Managing pain and fever associated with colds and flu

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Abstract
Most symptoms of influenza (flu) are caused by the response of the body to the influenza virus. Paracetamol, aspirin and other non-steroidal anti-inflammatory drugs (NSAIDs) are effective in treating sore throats, muscle aches and pains, headaches, earaches and fever associated with colds and flu. Paracetamol may be used in children and pregnant women, but can cause hepatotoxicity at higher doses, and should be avoided or used with caution in patients with liver disease. Aspirin should not be used to treat children with a viral infection because of the risk of Reye’s syndrome. Both aspirin and NSAIDs may cause gastrointestinal irritation, and should be used with caution in patients who are also taking anticoagulants. Breathing problems, severe nausea and vomiting and persistent or worsening fever are some of the symptoms associated with colds and flu that indicate the need for emergency care.


Introduction
More than 200 different viruses may cause the common cold. Influenza (commonly known as flu) is usually caused by strains of influenza A or influenza B viruses. The common cold has a gradual onset. The main symptoms are a sore throat and nasal congestion. Flu has a sudden onset. The main symptoms are fever and muscle aches. However, absence of fever, especially in the elderly and immunosuppressed, does not necessarily rule out influenza. Most of the symptoms of viral infection are caused by the immune response of the body, rather than the virus itself. Therefore, treatment revolves around management of the symptoms, rather than “curing” the infection. This article will discuss the pain and fever associated with colds and flu, and recommend treatment options for these symptoms.

Occurrence of pain and fever

Pain
Most of the major symptoms of colds and flu are pain- and fever-related.

Patients with a common cold or flu often experience pain in the form of one, or more, of the following:

- A sore throat
- Headaches
- Facial pain
- Earache
- Muscle pains
- Joint pains
- Sweating
- Chest pain.

A sore throat is often caused by the common cold, but extreme pain or persistence for more than a few days should be an indication for referral.

Headaches may be due to inflammation and congestion of the nasal passages and sinuses. Sinus congestion may lead to secondary infection of the sinuses associated with frontal headache or facial pain. This pain often worsens when lying down or bending forward. Often, the maxillary sinuses are involved.

Earache may be an indication of acute otitis media (AOM), due to blockage of the Eustachian tube, and is generally seen in children. AOM clears spontaneously within three days in around 80% of patients without the use of antibiotics. Referral of persistent pain in an otherwise unwell child, such as restlessness, a high fever and vomiting, is advisable.

Generally, muscle and joint pains are associated with flu, rather than the common cold. Chest pain, when accompanied by a severe productive cough, difficulty in breathing, a high fever or delirium, is a warning sign that emergency care is required.

Fever
Usually, fever occurs in children, rather than in adults, who have a common cold. Although fever is often associated with flu, the absence of fever does not necessarily exclude influenza.
High fever is defined as:
- Rectal temperature > 38.8°C.
- Oral temperature > 37.8°C.
- Armpit temperature > 37.2°C.

Children who are younger than three months who have a temperature > 38°C, and children between three to six months of age who have a temperature > 39°C, should be urgently assessed by a doctor.

The harmful effects of fever, such as dehydration, seizures or a coma, are likely to occur at temperatures that are > 41°C. Children who experience febrile seizures have a greater risk of developing epilepsy later in life.

Nonpharmacological management

Several practical interventions may assist in alleviating some of the symptoms of colds and flu.

These include:
- Increasing the daily liquid intake in patients who are feverish, as this may assist in thinning secretions.
- Consuming warm liquids may soothe the mucosa, increase the flow of nasal mucus, and help to remove secretions by thinning and loosening the mucus.
- Using humidifiers may loosen mucus, and facilitate expectoration and mucociliary clearance.
- Taking warm showers and using warm compresses, especially on the nasal area, may relieve muscle aches and pains, and reduce sinus pain and congestion.
- Placing warm, moist cloths on a painful ear may help to relieve ear pain.

Pharmacological treatment of pain and fever

Before recommending treatment for the symptoms of colds or flu, the pharmacist should:
- Only treat the symptoms that are present, or the most bothersome.
- Check whether the patient has tried other drugs or remedies to rule out ineffective drugs or doses, and to prevent polypharmacy.
- Remember that combination products may contain one or more of the same or similar active ingredients. Check the composition of combination products to avoid therapeutic duplication or overdosing.
- Note that patient factors may play a role in the treatment of choice. These include age, allergies, and pregnancy or lactation.
- Obtain information on the patient’s medical history and chronic conditions, as this is required to determine the need for referral and possible contraindications to medicines.
- Obtain information on the concomitant use of chronic medication, as this is required to avoid possible interactions, e.g. warfarin and aspirin.

When treating cold and flu symptoms, oral analgesics are effective in relieving a sore throat, earache and muscle aches and pains, as well as fever. Treatment of the symptoms does not reduce or prolong the duration of symptoms, but provides benefit in terms of pain relief, and possibly malaise.

Untreated fever may provide information on the progress of the disease. Improvement that is followed by the return of fever may indicate a secondary bacterial infection. Therefore, some authors recommend that fever is treated only when pain is present.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Dose to treat pain</th>
<th>Maximum dose</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Paracetamol</strong></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Adults</td>
<td>650-1 000 mg every 4-6 hours</td>
<td>4 g per day</td>
<td>May cause hepatotoxicity. Avoid in patients with liver disease. Avoid alcohol.</td>
</tr>
<tr>
<td>Children (&lt; 60 kg)</td>
<td>10-15 mg/kg every 4-6 hours</td>
<td>Infants: 75 mg/kg/day Children: 100 mg/kg/day, up to a maximum of 4 g per day</td>
<td>Do not use doses that are higher than those recommended.</td>
</tr>
<tr>
<td><strong>Aspirin</strong></td>
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<tr>
<td>Adults</td>
<td>325-650 mg every 4 hours</td>
<td>4 g per day</td>
<td>Not recommended in children who are younger than 16 years of age with viral infections. Gastrointestinal irritation may occur. Be aware of possible hypersensitivity reactions.</td>
</tr>
<tr>
<td><strong>Ibuprofen</strong></td>
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<tr>
<td>Adults</td>
<td>400 mg every 4-6 hours</td>
<td>1 200 mg per day</td>
<td>Use with caution in patients with cardiovascular disease. Possible cross-sensitivity in patients with aspirin hypersensitivity.</td>
</tr>
<tr>
<td>Children 6 months to 12 years</td>
<td>4-10 mg/kg every 6-8 hours</td>
<td>40 mg/kg/day</td>
<td></td>
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</tbody>
</table>
Paracetamol
Paracetamol has analgesic and antipyretic effects, but has little or no anti-inflammatory effect. It is suitable for use in children, as well as pregnant women, and has less adverse effects on the gastrointestinal tract than aspirin. Paracetamol is effective in treating sore throats, as well as pain such as headaches and muscular aches, and fever.

Paracetamol has the potential to cause hepatotoxicity, and should be avoided in patients with severe active liver disease. Patients should be warned not to take doses that are higher than that recommended, and to limit alcohol intake. Dosing depends on age and weight. When treating pain and fever in adults, the maximum dose of paracetamol is 4 000 mg in 24 hours. See Table I for dosing recommendations.

Aspirin
Aspirin is a non-selective nonsteroidal anti-inflammatory drug (NSAID) with antipyretic, analgesic and anti-inflammatory effects. Aspirin should not be administered to children under the age of 16 years because of the risk of Reye's syndrome. Aspirin is contraindicated in pregnancy, due to the increased risk of maternal bleeding and foetal risk. Increased risk of bleeding is due to the irreversible effect of aspirin on platelets.

Other risks associated with the use of aspirin include the risk of gastrointestinal bleeding (may be aggravated by simultaneous alcohol consumption), and interaction with warfarin or other anticoagulants. Aspirin should be avoided in patients with active ulcers. Some patients may experience hypersensitivity reactions with aspirin, and preferably both aspirin and other NSAIDs should be avoided in these patients. Patients with chronic urticaria, chronic rhinitis and asthma are at higher risk of experiencing these hypersensitivity reactions.

Other NSAIDs (ibuprofen, naproxen and diclofenac)
NSAIDs have analgesic, anti-inflammatory and antipyretic effects. Analgesic effects are achieved at lower doses, and anti-inflammatory effects at higher doses. Although NSAIDs can cause gastrointestinal irritation, the gastrointestinal risk is lower than that reported with the use of aspirin. NSAIDs have a reversible effect on platelets that may increase the risk of bleeding. Bleeding risk with NSAID use is reversed within 24 hours, whereas bleeding risk with aspirin may last for up to seven days.

Patients who experience an aspirin hypersensitivity reaction should also use NSAIDs with caution, since cross-sensitivity may occur. Sodium and water retention, which may lead to oedema, may be a possible adverse effect of NSAIDs. Therefore, NSAIDs should be avoided in patients with renal failure or congestive heart failure. Preferably, NSAIDs should be avoided during pregnancy, and especially during the third trimester. Some NSAIDs, e.g. ibuprofen and diclofenac, may be used by breastfeeding mothers. The package inserts containing the individual manufacturer’s recommendations, regarding use of their products in lactation, should be consulted.

NSAIDs may increase lithium levels, with resulting toxicity. Although they do not seem to have a serious impact on whole blood clotting or prothrombin time, they are best avoided in patients taking anticoagulants.

Referral to a doctor
Adult patients presenting with the following symptoms should be referred for immediate medical attention:
- Shortness of breath, or difficulty in breathing
- Pain or pressure in the chest or abdomen
- Sudden dizziness
- Confusion
- Severe or persistent vomiting
- An improvement in symptoms, followed by a return of the fever and a worse cough
- A persistent high fever lasting longer than three days.

Children presenting with the following symptoms should receive emergency care:
- Fast breathing, or difficulty in breathing
- A bluish or grey skin colour
- Not drinking enough fluids
- Severe or persistent vomiting
- Not waking up, or not interacting
- Being so irritable that the child does not want to be held
- An improvement in symptoms, followed by a return of the fever and a worse cough.

Referral to a doctor may be advisable for patients with:
- The presence of swollen glands
- Severe facial pain
- A mucus-producing cough
- A persistent high fever
- Exacerbation of an underlying chronic disease, e.g. asthma, diabetes, chronic obstructive pulmonary disease, chronic hepatic or renal insufficiency, or cardiovascular disease.

Conclusion
It is difficult to distinguish between respiratory illness caused by influenza, and that caused by other respiratory pathogens, on the basis of signs and symptoms alone. Symptomatic management of bothersome symptoms is sufficient in most patients. However, identification of serious possible complications and referral indicators should not be neglected.
References


