

Upper Respiratory Viral Infections

Introduction

The common cold is an upper respiratory viral infection which usually lasts for several days and then goes away on its own. It is the most frequent human illness. It is estimated that 25 million people seek medical care for simple upper respiratory tract infections, annually in the United States. Approximately 30 percent of these visits result in a prescription of antibiotics. There is an inaccurate perception that bacteria cause common colds and that antibiotics will improve outcome. This misperception causes patients to visit their doctor and request a prescription for an antibiotic. Fortunately, the number of prescriptions for antibiotics has recently been decreasing this is thought to be due to increased public education and awareness. Stricter use of antibiotics help in preventing antibiotic resistance.

Cause

The symptoms of the common cold can be caused by a variety of viruses. Viruses such as rhinovirus, respiratory syncytial virus (RSV), influenza virus, parainfluenza virus, and adenovirus are commonly responsible for colds in preschool children. Rhinoviruses are responsible for at least 50 percent of colds in both children and adults.

Many of these viruses may also cause other illnesses in children:

- Bronchiolitis is a lung infection that causes wheezing. It occurs in children younger than the age of two years.
- Croup is also a lung infection that causes a barking cough. It is caused by the parainfluenza virus.
- Herpangina is an infection that presents with painful fluid-filled blisters in the back of the throat. It is caused by coxsackie A virus.
- Pharyngoconjunctival fever is an infection that involves a sore throat along with an eye infection. It is caused by adenovirus

When does it occur?

The common cold can occur at any time of year, but there is typically a high occurrence during the autumn and winter months as the different viruses move through the community in a predictable manner. In the winter months there is an increase in RSV, influenza viruses, and coronaviruses. Adenovirus infections are continuously present at a low rate throughout the cold season.

How is it spread?

Viral infections spread by inhalation of small particle that are floating in the air, larger particle droplets can land within the nose or eyes, or be directly transferred by hand-to-hand contact. Studies have shown that minimal hand-to-hand contact is needed to spread the virus (10 seconds). The infection of the virus occurs after a person transfers the virus to the nose or eyes.

Viral contamination of the hands of people already infected with the virus is common. Rhinovirus can survive on hands for as long as two hours and can also survive up to several days on surfaces. Spread of the virus can also occur through contact with contaminated surfaces.

Cause of symptoms

Symptoms usually appear one to two days after being infected. An increase in different cells used to fight the infection result in cold symptoms (runny nose and sore throat). There is also an increase in blood flow to the area where the infection is taking place causing, for example, nasal congestion.

Symptoms

Symptoms of the common cold in children present distinctly different from the illness seen in adults. Adults average only two to four colds per year, with symptom lasting five to seven days; nasal congestion is the prominent symptom and fever is usually absent.

Children younger than the age of six years average six to eight colds per year, with a typical episode lasting up to 14 days. Young children in daycare appear to be more at risk to these infections than those cared for at home, but are also less vulnerable when they enter primary school.

Coloured nasal discharge is typical, and fever is common in children during the first three days of the illness. Other symptoms in children may include sore throat, cough, irritability, difficulty sleeping, and decreased appetite. Signs on physical exam are not specific, but may include redness and swelling of the nasal passage, as well as moderate lymph node enlargement over the front of the neck. Abnormalities of the sinuses are common during the course of a simple common cold, especially sinus congestion.

Complications

Ear Infections ⚡ Eustachian tube blockage is common during the course of the common cold. Ear infections should be suspected when a patient reports sudden onset of ear pain after the first few days of cold symptoms. This occurs in only 5 to 15 percent of colds in young children.

Asthma ⚡ Viral URIs are commonly associated with wheezing in children with a history of asthma and are associated with at least 50 percent of asthma attacks in children.

Sinusitis ⚡ Persistent nasal symptoms greater than 10 to 14 days may be a sign of a bacterial infection of the sinuses. Bacterial sinusitis is estimated to infect approximately 6 to 13 percent of viral URIs in children.

Lower Respiratory Tract Infection ⚡ Bacterial pneumonia may come after a viral respiratory infection, similar to ear infections. It should be suspected when a patient develops new-onset fever after the first few days of having cold symptoms. The presence of a cough that lasts a long time, without a fever, is usually a sign of a viral lower respiratory tract infection.

Treatment

Treating the symptoms that are a result of the viral infection is the only treatment for the common cold. Antihistamines, decongestants, cough suppressants, and medication used to thin mucus, alone or in combination, can be used for symptom relief in children.

The Ministry of Health recommends that over-the-counter cough and cold medicines not be used to treat children younger than two years and discourages their use in children younger than six because these products lack proven effectiveness and have the potential for toxicity. For children younger than two years of age, prescription and over-the-counter cough and cold medications have been associated with fatal overdose. Medications such as pseudoephedrine (a decongestant), carbinoxamine (an antihistamine), and dextromethorphan (a cough suppressant) have been implicated. It is recommended that these medications not be used in infants and children. Parents should also be aware of over-the-counter combination medications to avoid overdose in children from multiple medications that contain the same ingredient (eg, paracetamol)..

Fever

Paracetamol (or ibuprofen, in children greater than six months of age) may be used to treat fever during the first few days.

Runny Nose

The best treatment is clearing the nose for a day or two. Sniffing and swallowing the secretions are probably better than blowing the nose which can force the infection into the ears or sinuses. Nasal discharge is the nose's way of eliminating viruses.

Stuffy or Blocked Nose

If the nose is blocked up, your child will not be able to drink from a bottle or breast feed. Most stuffy noses are blocked by dry or sticky mucus. Suction alone cannot remove dry secretions. Warm tap water or saline nose drops (nasal washes) are better than any medicine you can buy for loosening up mucus. Place three drops of warm water or saline in each nostril. You can repeat this procedure several times until your child's breathing through the nose becomes quiet and easy.

For the older child who can blow their nose: Use three drops as necessary in each nostril while your child is on a bed with the head hanging over the side. Wait 1 minute for the water or saline to soften and loosen the dried mucus. Then have your child blow their nose. This can be repeated several times in a row for complete clearing of the nasal passages.

Errors in using nose drops: The main errors are not putting in enough water or saline, not waiting long enough for secretions to loosen up, and not repeating the procedure until the breathing is easy. The front of the nose can look open while the back of the nose is all gummed up with dried mucus.

Use nasal washes at least 4 times per day or whenever your child cannot breathe through the nose. The importance of clearing the nose in young infants is that a child cannot breathe through the mouth and suck on something at the same time. If your child is breast or bottle feeding, you must clear the nose so they can breathe while sucking. Clearing the nasal passages is also important before putting your child down to sleep.

Cough

Cough is a common symptom during the course of the common cold, and parents frequently seek out a cough suppressant. Cough suppressants reduce the cough reflex, which protects the lung. They are only indicated for dry coughs that interfere with sleep, school attendance, or work. They also help children who have chest pain from coughing spasms.

Antihistamines, decongestants, and antipyretics are found in many cough syrups. These ingredients are of unproven value, and the antihistamines carry the risk of sedation. Expectorants are of unproven value but harmless. Cough suppressants such as dextromethorphan and codeine have not proven to be effective in children. Because of the potential serious toxicities and the lack of proven effectiveness, these medications are not recommended for use in children.

Coughing spasms are often caused by sticky secretions in the back of the throat. Warm liquids usually relax the airway and loosen the secretions. Parents can offer warm lemonade, warm apple juice or warm herbal tea if your child is over 4 months old. In addition, breathing warm moist air helps to loosen the sticky mucus that may be choking your child. You can provide warm mist by placing a warm wet washcloth loosely over your child's nose and mouth, or you can fill a humidifier with warm water and have your child breathe in the warm mist it produces. Avoid steam vaporizers because they can cause burns.

Dry air tends to make coughs worse. Dry cough can be loosened by encouraging a good fluid intake and using a humidifier in your child's bedroom. The new ultrasonic humidifiers are very quiet, and they kill moulds and most bacteria found in the water. Don't add medication to the water in the humidifier because it irritates the cough in some children.

Stay with simple remedies. For children under age 4 years, use ½ to 1 teaspoon of corn syrup instead of cough drops. Corn syrup can thin the secretions and loosen the cough. Milk does not need to be eliminated from the diet, since restricting it only improves the cough if your child is allergic to milk. Also, never stop breast-feeding because of a cough.

Antihistamines

The drying effects of antihistamines (eg, Benadryl or diphenhydramine) may help to reduce the nasal secretions associated with the common cold. However, studies have shown antihistamines are ineffective in relieving the symptoms of children with URI, whether administered in combination with decongestants or alone.

In addition to sedation, side effects of antihistamines may include excitability, respiratory depression, and hallucinations. Because of the potential toxicity and the lack of proven effectiveness, antihistamines should only be used in children over 12 months of age and with the knowledge that sedation may be the only beneficial effect of treatment.

Decongestants

Decongestants are medications that cause constriction of the blood vessels that supply the nasal passages. They are available by mouth or nasal preparations. Commonly used decongestants include pseudoephedrine, and phenylephrine, and oxymetazoline. In adults, such medications have been shown to decrease nasal congestion and increase the air flow within the nasal passage, but there are no studies demonstrating the effectiveness of these medications in children. Side effects of decongestants may include rapid heart rate, elevated blood pressure, and palpitations. Because of the substantial risks of these products without proven benefit, decongestants are not recommended for paediatric use.

Feeding

Encourage your child to drink adequate fluids. Eating is often tiring, so offer your child formula or breast milk in smaller amounts at more frequent intervals. If your child vomits during a coughing spasm, feed the child again.

Smoking

Tobacco smoke aggravates coughing. The incidence of wheezing increases greatly in children who have RSV infection and are exposed to passive smoking. Don't let anyone smoke around your child.

Other Treatments

Zinc ð The effectiveness of zinc for treatment of the common cold remains unclear. In adults, for every study that demonstrates benefit, there is another that shows none. Side effects of zinc may include bad taste, nausea, throat irritation, and diarrhea. Zinc nasal products have been associated with long-term or permanent loss of sense of smell.

Echinacea ð Echinacea is frequently used for treatment of viral URI. Studies in adults do not suggest a benefit for treatment of the common cold.

Antibiotic Therapy

There is no role for antibiotics in the treatment of the common cold. Antibiotic therapy does not prevent against bacterial infections. Using antibiotics to treat viral infections can also lead to antibiotic resistance. The use of antibiotics should be reserved for clearly established bacterial infections, including bacterial ear infections, sinusitis, and pneumonia.

Prevention

The best methods for preventing the spread of the common cold from one person to another are to practice frequent hand washing and to avoid touching one's nose and eyes. The annual flu vaccine prevents influenza infection and its complications.