Over-the-counter colds and flu medicine for patients on chronic medication

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Abstract
Treating the symptoms of colds and flu in patients with concomitant chronic conditions can be a difficult task. Pharmacists have to consider the effects of the medication on the chronic underlying disease, and also the possibility of drug-drug interactions. This article discusses the use of over-the-counter medication for the treatment of cold and flu symptoms in patients with chronic conditions, and important considerations to ensure effective management of these patients.

Introduction
Patients with chronic conditions, such as cardiovascular disease, diabetes mellitus, epilepsy and human immunodeficiency virus are at increased risk of severe influenza or complications. Therefore, patients with chronic conditions should consider receiving a flu vaccine on an annual basis.

The common cold may trigger an acute attack of asthma in asthmatic patients, aggravate symptoms in patients with chronic obstructive pulmonary disease and trigger an attack in patients with multiple sclerosis. When treating cold and flu symptoms with over-the-counter (OTC) preparations in patients with chronic conditions, it is important to consider the effect of the medicine on the underlying condition, and also possible drug interactions with the patient’s current chronic medication.

Antihistamines
Antihistamines are often included in cold and flu preparations to alleviate rhinorrhea, sneezing and watering eyes. They also assist in improving sleep to provide much-needed rest for patients with a cold or flu. The beneficial effects in this setting mostly stem from the anticholinergic action of antihistamines, thus older or first-generation antihistamines, such as chlorpheniramine and promethazine, which have more pronounced anticholinergic actions, may be of more benefit. Antihistamines are often included in cough mixtures for their antitussive effects, and include diphenhydramine or promethazine.

The newer or second-generation antihistamines, such as loratadine and cetirizine, have little or no anticholinergic effects. Therefore, they are less effective in treating symptoms associated with colds and flu. The older antihistamines can penetrate the central nervous system (CNS) to cause drowsiness, but can sometimes produce CNS stimulation, rather than suppression, and their use in patients with epilepsy has been discouraged for this reason. Although isolated cases of seizures have been reported with the use of antihistamines in patients with epilepsy, the risk seems to be theoretical. There is marked inter-individual variation in susceptibility to the various actions of antihistamines. Children and the elderly are more prone to CNS stimulation and overdose.

Closed-angle glaucoma and prostatic hypertrophy are chronic conditions needing special consideration when deciding whether or not to treat with an antihistamine. Treatment with antihistamines can cause an increase in intraocular pressure. The anticholinergic action of first-generation antihistamines may also precipitate acute urinary retention in predisposed patients, such as men with prostatic hypertrophy, as they may decrease detrusor contractility.

The anticholinergic effects of antihistamines may also precipitate dementia in patients with mild Alzheimer’s disease, and in addition, may cause confusion, hallucinations, delirium and disrupted sleep. Therefore, the older-generation antihistamines are best avoided as the treatment of colds and flu in patients with Alzheimer’s disease. The first-generation antihistamines are also best avoided in patients with severe asthma and emphysema as they can cause thickening of respiratory tract secretions owing to their anticholinergic effects.

Decongestants
Decongestants, such as pseudoephedrine, phenylephrine or phenylephrine, are sympathomimetic drugs. They reduce nasal congestion by constricting the blood vessels in the nasal mucosa. Constriction of the blood vessels can increase blood pressure. Therefore, decongestants should not be used in patients with severe, uncontrolled hypertension. Since decongestants are stimulants, they also have a stimulating effect on the heart.
Therefore, they should be avoided in patients with cardiovascular disease.\textsuperscript{1,3,4} Hyperthyroidism increases the basal metabolic rate, resulting in sympathetic overactivity and subsequent hyperkinesia, tremors, arrhythmias and tachycardia. Subsequent angina and high output heart failure may occur.\textsuperscript{2} Decongestants should be used with caution in hyperthyroid patients so as not to aggravate these effects.\textsuperscript{3}

Sympathomimetic drugs can also lead to glyconeogenesis, with a resultant increase in blood glucose levels.\textsuperscript{7} Therefore, patients with diabetes mellitus may need to monitor their blood glucose levels closely.\textsuperscript{3,4}

Sympathomimetic drugs can cause mydriasis (dilation of the pupil) which can lead to increased intra-ocular pressure in patients with narrow-angle glaucoma. The signs and symptoms of acute narrow-angle glaucoma include severe ocular pain, blurred vision, and nausea and occasional vomiting, and require urgent medical attention.\textsuperscript{8}

The alpha-adrenergic effects of sympathomimetic drugs may cause bladder neck contraction which can compromise bladder emptying.\textsuperscript{6}

**Analgesics**

Analgesics are included in OTC combination preparations for the treatment of pain, such as headaches, muscle pain, aches, sore throats and fever associated with colds and flu. Paracetamol, ibuprofen and aspirin are the most commonly included analgesics in these products.\textsuperscript{9}

Although codeine is useful in treating mild pain, and also has antitussive properties, it can cause respiratory depression. Therefore, it should be used with caution in patients with acute asthma, respiratory depression and heart failure secondary to chronic lung disease.\textsuperscript{4,5,7}

Nonsteroidal anti-inflammatory drugs (NSAIDs) must be used with caution in patients with asthma who are allergic to aspirin as NSAIDs may worsen asthma in these patients. NSAIDs have a tendency to impair renal perfusion and to cause the retention of sodium and fluid, and should be used cautiously in patients with hypertension, cardiac failure, angina pectoris and renal impairment.\textsuperscript{5}

**Drug interactions with chronic medication**

Medication used to treat cold and flu symptoms can also interact with medication taken for chronic conditions.

A significant and major drug interaction with the simultaneous use of nonselective monoamine oxidase inhibitors (MAOIs), e.g. tranylcypromine and decongestants, can lead to a hypertensive crisis. The use of decongestants should be avoided during the use of a nonselective MAOI, and for at least two weeks after stopping it. This interaction may occur with systemic and even topical decongestants, and it is best to completely avoid the use of sympathomimetic drugs in patients undergoing treatment with a nonselective MAOI.\textsuperscript{9}

Special care should be taken if decongestants, such as pseudoephedrine, are considered for use in patients taking β blockers or digoxin as the simultaneous use of these medicines may increase the risk of hypertension, arrhythmia and strokes.\textsuperscript{7}

Patients on anticoagulant therapy must avoid taking aspirin and other NSAIDs in order to prevent coagulation disorders, unless advised to do so by a doctor.\textsuperscript{2} The simultaneous use of NSAIDs, especially indomethacin, with lithium, may lead to a reduction in the renal excretion of lithium, resulting in toxic lithium levels.\textsuperscript{7}

Because of the narrow therapeutic window of theophylline, patients using theophylline chronically for the treatment of asthma should not be provided with OTC formulations containing theophylline, to prevent a possible theophylline overdose.\textsuperscript{2,3}

The first-generation antihistamines can potentiate CNS depression, especially when used with other CNS depressants, such as benzodiazepines, phenothiazines, barbiturates and alcohol. The anticholinergic effects of the first-generation antihistamines may add to the anticholinergic effects of other medicines, such as tricyclic antidepressants and antipsychotic drugs.\textsuperscript{3} Their use should also be avoided in patients receiving anticholinergic therapy for Parkinson’s disease owing to the possibility of potentiating anticholinergic adverse effects that are common to both the antihistamines and anticholinergic agents used to treat Parkinson’s disease.\textsuperscript{4}

Theoretically, echinacea, found in some herbal cold and flu remedies, may antagonise the effects of immunosuppressant drugs. Therefore, it should not be recommended to patients undergoing treatment with methotrexate or corticosteroids.\textsuperscript{10}

**Other considerations**

The use of topical nasal preparations is recommended in patients who are unable to take oral decongestant preparations since systemic absorption from the nasal administration is usually minimal.\textsuperscript{9} Nasal decongestants are the exception, and should not be used with nonselective MAOIs.

Patients should not use nasal decongestants for longer than 3-5 days in order to avoid the development of rebound congestion. Decongestant nasal sprays may be preferred over nasal drop formulations in adults as the risk of swallowing the solution with subsequent systemic effects is less with nasal sprays. Saline nose drops are another option that can be recommended to promote thinning and the removal of mucus, thereby alleviating nasal congestion and easing breathing.\textsuperscript{4}

Although the short-term use of oral formulations that contain sugar may not play a significant role in glucose control, patients with diabetes mellitus may prefer to use sugar-free formulations.\textsuperscript{2} Several sugar- and alcohol-free products are available. These can be recommended. It is relevant to advise patients with diabetes mellitus to monitor their blood glucose levels closely. Blood sugar levels are affected by infection. In addition, patients who have a cold or the flu often do not feel hungry or thirsty, placing them at higher risk of having abnormal blood sugar levels and dehydration.\textsuperscript{11} Patients with diabetes should aim to take at least one cup of fluid an hour. When sugar levels are high, sugar-free liquids, such as water or tea, are recommended, and when blood sugar levels are low, sports drinks or a quarter of a cup of fruit juice may be taken.\textsuperscript{10,11}
Nonpharmacological management

The following recommendations are useful for patients who would prefer to avoid taking any medication for the symptomatic relief of colds and flu.10,12

- Increase daily liquid intake to at least eight glasses of water as this may assist in thinning secretions
- Consuming warm liquids, such as soup, may soothe the mucosa and facilitate mucus removal by thinning and loosening the mucus
- Avoid drinking alcohol. Alcohol can lead to dehydration and may interact with OTC cold and flu medicines and increase CNS depression
- Use humidifiers as they may loosen mucus and improve expectoration and mucociliary clearance
- Use warm compresses and take warm showers as these may relieve muscle aches and pains and reduce sinus pain and congestion
- Place warm moist cloths on the ears to alleviate ear pain.

Conclusion

Treating the symptoms of colds and flu is more complicated in patients with underlying medical conditions, owing to the possible effects that OTC medicines can have on these chronic conditions, as well as possible drug-drug interactions between

<table>
<thead>
<tr>
<th>Disease or condition</th>
<th>Contraindicated</th>
<th>Use with caution or on the advice of a doctor</th>
<th>May be used</th>
</tr>
</thead>
</table>
| Diabetes mellitus    | Oral decongestants | Oral decongestants | • Oral antihistamines
• Decongestant nasal sprays
• Saline nasal sprays
• Paracetamol |
| Cardiovascular disease | Oral decongestants in severe hypertension | Oral decongestants | • Oral antihistamines
• Decongestant nasal sprays
• Saline nasal sprays
• Paracetamol |
| Hyperthyroidism      | Oral decongestants | Oral decongestants | • Oral antihistamines
• Decongestant nasal sprays
• NSAIDs
• Paracetamol |
| Depression           | Oral and nasal decongestants with nonselective MAOIs, e.g. tranylcypromine | • Oral decongestants with TCAs
• Oral first-generation antihistamines with TCAs (owing to anticholinergic activity) | • Saline nasal sprays
• NSAIDs
• Paracetamol |
| Narrow-angle glaucoma | Oral decongestants | • Oral decongestants
• First-generation antihistamines (owing to anticholinergic activity) | • Decongestant nasal sprays
• Saline nasal sprays
• NSAIDs
• Paracetamol |
| Prostatic hypertrophy | Oral decongestants | • Oral decongestants
• Oral first-generation antihistamines (owing to anticholinergic activity) | • Decongestant nasal sprays
• Saline nasal sprays
• NSAIDs
• Paracetamol |
| Epilepsy             | Oral first-generation antihistamines (those penetrating the CNS) | | • Oral decongestants
• Decongestant nasal sprays
• NSAIDs
• Paracetamol |
| Asthma or emphysema  | First-generation antihistamines (owing to anticholinergic activity)
• Codeine
• NSAIDs (in patients with aspirin sensitivity) | | • Oral decongestants
• Decongestant nasal sprays
• Paracetamol |
| Alzheimer’s disease  | First-generation antihistamines (owing to anticholinergic activity) | | • Oral decongestants
• Decongestant nasal sprays
• Saline nasal sprays
• NSAIDs
• Paracetamol |
| Peptic ulcer         | NSAIDs, e.g. aspirin, ibuprofen and naproxen | | • Oral antihistamines
• Oral and nasal decongestants
• Paracetamol |

CNS: central nervous system, MAOIs: monoamine oxidase inhibitors, NSAIDs: nonsteroidal anti-inflammatory drugs, TCAs: tricyclic antidepressants

Table I: Summary of the use of over-the-counter cold and flu medicines in chronic conditions8,9
the patient’s chronic medication and the cold and flu remedy. Pharmacists should collect information from patients seeking OTC treatment for cold and flu symptoms on possible chronic conditions and medication use, and ensure that an appropriate product is recommended. The use of topical products, such as nasal sprays or drops, should be considered in patients for whom oral medicines may be problematic.

References