

### Nutrition and Fluid therapy

- **Feeding.** Infants admitted with viral bronchiolitis frequently have poor feeding, are at risk of aspiration and may be dehydrated. Small frequent feeds as tolerated can be allowed in children with moderate respiratory distress. Naso-gastric feeding, although not universally practiced, may be useful in these children who refuse to feed and also to empty the dilated stomach.
- **Intravenous fluids** for children with severe respiratory distress, cyanosis, apnoea. Fluid therapy should be restricted to maintenance requirement of 100 ml/kg/day for infants, in the absence of dehydration.

### Pharmacotherapy

- **Inhaled  $\beta_2$ -agonists.** Pooled data have indicated a modest clinical improvement with the use of  $\beta_2$ -agonist. A trial of nebulised  $\beta_2$ -agonist, given in oxygen, may be considered in infants with viral bronchiolitis. Vigilant and regular assessment of the child should be carried out if such a treatment is provided.
- **Inhaled steroids.** Randomised controlled trials of the use of inhaled steroids for treatment of viral bronchiolitis demonstrated no meaningful benefit.
- **Antibiotics** are recommended for all infants with
  - recurrent apnoea and circulatory impairment,
  - possibility of septicaemia
  - acute clinical deterioration
  - high white cell count
  - progressive infiltrative changes on chest radiograph.

## CROUP

### Aetiology and epidemiology

It is a clinical syndrome characterised by barking cough, inspiratory stridor, hoarse voice and respiratory distress of varying severity. It is the result of viral inflammation of the larynx, trachea and bronchi, hence the term laryngotracheobronchitis.

The most common pathogen is parainfluenza virus (74%), (types 1, 2 and 3).

The others are Respiratory Syncytial Virus, Influenza virus type A and B, Adenovirus, Enterovirus, Measles, Mumps and Rhinoviruses and rarely Mycoplasma pneumoniae and Corynebacterium Diphtheriae

### Clinical Features

- low grade fever, cough and coryza for 12-72 hours, followed by
- increasingly bark-like cough and hoarseness
- stridor that may occur when excited, at rest or both
- respiratory distress of varying degree

### Diagnosis

- croup is a *clinical diagnosis*. Studies show that it is safe to visualise the pharynx to exclude acute epiglottitis, retropharyngeal abscess etc. However, in severe croup, it is advisable to examine the pharynx under controlled conditions (ICU /OT)
- neck Radiograph is not necessary, unless the diagnosis is in doubt, such as in the exclusion of a foreign body.

## Assessment of severity

### Clinical Assessment of Croup (Wagener)

#### • Severity

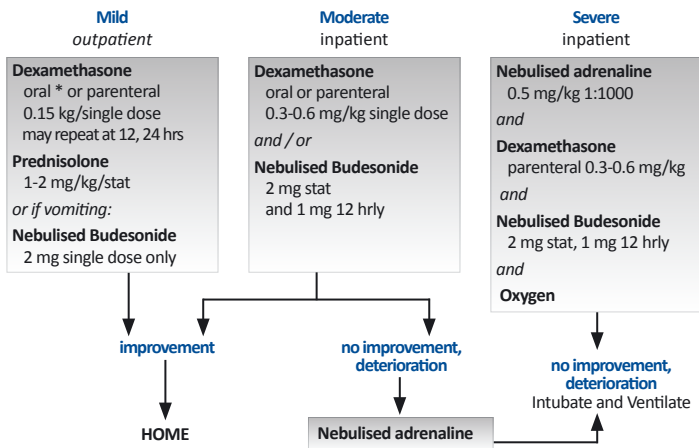
- mild: stridor with excitement or at rest, with no respiratory distress.
- moderate: stridor at rest with intercostal, subcostal or sternal recession.
- severe: stridor at rest with marked recession, decreased air entry and altered level of consciousness.
- pulse oximetry is helpful but not essential
- arterial blood gas is not helpful because the blood parameters may remain normal to the late stage. The process of blood taking may distress the child.

## Management

### Indications for hospital admission

- moderate and severe viral croup
- poor oral intake
- family lives a long distance from hospital; lacks reliable transport
- toxic looking
- age less than 6 months
- unreliable caregivers at home

Figure 1. Algorithm for the management of viral croup



Note: With the use of steroids + adrenaline in severe croup (the sustained action of steroids combined with quick action of adrenaline), the rate of intubation has been reduced from 3% to nil in many centres. The decision to intubate under controlled conditions (in Operation Theatre or Intensive Care Unit, with standby for tracheostomy) is made on clinical criteria, which suggests increasing respiratory distress.

### The indications for oxygen therapy include:

- severe viral croup
- percutaneous  $\text{SaO}_2 < 93\%$

Caution: With oxygen therapy, the  $\text{SaO}_2$  may be normal despite progressive respiratory failure and a high  $\text{PaCO}_2$ . Hence clinical assessment is most important.

Antibiotics are not recommended unless bacterial super-infection is strongly suspected or the patient is very ill. IV fluids are not necessary except for those unable to drink.