–95% ethanol.
- The rationale is that the virus in droplets can survive for 24–48 h on hard, non-porous surfaces, for 8–12 h on cloth, paper and tissue, and for 5 min on hands.
- Touching contaminated hands, surfaces and objects can therefore transfer the virus.

Case

- Mrs Allen, a regular customer in her late 60s, asks what you can recommend for her husband. He has a very bad cold; the worst symptomsare his blocked nose and sore throat. Although his throat feels sore, she tells you there is only a slight reddening (she looked this morning). He has had the symptoms since last night and is not feverish. He does not have earache but has complained of a headache. When you ask her if he is taking any medicines, she says yes, quite a few for his heart. She cannot remember what they are called. You check the PMR and find that he is taking *aspirin 75 mg daily, ramipril 5 mg daily, bisoprolol* 10 mg daily and *simvastatin 40 mg daily. Mrs Allen asks you if it is* worth her husband taking extra vitamin C as she has heard this is good for colds. She wondered if this might be better than taking yet more medicines.

Case 2

- A man comes into the pharmacy just after Xmas asking for some cough medicine for his wife. He says that the medicine needs to be sugar-free as his wife has diabetes. On listening to him further, he says she has had a dreadful cough that keeps her awake at night. Her problem came on 5 days ago when she woke in the morning, complaining of being very achy all over and then became shivery, and developed a high temperature and cough by the evening. Since then her temperature has gone up and down and she has not been well enough to get out of bed for very long. She takes *glipizide and metformin for her diabetes and* he has been checking her glucometer readings, which have all been between 8 and 11 – a little higher than usual. The only other treatment she is taking is *atorvastatin; she is not on any antihypertensives. He* tells you that she will be 70 next year.