ACUTE RESPIRATORY INFECTION (ARI)

ARI’s account for 5 million deaths per annum worldwide. ARI is the second biggest cause of death in children in South Africa. Cause of death is HYPOXIA.

The reason for this guideline is to help prevent ARI deaths.

Step 1: Make the diagnosis
- Symptoms include: fever, cough, runny nose, fast breathing, grunting, wheezing, and difficulty feeding
- Signs include: pyrexia, tachypnoea, air-trapping, crackles, wheezes, bronchial breathing, recession, and cyanosis (late)

Step 2: Decide on the presence / Absence of Lower Airway Obstruction (LAO)
A child has LAO if the lungs are hyperinflated. Indicators of LAO are:
- Wheeze +/- prolonged, active expiration
- Subcostal recession

Step 3: Assess and grade severity: relate to management options

<table>
<thead>
<tr>
<th>Grade severity</th>
<th>Respiratory rate</th>
<th>Feeding difficulty</th>
<th>Indrawing / Recession</th>
<th>Cyanosis</th>
<th>Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Severe ARI</td>
<td>&gt; normal for age</td>
<td>Present</td>
<td></td>
<td></td>
<td>Immediate oxygen and admission</td>
</tr>
<tr>
<td>Moderate ARI</td>
<td>&gt; normal for age</td>
<td>Absent</td>
<td></td>
<td></td>
<td>Specific home treatment</td>
</tr>
<tr>
<td>Mild ARI</td>
<td>Normal for age</td>
<td>Absent</td>
<td></td>
<td></td>
<td>Symptomatic home treatment only</td>
</tr>
</tbody>
</table>

Step 4: Consider the differential diagnosis
1) Foreign body
2) TB + nodes
3) Acidaemia (especially in diarrhoeal disease)
4) Asthma
5) Pneumothorax
6) Empyema
7) Myocarditis + CCF (ALWAYS feel peripheral pulses in children with severe ARI’s)
8) Croup
9) CNS problems: central AND peripheral

Step 5: Do a chest X-ray
- When the diagnosis of ARI is in doubt (if TB or foreign body is suspected, do AP and lateral views)
- In children who need admission

Then...

Patients needing admission (Severe ARI +/- LAO)

a. Oxygen (humidity is unnecessary!!)
   - Start OXYGEN in OPD/Casualty if the child is cyanosed, distressed or the O2 saturation is <90%
   - NEVER transport a child who NEEDS oxygen without oxygen
   - In the ward, give OXYGEN to all children (until “sats” indicate otherwise) and monitor O2 saturation 2 hourly
   - Use a nasal catheter (FG 8 feeding tube with nostril holes cut and a flow of 2l/min), or a headbox (minimum flow 5l/min), according to oxygen saturation (all children’s wards should have Pulse Oximeters)
b. Bronchodilators

- If LAO is present, give one dose of a nebulised bronchodilator:
  - ≥18 months SALBUTAMOL (Ventze) or FENOTEROL (Berotec) 1ml:1ml saline
  - <18 months IPRATROPIUM (Atrovent) 1ml:1ml saline
- Re-assess after this dose. Continue further nebulisations only if there is a clinical improvement with the first dose. Record whether there has been a response. Continue with β2 stimulant +/- IPRATROPIUM as often as 3 hourly.
- Consider oral SALBUTAMOL as soon as possible (this decreases nursing load AND brings patient closer to discharge)

c. Fluids

- Feed with milk (by N/G tube if necessary) at the usual recommended volume for age. Use EBM in breastfed infants. Preferably feed 3 hourly to avoid gastric distension

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NEVER remove a child from a headbox for feeds
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- If IV fluids are used, no more than 50-60 ml/kg/day should be given as maintenance if the child is NPO. Give less intravenous fluid if the child is getting milk feeds as well

d. Antibiotics

- AMPICILLIN 25mg/kg 6H IV AND
- If <3/12 or immunocompromised, GENTAMICIN 7.5mg/kg 24H IV
- If HIV + and PCP suspected, use IV COTRIMOXAZOLE (see guideline: “HIV Inpatient Care”)
- For IV antibiotics, use a “short line” when possible (i.e. whenever a child is tolerating feeds)

e. Vitamins

- Use high-dose VITAMIN A in all cases of ARI requiring admission (and document on inside cover)
  - < 1 month 50 000U per os today and tomorrow
  - 1 month – 1 year 100 000U per os today and tomorrow
  - > 1 year 200 000U per os today and tomorrow

f. Steroids

- Of no benefit (except possibly in PCP: see guideline: “HIV Inpatient Care”)

g. Physiotherapy

- Is dangerous and contraindicated while children are tachypnoeic

Patients requiring specific home treatment (moderate ARI +/- LAO)

Antibiotics

- AMOXICILLIN:
  - <6 months 62,5mg 8H for 5 days
  - >6 months 125mg 8H for 5 days
- or: COTRIMOXAZOLE
  - < 6 months 2,5ml 12H for 5 days
  - > 6 months 5ml 12H for 5 days

Bronchodilators

If LAO present give SALBUTAMOL 0.15mg/kg 6H for up to two weeks

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It is important to explain to the caregiver that the child should gradually improve but the cough may persist for 2-3 weeks. Give an extra feed a day for a week once the child is recovering (if the child is not obese).
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Patients requiring symptomatic treatment only (mild ARI)

The patient probably has an upper respiratory tract infection.

- PARACETAMOL for fever
- Simple cough remedy (warm black tea, sugar and a squeeze of lemon)
- NORMAL SALINE - 2 drops in each nostril as often as needed (1-6 hourly)

To come back if:

- Difficult feeding and/or difficult breathing
DANGER: there is more than an “ARI” if...there is Failure to Thrive or there is a household TB contact or there is a persistent or chronic cough