

GENERAL CARE DURING INFECTIONS

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This chapter provides basic information about some of the illnesses that your child may experience. An attempt has been made to define the medical terms often used in association with these illnesses, and to describe their characteristic symptoms. General supportive measures designed to provide relief of symptoms and prevention of complications have also been suggested.

It is important to stress the need for physician communication and supervision during any infection. The frequency of even minor illnesses should be reported, because they can influence decisions about preventive therapy such as gammaglobulin and antibiotics. Medical treatment and supportive care of any immune deficient individual seek to accomplish 1) a reduction in the frequency of infections, 2) the prevention of complications, and 3) the prevention of an acute infection from becoming chronic. The patient, family and physician must work together as a unit if these goals are to be accomplished.

Patient, family and physician must work together to accomplish these goals:

- √ Reduce frequency of infections
- √ Prevent complications
- √ Prevent an acute infection from becoming chronic

PREVENTION OF INFECTIONS

- Wash hands before touching any part of the face (especially eyes, nose and mouth)
- Get immunizations prescribed by your doctor, including those to prevent flu (influenza vaccine) and pneumonia (pneumococcal vaccines)
- Stay away from people with fever, bad cough or diarrhea

SPECIFIC ILLNESSES

Conjunctivitis (Pink Eye)

In A-T, the eyes are often red because of the presence of telangiectasia. This is caused by an abnormal growth of blood vessels. Telangiectasia is not caused by infection and is not contagious. Children with A-T should not be sent home from school because they have telangiectasia. On the other hand, conjunctivitis (pink eye) is an inflammation of the lining of the eyelid and of the membrane covering the outer layer of the eyeball (conjunctiva). Conjunctivitis can be caused by bacteria, viruses or chemical irritants such as smoke or soap. It may occur by itself, or appear in association with other illnesses, such as the common cold.

Unlike ocular telangiectasia, conjunctivitis is an acute change with swelling of the eyelids and discharge of pus, as well as prominent blood vessels on the white of the eye. These symptoms are usually accompanied by itching and burning. In the morning, the child's eyelids may be "stuck" together from the discharge that had dried during the night. These secretions are best loosened by placing a wash cloth soaked in warm water on each eye. After a few minutes, gently clear each eye, working from the inner corner to the outer corner of the eye. Meticulous hand washing is necessary for anyone coming in contact with the eye discharge in order to prevent the spread of the infection. Conjunctivitis is a common infection in children, and is no more frequent or severe in children with A-T. If your child does get conjunctivitis, however, it may be necessary for him/her to see a physician in order to determine the cause and the type of treatment necessary.

Otitis Media (Ear Infection)

Otitis media is an infection of the middle ear that is usually caused by bacteria or viruses. A small tube called the eustachian tube connects the middle ear with the inside of the nose. In the infant and small child the tube is shorter and straighter than in the adult, providing an easy path for bacteria and viruses to gain entrance into the middle ear. In some infections and allergies, this tube may actually swell and become shut, preventing drainage from the middle ear.

The characteristic symptom associated with otitis media is pain, which is caused by irritation of the nerve endings in the inflamed ear. Your baby or young child may indicate pain by crying, head rolling or pulling at the infected ear(s). The older child or adult may describe the pain as being sharp and piercing. Restlessness, irritability, fever, chills, nausea and vomiting may also be present. Pressure in the infected eardrum tends to increase when the child is in a flat position. This explains why pain is often more severe at night, causing your child to awaken frequently. As fluid pressure increases within the eardrum, pain becomes more severe and the ear drum may actually rupture. This may be apparent by the appearance of pus or bloody drainage in the ear canal. Although pain is usually relieved at this time, the infection still exists. Whenever an ear infection is suspected, your child should be

Illnesses children with
A-T may experience:

- √ Conjunctivitis
- √ Otitis Media
- √ Pharyngitis
- √ Colds
- √ Sinusitis
- √ Influenza
- √ Acute Bronchitis
- √ Bronchiectasis
- √ Pneumonia

seen by a physician for proper diagnosis. Antibiotic treatment is instituted in order to prevent further infection and hearing impairment. A follow-up examination may be done in approximately 10 days to be certain that the infection has cleared and that no residual fluid remains in the eardrum.

Pharyngitis (Sore Throat)

Pharyngitis (sore throat) is a term used to describe an inflammation of the throat. It is usually caused by a bacterial or viral infection. Symptoms include a raw or tickling sensation in the back of the throat and difficulty swallowing. Temperature may be normal or elevated. Untreated sore throats caused by streptococcus (strep throat) can cause serious complications, such as rheumatic fever or inflammation of the kidneys (nephritis). Whenever your child complains of a sore throat without other symptoms of a cold, your doctor should be contacted.

Common Cold

The common cold is an acute inflammation of the upper respiratory tract (nose and throat or nasopharynx). Early symptoms include a dry tickling sensation in the throat, followed by sneezing, coughing and increased amounts of nasal discharge. There may also be symptoms of fatigue, chills, fever and general aches. Colds are caused by viruses, and there is no benefit to treatment with antibiotics.

Sinusitis

Sinusitis is a term used to describe an inflammation of one or more of the sinuses (see drawing). The sinuses are small cavities, lined with mucous membranes, located in the facial bones surrounding the nose. The basic cause of sinusitis is the blockage of normal routes of sinus drainage and the spread of infections from the nasal passages. Sinusitis sometimes follows the common cold or nasal allergies, because swollen nasal membranes and mucus can block sinus drainage. After that happens, bacteria trapped in the sinuses can cause sinusitis.

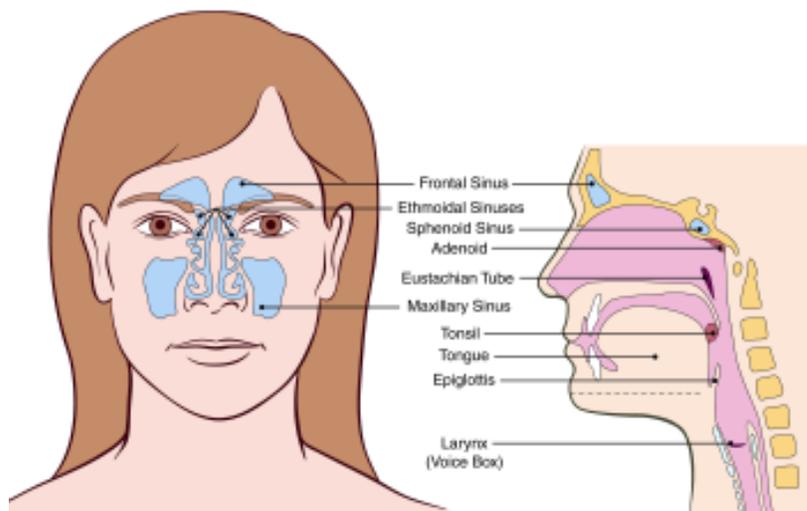


Fig. 6-1: Important structures of the head and face.

Every A-T patient, except those treated with gamma globulin (IVIG), should get a flu shot every fall.

Vaccines that may decrease the risk for pneumonia in A-T patients are available.

COLDS AND SINUS INFECTIONS

- Colds are caused by viruses and are not treated by antibiotics.
- Sinus infections often are caused by bacteria and benefit from antibiotic treatment.
- It is not always easy to distinguish colds from sinusitis.
- Clues to sinusitis include:
 - Nasal discharge and daytime cough that persist for more than a week
 - Bad breath
 - Cold symptoms with high fever, facial pain or severe headache

The distinction between the common cold and sinusitis is important. Colds are caused by viruses and are not improved by antibiotics. In contrast, sinusitis is often a bacterial infection that should be treated with antibiotics. Unfortunately, it is sometimes difficult to diagnose sinusitis by exam alone. Sinusitis should be suspected if symptoms of a cold (particularly nasal discharge and daytime cough) are not improving after 7-10 days. Bad breath and swelling around the eyes upon awakening may also raise suspicions for sinusitis. In a minority of cases, sinusitis develops as the primary infection and not as a complication of a cold. In this case, symptoms are typically more severe with high fever, green or yellow nasal drainage, facial pain, and sometimes headache.

Influenza (Flu)

Influenza (flu) is a term used to describe a highly contagious respiratory infection which is caused by three closely related viruses. Influenza may occur sporadically or in epidemics. Usually epidemics occur every 2-4 years and develop rapidly because of the short incubation period. The incubation period includes the time a person is exposed to an infecting agent to the time symptoms of the illness appear. Symptoms of the flu include sudden onset of high fever, chills, headache, weakness, fatigue, nasal drainage and muscular soreness. Influenza can cause damage to the airways of the lung and may increase chances for secondary bacterial infections. Recovery in an A-T patient may be delayed because of impaired ability to cough and clear secretions. There is a safe vaccine that is highly effective at preventing influenza. Every A-T patient, except those treated with gamma globulin

(IVIG) should get a flu shot every fall. It may also be worthwhile for all household members to get the flu shot to decrease the chances that the A-T patient will be exposed to the virus.

Acute Bronchitis

Acute bronchitis is an inflammation of the bronchi (the major branches off the trachea or windpipe). It often accompanies or follows an upper respiratory tract infection, such as the common cold. Symptoms include fever and cough. At the onset, the cough is dry, but gradually becomes productive (producing mucus). Again, recovery may be delayed by the limited ability of many A-T patients to cough and clear secretions from the respiratory tract.

Bronchiectasis

Bronchiectasis is a term used to describe dilation (widening) of the bronchial air passages in the lungs (bronchi and bronchioles). Secretions normally cleared from the lungs by these structures tend to collect in the dilated passages, enhancing the development of infection. Bronchiectasis can develop from frequent pulmonary infections or from obstruction of the bronchi by mucus, pus or foreign bodies. The main symptoms of bronchiectasis are frequent and severe coughing. The cough characteristically produces large amounts of thick, foul smelling sputum. The sputum may also be bloody on occasion.

Pneumonia

Pneumonia is an acute infection of the lungs that can be caused by bacteria, viruses and fungi. Symptoms include chills, high fever, cough, and chest pain associated with breathing and coughing. In some cases nausea, vomiting and diarrhea may also occur. Vaccines (pneumococcal polysaccharide and pneumococcal protein/polysaccharide conjugate) are available that may decrease the risk for pneumonia in A-T patients.

Gastroenteritis (Diarrhea/Vomiting)

Gastroenteritis is characterized by frequent, loose, watery bowel movements, and/or vomiting. These infections may be caused by viruses or bacteria, or be symptomatic of a food allergy or food intolerance. Contaminated foods, drugs and anxiety may also cause diarrhea.

Gastroenteritis may be mild to severe in nature. Whether it is mild or severe depends on the frequency of stools, their volume, how loose they are, the frequency and volume of vomiting, the presence or absence of fever, and how much fluid the child can take by mouth and retain.

The significance of gastroenteritis is related to the amount of body fluids lost, and the severity of dehydration which develops. Infants and young children, because their body fluid volume is larger and their nutritional reserves

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The general care of gastroenteritis centers around the replacement of lost body fluids and the prevention of dehydration.

smaller, are at a greater risk for dehydration than older children and adults. Symptoms of dehydration include 1) poor skin turgor (loss of elasticity), 2) dry, parched lips, mouth and tongue, 3) thirst, 4) decreased urinary output, 5) in infants, depressed (sunken) fontanelles (soft spots), 6) eyes appear sunken, and 7) behavioral changes ranging from increased restlessness to extreme weakness.

If your child has diarrhea and/or vomiting that does not resolve within a day, a physician should be notified.

GENERAL CARE OF THE INDIVIDUAL WITH RESPIRATORY ILLNESS

The treatment of respiratory infections is directed toward the relief of symptoms and the prevention of complications. Your doctor may prescribe a medication to relieve fever and general body aches. Antibiotics may be prescribed to control infections of bacterial origin and/or to prevent complications. Expectorants may be prescribed to liquefy (water down) mucus secretions. Decongestants may be ordered to shrink swollen mucous membranes.

Fluids should be encouraged, and offering your child a variety of beverages is important. Beverages served with crushed ice can be soothing to a sore throat. Warm beverages, such as tea, may promote nasal drainage and relieve chest tightness.

During the acute phase of any illness, there may be an initial loss of appetite. Your child should not be forced to eat, nor should large meals be offered. It is often better to offer small frequent feedings of liquid and soft foods. Once your child's appetite returns, a high-caloric, high-protein diet, to replace the proteins lost during the acute phase of the illness, should be offered.

General comfort measures also include encouraging your child to rinse his or her mouth with plain water at regular intervals. This will relieve the dryness and "bad taste" that often accompanies illness and mouth breathing. A vaporizer is helpful in increasing room humidity. If you use a vaporizer, it must be kept clean to prevent contamination with molds and bacteria. A petroleum jelly coating can provide relief and protection to irritated lips and nose. Body temperature fluctuations may be associated with periods of perspiration. Bed linens and clothing should be changed as often as necessary, and your child should be protected from drafts and chills.

Adequate rest is important. If persistent coughing or post-nasal drip interfere with rest, elevation of the head and shoulders with extra pillows during periods of sleep should be attempted.

The individual should be encouraged to cover the mouth and nose when sneezing and coughing. Soiled tissues should be promptly discarded. Frequent hand washing is essential to prevent the spread of the infection.

In some cases of bronchitis and pneumonia (depending on the age and level of understanding), encourage your child to cough and breath deeply at regular intervals. Coughing protects the lungs by removing mucus and foreign particles from the air passages. Deep breathing promotes full expansion of the lungs, reducing the risk of further complications. A physician may order chest postural drainage or chest physiotherapy.

CHEST POSTURAL DRAINAGE

Postural drainage (chest physiotherapy) may be prescribed by your child's physician to help clear secretions from the airways of the lung. The following material on segmental bronchial drainage has been adapted from material by the Cystic Fibrosis Foundation, Bethesda, Maryland, and used with their permission.

What is Bronchial Drainage?

Bronchial drainage uses gravity and physical maneuvers to stimulate movement of secretions in order to relieve airway obstruction due to accumulated mucus or "phlegm." This form of chest physical therapy can be prescribed for the prevention and/or treatment of some respiratory problems due to accumulated secretions.

Who can Benefit from Bronchial Drainage?

As a form of treatment, it helps individuals with respiratory problems caused by:

- increased production of secretions,
- thick or sticky secretions,
- impaired removal of secretions, and
- ineffective cough,
- or combinations of any of these factors.

As a preventive measure, it benefits those persons with:

- predisposition for increased production or thickness of secretions and/or
- weakness of the breathing muscles.

What Physical Maneuvers Can Assist in the Removal of Secretions?

Chest physical therapy consists of maneuvers that help remove secretions from the walls of the airways and stimulate coughing. These maneuvers include: positioning to allow secretions to flow by gravity from individual segments of the lung into larger airways, clapping with the cupped hand, vibration, deep breathing and assisted coughing.

Clapping is done with the cupped hand on the chest wall over the segment to be drained. Clapping initiates vibrations which stimulate the movement of secretions and may help remove secretions sticking to the bronchial walls. The

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- Chest physical therapy consists of:
- √ clapping
 - √ vibration
 - √ deep breathing
 - √ assisted coughing

hand is cupped by holding the fingers together so that the shape of the cupped hand conforms with the chest wall and tends to trap a cushion of air which softens the blow of clapping. Clapping should be vigorous, but not painful, and should not be done on bare skin. The therapist should remove rings before clapping. Clapping is usually performed on the patient by the therapist or a person trained in the technique.



Fig. 6-2: Proper "cupping" of the hand for chest physical therapy.

Vibration is also a maneuver which helps to stimulate the flow of secretions. This technique requires that the therapist's hand be pressed firmly over the segment on the chest wall and the muscles of his upper arm and shoulder are tensed (isometric contractions). Vibration is done with the flattened, not the cupped hand. Vibration is performed during exhalation, with the patient saying "FFF" or "SSS". Exhalation should be as slow and as complete as possible. Various mechanical vibrators are available commercially and may be helpful.

Deep breathing both assists in the movement of secretions and stimulates coughing. An effective cough is an essential part of clearing the airways. A forced but not strained exhalation, following a deep inhalation, may move secretions and may stimulate a productive cough. Coughing may be assisted by supporting the side of the lower chest with the hands, which decreases the strain of coughing and may increase its effectiveness.

To minimize the chance of vomiting, bronchial drainage is best done before meals or 1 1/2 to 2 hours after eating. Early morning and bedtime sessions are usually recommended. By helping clear the airways of accumulated secretions, bronchial drainage before bedtime may reduce nighttime coughing.

When used for treatment, bronchial drainage is usually recommended at least twice daily. Additional bronchial drainage is often advised during acute respiratory infections and in instances where the extent of disease requires it. When drainage is used for prevention, it is usually recommended once or twice daily.

GENERAL CARE OF THE INDIVIDUAL WITH GASTROINTESTINAL ILLNESS

The general care of gastroenteritis centers around the replacement of lost body fluids and the prevention of dehydration.

When diarrhea is mild, changes in the diet and increased fluid intake usually compensate for fluid losses. Your child should be encouraged to drink fluids such as weak tea, Gatorade, bouillon and "flattened" soft drinks. If nausea and vomiting

are present, offer ice chips and popsicles. Fluids taken too quickly, or in too large of an amount, may precipitate vomiting. If these fluids are tolerated, gradually offer small sips of other fluids. Bland foods, such as rice cereal, yogurt, and low fat cottage cheese can slowly be added to the diet.

With infectious diarrhea, several measures will reduce the chances of spreading the illness to other family members. Frequent hand washing is essential for everyone. It may be easier for the infected person to use disposable cups, dishes, and utensils. Soiled diapers, clothing and linens should be kept separate and washed separately from other family laundry. Bathrooms should be cleaned with a disinfectant solution as often as necessary.