

Acute upper respiratory tract infections in childhood

Upper respiratory tract infections (URTIs)

- The majority of URTIs are viral in origin, of mild severity and of short duration (5-7 days).
- In the first 5 years of life children average six to eight episodes a year.

VIRUS

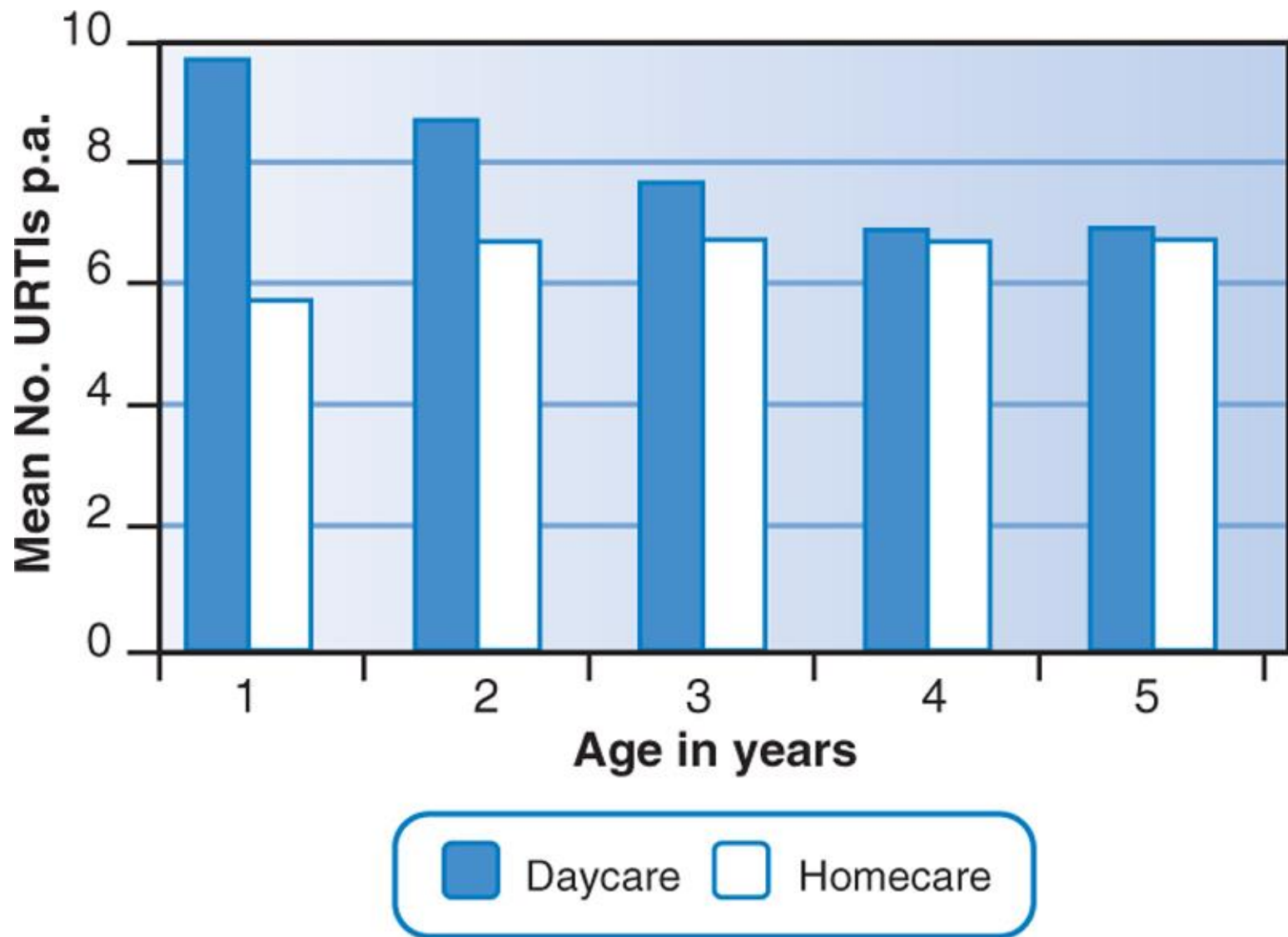
- Type
- Potency
- Infectivity
- Dosage

HOST

- Age
- Gender
- Birth weight
- Gestational age
- Family history (e.g. atopy)
- Diet / nutrition
- Race (e.g. ATSI)*

ENVIRONMENTAL

- Exposure
 - older siblings
 - daycare
 - overcrowding
- ETS⁺/ air quality
- Socioeconomic status
- Quality of homecare



Common cold or Nasopharyngitis (uncomplicated viral URTI)

- This is defined as an acute illness where the major symptoms are:
 - nasal (snuffliness, sneezing and rhinorrhoea)
 - sore throat
 - conjunctival irritation (red, watery eyes).
- The symptoms are mild, fever is often minimal or absent and all symptoms resolve between 5 and 7 days.
- The usual pathogen responsible for an uncomplicated viral URTI is ***rhinovirus***.

- Other common causative viruses are:
 - Corona virus
 - Enterovirus
- Some other uncommon ones are:
 - Adenovirus
 - Influenza virus A and B
 - RSV
 - Parainfluenza virus
- Mode of transmission
 - Droplets (particularly by sneezing)
 - Nasal secretions; on hands and fomites (clothing, handkerchiefs, toys, cot sides).

- Complications include;
 - otitis media.
 - acute rhino sinusitis.
 - Pneumonia.
 - Acute exacerbation of asthma.
- Treatment;
 - Conservative,
 - Good hydration
 - Antipyretics
 - N/S nasal drops with a bulb syringe for suction.
 - Decongestant
 - Antihistamine as monotherapy doesn't alleviate symptoms

Pharyngitis (oropharyngitis/tonsillitis)

- Pharyngitis is a clinical syndrome in which the major complaint is acute sore throat and/or discomfort on swallowing (dysphagia).
- The illness is generally mild and self-limiting, it is uncommon below the age of one year and peaks between the ages of 4 and 7.
- The causative organism of pharyngitis is generally viral but it can also be caused by bacteria (group A beta haemolytic streptococci).

- Ulcerative pharyngotonsillitis
 - This is usually due to an adenovirus infection (types 3, 4, 7, 14 and 21) .
 - The enteroviruses (Coxsackie virus and echovirus) and herpes simplex virus can also produce ulcerative pharyngotonsillitis.
 - Other respiratory viruses (including RSV and parainfluenza) usually cause a more diffuse nasopharyngitis rather than this focal tonsillar inflammation.
- Epstein-Barr virus pharyngitis/tonsillitis
 - This typically occurs in older, school-age children
 - It causes an exudative tonsillitis
 - Epstein Barr virus tonsillitis is associated with generalized symptoms, including fever, lethargy, anorexia and headache
 - This generalized illness is referred to as *infectious mononucleosis*, or '*glandular fever*'.

Acute bacterial tonsillitis ('streptococcal pharyngitis')

- *Group A beta-haemolytic streptococcus* is the usual bacterial cause of acute pharyngitis and is the only common form of pharyngitis for which antibiotics have a role.
- While it is important to distinguish viral pharyngitis from streptococcal pharyngitis, unfortunately, this is not easy on clinical grounds; however, if three or more of the following characteristics are present then it is more likely that the child has a streptococcal infection:
 - fever
 - tonsillar exudate
 - tender, enlarged anterior cervical lymph nodes
 - absence of cough and/or coryzal symptoms.

The diagnosis is achieved by

- ASO titre.
- Pharyngeal swab + C/S.

- D/D

- H influenza pharyngitis
- Diphtheria
- Herpangina

- Complications

- Retropharyngeal abscess
- O.M
- Acute glomerulonephritis
- Acute rheumatic fever

- Treatment

The antibiotic given should be guided by the antigen detection and C/S.

- Penicillin/amoxicillin (10 days).
- Paracetamol for the sore throat and fever.
- Gargling with warm saline.
- Good hydration.

Primary herpes simplex stomatitis

- This is due to infection with herpes simplex virus (HSV) types 1 and 2.
- It has a peak incidence in children aged 1-3 years.
- ***It typically causes***
 - Multiple discrete ulcers on the *anterior* regions of the
 - oropharynx - tongue,
 - gums
 - palate.
 - Significant fever.
 - Lymphadenopathy (especially submental and anterior cervical lymph glands).
 - The ulcers generally persist for 5-7 days and can initially cause considerable pain.
 - Infection may be widespread in children with eczema and severe in those who are immunocompromised.
- Treatment
 - orally or rectally administered analgesia, such as Paracetamol.
 - Acyclovir is used in immunocompromised patients and if effective, is given within 72 hours of onset.

Herpangina

This typically occurs:

- In preschool children
- Due to one of the enteroviruses (Coxsackie virus or echovirus).
- It results in a number of discrete mouth ulcers, localized to the *posterior* portion of the oropharynx - tonsillar pillars, pharyngeal wall, uvula and palate.

This distribution contrasts with the anterior ulcers due to herpes simplex virus.

Hand, foot and mouth disease

- This illness occurs
 - In young children
 - Due to enteroviruses
 - In lesions similar to those of HSV.
- The usual symptoms are:
 - Sore throat.
 - Refusal to eat and drink.
- These symptoms are often accompanied by a vesicular or macular papular rash on the hands, feet, buttocks or trunk.
- The mouth ulcers are generally on the tongue, palate and buccal mucosa.
- The illness classically occurs in mini-epidemics.

Acute sinusitis

- Is a bacterial infection of the Para nasal sinuses which occurs in approximately 5-10% of viral URTIs.
- It generally involves the maxillary sinuses.
- The usual organisms responsible for acute bacterial sinusitis are:
 - *Streptococcus pneumoniae*,
 - Non-typeable *Haemophilus influenzae*
 - *Moraxella catarrhalis*.
- *The usual manifestations are*
 - A profuse, mucopurulent nasal discharge with nasal obstruction
 - A cough which occurs mostly at night.
 - Mal-odors.
 - Headache
 - Fever.
 - Facial pain.
- Uncomplicated acute viral rhinosinusitis normally resolves without specific treatment in 7-10 days.
- Thus, if the child has a purulent nasal discharge continuing beyond 10 days, the possibility of secondary bacterial sinusitis needs to be considered.
- Amoxicillin plus clavulanic acid (co-amoxiclav) is therefore generally considered the antibiotic of choice.

- X-ray of the PNS.
- CT
- Sinus aspirate (Antral puncture/ not safe or practical).
- Treatment:
 - Amoxicillin + Clavulonic acid.
 - Paracetamol
 - Normal saline drops.
- Cpx:
 - Suppurative OM.
 - Periorbital cellulitis.
 - Meningitis.
 - Subdural abcess.

Acute otitis media

Acute otitis media is the most frequent complication of viral URTI, particularly in the very young (6 months to 2 years of age).

- It is common in winter, overcrowding and malnutrition.
- 50% will have an attack after 2 years of age.
- 75% will have an attack after 3 years of age.
- This risk increases in:
 - Congenital anomalies such as cleft palate and other craniofacial structural abnormalities.
 - Downs syn.
 - Nasopharyngeal disease (enlarged infected adenoids, tonsillitis or rhinosininitis).
 - Contamination of the nasopharynx in bottle fed infants nursing in the recumbent position.
 - Ger with regurgitation.

- Etiology
 - Streptococcus pneumonia
 - H influenza
 - M catarrhalis
- Clinical features
 - Fever
 - Ear ache
 - Ear discharge
- Cpx
 - Infectious eczematous dermatitis
 - Chronic suppurative OM
 - Ant mastoiditis
 - Facial nerve palsy
 - Labrynthitis
 - Meningitis
- Treatment
 - Amoxicillin + clavulonic acid
 - 3rd generation cephalosporins.

Table 140-4. Prevention of upper respiratory tract infections

Reduction of exposure in day care

- Cohorting (both age and symptomatic of respiratory tract infection)
- Reducing overcrowding
- Improving ventilation
- Individual use of personal items (e.g. toothbrushes and facecloths)
- Strict handwashing by both staff and children

Education of parents about spread of respiratory viruses and appropriate care

- Similar issues to those outlined above for day care
- Education concerning no antibiotics for URIs
- Symptomatic treatment should be minimal (e.g. oral analgesics)

Reduced exposure to environmental tobacco smoke, especially in homes and cars

Vaccination

- Influenza vaccine
 - to prevent serious influenza A and B infections in young children
 - to reduce the pool of infection to protect the elderly community
- Pneumococcal conjugate vaccine (to reduce rates of acute otitis media)

Summary

1. The vast majority of respiratory tract infections in young children are uncomplicated 'common colds' (approx. 80%) that require no specific treatment.
2. Young children experience six to eight viral URTIs per year.
3. A very small proportion of URTIs are bacterial. The most common is streptococcal pharyngitis.
4. The child's age and the specific type of virus are the most powerful predictors of the type of respiratory infection.
5. Local ENT complications of viral URTIs occur in approximately 15% of URTIs.











